

**The Incorporation of Error Detection Methods in
Undergraduate Instrumental Conducting Courses:
A Mixed Method Investigation**

by

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Abstract

Error detection is an important skill for conductors and there have been many studies investigating factors that affect error detection ability. Although error detection method books have been developed, there is little research on the actual incorporation of these methods in conducting courses.

This mixed-method study examined the incorporation of error detection methods in undergraduate instrumental conducting courses, as well as the attitudes of conducting instructors toward error detection skills. The target population was current or former instructors of undergraduate instrumental conducting courses. Phase 1 consisted of an online survey, which was sent out to 961 members of CBDNA (College Band Directors National Association). Seventy-one responses were recorded. For Phase 2, seven open-ended phone interviews were conducted with volunteers from the online surveys.

Results from the surveys and interviews indicated that most instructors believed that error detection ability is an important skill for conductors and should be included in conducting courses. However, only 67.2% ($n=39$) of survey respondents included error detection methods in their courses. The *MLR Instrumental Score Reading Program* by Froseth and Grunow (1979) was the most widely used method book, but the data collected from the written portion of the survey show that the actual incorporation of this method varied greatly.

Data collected from the phone interviews reveal that there are many factors that limit the ability to fully incorporate error detection instruction. The biggest issue is time. Based on

the experiences of the participants, undergraduate conducting courses are typically designed as 2-hour credit courses and these instructors have trouble fitting aural skills development into their course design. These participants also described the need for more options in error detection methods.

Implications for this study include the need for further research into the incorporation of error detection methods in conducting courses. There is a need to investigate the justification for modifying current degree programs to include required advanced conducting courses, which would allow for more in-depth training in areas such as aural skills. Also, data from these discussions show that a major concern among conducting instructors is the confidence levels held by their students regarding aural ability, particularly when they reach their first year of teaching or internship. There is room for research into the self-assurance of young conductors and factors that may affect confidence levels. Finally, there is a calling for the development of a more practical error detection methods program that can be easily and effectively implemented into undergraduate instrumental conducting courses.

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Chapter I

Introduction

Purpose Statement

Critically listening to a musical ensemble is one of the most important roles of a conductor. This involves correctly identifying errors and finding a way to address those issues efficiently. Due to the atmosphere of constant distractions found in middle or high school band rehearsals, this responsibility is a secondary priority. Maintaining good classroom management is an ongoing concern for many directors. Much of their time is spent addressing discipline, answering the phone, and dealing with any number of other distractions that can detract from musical instruction. Many young directors feel unprepared or need improvement in critical listening and error detection.

In this study, error detection will be defined as the conductor's ability to detect performance errors in a rehearsal setting. Stuart (1979) suggested that "error detection is not an isolated visual or aural process" (p. 14) but requires aptitude and a balance of attention to both.

It is widely agreed that error detection is an important skill for conductors (Byo, 1997; DeCarbo, 1982; Doane, 1989; Forsythe & Woods, 1983; Grunow, 1980; Hochkeppel, 1993; Ramsey, 1978; Sheldon, 1998; Taebel, 1980). Identifying and correcting performance errors should be a main goal of all conductors. However, many directors still find difficulty in making this activity a point of focus in daily rehearsal routines, therefore allowing errors to persist. At

first thought, the process of error detection seems like an inherent and on-going activity. Wrong notes and rhythms, for example, are quickly identified and corrected by directors throughout the rehearsal. However, there are still errors that persist. Cavitt (2003) acknowledged this problem and suggested that “how teachers deal with inevitable errors in student performance is one of the fundamental components of teaching expertise” (p. 218). Rhythm and pitch errors are easily identified, but other error types, such as phrasing, balance, and intonation can easily go unnoticed. Some errors may exist outside the director’s comfort zone, such as an atonal or rhythmically-complex setting, making them difficult to decipher. Often times these performance issues are only noticed by an outside source, such as a guest observer or by reviewing a recording of the rehearsal.

There is a great deal of research about which factors affect error detection ability (Byo, 1993; Byo, 1997; Groulx, 2013; Sheldon, 2004; Stuart, 1979; Waggoner, 2011). However, there is a large gap in the literature on the topic of error detection training for conductors and which methods or techniques have been most successful. Most music majors receive ear training at some point during their programs of study, such as melodic and rhythmic dictation in music theory courses. But when skills classes are the extent of ear training instruction, the ability to critically listen and correct mistakes from the podium while reading a score is underdeveloped. Costanza (1971), on the topic of ear-training and sight-singing courses, recognized that “the content and effectiveness of such courses have been challenged regarding their adequacy in developing these skills” (p. 453). Today, some degree programs include error detection as a part of upper-level or graduate conducting courses and there are a number of method series available (Froseth & Grunow, 1979; Spradling, 2010).

The purpose of this study was to examine the incorporation of error detection methods in undergraduate instrumental conducting courses. The target population was current or former instructors of undergraduate instrumental conducting courses. This study utilized a mixed-methods approach and data were collected in two phases. First, an invitation to complete an online survey was sent to members of the College Band Directors National Association (CBDNA). This survey asked participants to provide a description of their feelings and experiences toward the incorporation of error detection methods in instrumental conducting courses utilizing a variety of question types. Survey respondents were given the option of volunteering to participate in a phone interview for the second phase of the study. The phone interviews were conducted in an open-ended format and sought more detailed descriptions of the experiences of conducting instructors.

Research Questions

The following research questions were addressed:

- What role does error detection skill have in undergraduate/graduate instrumental conducting courses?
- What are the attitudes of conducting instructors regarding the importance of teaching error detection?
- What error detection methods or techniques are being used in undergraduate/graduate instrumental conducting courses?
- What are the implications for further research?

Significance

The results of this study could enable music educators to make data-driven decisions regarding the use of error detection in their undergraduate instrumental conducting courses and determine whether or not current methods are optimal for preparing future conductors to critically evaluate their ensembles using aural skills. Overall, it will initiate the conversation between conducting instructors about incorporating error detection methods in undergraduate conducting courses.

There is a gap in the literature about specific error detection methods and the incorporation of those methods into conducting courses. The results of this study may ultimately help the profession by providing information on specific practices to college instructors, higher education administrators, and undergraduate and graduate music education students. The recommendations made at the end of this report could lead to the modification of conducting course design and/or music major course curriculum.

Assumptions

The following assumptions were made for this study:

- Error detection is a necessary skill for conductors.
- Conducting instructors concur that error detection is an important and valuable skill to teach conducting students
- The methods used and the extent of focus on error detection vary between institutions and situations.
- Instructors will be willing to participate in the survey and will provide accurate feedback on their experiences.

- Instructors will be willing to participate in an interview to describe their experiences in more detail.

Limitations

Email invitations were sent out through a list serve function of the College Band Directors National Association (CBDNA). At the time of the invitation, 961 CBDNA members were subscribed to that particular list serve. However, it is unlikely that all 961 email recipients fit the description of *current of former instructors of undergraduate instrumental conducting courses*. Since the number of individuals in the target population is unknown, any response rate reporting is unlikely to be an accurate reflection of the ratio of sample to target population. It is also impossible to calculate a confidence interval.

Delimitations

It was determined that maintaining confidentiality was important for this study. Steps were taken to allow survey responses to remain anonymous and no identifying information was collected. Furthermore, the identities of the interview participants were kept confidential and no identifying data was reported. This presented the delimitation of not being able to report data as representing a diverse population. CBDNA was chosen as the target group because it is a national organization that is not limited to a single geographical region.

Because the project focused on instrumental wind conducting methods and techniques, the results may not be highly generalizable to instructors of choral or orchestral conducting courses.

Chapter II

Review of the Literature

The development of aural skills is an important part of music education on all levels, including private instruction, high school choir and band, and college-level music education courses. The instrumental music conductor has an important role in assessing and correcting student performance errors and “must be an astute listener in the rehearsal process” (Colson, p.66). Utilizing error detection ability allows the conductor to affect a positive impact on student performance, which is a major goal in music rehearsals (Cavitt, 2003). In many situations, the band director is the sole set of ears, particularly in a small program, placing even greater importance on his or her aural abilities. While aural skills are an important trait among music educators, the practice of utilizing these skills during rehearsal is sometimes overlooked. “Even though the minimization of errors is probably a goal of most teachers, errors persist” (Cavitt, p. 218).

Factors Related to Error Detection Ability

Research shows that many different factors may be related to error detection ability. The results of these various studies, while mixed, agree with a conclusion reached by Byo (1993), who found that “the process of underlying detection of performance errors involves many variables that seem to interact in ways that make the development of skill in error detection a highly complex endeavor” (p. 164). The conclusions made by the following researchers have led to the adaptation and development of error detection methods.

Listening Conditions

The conditions of the listening activity can affect the efficiency and accuracy of aural critique. Groulx (2013) found that “tonal context had a significant effect on a listener’s ability to detect errors” (p. 240). Conductors are comfortable identifying incorrect pitches within a normal tonal setting, but any notes that leave the framework of the melody or harmonic basis can be more difficult to distinguish.

The conducting setting can greatly affect the conductor’s error detection accuracy. Waggoner’s (2011) participants were more successful in detecting errors when listening to a recording than from the podium. This supports the importance of recording and reviewing rehearsals to pinpoint errors that may have been missed while conducting.

Other researchers have found correlations between the type of error and error detection efficiency, concluding that rhythm errors are identified more easily and often than pitch errors (Byo, 1993; Byo, 1997; Crowe, 1996; Mount, 1982; Sheldon, 1998).

Score Study

Detailed score study gives the conductor a more thorough understanding of the literature and can have a positive effect on the ability to detect errors (Grunow, 1980). Crowe (1996) recommended investigating “the comparative effectiveness of various score study styles as instructional materials” (p. 169).

Skills and Experience Level

As in other areas of music education, outside skills and experience level can greatly affect the error detection abilities of conductors. In an early study, Brand and Burnsed (1981) concluded that “the ability to detect music errors in instrumental performance may exist

independently of other music abilities and may not be acquired along with the development of other skills” (p. 95). Other studies were able to find specific correlations. Larson (1977) conducted a study that evaluated and compared undergraduate music majors’ abilities in melodic error detection, melodic dictation, and melodic sight-singing. A significant relationship was found between error detection and dictation scores. Conducting experience can have also a major impact on error detection ability (DeCarbo, 1982). Sight-singing ability was found to have meaningful correlation with scores on error detection exercises (Killian, 1991). Kostka (2000) found that “error detection practice may result in overall improved sight-reading achievement on the keyboard” (p. 120) among undergraduate music majors.

Doerksen (1999) found a significant difference between the aural-diagnostic and prescriptive approaches of select preservice and experienced teachers when comparing their evaluations of band performances. The conclusion can be drawn that providing undergraduate students with more teaching/conducting experiences in a real setting can be beneficial to developing aural skills.

The Importance of Aural Skills Among Music Educators and Conductors

It is widely agreed that error detection is an important skill for conductors (Byo, 1997; DeCarbo, 1982; Doane, 1989; Forsythe & Woods, 1983; Grunow, 1980; Hochkeppel, 1993; Ramsey, 1978; Sheldon, 1998; Taebel, 1980). Proficiency in error detection is imperative for a director to be able to assess a musical performance (Sheldon, 2004). An efficient and effective rehearsal, as well as a musically expressive performance, may be dependent upon the music teacher’s error detection ability, in both speed and accuracy (Crowe, 1996). “Error correction

involves knowing what, when, and how to bring about positive changes in student performance” (Cavitt, 2003, p. 219).

Music educators are concerned with encouraging student growth, not just in individual skills, but in overall musicality. Green (2008) made the case for the development of what she calls *critical musicality*, which is a level of musical expression and personal awareness among students. A mature, aural-musical understanding is involved in this ability. Green suggests that “through informal, aural learning involving their own choice of music, pupils seem to be in a better position to make more informed judgements about the quality of performances, of compositional input and of musical products themselves” (p. 84).

In his reflection on the National Standards for Music Education, Reimer (2000) famously advocated for *performing with understanding*. Understanding, as it turns out, is very complex and involves a combination of achievement in physical performance, reading ability, and a thorough knowledge of elemental factors of a particular piece of music. The burden of achieving this multi-faceted understanding is placed on the teacher. Reimer submits that “performance teachers must be able to help their students internalize musical models – inner representations of appropriate musical expression – which form the basis for independent artistic decisions carried out in acts of performance” (p. 17).

According to the Comprehensive Musicianship Approach, lesson plans should be created with five basic points in mind: Analysis, Outcomes, Strategies, Assessment, and Music Selection (O’Toole, 2003). The goal of this approach is to guide students in achieving a greater understanding of the music being performed. This method of teaching *comprehensive*

musicianship has many benefits for educators as well, all pointing to and meeting the National Standards of Education.

Thoughts from Classroom Teachers on Error Detection Ability

As aural skills are developed, teachers in the field are left with feelings about the real and practical significance of these skills. These thoughts can lead to the refinement of programmed materials in college music education courses as educators seek to determine which skills are most useful in a classroom setting.

Taebel (1980) surveyed 201 elementary classroom music teachers about 120 different teaching competencies. Results showed that teachers placed high value on aural skills ability. Taebel pointed out that his findings “parallel Stegall’s et al. findings that college teachers also rated the ability to detect errors very highly” (p. 188).

Putting Error Detection Abilities into Practice

In a study that measured the skill level of students who had received error detection instruction compared to students who had not, Stuart (1978) recommended that the training of error detection skills should be approached as a two-fold process. Specific aural-visual stimuli should be focused in conjunction with live conducting participation in front of an ensemble. DeCarbo (1982) agreed, implying that the primary way to advance error detection skills is for pre-service music educators to practice on a podium in front of an ensemble. DeCarbo also found that success in programmed instruction does not transfer to error detection ability in front of a live ensemble.

In a survey completed by 173 undergraduate conductors, Silvey (2011) found that students were least confident with error detection and correction when conducting or

rehearsing an ensemble. Undergraduate conducting courses have a great opportunity to provide podium time to student conductors and to combine conducting practice with aural skill development, which would provide valuable and relevant experience.

It is important for educators to evaluate their method of identifying and correcting errors during a rehearsal. Cavitt (2003) conducted a study that investigated the process of error correction in instrumental music rehearsals. She yielded some insightful data by analyzing 40 rehearsals from 10 different programs. For instance, across all rehearsals, “teachers used twice as much negative feedback (1.22 comments per minute) as positive feedback (.59 per minute)” (p. 223). Cavitt found that addressing errors takes up a large part of rehearsal time (about 49% in this study) when refining music performance was the primary focus of the rehearsal. She was also able to conclude that the directors interacted with errors differently, depending on the type of error occurring.

Programmed Instruction

Error detection ability is a vital skill for conductors and should be a goal in instrumental conducting courses (Acklin, 2009; Boardman, 2000; Brand & Burnsed, 1981; Cavitt, 2003; Colson, 2012; Gavin, 2012; Groulx, 2013; Kroner, 2012). Researchers have developed programmed materials to assist in the study of aural skills development. Using programmed materials “offers teachers materials that they could not provide themselves because of the magnitude of the task of identifying and recording musical examples with instrumental ensembles” (Costanza, p. 459). The principles and advantages of programmed instruction should be spread to other aspects of aural training. Although some of the technologies described in this section are probably now obsolete, it is important to point out that educators

have utilized current technology in aural skills research and education spanning back several decades.

Tremendous benefit can be found in the utilization of drill material to improve score-reading and error detection skill. In his study, Sidwell (1971) found success in his development of self-instructional drill material aimed at the improvement of score reading. Further research was recommended by Sidwell, who stated, “The mental process of error detection should be identified, clearing the way for more logically based studies of how musicians deal with the discovery and identification of musical errors” (p. 91). In a similar study, Collings (1973) investigated the effectiveness of specific training strategies on the ability to detect pitch errors while reading from multi-voiced brass scores. The results of a score reading test found significant improvement in some subjects.

Error detection skill can be effectively tested and improved through the use of full-score band literature. The *Program in Error Detection* (PED) and *Test in Error Detection* (TIED) were developed to test and develop college music students’ abilities at identifying pitch and rhythm error detection in full band literature. Significant gains were tracked, and the author was able to conclude that progress was found regardless of the length of the program completed by each student (Ramsey, 1979).

Computer-assisted instruction has produced positive improvement in error detection skill. The *Computer-Assisted Program in Error Detection* (CA-PED) is an interactive computer program that tests aural skills through the use of examples of known band literature. It was found to be just as effective as Ramsey’s PED and, because of the sophistication of the

technology, features several advantages, such as immediate feedback, the ability to track student progress, and being relatively inexpensive (Deal, 1985).

Doane (1989) developed an instructional error detection program, which used a variety of musical selections from wind literature. He tested the program's effectiveness against a preexisting error detection method (*MLR Instrumental Score Reading Program*) and found that the results from both programs were comparatively significant. One of his conclusions was that aural skills found in conductors seem to be developed independently from skills taught in other traditional skills courses.

The *Instrumental Music Error Detection Test* (IMEDT) was invented to test identification of pitch, rhythm, and articulation errors. Pitch, rhythm, and articulation errors were inserted into excerpts from grade three band literature and were recorded with full instrumentation, first as written and then with the inserted errors. The data revealed that the test was both reliable and consistent (Kroner, 2012).

Orman, Price, and Russell (2017) implemented a Virtual Reality Learning Environment in an attempt to enhance the basic conducting skills of young conductors. They were able to report a positive correlation between the improvement in certain areas of conducting with the use of the Virtual Reality tool. As part of their implications for further research, they suggested that an educator should ask three basic questions before deciding to implement new technology into their course:

First, does the technology do something that I am not capable of doing without the technology? Second, does the technology allow me to complete the task easier, faster, and with the same or greater accuracy? Third, is it feasible to implement the

technology? If the answer to all three of these questions is yes, then one should feel confident implementing the technology (p. 33).

Error Detection Methods

Published programmed instruction materials that evaluate and assist in developing error detection skills are available for undergraduate and graduate conducting courses. The *MLR Instrumental Score Reading Program* provides recordings of multi-part excerpts with pitch, rhythm, articulation, and style errors inserted. The course, which provides a student workbook, is designed to increase in difficulty with the addition of multiple voice parts (Froseth & Gurnow, 1979).

Error Detection: Exercises for the Instrumental Conductor also uses excerpts from standard band literature and includes transposable parts so that it can be used live in a conducting course setting. The advantage here is that the students are testing their aural ability from the role of a conductor in front of a live ensemble (Spradling, 2010).

