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THE IMPACT OF SIGHT ON THE PROCESS OF
TEACHING AND LEARNING AURAL SKILLS

by Daniel J. Jenkins

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ABSTRACT

This thesis will examine techniques used to teach ear training to blind and sighted students. In addition to this, it will examine the role that sight plays in a person's ability to complete traditional ear training exercises. It will analyze the effectiveness of these techniques using volunteers from ear training and sight singing classes at the freshman level in the department of Music during the spring 2012 semester. Eight students participated in an experiment, which helped determine challenges both blind and sighted instructors face, as well as sighted students, face in a traditional ear training classroom. An analysis of student responses provided the basis for conclusions drawn about the effectiveness of these techniques.

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Chapter 1

A Summary of Existing Ear Training Techniques For Students

Introduction

For many years, instructors of ear training and sight singing classes have used a variety of techniques to teach ear training to students. Ways to teach ear training include methods in which students sing and play intervals at the piano and sight sing using a textbook. Braille music has been used primarily in sight singing exercises. However, very little study has been undertaken to examine the unique challenges that blind students face in an ear training class taught by a sighted instructor. In addition to this, very little research has been conducted to determine what challenges blind students face when being taught by a blind instructor. Conversely, little research exists which shows the challenges that sighted students face when being taught by either a blind or sighted instructor. This study hopes to examine the challenges that blind instructors will encounter when working with a group of sighted students in an ear training class. Students who participate in this study will be reporting on their experience while wearing sleep shades in an ear training class. More work will need to be done in this area to ensure that all challenges for blind students who are blind are covered and investigated thoroughly. This project hopes to lay the foundation for other studies, which will investigate this topic. It will examine feedback provided by sighted students wearing sleep shades to determine the extent to which reducing sight impacts the student's learning experience.

We can think of four different classroom scenarios. One could include a sighted teacher working with sighted students. The second scenario could involve a blind teacher working with

sighted students. Third, a class could include a blind teacher working with blind students. A fourth scenario could include a sighted teacher working with blind students.

What Students Should Know

This chapter describes what a student should know before enrolling in an ear-training course. The study of ear training requires an understanding of pitch names, intervals, key signatures, scales, rhythmic durations, chord structure, and how to write music. These skills are necessary for completing many exercises that students may encounter in an ear-training course. These include rhythmic, harmonic, and melodic dictation exercises. In addition to these skills, there are other skills that students should know.

Before studying music at a University, it is important for students to know how to play the piano. Many of the examples that are used in an ear training class are played on the piano. For this reason, it is crucial for a student to spend some time practicing the piano every day. Students should also take a few piano lessons so they will understand the relationship between scales and intervals.

In his book, Shumway (1970) makes some important observations about the piano.

The piano by virtue of its versatility and accessibility is an indispensable tool for musicians. Its particular value as a learning aid lies in its capacity to spontaneously translate abstract ideas into sound. Study at the piano has much in common with the programmed text approach, since both processes involve immediate evaluation of each operation. (Shumway 1970, p. 18-23)

In these observations, the author is making an argument that it is important for all students to practice ear-training skills in front of the piano.

Perfect Pitch

Some students who enroll in ear training classes may have perfect pitch. This may be thought of as the ability to recognize and name any note on any instrument simply by hearing it.

Perfect pitch is found among sighted and blind students. A blind student's other senses may be heightened because of their loss of vision. However, some blind students may not have perfect pitch. For these students, it may be harder to associate the sound of notes with a particular pitch. To associate pitches with specific notes, a student must practice playing and singing the note many times. Students should be encouraged to spend as much time as they can in a practice room playing notes on the piano or their principle instrument. After playing the note, the student should sing the note out loud to get an idea of how the note sounds in their head. The relationship that a played pitch on an instrument has with the sound that a note makes in a person's head must be solid. Understanding this relationship is the key to developing a better sense of perfect pitch. Blind students who have perfect pitch may be at a disadvantage in certain situations. When a person who has perfect pitch tunes his/her instrument, the notes have to be tuned perfectly. If the notes are not tuned correctly, it may annoy the student. Playing in an ensemble may present challenges for the blind student because the other students around him/her are not playing in tune. Since blind individuals rely on their sense of hearing to a greater extent than sighted individuals do, it is imperative that others sing and play the correct pitches in class.

Byrne (2003) the presents some of the problems that individuals with perfect pitch may have. He also gives his idea of how individuals with perfect pitch process sound. "I like to think that People with Perfect Pitch Hear Harmonies the Same Way a Painter Visualizes Shapes and Colors before He Applies Them to a Canvas" (p. 18). This author also gives some advice about memorizing music.