Results from research into error detection have led to the development of methods such as the ones listed here. However, as Hodges and Nolker (2011) suggested, “such programs should be integrated into podium-based conducting experiences” (p. 79).

Survey of Instrumental Conducting Courses

It is vital to understand what topics are covered in instrumental conducting courses in order to assess whether conductors are being properly trained and prepared to stand behind the podium in a professional setting. Boardman (2000) found that over 25% of instrumental conducting courses in a Southeast region of NASM did not include error detection methods in their curriculum, while only 10% included it as part of assessment for the course. The results of

her study indicated that “teachers need to reconsider what they are teaching in the instrumental conducting course” (p. 86). A more focused study that looks at exact methods of error detection education in these courses is needed.

Gaps in the Literature

A gap in the literature exists in the area of what personal characteristics may have an effect on error detection ability. Researchers should further explore what experiences and backgrounds impact error detection ability (Kroner, 2012). The frequency and method of error detection instruction in undergraduate conducting classes may be greatly related to the competencies of educators, placing great importance on the use of aural skills in a conducting course.

The largest gap in the literature appears to be a lack of understanding about what specific methods are most used in teaching error detection skills to instrumental education majors, and which methods prove to be most effective. Instructors sometimes customize the methods they use to fit their individual class goals and teaching styles. Often times, aural skills are excluded completely from conducting courses and are only included in theory or ear training courses. In these situations, the element of conducting while critically listening is lost, therefore not giving students adequate preparation to be active listeners from the podium.

Chapter III

Methods

Error detection ability is widely agreed upon as a significant skill among conductors (Byo, 1997; DeCarbo, 1982; Doane, 1989; Forsythe & Woods, 1983; Grunow, 1980; Hochkeppel, 1993; Ramsey, 1978; Sheldon, 1998; Taebel, 1980). However, little research exists on how error detection education is incorporated into undergraduate instrumental conducting courses. Topics of particular interest are the method books used in these courses, the techniques that are used to teach error detection skills, the prevalence of live-group conducting while practicing error detection, and the overall attitudes of conducting instructors regarding the importance of teaching error detection.

Research Design

This study utilized a mixed-method approach. Hurmerinta-Peltomaki and Nummela (2006) looked at the value of a mixed methods approach and found that validity could be added to the findings, as well a growth in the overall knowledge of a research topic. It was determined by the researcher that both quantitative data representing the population, and qualitative data from individual voices and perspectives would most benefit to the understanding of the incorporation of error detection methods in conducting courses. In *convergent mixed methods design*, as described by Creswell and Creswell (2018), the researcher “collects both quantitative

and qualitative data, analyzes them separately, and then compares the results to see if the findings confirm or disconfirm each other” (p. 217). This type of design encourages the researcher to focus both phases of data collection using the same concepts or constructs. The survey and interview protocols were both designed to address the established research questions.

Phase 1 – Online Survey

Phase 1 of the study collected quantitative data through an online survey emailed to instrumental conducting instructors. Participants were asked to reflect and report on their experiences as conducting instructors through short answer and Likert Scale questions. The survey was inspired by Boardman’s (2000) study, in which she obtained a broad evaluation of instrumental conducting courses through a 35-question survey.

Phase 2 – Phone Interviews

During Phase 2 of the study, Qualitative data were collected through phone interviews with survey participants who agreed to take part in an open-ended discussion. These participants were asked to give detailed descriptions about their feelings toward error detection skills among conductors, inclusion of error detection instruction in their courses, their chosen method of instruction, including required or supplemental texts, and whether or not students participate in live conducting while practicing aural skills. Because the survey data from Phase 1 were recorded anonymously, the participants’ interview responses were not connected to original survey responses.

Anonymity and Confidentiality

No identifying data were collected in the online survey to ensure anonymity for participants. An *Information Letter* (Appendix A) was provided at the beginning of the survey explaining this. Volunteers for the phone interviews completed an *Informed Consent Form* (Appendix B). Although identifying information was shared during the interviews, the identities of the participants were kept confidential in the reports and discussion of the findings. Interview Participants were also asked to complete an *Audio Release Form* to allow the interviews to be recorded for transcription (Appendix C).

Population and Sample

The target population for this project was current or former instructors of undergraduate instrumental conducting courses. The goal of the sampling method was to obtain a sample of participants that represent a wide range of characteristics of instrumental conducting instructors, including school type, program size, and years of experience.

The *College Band Directors National Association* (CBDNA) is an organization that consists of musicians, teachers, conductors, students, and scholars of college wind band with thousands of members from across the United States. The Statement of Purpose from the CBDNA website reads:

The members of the College Band Directors National Association are devoted to the teaching, performance, study and cultivation of music, with particular focus on the wind band medium. CBDNA is an inclusive organization whose members are engaged in continuous dialogue encompassing myriad philosophies and

professional practices. CBDNA is committed to serving as a dynamic hub connecting individuals to communities, ideas and resources (www.cbdna.org).

Active members of CBDNA have access to a list serve email system that is used as a communication tool between members. Common topics discussed via this format include educational and pedagogical issues, band program design and administration, concert programming, requests for help attaining missing parts/scores, and recruitment in research activities. The list serve function is divided into subscription categories to allow members to control the subject matter of the list serve emails they receive. Those categories are:

- Athletic Bands
- Band Music Education
- Conducting Pedagogy
- Contemplating Our Future (New Ideas)
- Gender/Ethnicity Issues
- Performance Materials and Concerns
- Research
- Small College Issues
- State Chairs
- Two Year/Community College Issues

CBDNA members may choose to subscribe to any or all of these categories, depending on their particular interests. The researcher used the “Conducting Pedagogy” CBDNA list serve category as his recruitment tool. A total of 961 CBDNA members were

subscribed to this category of the list serve at the time the invitation was sent. It is presumed that not all subscribers to this list serve fit the description of being a *current or former instructor of undergraduate instrumental conducting*, so an exact number of target participants who received the invitation is impossible to report.

Instrumentation

Phase 1 – Online Survey

Boardman (2000) developed an “Instrumental Conducting Survey” to conduct a comprehensive analysis of conducting courses in a Southeast region of the National Association of Schools of Music. Her survey was used as a model for the development of this survey instrument, which has a narrower focus. The online survey tool, Qualtrics, was utilized for survey construction and distribution. See Appendix D a copy of the survey tool.

The first section of the survey included multiple choice and fill-in-the-blank questions. Participants were asked to provide their current title and the number of times they had taught an undergraduate instrumental conducting course. They were then asked for information about their institution’s semester system, how often and for how long the course meets, and descriptive information about the school of music. Next, the survey participants were asked a series of questions regarding the inclusion of error detection in the course and their use of a method book. These questions were:

- Do you include error detection instruction in your course?
- If no, are error detection skills included in another course? Name the course.
- Do you use a method book to teach error detection skills?

- If yes, list the name and author of the method.
- Are you satisfied with the quality of the method book?
- Please describe any modifications you make when utilizing the method book.

The following two sections collected data via a Likert Scale questionnaire. First, the participants were asked approximately how many times students had access to the following activities in their instrumental conducting course (never, once per course, 2-3 times, weekly, or daily):

- Identifying errors in an audio recording while looking at a score.
- Identifying errors in an audio recording while conducting from a score.
- Identifying errors in a video performance while looking at a score.
- Identifying errors in a video performance while conducting from a score.
- Identifying errors in live performance while looking at score.
- Identifying errors in live performance while conducting from a score.
- Conducting a large ensemble.
- Rehearsing a large ensemble.
- Using a piano to perform score reductions or multi-part exercises.
- Singing parts of the score by class members.
- Conducting and singing of parts of score by the student conductor.
- Preparing a work for public performance.
- Learning score study techniques

Next, participants were asked to rate their agreement with the following statements regarding their feelings on error detection (strongly disagree, disagree, neutral, agree, strongly agree):

- Error detection is an important skill for conductors.
- Error detection is an important component of instrumental conducting courses.
- I feel confident in my ability to teach error detection skills.
- I am interested in learning new strategies in teaching error detection skills.
- I feel like my students improve in the error detection abilities when taking my course.

Phase II – Phone Interviews

Survey participants were given the option of volunteering for a follow-up phone interview. The goal of these interviews was to gain rich qualitative data on the inclusion of error detection activities in undergraduate instrumental conducting courses, as well as the participants' feelings towards error detection ability in conductors. An open-ended design was selected to allow the participants to elaborate on a topic or move into new topics if needed (Appendix E). The following questions served as the outline for the interview protocol:

- Do you believe that error detection is an essential skill among instrumental conductors?
- Was error detection included in your instrumental conducting course as an undergraduate or graduate student?

- Do you believe that instrumental conducting courses should include error detection methods?
- Did/do you incorporate error detection methods into your instrumental conducting course as an instructor?
- Describe your satisfaction with student progress in error detection with the methods you incorporated.

Procedure

Pilot Study

The researcher received approval from the Institutional Review Board (IRB) on March 26, 2018. A pilot version of the Phase 1 survey was created to test the functionality of the instrument and to attain general feedback on the survey design. The researcher recruited 10 participants for the pilot study. These individuals included fellow graduate students or other music educators who did not fit the description of being “instructors of undergraduate instrumental conducting courses,” but who had relevant knowledge and experience to provide valuable insight into the study. These participants were sent a link to a pilot version of the survey, which included all the content intended for the official survey. The pilot participants were asked to provide feedback on the functionality and navigation of the online instrument, the wording of specific questions, and recommendations for additions to or subtractions from the survey.

The pilot study indicated strong face validity. All participants were able to access the survey through the link provided and had no problems navigating the website.

Multiple participants recommended adding a question on the use of *score study instruction* in conducting classes. The researcher decided to modify the final survey with that addition (Appendix D). A final version of the survey instrument was created after all the pilot survey responses were recorded.

Phase 1 – Online Survey

An official invitation to participate in the study was emailed through the “Conducting Pedagogy” category of the CBDNA list serve. The email invitation included information about the research topic and design, a description of the methods taken to ensure confidentiality, instructions on volunteering for the interview phase of the study, and a link to the online survey. The invitations were sent out during the first week of May in hopes of arriving to instructors as they were ending their spring semesters and reflecting on their teaching over the past year. A due-date for final submission was not determined.

Seventy-one survey submissions were received over a two-month span of time. It was determined that a second round of survey invitations was not necessary.

Participants who followed the survey link in the invitation email were first taken to the *Information Letter*, which included information regarding the research topic and design, data collection methods, possible risks or discomforts to participants, benefits from the study, procedures for protecting anonymity, and contact information for the researcher. The final submission screen of the survey confirmed that the responses had been recorded and provided a link to sign up for the voluntary phone interview.

Participants who did not wish to participate in the phone interview were instructed to close their browser window.

Phase 2 – Phone Interview

Survey participants were given the option of volunteering for the interview portion at the end of the survey. A link was created that directed participants to a new online form and was not connected to their anonymous survey data. This screen provided a description of the interview process and an explanation of the method for maintaining confidentiality during the interview portion of the study. They were then given the option of filling out the form, which asked for their full name, university/institution, email address, and phone number.

Ten survey participants indicated interest in taking part in the phone interview and were contacted via email within a week of completing the form to schedule the interview. The contact email thanked the participants for volunteering for the interview portion and asked them to provide a few 1-hour blocks of time as options for conducting the phone interview. The researcher also attached the Interview Consent and Audio Release forms to the email and asked participants to print, sign, and mail to the researcher. Seven participants responded to the email and scheduled phone interviews with the researcher.

The phone interviews were recorded using a digital audio recorder in the researcher's office. The interviewer began by asking if the participant had received the Consent form and if he/she had any questions regarding the research procedure. The participants were then asked broad, open-ended questions regarding the experiences

and philosophies on the inclusion of error detection methods in the instrumental conducting courses. The entire interview was audio-recorded, and the researcher took notes by hand to keep an overall outline and to track the direction of the conversation for follow-up questions. Each interview lasted between 30 minutes and 1 hour.

Data Analysis

Phenomenology

Phenomenology focuses on the meaning found in the experiences of participants of a particular concept or phenomenon (Creswell, 2007). One goal is to find common meaning between the experiences of all participants. The benefit of this type of research is that it provides a deep understanding of a phenomenon that can be valuable to other groups. This approach matches the researcher's goal to share the participants' experiences with other music educators.

Phase 1 – Online Survey

Data in the online survey were collected in the form of short-answer and Likert Scale questions. The quantitative data from the Likert Scale questions was tested with descriptive statistics, including mean, standard deviation, and frequency distributions for each response. Those results are reported and discussed in Chapters 4 and 5. The short-answer responses were recorded and their connection to the interview data is also described in the Results and Discussion chapters.

Phase 2 – Phone Interviews

Qualitative data were collected during the phone interviews. The researcher transcribed each interview verbatim. An iterative approach was used. This consisted

of reading and re-reading each transcript several times until the researcher felt a sense of immersion in the data. Notes were kept in the margins of the transcripts to form initial codes. As the researcher gained a fuller understanding of the essence of each interview, important phrases and key words were highlighted as “codes” and tabulated in a code list using Microsoft Excel. Charmaz (2006) describes these emerging codes as “significant statements” and emphasizes the importance of recording the context of each statement during transcript analysis. Overall themes that encompass the codes began to emerge as the list grew. The researcher recorded these themes as part of his memo-taking. The term *theme* can have multiple meanings in qualitative analysis. Baxter (1991) describes themes as units of meaning that recur across multiple domains. Graneheim and Lundman (2004) define themes as “words, sentences or paragraphs containing aspects related to each other through their content and context” (p. 106).

Six themes were noticed as being evident among all seven interviews and a final theme list was drafted (Appendix F). Categories were created within each theme to organize the codes. Table 1 shows the hierarchy of the themes, categories, and codes.

Table 1: Hierarchy of themes, categories, and codes

Theme					
Category		Category		Category	
Code	Code	Code	Code	Code	Code

The researcher read through the code lists from each interview transcript and assigned categories/themes to significant codes. The final themes were:

- Personal Concerns about Error Detection

- Feelings about the Importance of Error Detection Skills
- Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
- Activities Incorporated in Conducting Classes
- Qualities of a Conductor
- Instructors' Desires to Expand the Teaching of E.D.

These themes formed an understanding of the participants' experiences with error detection methods in conducting courses. A discussion of these findings is found in Chapters 4 and 5.

Validity and Reliability

A literature review was conducted as part of this project to gain a full understanding of all topics related to error detection methods and beliefs among instrumental conducting instructors.

Content validity was addressed by making sure that all content from the literature was covered in the survey questions. Construct validity was examined by analyzing the internal structure of the survey through comparing relationships between responses to similar items. The first draft of the survey was submitted to a faculty panel for critique, review, and suggestions. To determine face validity of the research questions, a pilot survey was conducted with graduate students and colleagues before a final version of the survey was created. The results of that pilot study are discussed in Chapter 4.

Copies of the interview code lists and their assigned themes/categories are included in this report to provide rigor to the qualitative data. See Appendix G for the code list sorted by Participant and Appendix H for the code list sorted by theme.

Chapter IV

Results

There is little research on the incorporation of error detection methods in instrumental undergraduate courses. A two-phased study was carried out utilizing a mixed-method approach. Quantitative data were collected via an online survey. Follow-up phone interviews provided qualitative data.

Phase 1 – Online Survey

An invitation to participate in the online survey was sent out through the “Conducting Pedagogy” category of the College Band Directors National Association (CBDNA) list serve. At the time that the survey invitations were sent, 961 CBDNA members were subscribed to the “Conducting Pedagogy” list serve category. Seventy-one submissions were recorded over 2 months with a response rate of 7.38%. However, it is reasonable to assume that not all of the 961 CBDNA members subscribed to this list serve category fit the description of being *current or former instructors of undergraduate instrumental conducting courses*, so this response rate is most likely to be an inaccurate reflection of the actual sample and population ratio.

The first portion of the survey gathered descriptive information about the participants’ conducting courses. Fifty-seven participants responded to the question, “How many semesters does your course last?” The number of semesters ranged from 1 to 4, with 68.4% ($n=39$) of instructors indicated that their undergraduate conducting course last for one semester. (See Table 2).

Table 2: How many semesters does your course last?

Number of semesters	Frequency	Percent
1	39	68.4
2	17	29.8
4	1	1.8
Total	57	100.0

Participants were asked how many times their class meets per week. The most common class meeting frequency was “twice per week,” with a 66.7% ($n=38$) response.

Table 3: How many times does your class meet each week?

Meetings per week	Frequency	Percent
1	1	1.8
2	38	66.7
3	18	31.6
Total	57	100.0

A majority of participants ($n=37$) indicated that their undergraduate instrumental conducting class meetings last 50 minutes. The rest of the responses ranged from 40 minutes to 115 minutes (Table 4).

Table 4 - How many minutes does one class meeting last?

Minutes per class	Frequency	Percent
40	1	1.8
50	37	64.9
55	4	7.0
60	1	1.8
75	6	10.5
80	5	8.8
90	1	1.8
100	1	1.8
115	1	1.8
Total	57	100.0

Research Question 1: What role does error detection skill have in undergraduate instrumental conducting courses?

Out of 58 responses, 67.2% ($n=39$) indicated that they do include error detection instruction in their undergraduate instrumental conducting courses (Table 5).

Table 5: Do you include error detection instruction in your course?

Error Detection?	N	%
Yes	39	67.2
No	19	32.8
Total	58	100.0

Thirty-five participants responded to the question, “Do you use a method book to teach error detection skills,” with 45.7% ($n=16$), indicating that they do use a method book (Table 6).

Table 6: Do you use a method book to teach error detection skills?

Method Book?	N	%
Yes	16	45.7
No	19	54.3
Total	35	100.0

Survey participants were given the option to provide the name/author of the error detection method book they incorporate in their conducting courses. Responses included:

- *MLR Instrumental Score Reading Program* by Froseth and Grunow
- *Error Detection: Exercises for the Instrumental Conductor* by Spradling
- *Teaching Music through Performance in Band* from Gia Publications, Inc.
- *A Vision for Conducting, Leadership, and Teaching* by Brian Norcross
- *Guide to Score Study for the Wind Band Conductor* by Battisti and Garofalo.

A breakdown of the frequency of each method book mentioned is found in Table 7.

Table 7: Please list the name/author of the method book.

Method Book	Frequency	Percent
MLR (Froseth and Grunow)	9	50.0
Error Detection (Spradling)	6	33.3
Teaching Music through Performance (GIA)	1	5.6
A Vision for Conducting (Norcross)	1	5.6
Guide to Score Study (Battisti and Garofalo)	1	5.6
Total	18	100.0

Research Question 2: What are the attitudes of conducting instructors regarding the importance of teaching error detection?

Forty-nine survey participants rated their agreement with 5 statements regarding their feelings towards the incorporation of error detection methods in undergraduate instrumental conducting courses via a 5-point Likert scale. The scale’s range was: 1 – strongly disagree, 2 – disagree, 3 – neutral, 4 – agree, and 5 – strongly agree. The 5 statements were:

- Error detection is an important skill for conductors.
- Error detection is an important component of undergraduate instrumental conducting courses.
- I feel confident in my ability to teach error detection skills.
- I am interested in learning new strategies in teaching error detection skills.
- I feel like my students improve in their error detection abilities when taking my course.

“Error detection is an important skill for conductors” showed the most agreement with a mean of 4.92. The lowest level of agreement was seen in the response to the statement, “I feel like my students improve in their error detection abilities when taking my course” with a mean of 4.24 (Table 8). See Table 9 for a frequency breakdown of statement ratings.

Table 8: Rate your agreement with the following statements.

Statement	Min.	Max.	Mean	S.D.
Error detection is an important skill for conductors.	4	5	4.92	.277
Error detection is an important component of undergraduate instrumental conducting courses.	1	5	4.35	.925
I feel confident in my ability to teach error detection skills.	2	5	4.31	.713
I am interested in learning new strategies in teaching error detection skills.	1	5	4.39	.931
I feel like my students improve in their error detection abilities when taking my course.	1	5	4.24	.969

Table 9: Frequency breakdown of statement ratings

Error detection is an important skill for conductors.		
Rating	Frequency	Percent
4	4	8.2
5	45	91.8
Error detection is an important component of undergraduate instrumental conducting courses.		
Rating	Frequency	Percent
1	1	2.0
2	1	2.0
3	6	12.2
4	13	26.5
5	28	57.1
I feel confident in my ability to teach error detection skills.		
Rating	Frequency	Percent
2	1	2.0
3	4	8.2
4	23	46.9
5	21	42.9
I am interested in learning new strategies in teaching error detection skills.		
Rating	Frequency	Percent
1	1	2.0

2	2	4.1
3	3	6.1
4	14	28.6
5	29	59.2
I feel like my students improve in their error detection abilities when taking my course.		
Rating	Frequency	Percent
1	1	2.0
2	2	4.1
3	6	12.2
4	15	30.6
5	25	51.0

Research Question 3: What error detection methods or techniques are being used in undergraduate instrumental conducting courses?

Eighteen survey participants described their satisfaction with their error detection method book using a 4-point Likert scale. Participants were also given the opportunity to leave comments describing their satisfaction. 55.6% ($n=10$) said they were very satisfied with their method book, 38.9% ($n=7$) were somewhat satisfied, and 5.6% ($n=1$) said they were somewhat dissatisfied with their method book. Table 10 contains a breakdown of the satisfaction for each method book mentioned in the surveys as well as a compilation of submitted comments.

Table 10: Breakdown of method book satisfaction with written comments

Text	N	Mean	SD
MLR	9	3.22	0.67
MLR Comments:			
<ul style="list-style-type: none"> • I like this book, but I wish there was a better way to help struggling students learn in real world context. • I would be happy with something new, yet there is no other method that I am aware of. • Excellent program, dated, but it works! 			
Spradling	6	3.67	0.52
Spradling Comments:			

<ul style="list-style-type: none"> • However, there was difficulty getting the text this spring and the price has sky rocketed! 			
Norcross	1	4.00	0.00
Battisti	1	4.00	0.00
GIA (Teaching Music Through Performance)	1	4.00	0.00

Survey participants were given the opportunity to provide written comments as a supplement to their rating of satisfaction with the method book. See Table 11 for a compilation of those comments.

Table 11: Compilation of comments about method book modifications

<p>MLR</p> <ul style="list-style-type: none"> • The book only goes to 4 parts, so I'd like to have something sequence up to larger ensembles. • Book contains an answer key; I don't always agree with its 'expert' answers, so use my own answer key. • Students complete assignments on their own however, there is a quiz once/week on one of the exercises. I remove the answers to these exercises at the beginning of the semester. • I use this as a self-paced book. They have exercises they need to complete, but we are able to work on them at their needed pace. • I use error-detection as a “warm-up” for the class and follow the basic structure, two listenings with student feedback, then the final recording for confirmation. • The recordings accompanying the book are severely lacking - there are often more mistakes than printed in the answer key, and some of the performances are of poor quality. • I have used this book in the past. I haven't used it for several years because of frustrations with the material. The concept is great; the realization leaves much to be desired. The recorded examples, on cassette, are very poor quality. As a result, there are mistakes that I can hear that are not acknowledged in the answer keys, and by contrast, there are mistakes noted in the answer keys that I can't hear. I wrote to GIA, told them about this problem and asked them to re-record the excerpts on Cd. They ignored my request. I think this could be a very useful resource if the sound quality was improved.
<p>Spradling</p> <ul style="list-style-type: none"> • I do not use the pieces provided in the order of the text. I select some works from each level, based on my own preference as well as the pieces for which I have full scores in my library. I modify the instrumentation used and which type of errors we focus on using the materials provided. One of my favorite aspects of this particular text is the flexibility it affords.

<ul style="list-style-type: none"> Exercises are chosen based on the size and instrumentation of the class.
Norcross <ul style="list-style-type: none"> (This book) has 150 orchestral excerpts that are arranged for quintet. The parts for the class performers are transposed and available on Google Drive. The error detection was using the natural errors that occur in the class and focusing the conducting student to detect, diagnose, and solve those errors.
Battisti <ul style="list-style-type: none"> Use of many supplemental scores and additional resources.
GIA (Teaching Music Through Performance) <ul style="list-style-type: none"> Supplements.

Between 33 and 36 participants responded to the course activity portion of the survey. They were asked to describe approximately how many times their conducting students have access to the certain activities throughout their course via a 5-point Likert scale (never, once per course, 2-3 times, weekly, and daily). The activity that was evident most often (daily) was “learning score study techniques” (41.2%). The least prominent activity was “identifying errors in a video performance while conducting from a score,” as 70.6% of participants responded that this activity is never offered throughout their course (Table 13).

Table 12: How often do your students have access to the following activities?

Approximately how many times do students have access to the following activities throughout your instrumental conducting course?	Never		
	N	%	Cumulative %
Identifying errors in an audio recording while looking at a score.	11	32.4	32.4
Identifying errors in an audio recording while conducting from a score.	20	58.3	58.3
Identifying errors in a video performance while looking at a score.	19	55.9	55.9
Identifying errors in a video performance while conducting from a score.	24	70.6	70.6
Identifying errors in a live performance while looking at a score.	10	29.4	29.4
Identifying errors in a live performance while conducting from a score.	7	20.6	20.6
Conducting a large ensemble.	5	14.7	14.7

Rehearsing a large ensemble.	8	23.5	23.5
Using a piano to perform score reductions or multi-part exercises.	19	55.9	55.9
Singing parts of the score as a class.	9	26.5	26.5
Conducting and singing parts of the score by the student conductor.	10	29.4	29.4
Preparing a work for public conducting performance.	17	51.5	51.5
Learning score study techniques.	1	2.9	2.9

Approximately how many times do students have access to the following activities throughout your instrumental conducting course?	Once per course		
	N	%	Cumulative %
Identifying errors in an audio recording while looking at a score.	2	5.9	38.2
Identifying errors in an audio recording while conducting from a score.	6	16.7	75.0
Identifying errors in a video performance while looking at a score.	2	5.9	61.8
Identifying errors in a video performance while conducting from a score.	3	8.8	79.4
Identifying errors in a live performance while looking at a score.	2	5.9	35.3
Identifying errors in a live performance while conducting from a score.	2	5.9	26.5
Conducting a large ensemble.	9	26.5	41.2
Rehearsing a large ensemble.	6	17.6	41.2
Using a piano to perform score reductions or multi-part exercises.	1	2.9	58.8
Singing parts of the score as a class.	1	2.9	29.4
Conducting and singing parts of the score by the student conductor.	0	0.0	29.4
Preparing a work for public conducting performance.	11	33.3	84.8
Learning score study techniques.	0	0.0	2.9

Approximately how many times do students have access to the following activities throughout your instrumental conducting course?	2 - 3 times		
	N	%	Cumulative %
Identifying errors in an audio recording while looking at a score.	10	29.4	67.6

Identifying errors in an audio recording while conducting from a score.	6	16.7	91.7
Identifying errors in a video performance while looking at a score.	7	20.6	82.4
Identifying errors in a video performance while conducting from a score.	3	8.8	88.2
Identifying errors in a live performance while looking at a score.	6	17.6	52.9
Identifying errors in a live performance while conducting from a score.	7	20.6	47.1
Conducting a large ensemble.	11	32.4	73.5
Rehearsing a large ensemble.	10	29.4	70.6
Using a piano to perform score reductions or multi-part exercises.	10	29.4	88.2
Singing parts of the score as a class.	5	14.7	44.1
Conducting and singing parts of the score by the student conductor.	5	14.7	44.1
Preparing a work for public conducting performance.	2	6.1	90.9
Learning score study techniques.	6	17.6	20.6

Approximately how many times do students have access to the following activities throughout your instrumental conducting course?	Weekly		
	N	%	Cumulative %
Identifying errors in an audio recording while looking at a score.	9	26.5	94.1
Identifying errors in an audio recording while conducting from a score.	3	8.3	100.0
Identifying errors in a video performance while looking at a score.	4	11.8	94.1
Identifying errors in a video performance while conducting from a score.	4	11.8	100.0
Identifying errors in a live performance while looking at a score.	11	32.4	85.3
Identifying errors in a live performance while conducting from a score.	11	32.4	79.4
Conducting a large ensemble.	4	11.8	85.3
Rehearsing a large ensemble.	6	17.6	88.2
Using a piano to perform score reductions or multi-part exercises.	3	8.8	97.1
Singing parts of the score as a class.	7	20.6	64.7

Conducting and singing parts of the score by the student conductor.	10	29.4	73.5
Preparing a work for public conducting performance.	1	3.0	93.9
Learning score study techniques.	13	38.2	58.8

Approximately how many times do students have access to the following activities throughout your instrumental conducting course?	Daily		
	N	%	Cumulative %
Identifying errors in an audio recording while looking at a score.	2	5.9	100.0
Identifying errors in an audio recording while conducting from a score.	0	0.0	100.0
Identifying errors in a video performance while looking at a score.	2	5.9	100.0
Identifying errors in a video performance while conducting from a score.	0	0.0	100.0
Identifying errors in a live performance while looking at a score.	5	14.7	100.0
Identifying errors in a live performance while conducting from a score.	7	20.6	100.0
Conducting a large ensemble.	5	14.7	100.0
Rehearsing a large ensemble.	4	11.8	100.0
Using a piano to perform score reductions or multi-part exercises.	1	2.9	100.0
Singing parts of the score as a class.	12	35.3	100.0
Conducting and singing parts of the score by the student conductor.	9	26.5	100.0
Preparing a work for public conducting performance.	2	6.1	100.0
Learning score study techniques.	14	41.2	100.0

At the conclusion of the survey, participants were offered the chance to provide written comments regarding further relevant information on their feelings on error detection methods.

Appendix I contains a compilation of those comments.

Phase 2 – Phone Interviews

Seven survey respondents agreed to participate in follow-up phone interviews to provide more detail about the incorporation of error detection methods in undergraduate

instrumental conducting courses. These volunteers were all current or former conducting instructors at 4-year colleges or universities. They represent a diverse range of geographic region, as well as a range of professional experience from 5 years to 30+ years. The results of these interviews inform an understanding of conducting instructors' experiences with incorporation error detection methods into conducting courses. The emerging themes support that understanding: (a) personal concerns about error detection, (b) feelings about the importance of error detection skills, (c) challenges to teaching error detection skills in an instrumental conducting course, (d) activities incorporated in conducting courses, (e) qualities of a conductor, and (f) instructors' desires to expand the teaching of error detection. The major findings will be reported in this chapter and discussed in chapter five.

Interview transcriptions were analyzed for the emergence of themes. An iterative approach was used, which consisted of multiple readings of each transcript. Notes were taken along the way and important quotes, or codes, were highlighted. Five hundred sixty total codes were initially highlighted out of the interview transcripts. Six themes were discovered as being descriptive of the overall experiences of the interview participants. Three hundred fifteen codes were then selected as significant statements according to the established themes. These statements were further analyzed and placed into categories within each theme. See Appendix G for the code list sorted by Participant and Appendix H for the code list sorted by theme. Data reported in this chapter address the following research questions:

- What role does error detection skill have in undergraduate/graduate instrumental conducting courses?

- What are the attitudes of conducting instructors regarding the importance of teaching error detection?
- What error detection methods or techniques are being used in undergraduate/graduate instrumental conducting courses?

Personal Concerns about Error Detection

Several questions from the interviews led to the topics of personal concern about the teaching of error detection methods. Transcription quotes from this theme were divided into the following emergent categories: lack of error detection methods in own education, decisions about where to place focus, experience in first teaching job, focusing teaching on certain skills, and historical perspectives toward error detection skills.

Participants were asked to think back to their time as a conducting student and to describe their experience. A majority of participants reported that error detection instruction in their own undergraduate experience was lacking or non-existent. “I look back on those times and I think of that as sort of a weakness in my own education that I, you know, vicariously try to correct in what I teach,” shared Participant 4. The experiences of most participants seem to be that aural skills development was not a primary area of focus in conducting courses. Concern about the historical perspectives toward error detection skills was expressed as well, as expressed by Participant 7: “...I think there was a period of time where conducting pedagogy was consumed with how the conductor looks.”

The past experiences of these conducting instructors led to the realization that error detection ability was an issue that needed attention when they reached their first teaching placements. “The first experience I had with (error detection) was my first year of teaching as a

band director,” shared Participant 1. Many interview participants shared that they felt insecure in their aural ability coming out of the undergraduate training.

A good portion of the open-ended interview discussions was centered around decisions about where to place focus in instrumental conducting courses. In a meeting with other faculty members about the success of music education majors after the completion of coursework, Participant 5 noticed that “the error detection skills of the students in the student teaching portion of their coursework were lacking.” Other interview participants described concerns regarding identifying core a set of skills that are critical among conductors, as well as pinpointing recurring areas of weakness in aural ability of conducting students.

Feelings about the Importance of Error Detection Skills

All interview participants agreed that error detection and aural ability are essential skills for a conductor. A category emerged that placed error detection into a level of *high order thinking*, which takes a look at ability levels much deeper than simply identifying incorrect notes and rhythms. Effective aural skills instruction can allow students to *look more broadly and see the big picture*.

Interview participants also placed significance on the practical application of error detection skills. First of all, the development of aural ability is directly beneficial in teaching situations. Participant 1 described an error detection activity in his conducting course that used a middle school band method book with implanted errors. Along with the improvement in the error detection skills among his students, he points out the practical benefits as well: “...it’s also going to be where you’re going to be living if you teach beginning band.”

A few interview participants took the practical application a step further by tying these experiences into lifelong learning. The topic of *comprehensive musicianship* came up several times during these discussions. Aural ability can be thought of as an applied art, according to Participant 6: “(Error detection) is the skill we need to have as conductors that’s not being taught as an applied art.”

A few participants described a connection between error detection activities and rehearsal strategy. Live error detection activities in conducting classes can have the effect of improving the rehearsal skills of the students. “It’s error detection not just for the sake of error detection, but for the sake of building up your rehearsals, for practicing and trying out your rehearsal skills,” explained Participant 4. Participant 7 shared a similar mindset on connecting error detection activities with rehearsal skills. He explained how he directs student focus during these activities: “What are you hearing as you rehearse yourselves here? What do you want to stop and go back for? What do you notice, what don’t you notice?”

Qualities of a Conducting Student

Each interview participant shared his own opinions on important qualities of the conducting student that are emphasized and developed in conducting courses. This theme was divided into the following categories, which inform a summary of the qualities described by the participants: ear, aural expectation, physical/gestural, understanding, role of the conductor, comfortable, self-efficacy, self-evaluation, and motivation.

The development of the musical ear of conducting students was a recurring concern during these interviews. “The first thing that goes on any young conductor is their ability to actually hear what’s happening,” shared Participant 6. Many participants described activities

that engage critical and active listening. It is important for students to know what they are hearing and/or what they should be listening for. The ability to create an *aural expectation* was very important to a few participants. Participant 1 described his experience observing conductors over the years: “The most successful I knew were those who very clearly had in their mind’s ear what they were going to hear before they ever gave a downbeat.” He continued with the discussion on aural expectation: “A lot of times as a conductor you’ll hear what you expect to hear, whether they were actually playing it or not.” Students were described several times throughout the interviews as being distracted by pre-conceived aural expectations.

Interview Participant 6 described a couple of activities, which are simple to incorporate and are very effective at developing the ability to have an *aural expectation* as a conductor. Both *games*, as he called them, involve a student conductor in front of the class ensemble without a score. First, the student comes up with a type of sound he would like to class to audiate, such as the popping sound of a small, toy firecracker. The conductor demonstrates a gesture to elicit that sound and the class determines what type of sound the conductor had in mind. The second game involves singing simple tunes that all students would know like *Mary Had a Little Lamb*. The conductor has free-range on decisions about the beginning, middle, and end of each note and must clearly demonstrate his aural expectation through his gestures.

Interview data revealed that an overall knowledge, or understanding, of the music is an essential skill for conductors during rehearsals. Participants discussed the importance of understanding the tonality of a chord or the harmony in general, processing and internalizing the score, and preparing the mind before rehearsing a piece. Participant 6 connected the error

detection process with having a comprehensive knowledge of the music and explained that “it’s really easy for experienced conductors to ferret out these things, probably because they’ve mastered certain aspects of physical conducting...they know the piece well enough.”