Memorizing music is easy for students who have perfect pitch because they have the advantage of hearing the sounds first in their head, in addition to understanding the connections of intervals, harmonies, and chord progressions in a piece to commit it to memory. (Byrne, 2003, p. 19)

One of the most important skills that students learn while playing their instrument is how to play in tune. Intonation may be thought of as playing a particular note exactly the way it should be played. Applied music instructors should encourage students to practice playing scales on their principle instrument in tune. Learning this skill will allow students to become better musicians.

Groeling, 2003 mentions the importance of good intonation in band rehearsals.

A common practice in band rehearsals is for one student to sound a tuning note for others to match. Many bands now have a number of electronic tuners for students to check the tuning note before each rehearsal. (p. 20-22)

A student should also be able to relate the sound that a particular pitch makes to the sound in his/her head. "Once students can retain, recall, compare, and predict pitches and phrases, they are well on their way to musical competency even if all ear training stops here" (p. 20-22).

This author suggests that ear training instructors teach students the basic phrasing and melodic lines of ear training examples. "As students become aware of how notes are put together as phrases that have form and style, they begin to understand the elements of melodies and rhythms simultaneously" (Groeling, 2003, p. 20-22). It is up to an ear-training instructor to decide how a particular class should be structured. However, all of the basic concepts in ear training must be included in the curriculum. "It is up to each teacher to decide how ear training fits into the class period, but the most important consideration is that the sequence is logical. With good application of this theory, intonation problems in older bands should greatly decrease" (p. 20-22).

Help from Peer Instructors

Tutors in the music department can also be an important resource for a blind student who is learning ear training. I am currently the graduate assistant in an ear training class at Radford University. When students have questions about anything, I am more than willing to accommodate them. Most universities also have music organizations with tutors who are readily available and eager to work with students. The music major's organization at Radford University offers tutoring in a variety of subjects related to music. Students should be encouraged by their ear training instructors, as well as other students in the class, to ask the tutors at their school for help whenever they need it.

Practicing on the Principle Instrument

Some students may feel more comfortable practicing ear training skills on their principle instrument. For example, a student who primarily plays the violin may wish to practice interval recognition on the violin. Whether a student practices these skills on their primary instrument is an individual choice that the student must make. Intervals, notes, and sight-reading skills will function the same way no matter what instrument a student plays.

There is one disadvantage of a student using his/her principle instrument to practice and not a piano. On some instruments, two notes may not be able to be played harmonically. This means that two notes are played simultaneously, resulting in a two-note chord. In an ear training class, intervals are sometimes played together. It may be hard for a person to play two notes together on a flute or trombone. For this reason, it might be better for a student to practice ear training on a piano. He must be able to understand the harmonic and intervallic relationship that notes have with one another.

Online Instructional Programs

Another source that may help students with learning ear training skills is through the use of online tutorials. The makers of certain ear training books have websites, which include online components. Students can go to a particular companies' web page and listen to examples of intervals, melodic dictation, and pitch identification. These programs are especially effective in allowing the student to have extra time to practice the skills that he/she learns in class.

Students who are blind entering college music classes should also be aware that some teachers may require the use of certain music software programs in their classes.

Music students entering college, or taking advanced music courses in high school, should be prepared to expect that the software used by their classmates may not be accessible. This is not a matter of failure to comply with disability legislation, but rather the plain fact that the solutions have not yet been found to give blind musicians access to most of the music software used in the mainstream. The most popular program for notation, *Finale*, is not accessible; access to *Sibelius* is possible, but requires installation of scripts still under development and a significant amount of training. (www.blindmusicstudent.org, p. 3)

Although these online programs may be beneficial in some respects, blind individuals may have some difficulty with them. Some software programs could include menus and boxes that are not set up to work with a screen reading program. *JAWS* is a popular screen reader that blind individuals use to read everything that is presented on the screen. Some ear training programs could include scripts that are not set up to work with *JAWS*. I do not know if there is any training that would help individuals who are blind use these programs effectively or not.

Placek (1990) offers a variety of suggestions for good ear training programs that students may use. The most comprehensive ear training program now available is the *Guido Music Learning System: Ear-training Lessons*, designed by Hofstetter and published by the Academic Computing and Instructional Technology department of the University of Delaware. This program is designed so that a student can click on boxes using the mouse on a computer. The lessons are played using a music feature card or an external MIDI device. The five lessons that

are included in this package cover topics such as melody, harmony, intervals, rhythm, and chords. Students are able to control the speed and volume of the playback of files that they create. This program runs on the IBM PC, AT, or XT with 256K of internal memory: it was also available for IBM PS/2 computers (256K minimum: 640K optimum).