Although the physical aspect of conducting was not a topic of this study, physical/gestural traits were described in the discussions of conductor qualities. In fact, there was some disagreement found in the results of the interviews. There seems to be a spectrum of opinion on the importance of the physical ability of a conductor. One side of the debate places very little importance on how the conductor looks, perhaps emphasizing other qualities, such as rehearsal strategy and aural expectation. However, at least one participant in this study stood by the philosophy that conducting technique is the be-all and end-all. According to Participant 3, “...the band director’s conducting technique is the last impediment to the band moving up to the highest level of performance.” There was general agreement among interview participants about the benefits of ensuring conducting students develop a strong gestural vocabulary, building basic conducting fundamentals, and the overall idea of thinking of the body as an instrument. “The responsibility is on the conductor to change their gesture in a way that brings the respondents closer to a degree of unicity,” shared Participant 6.

The role of the conductor can apply to conducting instruction in the classroom, as well as preparing students for real-world experience. Interview participants described their efforts to change incorrect assumptions about what is required on the part of the conductor. Building a concept of *what conducting is* began to emerge as a common ideal during the interviews.

According to the experiences of the interview participants, part of the process of developing error detection skills, among other important conducting abilities, is ensuring the

conducting students reach a level of comfort on the podium. This includes being comfortable with their conducting technique, as well as with active listening during a rehearsal. Several participants described offering opportunities for their students to conduct on a concert as a formal assessment for the course. Participant 2 described that his “primary goal with (conducting on a concert) is getting them on the podium and getting them comfortable doing these things before they go out and student teach.”

Several participants warned about damaging the self-efficacy of students with overwhelming or daunting error detection activities. According to Participant 5, “some students feel like if they don’t hear it the first time right off the bat that they’re somehow lacking.” There appeared to be a consensus with the philosophy that “it’s absolutely ok to not know and to be uncertain,” as described by Participant 4. Self-efficacy was described as being an accumulative ability that can be improved over time through positive experiences. According to the experiences of some interview participants, error detection activities can be stressful, causing students to feel, as Participant 7 phrased it, “debilitated when they stand in front of their peers on the podium.”

On that same basic topic, it was reported that students who participate in error detection activities seem to be more self-discerning of themselves. Their ability to self-evaluate becomes easier as they gain an understanding of their ability levels. Participant 4 noticed a benefit outside the classroom, describing that his students “see in their own practicing that they are being a little more discerning with their own playing.”

Motivation is a common concern on all professional levels and student conductors are no exception. Motivating students to put effort into error detection practice is an issue for

Participant 7, who pondered the question, “How do I get them to study these excerpts and demonstrate that they know them before we listen to them?” But several participants reported a positive growth in motivation through successful performance on error detection exercises.

Activities Incorporated in Conducting Classes

A large portion of the interviews included discussion on error detection activities that are incorporated in conducting classes. The following paragraphs will summarize specific activities described by interview participants. Below is a list of categories within this theme, which serves as a comprehensive list of all activities discussed in the interviews.

- Planting errors
- Live conducting
- Custom-built exercises
- Recordings
- Score study
- Creating Resource Materials
- Audiate/Sing
- Piano
- Literature review
- Assessment
- Secondary effect
- Simplify
- Additive process

Live conducting of some form was included in the description of experiences for all participants. The activity varied due to certain variables, such as the size of the class. Many instructors require students to bring primary and/or secondary instruments to class in order to form a live ensemble for conducting activities. A very common technique shared by interview participants was the act of planting errors among the ensemble. Participant 1 described his method of projecting instructions on the board behind the conductor, such as “flutes play an A flat on beat 4 of measure 2 instead of A natural.” Other instructors choose to write the errors in the individual parts themselves. The majority of these activities were custom-built by the instructors. Only two interview participants out of seven reported that they used a published method book for error detection instruction, both choosing the *MLR Instrumental Score Reading Program* by Froseth and Grunow (1979). But even in these cases, this method wasn’t used to the full extent and was designed to fit the needs of the class. Participant 2 explained that he chose only eight or nine activities from the beginning of the book to use as quizzes throughout the semester, while Participant 3 described using a method book that was developed by one of his former conducting instructors but had never been published.

The interview data show that listening to and conducting with audio recordings is common in instrumental conducting courses. Along with practicality, the benefits of this activity seem to include its correlation with score study. A great deal of time is spent on practicing score study techniques in the classrooms of most of the interview participants. Participant 2 described how the class typically spends “a couple weeks just learning the ins and outs of that piece.” From score activities come opportunities to develop resource materials, such as timelines and error catalogs. Two separate interview participants described using the

Chaconne movement from Holst's *First Suite in E-flat* as a great piece to guide students in building a timeline.

Other common activities among most interview participants were singing/audiating and playing from the piano. Interview transcriptions seemed to suggest that audiating abilities are essential among conductors. Playing individual parts or harmonic progressions on a piano speak to the conductor's understanding of the score.

A few interview participants placed emphasis on gaining a knowledge of wind band literature during their conducting courses. One instructor even goes to the length of providing a comprehensive list of important literature.

Each interview participant was asked to describe the assessment collection included in their course, resulting in a variety of responses. Assessment levels among the different courses ranged from informal to formal, including daily participation grades and quasi-formal performance grades. Several participants include a formal assessment at the end of the semester in the form of a live conducting performance. This could entail conducting to a recording in front of the class or actually conducting a concert band in rehearsal or concert. Constant feedback was also a point of emphasis among several interview participants. Participant 7 was very specific about the varying types of feedback he provides: "They're constantly turning things in for evaluation and assessment and feedback from us. Sometimes the feedback is just verbal in class, sometimes it's in writing, sometimes it's digital, sometimes it's an audio file."

A few interview participants pointed out an interesting secondary effect from observing error detection as a member of the performing ensemble. These instructors point out that it

would benefit everyone in the room to be thinking like a conductor. But it also comes naturally according to Participant 5's description of an error-planting activity: "When they're in that ensemble, even though they know who's making the errors, there's a secondary effect there. Their ear is trying to hear it themselves." Participant 7 also experienced this secondary effect, explaining that "regardless of whether the student is on the podium or not, everybody in the room gets better at this because they have the opportunity, even if they're the ones playing while somebody else is on the podium, they have the opportunity listening."

Simplifying error detection exercises for practicality was another common activity among interview participants. The data suggest that simpler is usually better and limiting exercises to short, simple excerpts is a good place to start when designing error detection activities for undergraduate conducting courses. As students develop and advance, the progression of these exercises can be thought of as an additive process. Instructors reported adding complexity to the exercises, such as adding another layer of melody, changing the error type, or making the conducting excerpts longer. This sequential approach to error detection activities seemed to be common among most participants.

Challenges to Teaching Error Detection Skills

The biggest challenge described by interview participants was time constraint. Not having enough minutes in the day or days in the semester to accomplish goals seemed to be a common issue. In many cases, error detection activities were cut short or not incorporated to the full extent due to lack of time. Practicality was another issue that arose in these discussions. The trouble and expense required to integrate certain activities simply isn't

practical. Participant 1 explained that “we don’t have enough time to spend on it during our class to really justify buying a 30-dollar book for every student.”

Some conducting instructors choose to form a live ensemble for conducting activities made up of the students in the course. In many situations, the instrumentation make-up of these ensembles can be very sparse. This challenges the effectiveness and validity of error detection activities if not all parts are covered. One method of overcoming this obstacle was reported by a participant who used this opportunity to practice arranging and score editing. “The kids in the conducting class had to edit the scores and perhaps even write parts for the instruments that we did have to cover parts that we didn’t have,” explained Participant 3.

Participant 3 described the *Music Ed Concert Band* that was formed out of music education majors playing secondary instruments. This served very well as a workshop ensemble for the conducting class. He felt confident that this experience provided plenty of opportunity for live error detection and development of aural skills on the podium.

A few participants described the activity of conducting in front of peers as a challenge for undergraduate conducting students.

Instructors’ Desires to Expand the Teaching of Error Detection

The challenge of time constraints led directly into a discussion about desiring the opportunity to incorporate more complicated error detection exercises throughout the course. Many instructors reported wanting to challenge students with more difficult levels of literature. At least two participants have goals of eventually adding an advanced conducting course to the curriculum.

At least two participants described their feelings about strengthening the connection between the skills learned in methods courses, such as Theory or Ear Training, and the aural skills taught in conducting courses. Participant 6 described the status quo as somewhat dysfunctional, in that “most institutions teach aural skills so students can pass aural skills exams and excerpts and exercises that are given to aural skills students are cherry-picked for specific pedagogical purposes and don’t necessarily constitute real music.” Participant 4 made the case for collaboration, stating that “if we really want to be advancing music teacher identities throughout the program, it’s good to run your conducting course alongside both methods and field experiences.”

Summary

The findings for this research project affirm the assumption that error detection is viewed as an essential skill among conductors. Descriptive, qualitative data were gathered in Phase 1 that point to a variety of experiences with the incorporation of error detection methods in conducting courses. The major themes that emerged in Phase 2 of the study inform that conducting instructors place emphasis on (a) personal concerns about error detection, (b) feelings about the importance of error detection skills, (c) challenges to teaching error detection skills in an instrumental conducting course, (d) activities incorporated in conducting courses, (e) qualities of a conductor, and (f) instructors’ desires to expand the teaching of error detection. The results from these findings are discussed in further detail in Chapter 5.

Chapter V

Discussion and Conclusion

Error detection ability in conductors is considered an important skill among instructors of undergraduate instrumental conducting instructors. An online survey on the incorporation of error detection methods in instrumental conducting courses was sent out through the College Band Directors National Association (CBDNA) list serve and received 71 responses. The results of the survey show that most conducting courses include error detection instruction throughout the semester (67.2%). However, only 45.7% of these courses use a method book to teach error detection. Most conducting instructors either modify existing method books or use custom-built activities that best fit the design and goals for their courses.

Seven instructors of undergraduate instrumental conducting courses agreed to participate in open-ended interviews to provide a more detailed description of their experiences with incorporating error detection methods in their conducting courses, as well as share their feelings towards aural ability in conductors. Analysis of the interviews found the emergence of six themes that inform an understanding of conducting instructors' experiences: (a) personal concerns about error detection, (b) feelings about the importance of error detection skills, (c) challenges to teaching error detection skills in an instrumental conducting course, (d) activities incorporated in conducting courses, (e) qualities of a conductor, and (f) instructors' desires to expand the teaching of error detection.

The combined results from the online surveys and interviews will be discussed in this chapter. Some meaningful connections are found between the survey responses and the qualitative data collected in the interviews. The data reveal a consensus among instructors about issues regarding error detection education and aural skill ability among conductors. These data point to several conclusions and implications for further research, which will be discussed at the end of this chapter.

Error Detection is an Important Skill for Conductors

It was assumed at the beginning of this project that conducting instructors find error detection ability a valuable skill. A review of the literature showed a universal agreement with that mindset (Byo, 1997; DeCarbo, 1982; Doane, 1989; Forsythe & Woods, 1983; Grunow, 1980; Hochkeppel, 1993; Ramsey, 1978; Sheldon, 1998; Taebel, 1980). Sheldon (2004) suggested that proficiency in error detection is imperative for a director to be able to assess musical performance. A portion of the online survey asked participants to rate their agreement with various statements regarding their feelings on error detection methods via a 5-point Likert scale. "Error detection is an important skill for conductors" showed the most agreement with a mean of 4.92. Aural skills seem to be an important skill set among music educators in general. Taebel (1980) suggested that elementary classroom music teachers place a high value on aural skills competencies when compared to other teaching or personal attributes. However, the statement, "I feel confident in my ability to teach error detection skills," held a lower mean level agreement of 4.31.

The combined undergraduate experiences of the interview participants of this project led to the understanding that error detection methods and aural skills have not always been a

topic of focus in conducting courses. The participants attributed their strong feelings on the importance of error detection methods in part to this gap in their own education. This *light bulb* moment is common among educators when they find themselves in real-world situations. Their lack of aural skills development becomes very evident with they cannot accurately identify and/or describe the performance adjustments needed in their ensembles. Or, on a broader note, the conductor has not expressed his or her expectations clearly from the beginning. One of the goals of O'Toole's (2003) Comprehensive Musicianship strategy is to lead the ensemble to a greater understanding of the music. Displaying clear expectations as the conductor is a significant element in that. The topic of *comprehensive musicianship* came up several times during the interviews, demonstrating a wide adoption of this approach. Even the simplest aural skills activities incorporated in a conducting course can have huge benefits on student development in this area. When students decide and express what they want out of an ensemble, they are growing in their ability to achieve that aural expectation that is found in every great conductor.

Conducting instructors understand other various benefits of aural skills practice in a conducting class setting. Rehearsal strategy can be greatly improved with the incorporation of error detection methods from the podium. Instructor-guided activities teach critical skills that will be applied in real-world situations. Trial-and-error of rehearsal techniques is fine for a lab experience, but effective error detection instruction can provide students with a strong set of rehearsal skills as they leave their undergraduate training. Doerksen (1999) found that a higher frequency of teaching/conducting experiences in realistic settings can be beneficial to developing aural skills.

Another major benefit of aural skills practice is the improvement of self-discernment and self-evaluation. Participant 4 described receiving feedback from his conducting students who reported more efficient and effective private practice time. The skills of evaluating a musical performance by comparing it to your preconceived expectation, particularly in a lab ensemble setting, can be applied to other areas of musical growth, including personal performance.

Incorporation of ED Methods

A review of the literature revealed a gap regarding the actual incorporation of error detection methods in instrumental conducting courses. Along with instructors' feelings towards error detection skills, the online survey and phone interviews sought to gain an understanding of the practices and strategies of error detection instruction in these courses.

Out of 58 survey responses, 67.2% ($n=39$) indicated that they do incorporate error detection methods in their undergraduate instrumental conducting courses, while 32.8% ($n=19$) did not. This result is in line with Boardman's (2000) findings that over 25% of instrumental conducting courses surveyed did not include error detection methods in their curriculum.

Only 45.7% ($N=16$) of survey participants use a method book to teach error detection skills in the conducting courses. The results from the survey and interviews reveal that the *MLR Instrumental Score Reading Program* by Froseth and Gurnow (1979) is used most commonly. Survey participants were given the opportunity to provide written comments about their incorporation of this method book (See Table 11 in Chapter 4). The experiences of instructors using MLR varies greatly, as does how the book is utilized. It seems to be very uncommon for the method to be used to its full extent. These instructors feel that the concept of the MLR

program is good, but the actual applicability is lacking. Only two interview participants out of seven use a method book in their courses, both choosing the *MLR* text. Their feelings about its usefulness fall in line with the survey results. The remaining participants include custom-built error detection exercises out of a desire for the activity and a lack of an available method book to fit their goals.

The majority of conducting instructors agreed upon the importance of error detection methods in undergraduate conducting courses, but little satisfaction is found in the available method books. Whether using a method book or not, instructors are resorting to incorporating activities of their own creation to achieve their educational goals. While this proves very effective in most cases, it requires a significant amount of preparation (and creativity) on the part of the instructor.

Student Improvement

Survey participants were asked to rate their agreement with statements regarding error detection methods via a 5-point Likert scale. The statement with the lowest level of agreement, with a mean of 4.24, was “I feel like my students improve in their own error detection abilities when taking my course.” This lack of confidence in the error detection instruction is not surprising based on the gap in the literature regarding error detection methods. Fortunately, the 7 participants who agreed to a phone interview were all of the opposite feeling on this statement. Most of the interview participants were happy with their students’ improvement in aural ability, in one way or another. Improvement in aural skills can be evaluated on a larger scale beyond simple error detection activities. Participant 6, for instance, is not overly concerned with low-order thinking, such as identifying wrong notes and

rhythms. Instead, he is more focused on the overall growth of the student musician and look for a translation of success from the conducting classroom to the podium. He even pondered the thought of whether or not there is actual correlation between success in programmed aural skills activities with ability on the podium. DeCarbo (1982) suggests that there is not a real transfer of ability in this situation.

Score Study

I decided to edit the final version of the online survey after a pilot study participant suggested adding *score study instruction* as a topic of discussion. This element was added to the portion of the online survey which asked participants to describe how many times their undergraduate conducting students have access to various activities throughout the course (never, once per course, 2-3 times, weekly, and daily). “Learning score study techniques” was reported as being offered most often with a daily frequency rate of 41.2%. Two separate interview participants described incorporating frequent score-study activities in their conducting course, such as creating a formal timeline of a piece. Score study instruction in conducting courses can have a positive impact on practical skills, such as reading ability and rehearsal strategy, but can also be attributed to a growth in other areas of musicianship. Grunow (1980) suggested that score study gives the conductor a more thorough understanding of the literature and can have a positive effect on the ability to detect errors. This widely-accepted mindset has led to the interest in research of score study instruction. Crowe (1996) recommended investing “the comparative effectiveness of various score study styles as instructional materials” (p. 169).

Desire to Expand Teaching

The survey results and interviews revealed a common desire to improve upon the incorporation of error detection among instrumental conducting instructors. Perhaps the largest challenge faced by these instructors is a lack of time to achieve their goals. If given more class time, many conducting instructors would choose to expand upon their aural skills practice with more complex exercises and simply increasing the frequency of the activities. Advanced Conducting courses allow certain students to dive deeper into conducting study but are typically only offered as elective options. Adding Advanced Conducting to the core Music/Music Education curriculum would require an extensive edit to the course layout in many institutions. The desire for more time to devote to conducting instruction has spurred conversations regarding the change from a standard 2-hour credit Conducting Course to 3 hours of credit.

Conducting instructors have also noticed the disconnect between courses that teach aural skills, such as Theory or Ear Training, and practical application. Students who have successfully completed those courses seem to be lacking in aural ability when they step onto a podium. Instrumental conducting, and other similar courses, should run concurrently, so that the skills being developed are approached from a mindset of practicality.

Conclusions and Recommendations

The data collected in this study reveal that error detection methods and aural skills instruction do indeed have a home in instrumental conducting courses. In fact, the aural development of the undergraduate music student should be of top priority when designing a course curriculum. Music skills can and should translate between courses, such as Theory and

Conducting, and the instructors of these courses should work in collaboration to ensure practical application of the skills being developed.

In an instrumental conducting course, live conducting of an ensemble carries numerous benefits. On a practical level, error detection practice from the podium can greatly improve the rehearsal skills of the instructor. Exercising discernment of musical performance while conducting and reading a score is directly relevant to what many students will be doing shortly after graduation, whether it is in front of a university concert band in graduate school or in a middle school band room in their first teaching placement.

The student conductor's musical ear is tremendously affected by the combination of aural skills exercises with the conducting course setting. Discerning musical performance from a podium while reading a score is an irreplaceable experience for a student conductor.

DeCarbo (1982) suggested that the primary way to advance error detection skills is for pre-service music educators to practice on a podium in front of an ensemble.

All conducting courses should strive to offer regular live conducting experiences of some type frequently throughout the semester. Hodges and Nolke (2011) recommended that error detection methods are best put into practice in "podium-based conducting experiences" (p. 79). Class size and available instrumentation can challenge the possibilities of achieving this goal. Many instructors in this situation have found success in scheduling rehearsal blocks with university ensembles as part of the formal assessment for the course. This can be treated as a performance opportunity or as a lab session in which the student conductor *rehearses* the group in every sense of the word, including identifying and correcting needed adjustments in the group. Secondary benefits to live error detection practice are seen in the members of the

ensembles. By observing the process in their fellow students, they become more aware of their own playing and of the sound of the ensemble as a whole. They grow musically as the audience to this instruction.

The comprehensive musicianship level of in the students should be one of the main points of focus for any music educator. Conducting instructors have the opportunity to teach their student conductors to develop a clear aural expectation for their ensemble and to have a good idea of the *big picture* for a piece of music. This involves having a thorough understanding of the score and an ability to *hear* in their mind exactly what they want to hear. The next step in this process is an effective description of that expectation both verbally and gesturally. Conducting instructors should include activities that allow students to freely decide, describe, and demonstrate how they want the ensemble to perform. This can be accomplished without music or score in front of anyone by utilizing simple tunes or melodies that are already familiar to the students.

Implications for Further Research

The data gathered in the surveys and interviews were very revealing and adequately answered the research questions but left room for inquiry into the final research question: What are the implications for further research? There is some discussion for the need of a required Advanced Conducting course. Conducting instructors find themselves with a lack of time to fully achieve their educational goals in undergraduate conducting courses. Advanced Conducting courses are typically only offered as an optional elective. Research is needed to research the need for a required Advance Conducting course, as well as the validity for modifying current course curriculum designs.

Conductors are generally dissatisfied with the error detection ability. This is particularly true in young educators in their first few years of teaching. A detailed study is needed to survey young conductors about their confidence in error detection and gather data that might correlate with their ability level, such as educational background and personal attributes.

Perhaps the biggest desire expressed in conducting instructors is the need for a practical error detection methods book that meets their needs and allows them to achieve their goals. Several error detection methods are available and are being utilized, but not to their full extent and not to the complete satisfaction of the instructor.

Closing

Error detection is indeed an important skill for conductors. Although error detection method books have been developed and incorporated, there is still very little research on the actual incorporation of these methods in conducting courses. The results of this study suggest that conducting instructors feel that error detection methods should be included in their courses, but they are limited by time and lack of resources to meet their goals. It was refreshing to take part in passionate discussion on this subject. I feel that error detection methods would be a welcome topic of discussion at conferences and other professional gatherings. There is also an abundant amount of room for more research into the need for advanced conducting courses, as well as investigating the confidence levels of aural skills in first-year teachers. The data collected in this study leave me feeling excited and hopeful.

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Appendix A

Information Letter



COLLEGE OF EDUCATION
CURRICULUM AND TEACHING

INFORMATION LETTER
for a Research Study entitled
"Examining the Incorporation of Error Detection Methods in
Undergraduate Instrumental Conducting Courses"

You are invited to participate in a research study to investigate the use of error detection methods in undergraduate instrumental conducting courses. The study is being conducted by Mr. Chapel McCullough, Doctoral Student under the direction of Dr. Nancy Barry, Professor in the Auburn University Department of Curriculum and Teaching. You are invited to participate because you are or have been an instructor of an undergraduate instrumental conducting course and are age 19 or older.

What will be involved if you participate? Your participation is completely voluntary. If you decide to participate in this research study, you will be asked to complete an online survey about your experience as an instructor. You will have the option to participate in a follow-up phone interview after completing the survey. Your total time commitment will be approximately 5-10 minutes for the survey and 20 minutes for the optional phone interview.

Are there any risks or discomforts? The risk associated with participating in this study is breach of confidentiality for participants who provide identifying information agreeing to be contacted for the follow-up phone interview. To minimize these risks, we will report all findings without any personal identifiers.

Are there any benefits to yourself or others? If you participate in this study, you can expect to receive a summary of the findings and will gain a better understanding of best practices for teaching error detection in your conducting course.

If you change your mind about participating, you can withdraw at any time by closing your browser window. If you choose to withdraw, your data can be withdrawn as long as it is identifiable. Once you've submitted anonymous data, it cannot be withdrawn since it will be unidentifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University or the Department of Curriculum and Teaching.

Any data obtained in connection with this study will remain anonymous. We will protect your privacy and the data you provide by reporting all findings without any personal identifiers. Information collected through your participation may be used to fulfill educational requirements, published in a professional journal, and/or presented at a professional meeting.

5040 HALEY CENTER
AUBURN, AL 36849-5212

TELEPHONE:
334-844-4434

FAX:
334-844-6789



COLLEGE OF EDUCATION
CURRICULUM AND TEACHING

If you have questions about this study, please contact Mr. Chapel McCullough at cjm0033@auburn.edu or Dr. Nancy Barry at nhb0002@auburn.edu.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone (334) 844-5966 or e-mail at IRBAdmin@auburn.edu or IRBChair@auburn.edu.

HAVING READ THE INFORMATION ABOVE, YOU MUST DECIDE IF YOU WANT TO PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO PARTICIPATE, PLEASE CLICK ON THE LINK BELOW. YOU MAY PRINT A COPY OF THIS LETTER TO KEEP.

Chapel McCullough 1/22/18
Investigator Date

Co-Investigator Date

The Auburn University Institutional Review Board has approved this document for use from _____ to _____. Protocol # _____

5040 HALCY CENTER
AUBURN, AL 36849-5212

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334-844-6789

Appendix B

Informed Consent Form



COLLEGE OF EDUCATION
CURRICULUM AND TEACHING

INFORMED CONSENT
for a Research Study entitled
“Examining the Incorporation of Error Detection Methods in
Undergraduate Instrumental Conducting Courses”

You are invited to participate in a research study to investigate the use of error detection methods in undergraduate instrumental conducting courses. The study is being conducted by Mr. Chapel McCullough, Doctoral Student under the direction of Dr. Nancy Barry, Professor in the Auburn University Department of Curriculum and Teaching. You were selected as a possible participant because you are or have been an instructor of an undergraduate instrumental conducting course and are age 19 or older.

What will be involved if you participate? If you decide to participate in this portion of the research, you will be asked to complete a phone interview after completing the survey. Your total time commitment will be approximately 20 minutes for the phone interview. The interview will be audio recorded.

Are there any risks or discomforts? The risk associated with participating in this study is breach of confidentiality for participants who provide identifying information agreeing to be contacted for the follow-up phone interview. To minimize these risks, we will report all findings without any personal identifiers.

Are there any benefits to yourself or others? If you participate in this study, you can expect received a summary of the findings and will gain a better understanding of best practices for teaching error detection in your conducting course.

If you change your mind about participating, you can withdraw at any time during the study. Your participation is completely voluntary. If you choose to withdraw, your data can be withdrawn as long as it is identifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University, the Department of Curriculum and Teaching.

Your privacy will be protected. Any information obtained in connection with this study will remain confidential. Information obtained through your participation may be used to fulfill educational requirements, published in a professional journal, and/or presented at a professional meeting.

Participant’s initials _____

5040 HALEY CENTER
AUBURN, AL 36849-5212

TELEPHONE:
334-844-4434

FAX:
334-844-6789



COLLEGE OF EDUCATION
CURRICULUM AND TEACHING

If you have questions about this study, please contact Mr. Chapel McCullough at cjm0033@auburn.edu or Dr. Nancy Barry at nhb0002@auburn.edu. A copy of this document will be given to you to keep.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone (334)-844-5966 or e-mail at IRBadmin@auburn.edu or IRBChair@auburn.edu.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO PARTICIPATE.

5040 HALCY CENTER
AUBURN, AL 36849-5212

TELEPHONE:
334-844-4434

FAX:
334-844-6789

Participant's signature Date Chapel McCullough 1/22/18
Investigator obtaining consent Date

Printed Name Chapel McCullough
Printed Name

Co-Investigator Date

Printed Name

Appendix C

Audio Release Form



COLLEGE OF EDUCATION
CURRICULUM AND TEACHING

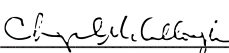
Audio Release

You will be audio recorded during your participation of the interview portion of this study, "Examining the Incorporation of Error Detection Methods in Undergraduate Instrumental Conducting Courses." Your signature on this document grants us permission to use the audio recording for transcription and analysis.

The audio file will be destroyed (deleted) at the end of this research.

Your permission:

I give my permission for audio recordings produced in the study, "Examining the Incorporation of Error Detection Methods in Undergraduate Instrumental Conducting Courses" to be used for the purposes listed above.

_____	_____		_____
Participant's Signature	Date	Investigator's Signature	Date

_____	_____
Participant's Printed Name	Investigator's Printed Name

5040 HALEY CENTER
AUBURN, AL 36849-5212

TELEPHONE:
334-844-4434

FAX:
334-844-6789

Appendix D

Online Survey

Introduction

1. What is your current title? ___ professor ___ instructor ___ teaching assistant ___ other
2. How many times have you taught an instrumental conducting course?
3. Institution operates on: ___ a semester system ___ a quarter system

Course Information

4. How many semesters/quarters does the course last?
5. How many times does your class meet each week?
6. For how many minutes does each class meet?
7. Is this the only conducting course that students majoring in Music Education with an instrumental concentration take? ___ Yes ___ No
8. If no, please name the other conducting courses.
9. Does your institution offer a degree in conducting? ___ Yes ___ No
10. If yes, what type? ___ Master's ___ Doctorate ___ Other

Course Activities

11. Do you include error detection instruction in your course?
12. Do you use a method book to teach error detection skills?
13. If yes, list the name and author of the method.
14. Are you satisfied with the quality of the method book?
15. Please describe any modifications you make when utilizing the method book.
16. Approximately how many times do students have access to the following activities throughout your instrumental conducting course?

Scale: a - never, b – once per course, c - 2-3 times, d - weekly, e – daily

- Identifying errors in an audio recording while looking at a score.
- Identifying errors in an audio recording while conducting from a score.
- Identifying errors in a video performance while looking at a score.
- Identifying errors in a video performance while conducting from a score.
- Identifying errors in live performance while looking at score.
- Identifying errors in live performance while conducting from a score.
- Conducting a large ensemble.
- Rehearsing a large ensemble.

- Using a piano to perform score reductions or multi-part exercises.
- Singing parts of the score by class members.
- Conducting and singing of parts of score by the student conductor.
- Preparing a work for public performance.
- Learning score study techniques

17. Please describe any other activities offered in your course that you feel are relevant to this study.

Feelings on Error Detection

18. Check the box that best describes your agreement with the following statements.

Scale: 1 – strongly disagree, 2 - disagree, 3 - neutral, 4 - agree, 5 - strongly agree

- Error detection is an important skill for conductors.
- Error detection is an important component of undergraduate instrumental conducting courses.
- I feel confident in my ability to teach error detection skills.
- I am interested in learning new strategies in teaching error detection skills.
- I feel like my students improve in the error detection abilities when taking my course.

19. Please share any other relevant information regarding your feelings on error detection methods.

Appendix E

Interview Protocol

CONSENTING PROCESS:

- Confirm that the participant has received the *Consent Form* and *Audio Release Form* and collect signed copies (collect via email if the interview is conducted via distance technology).
- Discuss the objectives and procedures of the study.
- Invite questions.

SEMI-STRUCTURED INTERVIEW QUESTIONS:

- THANK YOU for sharing your expertise with us. We hope that this study will provide useful information for applied music teachers and students.
- What is your current position?
- How many years have you taught an instrumental conducting course?
- Do you believe that error detection is an essential skill among instrumental conductors?
- Was error detection included in your instrumental conducting course as an undergraduate or graduate student?
- Do you believe that instrumental conducting courses should include error detection methods?
- Did/do you incorporate error detection methods into your instrumental conducting course as an instructor?
 - If yes, in what ways were these skills incorporated, including any method books or specific activities.
- Describe your satisfaction with student progress in error detection with the methods you incorporated.
- If NOT previously mentioned, ask about the use of the following error detection activities in the participant's course:
 - Identifying errors in a recording while looking at or conducting from a score.
 - Identifying errors in live performance while looking at or conducting from a score.
 - Rehearsing a live ensemble.
 - Preparing a work for public performance.
- Is there anything else that you would like to share about the incorporation of error detection methods in instrumental conducting courses?

Appendix F

Themes and Categories

Theme	Categories	
Personal Concerns about Error Detection	Historical philosophies toward error detection methods	
	Lack of error detection methods in own education	
	Experience in first teaching job	
	Decisions about where to place focus	
Feelings about the Importance of Error Detection Skills	Practical Application	
	High-Order Thinking	
	Rehearsal Strategies	
Challenges to Teaching Error Detection Skills in an Instrumental Conducting Course	Instrumentation	
	Time	
	Conducting in front of Peers	
	Practicality	
Activities Incorporated in Conducting Classes	Planting Errors	Audiate/Sing
	Live Conducting	Piano
	Custom-Built Exercises	Literature Review
	Recordings	Assessment
	Score Study	Secondary Effect
	Creating Resource Materials	Simplify Additive Process
Qualities of a Conducting Student	Ear	Comfortable
	Aural Expectation	Self-Efficacy
	Physical/Gestural	Self-Evaluation
	Understanding	Motivation
	Role of the Conductor	
Instructors' Desire to Expand the Teaching of Error Detection	More Complicated Music/Exercises	
	Better Connection to Methods Courses	
	Advanced Courses	

Appendix G

Code List (Sorted by Participant)

Interview Participant 1			
Quotes	Code	Category	Theme
But through years and years of teaching, it's just a practical matter that you have to develop that skill to be successful in rehearsing an ensemble and preparing for performance	Developing teaching skills	Focusing teaching on certain skills	Personal Concerns about Error Detection
You got about a gillion responsibilities and associated skill sets for each of them	Teaching responsibilities	Focusing teaching on certain skills	Personal Concerns about Error Detection
That's one of the skills that students not only need but probably don't have at all.	Skills students are lacking	Focusing teaching on certain skills	Personal Concerns about Error Detection
they're hearing what they want to hear	Distracted listening	Aural Expectation	Qualities of a Conducting Student
the first experience I had with it was my first year of teaching as a band director	First experience	Experience in first teaching job	Personal Concerns about Error Detection
It's just overwhelming	Overwhelming	Self-efficacy	Qualities of a Conducting Student
really important skill	Important skill	High-order thinking	Feelings about the Importance of E.D. Skills
the instrumentation is very spotty	Spotty instrumentation	Instrumentation	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course

there's no way we'd have all the parts covered	Covering parts	Instrumentation	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
only listening to 5 different parts at any given time	Parts	Simplify	Activities Incorporated in Conducting Classes
it's simple enough	Simple	Simplify	Activities Incorporated in Conducting Classes
the players are going to play exactly what I tell them to play	Tell them to play	Planting errors	Activities Incorporated in Conducting Classes
the conductor is given a very specific assignment	Specific assignment	Simplify	Activities Incorporated in Conducting Classes
time constraints	Time	Time constraints	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
I gave everybody instructions, whatever it would have had to have been for them all to play in the wrong mode	Instructions	Planting errors	Activities Incorporated in Conducting Classes
go over to the piano	Piano	Piano	Activities Incorporated in Conducting Classes
But I had people play wrong note, either add a flat or sharp or whatever. I had people play the wrong rhythm	Wrong note	Planting errors	Activities Incorporated in Conducting Classes
I was hoping that the student would not notice that because they were hearing what they expected to hear	Expect to hear	Aural Expectation	Qualities of a Conducting Student
a lot of times as a conductor you'll hear what you expect to hear, whether they were actually playing it or not	Expect to hear	Aural Expectation	Qualities of a Conducting Student

that's all I had time to do	Time	Time constraints	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
if I wanted to go farther with it I would get more complicated music	More complicated music	More complex	Instructors' Desire to Expand Teaching of Error Detection
you have to start somewhere but you start at the very lowest level	Start at lowest level	Simplify	Activities Incorporated in Conducting Classes
Yeah it was a time situation	Time situation	Time constraints	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
Because there's just too much to cover in the class	Too much to cover	Practicality	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
look at the score	Look at score	Score study	Activities Incorporated in Conducting Classes
really anticipate what you're going to hear	Anticipate	Aural Expectation	Qualities of a Conducting Student
play some things on piano if your audiation is not very good	Play piano	Piano	Activities Incorporated in Conducting Classes
that you've got to know what to expect to hear	Expect to hear	Aural Expectation	Qualities of a Conducting Student
listening to recordings	Listening to recordings	Recordings	Activities Incorporated in Conducting Classes
score study	Score study	Score study	Activities Incorporated in

			Conducting Classes
the most successful I knew were those who very clearly had in their mind's ear what they were going to hear before they ever gave a downbeat.	Mind's ear	Aural Expectation	Qualities of a Conducting Student
We conduct recordings a lot	Conduct recordings	Recordings	Activities Incorporated in Conducting Classes
practical purposes	Practical purposes	Practicality	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
the challenges of doing a conducting class with relatively small numbers is you really can't do live conducting	Small numbers	Practicality	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
live conducting experience in real time	Live conducting experience	Live Conducting	Activities Incorporated in Conducting Classes
learning the literature	Learning the literature	Literature	Activities Incorporated in Conducting Classes
twice during the semester, everybody in the class conducted the symphonic band, the university band live	Conduct live	Live Conducting	Activities Incorporated in Conducting Classes
their peers	Peers	Peers	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
were pressed for time	Pressed for time	Time constraints	Challenges to Teaching E.D. Skills in an Instrumental

			Conducting Course
actually leading the band in playing something	Leading the band	Live Conducting	Activities Incorporated in Conducting Classes
actually teaching the piece	Teaching the piece	Live Conducting	Activities Incorporated in Conducting Classes
but it's also going to be where you're going to be living if you teach beginning band	Going to be living	Practical Application	Feelings about the Importance of E.D. Skills
band directing skill	Band directing	Practical Application	Feelings about the Importance of E.D. Skills
it was practical	Practical	Practicality	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
we don't have enough time so spend on it during our class to really justify buying a 30-dollar book for every student	Justify	Practicality	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
them think they're a lot better than they are	Self-Evaluation	Self-Evaluation	Qualities of a Conducting Student
and they've developed a comfort level of being in front of people and leading them through a set of exercises	Developed a comfort level	Comfortable	Qualities of a Conducting Student
to look more broadly	Broadly	High-order thinking	Feelings about the Importance of E.D. Skills
just counting the beats and they think that's what conducting is	What conducting is	Role of the conductor	Qualities of a Conducting Student
as a conductor you're probably going to be looking at a transposed score	As a conductor	Practical Application	Feelings about the Importance of E.D. Skills

as a conductor you've got to decide what it means	As a conductor	Practical Application	Feelings about the Importance of E.D. Skills
getting them ready for the real world on a practical level	Ready for the real world	Practical Application	Feelings about the Importance of E.D. Skills