Many ear training software products are also available to use on Apple computers. There are four different programs for melodic and harmonic dictation and programs for chord identification and intervals. Many of these programs may be implemented into course curriculum as early as elementary school. *MacGamut*, another popular ear training software program provides experience with intervals, scales, and chords—does not require the addition of a synthesizer and sound board.

Another program that is available for Apple computers is called *Sir William Wrong Note*. This program assists students in learning many different types of dictation. Students see a four-part chord and hear it played with a wrong note. They must first identify the part with the error and then determine the exact pitch of the wrong note.

Computer programs for children in elementary school are also available for Apple computers. *The Magic Musical Balloon Game*, created by Knox and Monsour, is one such program. These programs ask students to listen to whether notes go up, down, or stay the same. Tuning programs, which allow for exact pitch accuracy, are useful for students to learn correct intonation.

A program called *Tune It* uses a graphic representation of a string instrument fingerboard to demand exact intonation from the student user. Many other programs are available to help students master a variety of ear training skills. Placek (1990) realizes the potential for ear-training programs in the future.

The future holds great promise for ear training. Along with the further development of MIDI, sound sequencers, random-access compact discs, I foresee programs in which student conductors identify subtle errors in excerpts of orchestral pieces, in which jazz pianists play complex chords that are instantly analyzed, and in which truly elegant synthesizer sound is used to emulate good ensemble playing. (p. 6)

Traditional Approaches to Ear Training

There are many traditional approaches and techniques that teachers may use to teach college level students. In their book *Fundamentals of Sight Singing and Ear Training*, (Fish & Lloyd, 1964), the authors present many techniques for helping students learn sight-reading and sight-singing. In twelve units of study, the authors present many original exercises that they have found effective over the years. Both of these authors are distinguished faculty members at the Julliard School of music. The book also includes practice drills that students can work on while they are not in class.

The editor of this book provides a description of the program that is presented. He mentions how knowing the concepts, which are presented in sight singing and applying them to ear training practice are two different things. With this in mind, the authors of this text treat the concepts of rhythm and pitch individually. The exercises contained in this text treat these musical ideas separately. The authors assume that the students who use this text have no prior knowledge of music. In this program, students are taught to mentally hear a note that they see on a piece of paper as well as reproduce that note with their voice. Students are also taught concepts such as part singing. This means that an exercise may be divided into two, three, or four parts. Students are to sing each part as a group (Fish & Lloyd, 1964).

Along with these exercises and drills, the authors also suggest many excellent techniques that have been proven effective for many years. One technique for effective sight singing involves singing intervals. The authors suggest that intervals be played at different tempi,

duration, and in any octave on the piano. Intervals should also be reversed when played for students (Fish & Lloyd, 1964).

Along with this advice, these authors suggest some effective strategies for sight singing. One of these strategies is negative ear training. This involves the instructor intentionally including mistakes in an ear training exercise. This method of instruction allows the students to pay attention to what has been played and keeps the class engaged in the learning process. This technique of ear training can be especially important for students who teach ear training privately or in college level classes. Another technique that the authors mention is called silent reading. When a teacher gives the signal to stop, the students stop singing or reading a melody allowed and continue to read it silently. When the teacher gives the signal to sing, students continue singing the melody out loud. This same practice can also be used for rhythm examples. (Fish & Lloyd, 1964).

The authors also mention the importance of a student completing his/her exercise on time. A student does not have to complete an entire exercise before moving on to the next one. Part of an exercise may be assigned for homework. Some students may find particular melodies in an exercise to be challenging while other students may find these melodies to be easy. (Fish & Lloyd, 1964).

The authors of this book make one last suggestion for teaching ear training techniques. A variety of collected works should be used in any ear training course. Folk tunes and symphonic works by Haydn and Mozart are excellent examples of supplemental resources. Shumway (1970) shows how many of the concepts and skills in ear training can be learned at the piano. The premise of this book is that music is an aural art. Therefore, music should be studied and taught as a form of art. Throughout 45 projects of study, the author shows how

music may be read, sang, and played on the piano. The material included in these projects is designed to correlate with courses in music writing and ear training. However, students are advised not to write the material that is presented in this book unless it is absolutely necessary.

Shumway (1970) describes the effectiveness of the projects presented in this text. The material in this text has been used in many lectures at the University of Kansas. This curriculum of study is meant to take about four semesters to complete. Students are expected to complete one project a week. It is up to the instructor to regulate the instruction of each project in this text depending on the ability of the students in the class.