<u>Interview Participant 2</u>			
Quotes	Code	Category	Theme
we felt that the Conducting II and Instrumental Methods were a little divorced from each other and not as integrated	Conducting and Methods divorced from each other	Connection to Methods Courses	Instructors' Desire to Expand Teaching of Error Detection
this is totally my own invention	Own invention	Custom-Built Exercises	Activities Incorporated in Conducting Classes
open up their ears	Open up their ears	Ear	Qualities of a Conducting Student
guide their ears	Guide their ears	Ear	Qualities of a Conducting Student
as soon as a conductor starts conducting, a beginner conductor only hears about 50% of what's going on	Hears	Ear	Qualities of a Conducting Student
we're just identifying errors, but we haven't really tied it into the actual "error detection while you're conducting" process	Tied into whole process	High-order thinking	Feelings about the Importance of E.D. Skills
all of our music ed majors do conduct our top ensemble twice	Conduct top ensemble	Live Conducting	Activities Incorporated in Conducting Classes
plant some errors in there	Plan errors	Planting errors	Activities Incorporated in Conducting Classes
first time in front a large ensemble	In front of an ensemble	Live Conducting	Activities Incorporated in Conducting Classes

you're conducting your friends	Conducting your friends	Peers	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
it opened up their ears	Opened up their ears	Ear	Qualities of a Conducting Student
score study	Score study	Score study	Activities Incorporated in Conducting Classes
digging into a score	Score	Score study	Activities Incorporated in Conducting Classes
we spent a couple weeks just learning the ins and outs of that piece	Learning the piece	Score study	Activities Incorporated in Conducting Classes
Our primary goal with (conducting on a concert) is getting them on the podium and getting them comfortable doing these things before they go out and student teach.	Getting the comfortable	Comfortable	Qualities of a Conducting Student
<u>Interview Participant 3</u>			
Quotes	Code	Category	Theme
the basic function of the class is to teach the kids to read score to some degree	Read score	Score study	Activities Incorporated in Conducting Classes
opportunity to conduct in real time	Conduct in real time	Live Conducting	Activities Incorporated in Conducting Classes
resource guide, similar to and modeled on the resource guides found in Teaching Music Through Band Performance by GIA	Resource Guide	Resource Materials/Timelines	Activities Incorporated in Conducting Classes
progressively increasing the size of the ensembles that they conduct	Progressively increasing the size of the ensemble	Additive Process	Activities Incorporated in Conducting Classes

gradually they can develop the skill of hearing a wrong note or a missed rhythm	Gradually	Additive Process	Activities Incorporated in Conducting Classes
sight-sing it or audiate it in your head	Audiate	Audiate/Sing	Activities Incorporated in Conducting Classes
the person on the podium has to be comfortable with their conducting technique.	Comfortable	Comfortable	Qualities of a Conducting Student
they really understood what was in the score	Understood the score	Understanding	Qualities of a Conducting Student
the band director's conducting technique is the last impediment to the band moving up to the highest level of performance	Conducting technique	Physical/Gestural	Qualities of a Conducting Student
before anything else really good can happen on the podium, someone has to be so confident in their conducting technique that it's second nature	Confident in technique	Physical/Gestural	Qualities of a Conducting Student
conducting technique	Conducting technique	Physical/Gestural	Qualities of a Conducting Student
conduct either the symphonic band or the concert band	Conduct live	Live Conducting	Activities Incorporated in Conducting Classes
build into the score, in the individual parts, wrong notes, wrong rhythms, and he'd even have the percussionists do things like drop mallets, to distract the conductor from their job	Build into the score	Planting errors	Activities Incorporated in Conducting Classes
I'll build in a wrong note or have someone do something that's out of what's written in the score, in order to hopefully attract the conductor's attention	Build in a wrong note	Planting errors	Activities Incorporated in Conducting Classes
they only have 1 opportunity do actually conduct a live ensemble. I don't have the time	Time	Time constraints	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course

I can't really give up any more rehearsal time than that for conducting	Time	Time constraints	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
kids in the conducting class had to edit the scores and perhaps even write parts for the instruments that we did have to cover parts that we didn't have	Cover parts	Instrumentation	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
I've had kids who've graduated out of our music ed program tell me that that was extremely helpful to them because, like you said, that's something they had to do with their little tiny band programs	Something they had to do	Practical Application	Feelings about the Importance of E.D. Skills
audiating parts by singing	Audiating	Audiate/Sing	Activities Incorporated in Conducting Classes
singing the bass line and the melody	Singing	Audiate/Sing	Activities Incorporated in Conducting Classes
audiate	Audiate	Audiate/Sing	Activities Incorporated in Conducting Classes
understand the tonality	Understand	Understanding	Qualities of a Conducting Student
audiate	Audiate	Audiate/Sing	Activities Incorporated in Conducting Classes
score reading	Score reading	Score study	Activities Incorporated in Conducting Classes
listening to a recording while we talked about what's in the score	Listening to a recording	Recordings	Activities Incorporated in Conducting Classes

how to develop audiation skills	Develop audiation skills	Audiate/Sing	Activities Incorporated in Conducting Classes
small ensemble exercises and audiating exercises	Audiating exercises	Audiate/Sing	Activities Incorporated in Conducting Classes
<u>Interview Participant 4</u>			
Quotes	Code	Category	Theme
I view conducting as teaching and teaching as conducting	Conducting as teaching	High-order thinking	Feelings about the Importance of E.D. Skills
if we really want to be advancing music teacher identities throughout the program, it's good to run your conducting course alongside both methods and field experiences	Run alongside methods courses	Connection to Methods Courses	Instructors' Desire to Expand Teaching of Error Detection
I look back on those times and I think of that as sort of a weakness in my own education that I, you know, vicariously try to correct in what I teach	Weakness in own education	Lack of error detection methods in own education	Personal Concerns about Error Detection
Back then, there were few authentic opportunities to practice error detection	Few authentic opportunities	Lack of error detection methods in own education	Personal Concerns about Error Detection
play the recording	Play the recording	Recordings	Activities Incorporated in Conducting Classes
while looking at the little excerpt	Little excerpt	Simplify	Activities Incorporated in Conducting Classes
looking at the score	Looking at the score	Score study	Activities Incorporated in Conducting Classes
with a recording	With a recording	Recordings	Activities Incorporated in Conducting Classes

plenty of authentic opportunities for them to identify errors	Authentic opportunities	Live Conducting	Activities Incorporated in Conducting Classes
this proved that error detection was actually a good vehicle for practicing your rehearsal technique, your rehearsal skills	Practicing rehearsal skills	Rehearsal Strategy	Feelings about the Importance of E.D. Skills
it's error detection not just for the sake of error detection, but for the sake of building up your rehearsals, for practicing and trying out your rehearsal skills	Practicing rehearsal skills	Rehearsal Strategy	Feelings about the Importance of E.D. Skills
limited time	Limited time	Time constraints	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
think in the long-term	Long-term	High-order thinking	Feelings about the Importance of E.D. Skills
pedagogical goals	Pedagogical Goals	Practical Application	Feelings about the Importance of E.D. Skills
when it becomes an important aspect of what they're doing and they start to understand why they're doing it	Understad why they're doing it	High-order thinking	Feelings about the Importance of E.D. Skills
relevant to practicing their rehearsal skills	Practicing rehearsal skills	Rehearsal Strategy	Feelings about the Importance of E.D. Skills
Making it relevant	Relevant	Practical Application	Feelings about the Importance of E.D. Skills
it's absolutely ok to not know and to be uncertain	Ok to not know	Self-Efficacy	Qualitites of a Conducting Student
Because it meant that your ears and your instincts were pulling somewhere	Ears	Ear	Qualitites of a Conducting Student
it at least steers you in that right direction, so your ears are working	Ears are working	Ear	Qualitites of a Conducting Student

I don't want to damage self-efficacy too much.	Damage self-efficacy	Self-Efficacy	Qualities of a Conducting Student
the last thing I want to do is damage their self-efficacy in terms of error detection	Damage their self-efficacy	Self-Efficacy	Qualities of a Conducting Student
self-efficacy is a really, really important thing in motivation and ability down the road, you know, accumulative ability down the road	Self-efficacy is important	Self-Efficacy	Qualities of a Conducting Student
daily participation grade	Participation Grade	Assessment	Activities Incorporated in Conducting Classes
quasi-formal	Quasi-Formal	Assessment	Activities Incorporated in Conducting Classes
flexible instrumentation to match the composition of the class	Flexible instrumentation	Instrumentation	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
conducting their classmates while they're playing	Conduct classmates	Live Conducting	Activities Incorporated in Conducting Classes
score study	Score study	Score study	Activities Incorporated in Conducting Classes
until it matches your internal, your aural image of what the piece is supposed to be	Aural image	Aural Expectation	Qualities of a Conducting Student
Important and integral, but inextricable	Inextricable	High-order thinking	Feelings about the Importance of E.D. Skills
this is going to be a large portion of what they do	What they do	Practical Application	Feelings about the Importance of E.D. Skills
they naturally put more effort into it and I think get more out of it	More effort	Motivation	Qualities of a Conducting Student

they see in their own practicing that they are being a little more discerning with their own playing	Discerning with their own playing	Self-Evaluation	Qualities of a Conducting Student
they tend to be a little bit more discerning of themselves	More discerning of themselves	Self-Evaluation	Qualities of a Conducting Student
their practice time gets more efficient because of A, the error detection, they hear the mistakes better, but because they put it in an authentic context	More efficient	Motivation	Qualities of a Conducting Student
They rehearse, they practice more efficiently	Practice more efficiently	Motivation	Qualities of a Conducting Student
it connects to the pedagogy	Connects to pedagogy	Practical Application	Feelings about the Importance of E.D. Skills
they start applying it on themselves in addition to applying it to the students	Applying it	Practical Application	Feelings about the Importance of E.D. Skills
It really ties into the lifelong learning and comprehensive musicianship approach,	Ties into lifelong learning	Practical Application	Feelings about the Importance of E.D. Skills
do you think it's going to be applicable to your future career	Applicable	Practical Application	Feelings about the Importance of E.D. Skills
totally impractical for our situation	Impractical for our situation	Practicality	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
the student teachers end up going back and conducting, say, the winter concert	Conduct a concert	Live Conducting	Activities Incorporated in Conducting Classes
apply it for their own musical journeys	Apply it	Practical Application	Feelings about the Importance of E.D. Skills
to get them to try this out in their own lives, to see first-hand that it really works, and then to take that to the field	Try this out in their own lives	Practical Application	Feelings about the Importance of E.D. Skills

error detection as rehearsal strategy building	Rehearsal strategy building	Rehearsal Strategy	Feelings about the Importance of E.D. Skills
error detection as self-revelation in terms of practicing, self-practice	Self-revelation	Self-Evaluation	Qualities of a Conducting Student
<u>Interview Participant 5</u>			
Quotes	Code	Category	Theme
we just kind of tended to notice that the error detection skills of the students in the student teaching portion of their coursework were lacking	Skills were lacking	Decisions about where to place focus	Personal Concerns about Error Detection
we made error detection the primary focus and gestural vocabulary was very much a secondary type-of-thing	Primary, secondary focus	Decisions about where to place focus	Personal Concerns about Error Detection
What are some common problems that both our students had	Common problems	Decisions about where to place focus	Personal Concerns about Error Detection
sequential	Sequential	Additive process	Activities Incorporated in Conducting Classes
I will plant rhythmic errors in the ensemble	Plant errors	Planting errors	Activities Incorporated in Conducting Classes
And it just becomes an additive process	Additive process	Additive process	Activities Incorporated in Conducting Classes
they're just overwhelmed with all of this information coming at them	Overwhelmed	Self-efficacy	Qualities of a Conducting Student
scaling it back	Scaling it back	Simplify	Activities Incorporated in Conducting Classes
they're much more comfortable with hearing things and with rehearsing	Comfortable	Comfortable	Qualities of a Conducting Student
Getting them to rehearse and to hear	Hear	Ear	Qualities of a Conducting Student

don't necessarily have every part covered all the time	Not all parts covered	Instrumentation	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
they're still very stressed about finding the errors.	Stressed	Self-efficacy	Qualities of a Conducting Student
some students feel like if they don't hear it the first time right off the bat that they're somehow lacking	Feel like they're lacking	Self-efficacy	Qualities of a Conducting Student
formal assessment	Formal assessment	Assessment	Activities Incorporated in Conducting Classes
when they're in that ensemble, even though they know who's making the errors, there's a secondary effect there of: their ear is trying to hear it themselves.	Secondary effect	Secondary effect	Activities Incorporated in Conducting Classes
posture	Posture	Physical/Gestural	Qualities of a Conducting Student
gestural vocabulary	Gestural vocabulary	Physical/Gestural	Qualities of a Conducting Student
but I give them a whole collection of stuff, of literature as well	Literature	Literature	Activities Incorporated in Conducting Classes
good vocabulary	Vocabulary	Physical/Gestural	Qualities of a Conducting Student
good fundamentals	Fundamentals	Physical/Gestural	Qualities of a Conducting Student
There's so many skills that are taught in the traditional aural/theory class sequence that I'm not convinced are as applicable,	Theory/Aural Skills courses not applicable	Practical Application	Feelings about the Importance of E.D. Skills
Melodic dictation is not a skill he's used a great deal in the real world.	Real world	Practical Application	Feelings about the Importance of E.D. Skills

This is how you apply these skills	Apply	Practical Application	Feelings about the Importance of E.D. Skills
<u>Interview Participant 6</u>			
Quotes	Code	Category	Theme
it is <i>the</i> skill	<i>The</i> skill	High-order thinking	Feelings about the Importance of E.D. Skills
aural expectation	Aural expectation	Aural expectation	Qualities of a Conducting Student
Do you hear in your mind what you want to sound	What you want to sound	Aural expectation	Qualities of a Conducting Student
so that we have as specific an aural expectation as possible	Aural expectation	Aural expectation	Qualities of a Conducting Student
error detection becomes an easier thing because you have an explicit expectation	Explicit expectation	Aural expectation	Qualities of a Conducting Student
comes into a state of unicity, where we are all of one mind	Unicity	Aural expectation	Qualities of a Conducting Student
Well that means correct notes and correct rhythms,” and I would contend that that needs to go much, much deeper than that	Goes much deeper	High-order thinking	Feelings about the Importance of E.D. Skills
Do we have a series of long-term expectations	Long-term expectations	Aural expectation	Qualities of a Conducting Student
what I’m hearing is different than what I expect	What I expect	Aural expectation	Qualities of a Conducting Student
the things I feel like I need to talk to them about in terms of “error detection” are these multiplicities that are not explicit on the paper	Not explicit on the paper	High-order thinking	Feelings about the Importance of E.D. Skills
am I hearing unicity in that	Unicity	Aural expectation	Qualities of a Conducting Student
I have to understand before the fact what the chord is	Understand the chord	Understanding	Qualities of a Conducting Student

Do you have a specific-enough expectation	Specific expectation	Aural expectation	Qualities of a Conducting Student
my curriculum is geared toward fostering the preparation of the mind,	Preparation of the mind	Understanding	Qualities of a Conducting Student
the first thing that goes on any young conductor is their ability to actually hear what's happening	Hear what's happening	Ear	Qualities of a Conducting Student
often times they don't hear anything because they're so self-absorbed	Self-absorbed	Aural expectation	Qualities of a Conducting Student
how do we prepare their mind first?	Prepare their mind	Understanding	Qualities of a Conducting Student
do they have the capacity to actually listen?	Listen	Ear	Qualities of a Conducting Student
hopefully they can do it in real-time with a change of gesture	Gesture	Physical/Gestural	Qualities of a Conducting Student
and it's really easy for experienced conductors to ferret out these things, probably because they've mastered certain aspects of physical conducting, they know the piece well enough	Know the piece	Understanding	Qualities of a Conducting Student
these are the two primary ingredients that young conductors are lacking	Lacking	Decisions about where to place focus	Personal Concerns about Error Detection
actively listen	Listen	Ear	Qualities of a Conducting Student
critically listen	Listen	Ear	Qualities of a Conducting Student
those are tricks that, while a student is developing, they can use but they are not at all a substitute, in my expectation, they are not a substitute for having that explicitly-clear aural expectation	Not a substitute	Practical Application	Feelings about the Importance of E.D. Skills
aural skills needs to be an applied art	Applied art	Practical Application	Feelings about the Importance of E.D. Skills

most institutions teach aural skills so students can pass aural skills exams and excerpts and exercises that are given to aural skills students are cherry-picked for specific pedagogical purposes and don't necessarily constitute real music	Aural skills courses	Connection to Methods Courses	Instructors' Desire to Expand Teaching of Error Detection
We're not teaching aural skills as an applied art.	Applied art	Practical Application	Feelings about the Importance of E.D. Skills
They need to be able to hear Major 6 th , Minor 3 rd , Perfect 4 th , whatever, right in a row and not have to stop to compare it to something else.	Hear	Ear	Qualities of a Conducting Student
They haven't been trained in that skill	Haven't been trained	Decisions about where to place focus	Personal Concerns about Error Detection
that's why we need score study	Need score study	Decisions about where to place focus	Personal Concerns about Error Detection
that's again the skill we need to have as conductors that's not being taught as an applied art	Applied art	Practical Application	Feelings about the Importance of E.D. Skills
I would say that I had a vanilla, typical aural skills growing up in college and I would say that my conducting class was equally vanilla and typical	Vanilla education	Lack of error detection methods in own education	Personal Concerns about Error Detection
in terms of it being meaningful in a specific way in a specific musical situation, that was void	Not meaningful	Lack of error detection methods in own education	Personal Concerns about Error Detection
one of the things that is never talked about in conducting classes is how the conductor can affect the timbre of an ensemble through gesture	Gesture	Physical/Gestural	Qualities of a Conducting Student
aural expectation	Aural expectation	Aural expectation	Qualities of a Conducting Student
how your body moves	Body moves	Physical/Gestural	Qualities of a Conducting Student
the timbre of an ensemble will predicate how your body moves	Body moves	Physical/Gestural	Qualities of a Conducting Student

expectation	Expectation	Aural expectation	Qualities of a Conducting Student
principled movement	Movement	Physical/Gestural	Qualities of a Conducting Student
it's preparing their instrument, which is their body	Body	Physical/Gestural	Qualities of a Conducting Student
creating sounds in your head	Creating sounds in your head	Aural expectation	Qualities of a Conducting Student
prepare a gesture	Gesture	Physical/Gestural	Qualities of a Conducting Student
we're preparing their mind for creating specific expectations	Specific expectation	Aural expectation	Qualities of a Conducting Student
the responsibility is on the conductor to change their gesture in a way that brings the respondents closer to a degree of unicity	Gesture	Physical/Gestural	Qualities of a Conducting Student
communicating what's to be expected	Expectation	Aural expectation	Qualities of a Conducting Student
How are you going to change to get it to be of one sound	Change	Physical/Gestural	Qualities of a Conducting Student
we just kind of add complexity	Add complexity	Additive process	Activities Incorporated in Conducting Classes
what is needed on the part of the conductor	The part of the conductor	Role of the conductor	Qualities of a Conducting Student
they end up having great success and working far harder at success on those	Working harder	Motivation	Qualities of a Conducting Student
I'm asking them to create arrangements of great specificity	Great specificity	Aural expectation	Qualities of a Conducting Student
great specificity	Great specificity	Aural expectation	Qualities of a Conducting Student
practice the physical gesture	Physical gesture	Physical/Gestural	Qualities of a Conducting Student

their instrument is their body	Body	Physical/Gestural	Qualities of a Conducting Student
expectation	Expectation	Aural expectation	Qualities of a Conducting Student
gesture	Gesture	Physical/Gestural	Qualities of a Conducting Student
cycle of listening and redirect	Listening	Ear	Qualities of a Conducting Student
getting that music inside of you	Inside of you	Understanding	Qualities of a Conducting Student
score study	Score study	Score study	Activities Incorporated in Conducting Classes
score study process	Score study process	Score study	Activities Incorporated in Conducting Classes
Getting the music, this external agent, getting it inside of you	Inside of you	Understanding	Qualities of a Conducting Student
very short, very simple excerpts	Short, simple excerpts	Simplify	Activities Incorporated in Conducting Classes
we get more complicated and longer throughout the course of the semester.	Get more complicated	Additive process	Activities Incorporated in Conducting Classes
even when you're playing as an ensemble, you need to be thinking like a conductor	Thinking live a conductor	Secondary effect	Activities Incorporated in Conducting Classes
you get to determine, over the course of your career, which is going to be a benefit and why	Career benefits	Practical Application	Feelings about the Importance of E.D. Skills
I would love to actually have a class called "Applied Aural Skills" or "Aural Skills for Conductors"	Applied Aural Skills class	Advanced courses	Instructors' Desire to Expand Teaching of Error Detection

What are the things that you feel you need more work with?	You need more work with	Practical Application	Feelings about the Importance of E.D. Skills
expectations	Expectation	Aural expectation	Qualities of a Conducting Student
expectations	Expectation	Aural expectation	Qualities of a Conducting Student
expect	Expect	Aural expectation	Qualities of a Conducting Student
expectation	Expectation	Aural expectation	Qualities of a Conducting Student
big picture	Big picture	High-order thinking	Feelings about the Importance of E.D. Skills
they might have been taught that way, but it's not been transcended into an applied skill	Applied skill	Practical Application	Feelings about the Importance of E.D. Skills
Can the students hear that?	Hear	Ear	Qualities of a Conducting Student
rules of expectation	Expectation	Aural expectation	Qualities of a Conducting Student
Is the expectation being met?	Expectation	Aural expectation	Qualities of a Conducting Student
you've got to change that assumption of what it is that conductors do	What conductors do	Role of the conductor	Qualities of a Conducting Student
understanding of the task	Task	Role of the conductor	Qualities of a Conducting Student
understand their responsibility	Responsibility	Role of the conductor	Qualities of a Conducting Student
daunted by it	Daunted by it	Self-efficacy	Qualities of a Conducting Student
overwhelmed by the immensity of the activity	Overwhelmed	Self-efficacy	Qualities of a Conducting Student

expect to hear	Expect	Aural expectation	Qualities of a Conducting Student
understand their responsibility	Responsibility	Role of the conductor	Qualities of a Conducting Student
listen and process	Listen	Ear	Qualities of a Conducting Student
thinking about their instrument	Body as instrument	Physical/Gestural	Qualities of a Conducting Student
processing this external agency we call the score	Process the score	Understanding	Qualities of a Conducting Student
getting it into their head	Inside head	Understanding	Qualities of a Conducting Student
<u>Interview Participant 7</u>			
Quotes	Code	Category	Theme
I think the real challenge for all of us who teach this is to figure out what those key core concepts are	Figure out key core concepts	Decisions about where to place focus	Personal Concerns about Error Detection
core concepts	Core concepts	Decisions about where to place focus	Personal Concerns about Error Detection
Let's spend time with the things the students aren't going to figure out on their own or without those skills, they're not going to be able to be successful.	Not going to be successful	Decisions about where to place focus	Personal Concerns about Error Detection
core set of skills	Core set of skills	Decisions about where to place focus	Personal Concerns about Error Detection
physical, or gestural, core	Physical, gestural	Physical/Gestural	Qualities of a Conducting Student
make sure students are aware of hinges and how they work	Hinges	Physical/Gestural	Qualities of a Conducting Student
their conception of what conducting is	Conception of conducting	Role of the conductor	Qualities of a Conducting Student

physical aspect	Physical	Physical/Gestural	Qualities of a Conducting Student
all of the skills that have to do with understanding how music works	Understanding	Understanding	Qualities of a Conducting Student
conceptually in their mind's ear	Mind's ear	Aural expectation	Qualities of a Conducting Student
getting closer to what it is that they've conceived in their head	In their head	Aural expectation	Qualities of a Conducting Student
internalization of a score	Internalization of a score	Understanding	Qualities of a Conducting Student
firmly being tethered to a conceptualization to what it is that you want this piece	Conceptualization	Aural expectation	Qualities of a Conducting Student
they're really never tasked with consistently, again and again and again the responsibility of saying, "How do you want this to be?"	Responsibility	Aural expectation	Qualities of a Conducting Student
How do I get an entire piece into my mind?"	Into my mind	Understanding	Qualities of a Conducting Student
exploration of that piece	Exploration	Score study	Activities Incorporated in Conducting Classes
wholistic understanding	Wholistic understanding	Understanding	Qualities of a Conducting Student
compare what's happening in sound around the room	Compare	Ear	Qualities of a Conducting Student
bring them along with you, to have an ensemble's attention without being overbearing	Bring them along	Role of the conductor	Qualities of a Conducting Student
debilitated when they stand in front of their peers on the podium	Debilitated	Self-efficacy	Qualities of a Conducting Student
internal dialogue in their mind	In their mind	Understanding	Qualities of a Conducting Student

listening	Listening	Ear	Qualities of a Conducting Student
hearing	Hearing	Ear	Qualities of a Conducting Student
small segments	Small segments	Simplify	Activities Incorporated in Conducting Classes
appropriately-sequenced experiences	Sequenced experiences	Additive process	Activities Incorporated in Conducting Classes
There's only so many days in two semesters.	Only so many days	Time constraints	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
they just need lots of practice with those key core concepts and skills	Key core concepts	Decisions about where to place focus	Personal Concerns about Error Detection
Subtle, comparative discrimination,	Comparative discrimination	Aural expectation	Qualities of a Conducting Student
How does what I'm hearing vary, even in the subtlest of ways, from what I've conceived in my head?"	Conceived in my head	Aural expectation	Qualities of a Conducting Student
high-order thinking	High-order thinking	High-order thinking	Feelings about the Importance of E.D. Skills
without that, again this whole conducting thing just becomes the impression of conducting, not necessarily really what this endeavor is.	Impression of conducting	Role of the conductor	Qualities of a Conducting Student
I don't remember in essence having to demonstrate my knowledge of a score or excerpts that we were doing in class in terms of how I had internalized that or how I had imaged that through demonstration of anything that might have to do with aural, both my inner ear or my ability to sing	No demonstration of internalization	Lack of error detection methods in own education	Personal Concerns about Error Detection

I think there was a period of time where conducting pedagogy was consumed with how the conductor looks	How conductor looks	Historical philosophies toward error detection methods	Personal Concerns about Error Detection
if I felt insecure coming out of my undergrad and heading into my public-school career, it was the ability to study and ingest a score.	Coming out of undergrad	Experience in first teaching job	Personal Concerns about Error Detection
score knowledge evaluation	Score knowledge	Score study	Activities Incorporated in Conducting Classes
asking students to apply skills that they've learned so far in their experience so far as an undergraduate	Apply skills	Practical application	Feelings about the Importance of E.D. Skills
comfortable	Comfortable	Comfortable	Qualities of a Conducting Student
playing on the piano with their, very often their left hand, the bass voice and singing with their voice another part	Piano	Piano	Activities Incorporated in Conducting Classes
error catalogs	Error catalogs	Resource Materials/Timelines	Activities Incorporated in Conducting Classes
what are you hearing?	Hearing	Ear	Qualities of a Conducting Student
intentionally planting	Planting	Planting errors	Activities Incorporated in Conducting Classes
we try to put into play the kinds of errors that many of them are gonna experience in their first jobs	Will experience in first jobs	Practical application	Feelings about the Importance of E.D. Skills
how do we deal in getting them to listen more subtly and carefully	Listen	Ear	Qualities of a Conducting Student
there's no textbook that incorporates all of this	Not textbook	Practicality	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course

great experience for them to study that score	Study score	Score study	Activities Incorporated in Conducting Classes
score-study process	Score-study process	Score study	Activities Incorporated in Conducting Classes
creating a timeline	Timeline	Resource Materials/Timelines	Activities Incorporated in Conducting Classes
regardless of whether the student is on the podium or not, everybody in the room gets better at this because they have the opportunity, even if they're the ones playing while somebody else is on the podium, they have the opportunity listening	Everybody gets better	Secondary effect	Activities Incorporated in Conducting Classes
motivated	Motivated	Motivation	Qualities of a Conducting Student
don't worry about your grade. What you need to do is... can you hear when the oboes are slurring or not?	Worry about grade	Self-efficacy	Qualities of a Conducting Student
more motivated	Motivated	Motivation	Qualities of a Conducting Student
But I think the more that a student has the opportunity to listen from the podium, even if that's just listening to a planted error on a recording, that's helpful for them	Listen from the podium	Live conducting	Activities Incorporated in Conducting Classes
distracted listening	Distracted listening	Aural expectation	Qualities of a Conducting Student
How do I get them to study these excerpts and demonstrate that they know them before we listen to them?	Get them to study	Motivation	Qualities of a Conducting Student
students in our symphonic band... are engaged with learning a score and rehearsing themselves and performing without a conductor	Rehearsing themselves	Rehearsal strategy	Feelings about the Importance of E.D. Skills

What are you hearing as you rehearse yourselves here, what do you want to stop and go back for, what do you notice, what don't you notice?	Rehearsing themselves	Rehearsal strategy	Feelings about the Importance of E.D. Skills
students being engaged in a large-ensemble rehearsal where they are responsible for listening much more critically than when a conductor is on the podium	Listening critically from the ensemble	Rehearsal strategy	Feelings about the Importance of E.D. Skills
I think it starts to hone their ears and they start listening	Hone their ears	Ear	Qualities of a Conducting Student
it's just a schedule issue	Schedule issue	Time constraints	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
aren't enough hours in the day	Not enough hours in day	Time constraints	Challenges to Teaching E.D. Skills in an Instrumental Conducting Course
students are getting a lot of feedback	Feedback	Assessment	Activities Incorporated in Conducting Classes
they're constantly turning things in for evaluation and assessment and feedback from us	Evaluation and assessment	Assessment	Activities Incorporated in Conducting Classes
always providing feedback on what we're hearing from them	Feedback	Assessment	Activities Incorporated in Conducting Classes
sometimes the feedback is just verbal in a class, sometimes it's in writing, sometimes it's digitally, sometimes it's an audio file	Verbal, written, digital, audio feedback	Assessment	Activities Incorporated in Conducting Classes
lowering anxiety about the grade-conscious kid	Grade-conscious	Self-efficacy	Qualities of a Conducting Student

It's a mess because every student who walks in your is different and so they're on a different place in there	Every student is different	Decisions about where to place focus	Personal Concerns about Error Detection
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Appendix H

Code List (Sorted by Theme)

Personal Concerns about Error Detection - Quotes	Category
I think there was a period of time where conducting pedagogy was consumed with how the conductor looks	Historical philosophies toward error detection methods
I would say that I had a vanilla, typical aural skills growing up in college and I would say that my conducting class was equally vanilla and typical	Lack of error detection methods in own education
in terms of it being meaningful in a specific way in a specific musical situation, that was void	Lack of error detection methods in own education
I don't remember in essence having to demonstrate my knowledge of a score or excerpts that we were doing in class in terms of how I had internalized that or how I had imaged that through demonstration of anything that might have to do with aural, both my inner ear or my ability to sing	Lack of error detection methods in own education
I look back on those times and I think of that as sort of a weakness in my own education that I, you know, vicariously try to correct in what I teach	Lack of error detection methods in own education
Back then, there were few authentic opportunities to practice error detection	Lack of error detection methods in own education
the first experience I had with it was my first year of teaching as a band director	Experience in first teaching job
if I felt insecure coming out of my undergrad and heading into my public-school career, it was the ability to study and ingest a score.	Experience in first teaching job
we just kind of tended to notice that the error detection skills of the students in the student teaching portion of their coursework were lacking	Decisions about where to place focus
we made error detection the primary focus and gestural vocabulary was very much a secondary type-of-thing	Decisions about where to place focus
What are some common problems that both our students had	Decisions about where to place focus
these are the two primary ingredients that young conductors are lacking	Decisions about where to place focus
They haven't been trained in that skill	Decisions about where to place focus

that's why we need score study	Decisions about where to place focus
I think the real challenge for all of us who teach this is to figure out what those key core concepts are	Decisions about where to place focus
core concepts	Decisions about where to place focus
Let's spend time with the things the students aren't going to figure out on their own or without those skills, they're not going to be able to be successful.	Decisions about where to place focus
core set of skills	Decisions about where to place focus
they just need lots of practice with those key core concepts and skills	Decisions about where to place focus
It's a mess because every student who walks in your is different and so they're on a different place in there	Decisions about where to place focus
But through years and years of teaching, it's just a practical matter that you have to develop that skill to be successful in rehearsing an ensemble and preparing for performance	Decisions about where to place focus
You got about a gillion responsibilities and associated skill sets for each of them	Decisions about where to place focus
That's one of the skills that students not only need but probably don't have at all.	Decisions about where to place focus
Feelings about the Importance of E.D. Skills - Quotes	Category
but it's also going to be where you're going to be living if you teach beginning band	Practical Application
band directing skill	Practical Application
as a conductor you're probably going to be looking at a transposed score	Practical Application
as a conductor you've got to decide what it means	Practical Application
getting them ready for the real world on a practical level	Practical Application
I've had kids who've graduated out of our music ed program tell me that that was extremely helpful to them because, like you said, that's something they had to do with their little tiny band programs	Practical Application
Making it relevant	Practical Application
this is going to be a large portion of what they do	Practical Application
it connects to the pedagogy	Practical Application
they start applying it on themselves in addition to applying it to the students	Practical Application
It really ties into the lifelong learning and comprehensive musicianship approach,	Practical Application
do you think it's going to be applicable to your future career	Practical Application

apply it for their own musical journeys	Practical Application
to get them to try this out in their own lives, to see first-hand that it really works, and then to take that to the field	Practical Application
There's so many skills that are taught in the traditional aural/theory class sequence that I'm not convinced are as applicable,	Practical Application
Melodic dictation is not a skill he's used a great deal in the real world.	Practical Application
This is how you apply these skills	Practical Application
those are tricks that, while a student is developing, they can use but they are not at all a substitute, in my expectation, they are not a substitute for having that explicitly-clear aural expectation	Practical Application
aural skills needs to be an applied art	Practical Application
We're not teaching aural skills as an applied art.	Practical Application
that's again the skill we need to have as conductors that's not being taught as an applied art	Practical Application
you get to determine, over the course of your career, which is going to be a benefit and why	Practical Application
What are the things that you feel you need more work with?	Practical Application
they might have been taught that way, but it's not been transcended into an applied skill	Practical Application
asking students to apply skills that they've learned so far in their experience so far as an undergraduate	Practical Application
we try to put into play the kinds of errors that many of them are gonna experience in their first jobs	Practical Application
pedagogical goals	Practical Application
really important skill	High-order thinking
to look more broadly	High-order thinking
we're just identifying errors, but we haven't really tied it into the actual "error detection while you're conducting" process	High-order thinking
I view conducting as teaching and teaching as conducting	High-order thinking
think in the long-term	High-order thinking
when it becomes an important aspect of what they're doing and they start to understand why they're doing it	High-order thinking
Important and integral, but inextricable	High-order thinking
it is <i>the</i> skill	High-order thinking
Well that means correct notes and correct rhythms," and I would contend that that needs to go much, much deeper than that	High-order thinking
the things I feel like I need to talk to them about in terms of "error detection" are these multiplicities that are not explicit on the paper	High-order thinking