While these two books present some traditional approaches to ear training, other authors have other ideas of how ear training should be taught. DeGroot (2008) mentions some effective techniques that jazz improvisers can use in ear training. “Students should carry a pitch pipe everywhere and listen to the sounds around them, recognizing intervals like step, minor third, major third, ECT” (p. 50). As a way of memorizing intervals, it may be helpful for a person to learn songs that begin with a particular interval. “The most authentic jazz vocal improvisers such as Jon Hendricks and Bobby McFerrin think like an instrumentalist when they train. They want to learn the song’s form as well as to hear roots and chord qualities of every chord in the songs they are learning.” (p. 50).

Another way that students may learn how to improvise is by listening to professional recordings of top jazz musicians. Not only listening to the music, but also understanding how notes relate to particular chords, and developing the basic skills of a jazz piano player, is something that every musician who wants to be an improviser should try to do.

The article also recommends teaching a skill called audiation. This may be thought of as “the ability to hear and comprehend sound in one’s mind before hearing it externally.” (DeGroot

2008, p. 51). The techniques presented in this article are basic for any student who wants to study music. Knowing how to identify intervals and chords by ear is crucial in a student's musical development.

Sedden (2010) offers some advice for students who are studying ear-training concepts.

While there are any number of ways to improve an ensemble's accuracy, clapping, tuner's intonation charts, pitch tendencies, metronomes, aural training is one of the best. It broadens student's understanding of a piece and can include concepts that transfer to other pieces. (pp. 26-30)

Reading Music

Before enrolling in college level ear training courses, it is important for students to know how to read music. This skill is used to the greatest extent in ensemble playing and music theory classes. However, this skill is imperative to a student's success in ear training as well. Students who practice sight singing in ear training class must be able to read the music before they can sing it. Also, most of the melodic and rhythmic dictation exercises are written on manuscript paper. Students must be able to read music before they can write it.

For a student who is blind, having a working knowledge of literary Braille is imperative. In order to read Braille music, a student who is blind must have studied Braille for at least three years. Since Braille music and literary Braille are two completely separate codes, an individual who is blind must know all of the numbers and letters of the alphabet before beginning to study Braille music.

If a student does not want, or is unable to learn Braille music, learning by ear is another option. Classroom instructors can record a student's individual part on tape or compact disc for the student to listen to. The student can then take the compact disc or tape home and memorize his/her part. Along with the individual part, professional recordings of the piece must also be

provided for the student. This would allow the blind individual to not only hear his/her part; it would allow the student to hear how his/her part fits in with the rest of the ensemble.

One of the biggest challenges that a student may face is writing a piece of music so a sighted teacher can read it. To accomplish this, a student who is blind may wish to ask a graduate assistant for help. The blind individual could tell the grad student the notes, rhythmic indicators, and note values. Then, the assistant could write this information on a piece of manuscript paper. One disadvantage of this method is that there may not be a way for a student to accurately produce the assignment in print.

A student who is blind may not necessarily need to be proficient in Braille music to be successful in an ear training class. However, knowing the Braille music code would help the student in understanding and interpreting rhythmic symbols and note values. In Braille music, the same symbol that tells you the note value also represents the note itself. For example, a quarter note C is written as one symbol in Braille. Special indicators are used to represent octave markings and rests. To date, Braille music is the only unified code that students who is blind use to read music. Other than that, most students who is blind are auditory learners.

Braille music is used to the greatest effect in sight singing. If a student who is blind does not know Braille music, it may still be possible for him/her to complete class assignments. Students could listen to a melody or rhythm played by the ear-training instructor. After the instructor has finished playing, the student could then recite what he has heard to the teacher. This may be one way for a student to complete the ear training assignments without a Braille copy in front of him/her. However, without the use of Braille music, there is no affective strategy for sight singing.

The most important thing that sighted music teachers should keep in mind is that Braille music is only meant to be memorized a few measures at a time. If a student wants to learn a whole piece, he or she would probably feel the most comfortable memorizing it from a tape or compact disc. Students generally start learning to read Braille music 1 to 3 years after they first learn to read Braille. Because Braille music is a code unto itself, blind individuals may be hesitant to learn it.

Students can learn to read Braille music using the text *How to Read Braille music* (Krolick, 1998). This book is written on a fifth-grade level, so that it may be easily understood by anyone, regardless of a student's Braille reading ability. In high school, the author took piano lessons for three years with a Braille music book. The manner of teaching often requires that the piano teacher have a print copy of the book while the blind student uses a Braille copy. The teacher and the student would follow along with each other in reading and interpreting the musical examples.

De Zeeuw (1977) presents an article in which several strategies are presented that may help blind students enrolled in college level music theory classes.