big picture	High-order thinking
high-order thinking	High-order thinking
this proved that error detection was actually a good vehicle for practicing your rehearsal technique, your rehearsal skills	Rehearsal Strategy
it's error detection not just for the sake of error detection, but for the sake of building up your rehearsals, for practicing and trying out your rehearsal skills	Rehearsal Strategy
relevant to practicing their rehearsal skills	Rehearsal Strategy
error detection <i>as</i> rehearsal strategy building	Rehearsal Strategy
students in our symphonic band... are engaged with learning a score and rehearsing themselves and performing without a conductor	Rehearsal Strategy
What are you hearing as you rehearse yourselves here, what do you want to stop and go back for, what do you notice, what don't you notice?	Rehearsal Strategy
students being engaged in a large-ensemble rehearsal where they are responsible for listening much more critically than when a conductor is on the podium	Rehearsal Strategy
Challenges to Teaching E.D. Skills - Quotes	Category
the instrumentation is very spotty	Instrumentation
there's no way we'd have all the parts covered	Instrumentation
kids in the conducting class had to edit the scores and perhaps even write parts for the instruments that we did have to cover parts that we didn't have	Instrumentation
flexible instrumentation to match the composition of the class	Instrumentation
don't necessarily have every part covered all the time	Instrumentation
time constraints	Time constraints
that's all I had time to do	Time constraints
Yeah it was a time situation	Time constraints
were pressed for time	Time constraints
they only have 1 opportunity do actually conduct a live ensemble. I don't have the time	Time constraints
I can't really give up any more rehearsal time than that for conducting	Time constraints
limited time	Time constraints
There's only so many days in two semesters.	Time constraints
it's just a schedule issue	Time constraints
aren't enough hours in the day	Time constraints
their peers	Peers
you're conducting your friends	Peers
Because there's just too much to cover in the class	Practicality

practical purposes	Practicality
the challenges of doing a conducting class with relatively small numbers is you really can't do live conducting	Practicality
it was practical	Practicality
we don't have enough time so spend on it during our class to really justify buying a 30-dollar book for every student	Practicality
totally impractical for our situation	Practicality
there's no textbook that incorporates all of this	Practicality
Activities Incorporated in Conducting Classes - Quotes	Category
the players are going to play exactly what I tell them to play	Planting errors
I gave everybody instructions, whatever it would have had to have been for them all to play in the wrong mode	Planting errors
But I had people play wrong note, either add a flat or sharp or whatever. I had people play the wrong rhythm	Planting errors
plant some errors in there	Planting errors
build into the score, in the individual parts, wrong notes, wrong rhythms, and he'd even have the percussionists do things like drop mallets, to distract the conductor from their job	Planting errors
I'll build in a wrong note or have someone do something that's out of what's written in the score, in order to hopefully attract the conductor's attention	Planting errors
I will plant rhythmic errors in the ensemble	Planting errors
intentionally planting	Planting errors
live conducting experience in real time	Live Conducting
twice during the semester, everybody in the class conducted the symphonic band, the university band live	Live Conducting
actually leading the band in playing something	Live Conducting
actually teaching the piece	Live Conducting
all of our music ed majors do conduct our top ensemble twice	Live Conducting
first time in front a large ensemble	Live Conducting
opportunity to conduct in real time	Live Conducting
conduct either the symphonic band or the concert band	Live Conducting
plenty of authentic opportunities for them to identify errors	Live Conducting
conducting their classmates while they're playing	Live Conducting
the student teachers end up going back and conducting, say, the winter concert	Live Conducting
But I think the more that a student has the opportunity to listen from the podium, even if that's just listening to a planted error on a recording, that's helpful for them	Live Conducting
this is totally my own invention	Custom-Built Exercises

listening to recordings	Recordings
We conduct recordings a lot	Recordings
listening to a recording while we talked about what's in the score	Recordings
play the recording	Recordings
with a recording	Recordings
look at the score	Score study
score study	Score study
score study	Score study
digging into a score	Score study
we spent a couple weeks just learning the ins and outs of that piece	Score study
the basic function of the class is to teach the kids to read score to some degree	Score study
score reading	Score study
looking at the score	Score study
score study	Score study
score study	Score study
score study process	Score study
exploration of that piece	Score study
score knowledge evaluation	Score study
great experience for them to study that score	Score study
score-study process	Score study
resource guide, similar to and modeled on the resource guides found in Teaching Music Through Band Performance by GIA	Resource Materials/Timelines
error catalogs	Resource Materials/Timelines
creating a timeline	Resource Materials/Timelines
sight-sing it or audiate it in your head	Audiate/Sing
audiating parts by singing	Audiate/Sing
singing the bass line and the melody	Audiate/Sing
audiate	Audiate/Sing
audiate	Audiate/Sing
how to develop audiation skills	Audiate/Sing
small ensemble exercises and audiating exercises	Audiate/Sing
go over to the piano	Piano
play some things on piano if your audiation is not very good	Piano
playing on the piano with their, very often their left hand, the bass voice and singing with their voice another part	Piano
learning the literature	Literature

but I give them a whole collection of stuff, of literature as well	Literature
daily participation grade	Assessment
quasi-formal	Assessment
formal assessment	Assessment
students are getting a lot of feedback	Assessment
they're constantly turning things in for evaluation and assessment and feedback from us	Assessment
always providing feedback on what we're hearing from them	Assessment
sometimes the feedback is just verbal in a class, sometimes it's in writing, sometimes it's digitally, sometimes it's an audio file	Assessment
when they're in that ensemble, even though they know who's making the errors, there's a secondary effect there of: their ear is trying to hear it themselves.	Secondary effect
even when you're playing as an ensemble, you need to be thinking like a conductor	Secondary effect
regardless of whether the student is on the podium or not, everybody in the room gets better at this because they have the opportunity, even if they're the ones playing while somebody else is on the podium, they have the opportunity listening	Secondary effect
only listening to 5 different parts at any given time	Simplify
it's simple enough	Simplify
the conductor is given a very specific assignment	Simplify
you have to start somewhere but you start at the very lowest level	Simplify
while looking at the little excerpt	Simplify
scaling it back	Simplify
very short, very simple excerpts	Simplify
small segments	Simplify
progressively increasing the size of the ensembles that they conduct	Additive Process
gradually they can develop the skill of hearing a wrong note or a missed rhythm	Additive Process
sequential	Additive Process
And it just becomes an additive process	Additive Process
we just kind of add complexity	Additive Process
we get more complicated and longer throughout the course of the semester.	Additive Process
appropriately-sequenced experiences	Additive Process

Qualities of a Conducting Student - Quotes	Category
open up their ears	Ear
guide their ears	Ear
as soon as a conductor starts conducting, a beginner conductor only hears about 50% of what's going on	Ear
it opened up their ears	Ear
Because it meant that your ears and your instincts were pulling somewhere	Ear
it at least steers you in that right direction, so your ears are working	Ear
Getting them to rehearse and to hear	Ear
the first thing that goes on any young conductor is their ability to actually hear what's happening	Ear
do they have the capacity to actually listen?	Ear
actively listen	Ear
critically listen	Ear
They need to be able to hear Major 6 th , Minor 3 rd , Perfect 4 th , whatever, right in a row and not have to stop to compare it to something else.	Ear
cycle of listening and redirect	Ear
Can the students hear that?	Ear
listen and process	Ear
compare what's happening in sound around the room	Ear
listening	Ear
hearing	Ear
what are you hearing?	Ear
how do we deal in getting them to listen more subtly and carefully	Ear
I think it starts to hone their ears and they start listening	Ear
they're hearing what they want to hear	Aural Expectation
I was hoping that the student would not notice that because they were hearing what they expected to hear	Aural Expectation
a lot of times as a conductor you'll hear what you expect to hear, whether they were actually playing it or not	Aural Expectation

really anticipate what you're going to hear	Aural Expectation
that you've got to know what to expect to hear	Aural Expectation
the most successful I knew were those who very clearly had in their mind's ear what they were going to hear before they ever gave a downbeat.	Aural Expectation
until it matches your internal, your aural image of what the piece is supposed to be	Aural Expectation
aural expectation	Aural Expectation
Do you hear in your mind what you want to sound	Aural Expectation
so that we have as specific an aural expectation as possible	Aural Expectation
error detection becomes an easier thing because you have an explicit expectation	Aural Expectation
comes into a state of unicity, where we are all of one mind	Aural Expectation
Do we have a series of long-term expectations	Aural Expectation
what I'm hearing is different than what I expect	Aural Expectation
am I hearing unicity in that	Aural Expectation
Do you have a specific-enough expectation	Aural Expectation
often times they don't hear anything because they're so self-absorbed	Aural Expectation
aural expectation	Aural Expectation
expectation	Aural Expectation
creating sounds in your head	Aural Expectation
we're preparing their mind for creating specific expectations	Aural Expectation
communicating what's to be expected	Aural Expectation
I'm asking them to create arrangements of great specificity	Aural Expectation
great specificity	Aural Expectation
expectation	Aural Expectation
expectations	Aural Expectation
expectations	Aural Expectation
expect	Aural Expectation
expectation	Aural Expectation
rules of expectation	Aural Expectation
Is the expectation being met?	Aural Expectation
expect to hear	Aural Expectation
conceptually in their mind's ear	Aural Expectation
getting closer to what it is that they've conceived in their head	Aural Expectation
firmly being tethered to a conceptualization to what it is that you want this piece	Aural Expectation

they're really never tasked with consistently, again and again and again the responsibility of saying, "How do you want this to be?"	Aural Expectation
Subtle, comparative discrimination,	Aural Expectation
How does what I'm hearing vary, even in the subtlest of ways, from what I've conceived in my head?"	Aural Expectation
distracted listening	Aural Expectation
the band director's conducting technique is the last impediment to the band moving up to the highest level of performance	Physical/Gestural
before anything else really good can happen on the podium, someone has to be so confident in their conducting technique that it's second nature	Physical/Gestural
conducting technique	Physical/Gestural
posture	Physical/Gestural
gestural vocabulary	Physical/Gestural
good vocabulary	Physical/Gestural
good fundamentals	Physical/Gestural
hopefully they can do it in real-time with a change of gesture	Physical/Gestural
one of the things that is never talked about in conducting classes is how the conductor can affect the timbre of an ensemble through gesture	Physical/Gestural
how your body moves	Physical/Gestural
the timbre of an ensemble will predicate how your body moves	Physical/Gestural
principled movement	Physical/Gestural
it's preparing their instrument, which is their body	Physical/Gestural
prepare a gesture	Physical/Gestural
the responsibility is on the conductor to change their gesture in a way that brings the respondents closer to a degree of unicity	Physical/Gestural
How are you going to change to get it to be of one sound	Physical/Gestural
practice the physical gesture	Physical/Gestural
their instrument is their body	Physical/Gestural
gesture	Physical/Gestural
thinking about their instrument	Physical/Gestural
physical, or gestural, core	Physical/Gestural
make sure students are aware of hinges and how they work	Physical/Gestural
physical aspect	Physical/Gestural
they really understood what was in the score	Understanding
understand the tonality	Understanding
I have to understand before the fact what the chord is	Understanding

my curriculum is geared toward fostering the preparation of the mind,	Understanding
how do we prepare their mind first?	Understanding
and it's really easy for experienced conductors to ferret out these things, probably because they've mastered certain aspects of physical conducting, they know the piece well enough	Understanding
getting that music inside of you	Understanding
Getting the music, this external agent, getting it inside of you	Understanding
processing this external agency we call the score	Understanding
getting it into their head	Understanding
all of the skills that have to do with understanding how music works	Understanding
internalization of a score	Understanding
How do I get an entire piece into my mind?"	Understanding
wholistic understanding	Understanding
internal dialogue in their mind	Understanding
just counting the beats and they think that's what conducting is	Role of the conductor
what is needed on the part of the conductor	Role of the conductor
you've got to change that assumption of what it is that conductors do	Role of the conductor
understanding of the task	Role of the conductor
understand their responsibility	Role of the conductor
understand their responsibility	Role of the conductor
their conception of what conducting is	Role of the conductor
bring them along with you, to have an ensemble's attention without being overbearing	Role of the conductor
without that, again this whole conducting thing just becomes the impression of conducting, not necessarily really what this endeavor is.	Role of the conductor
and they've developed a comfort level of being in front of people and leading them through a set of exercises	Comfortable
Our primary goal with (conducting on a concert) is getting them on the podium and getting them comfortable doing these things before they go out and student teach.	Comfortable
the person on the podium has to be comfortable with their conducting technique.	Comfortable
they're much more comfortable with hearing things and with rehearsing	Comfortable
comfortable	Comfortable
It's just overwhelming	Self-efficacy

it's absolutely ok to not know and to be uncertain	Self-efficacy
I don't want to damage self-efficacy too much.	Self-efficacy
the last thing I want to do is damage their self-efficacy in terms of error detection	Self-efficacy
self-efficacy is a really, really important thing in motivation and ability down the road, you know, accumulative ability down the road	Self-efficacy
they're just overwhelmed with all of this information coming at them	Self-efficacy
they're still very stressed about finding the errors.	Self-efficacy
some students feel like if they don't hear it the first time right off the bat that they're somehow lacking	Self-efficacy
daunted by it	Self-efficacy
overwhelmed by the immensity of the activity	Self-efficacy
debilitated when they stand in front of their peers on the podium	Self-efficacy
don't worry about your grade. What you need to do is... can you hear when the oboes are slurring or not?	Self-efficacy
lowering anxiety about the grade-conscious kid	Self-efficacy
them think they're a lot better than they are	Self-Evaluation
they see in their own practicing that they are being a little more discerning with their own playing	Self-Evaluation
they tend to be a little bit more discerning of themselves	Self-Evaluation
error detection as self-revelation in terms of practicing, self-practice	Self-Evaluation
they naturally put more effort into it and I think get more out of it	Motivation
their practice time gets more efficient because of A, the error detection, they hear the mistakes better, but because they put it in an authentic context	Motivation
They rehearse, they practice more efficiently	Motivation
they end up having great success and working far harder at success on those	Motivation
motivated	Motivation
more motivated	Motivation
How do I get them to study these excerpts and demonstrate that they know them before we listen to them?	Motivation
Instructors' Desire to Expand Teaching of Error Detection - Quotes	Category
if I wanted to go farther with it I would get more complicated music	More complex
we felt that the Conducting II and Instrumental Methods were a little divorced from each other and not as integrated	Connection to Methods Courses

<p>if we really want to be advancing music teacher identities throughout the program, it's good to run your conducting course alongside both methods and field experiences</p>	<p>Connection to Methods Courses</p>
<p>most institutions teach aural skills so students can pass aural skills exams and excerpts and exercises that are given to aural skills students are cherry-picked for specific pedagogical purposes and don't necessarily constitute real music</p>	<p>Connection to Methods Courses</p>
<p>I would love to actually have a class called "Applied Aural Skills" or "Aural Skills for Conductors"</p>	<p>Advanced courses</p>

Appendix I

Compilation of Comments from Survey Participants

- I feel that my own skills in this area have grown largely by doing it in a large ensemble setting. For students, they get to practice in a controlled environment with specific errors pre-programmed, but not having learned in a systematized way I am constantly trying to improve the "method" in my teaching. The old school approach of "same thing only better" only goes so far. I also think this area depends a lot on the skills established in Theory/Aural Skills. Working with our fundamentals instructors so that there is continuity in these skill sets is essential.
- I have not taught conducting for three years. I was about to begin using the Spradling error detection program.
- Perhaps error detection should be taught in conducting, but it might also be taught in instrumental methods-type courses.
- The university I began my collegiate career at, I taught there for 8 years. The intermediate class for undergraduate music education majors had them conduct in front of a lab band. This was one of the most important things for them, because I would make the band (with the student conductors out of the room) play things wrong (not correct key, wrong rhythms, etc.) to see if they could then detect this and fix it. The university I am currently at now (been here for 12 years) does not offer this kind of class with a lab band, but this is where it needs to be revised.
- I am heavily movement-based when I teach conducting because I know they will not get movement training elsewhere. We talk about how my pedagogy relies on the analysis, aural, and interpretive skills they learn in other areas of the music curriculum. As I teach them, I attempt to draw a connection between gesture and the impact on the sound. I suppose that error detection is pre-empted by this form of teaching, but I also rely on the practicum classes to assist in covering error detection in an explicit way.
- Ability to rehearse ensembles effectively is critical to a music educator's success on the podium. Error Detection is a major part of this process, and without it, I believe new teachers are ill prepared. Many of my students have aural skills only in their first two years of undergraduate study and never utilized the skills again! error detection renews and synthesizes this needed skill set. I have used Robert Spradling's Error Detection text for 10 years, and successful alumni consistently point to that experience as making them most prepared and being invaluable to them. How can we expect new Band directors to teach effectively, if they are never rehearsing and practicing to refine what they will do 75% of the time in their future jobs? I feel fortunate I can incorporate this needed component into a music ed methods class curriculum. I would not be able to do so in a

conducting class due to the scope of content required, limited time and the size of the classes.

- Depending on how error detection is taught will determine the level of transfer for students. Our curriculum is designed to reach error detection through score study and applications of how to develop one's own interpretation to detect errors. Not from playing through prescribed error exercises in an exercise.
- Error detection is important and must be taught at some point during the undergraduate program.
- In addition to what I said previously about score study, it is extremely important to learn how to hear what is ACTUALLY being played, rather than what you want to be played or you think you hear being played. Complete objectivity - based on one's thorough knowledge of the score - is THE most important aspect of realizing any piece.
- Although error detection is not included in our undergraduate conducting course, it is a part of the Applied Instrumental Conducting course taken after completion of the conducting course. The applied course is required for all instrumental music education students. I do believe there is a void to be filled in this area. While the Robert Spradling book may be helpful for some, it only works if you have a strong lab ensemble available for your course. This is not an option at schools such as mine. I have had to create my own exercises. (And I have only had time to create a small portion of the exercises that I would like to have.)
- I have not been able to find a good resource on error detection. We do a lot of this in ear training, but not usually large ensemble work.
- The more the better!!!!
- Regarding the last answer, I do not ask them to identify errors, so I do not know if they are developing those skills. I am more concerned with coordination and basic skill acquisition.
- Dennis Fisher at the University of North Texas has the best error detection methodology I have ever seen. He is a master at teaching score reading, error detection and all aspects of basic conducting technique.
- We altered our second conducting course, which is the one I teach, several years ago when we noticed that our student teachers were struggling with error detection. We focus much more on error detection & rehearsal techniques; gestural vocabulary is a secondary focus.
- Most college conducting courses are 2-credit-hour courses. The challenge for the instructor is in finding class time to devote to this specific topic. In order to have a course changed to a 3-credit-hour course a strong rationale must be presented to warrant that change. Many conducting instructors would like for their courses to be 3-credit courses but have lacked the scientific evidence and data to support an increase in the credit hours. Perhaps findings from this study will provide some information that can be used to support increasing conducting courses to 3 credit hours and thereby allow expansion of the content to include error detection in a more comprehensive fashion.

- I find that error detection tends to be better in my music education students when they've had early and continuous authentic teaching, conducting, and rehearsing experiences (out in the field, where they are responsible for student learning in some way, shape, or form).