The teaching profession is gradually overcoming its reluctance to accept the visually handicapped person, and the relatively new field of music therapy has a history of ready acceptance of blind students and practitioners. While the blind student experiences no special difficulty in understanding an explanation of melodic contour, he does not think of a succession of tones as having a "shape" unless he is taught to do so. (p. 89)

The memorization of musical concepts and terms is crucial in the development of a student's musical knowledge. When a student who is blind first enrolls in theory courses, his/her knowledge of notation may be severely weak because students who are blind have little experience using Braille music.

When a person who is blind learns from a piece of Braille music, he/she must read with both hands, put the music aside, play the music, and continue the process. “The impossibility or at least impracticality of reading and performing simultaneously, then, leads the blind musician to depend more upon memory than upon notation.” (Zeeuw 1977, p. 91).

Blind students face many of the problems in ear training that sighted students face in an ear-training course. Blind students may be at an advantage in ear training because the blind student has an acquired capacity for sustained attention in listening (Zeeuw 1977). Blind students may have more of a challenge in the rhythmic aspects of ear training. In Braille music, spaces are used to represent measures, and beams are omitted completely from Braille music. The challenges of harmonic dictation may require a blind student to modify his/her techniques. Rhythmic and melodic dictation may not be hard for blind students who use Braille music. Blind students must memorize the music played for dictation and write from memory, rather than to attempt to write while listening.

Many music instructors may find it easiest to test the blind student privately in their office. This would allow the student to give their answers orally instead of using Braille music. According to this article, it is not practical for a blind student to sight sing using Braille music. If an instructor wishes to use a Braille copy of the sight-singing book, it may be best for the instructor to give the blind student more time to look at the examples. This is because reading Braille music presents more challenges than reading print music. It is important for class instructors to provide descriptions of what they are doing for the blind student. “All visual illustrations used should be described: terms or names written on the chalkboard should be spelled allowed.” (Zeeuw 1977, p. 98). This article provides excellent strategies for all college

students who are blind. The strategies presented not only apply in music theory classes; they can also be used in ear training as well.

Saslaw (2009) presents many ways to teach music theory to blind individuals. She defines the term reasonable accommodation as it is stated in the Americans with Disabilities act of 1990.

A reasonable accommodation is a modification to a non-essential aspect of a course, program, service or facility which does not pose an undue burden and which enables a qualified student with a disability to have adequate opportunity to participate and to demonstrate his or her ability. (p. 1)

This author makes the point that teachers of blind students should prepare ahead of time to ensure that classes will run smoothly.

The more time one has to prepare for a visually impaired student, the better. Hardware, software, Brailled textbooks and scores need to be ordered ahead of time, tutors need to be found, and teaching aids may need to be constructed. I have found that the more one can think through what the student needs and the best method for providing it, the more successful the teaching experience will be. Whether or not the student comes armed with the latest technology, the teacher should be ready to spend extra time, either preparing class materials or working together one-on-one. (p. 1)

Saslaw (2009) also mentions many resources where sighted instructors can find Braille music for blind students. The National Library Service for the Blind and physically handicapped (NLS) has over 30,000 items in Braille, large-print, ECT. Items may be checked out for three-month loans with a three-month renewal. Some scores may be available as electronic files. However, software used to produce Braille music is very expensive. For this reason, sighted instructors may wish to consider some options for teaching blind students which are cost-effective.

A list of resources that sighted teachers can use in the teaching of blind students is included in this article. Low-cost items beginning students can use include tactile

representations of music staves and notes, a Velcro staff with Velcro note heads, a white board with magnets, and elastic bands that can be used to make the shapes of note heads and staves. More expensive items include Braille note takers, laptop computers, and Braille music translation software.

Sight Singing

Some students may feel nervous about singing in front of the class. For this reason, it is important that students spend about an hour during the week practicing sight-singing and interval recognition at the piano using it only for reference. This will help the student develop a sense of pitch accuracy.

Philips (1996) realizes how important it is for students to be able to sight-read. “Learning to read music goes hand in hand with learning to play an instrument. If students are to gain some degree of musical literacy before they graduate, sight-singing must be taught on a regular basis in the choral rehearsal” (p. 32). Philips recommends that every student have a manual with sight reading examples in it. Time should be allotted in class for sight-reading opportunities.

Philips (1996) recommends students sit on chairs as a way of teaching note values. Each chair represents a quarter note. Students are added, or taken away, from a chair to show how note values can be manipulated. When more than one student sits on a chair, the note values get smaller. This metaphor is an excellent example of how note values can be changed in a piece of music.

A Proposed Method for Ear Training Instruction in a School for the Blind

Students should learn the Braille music code. This code would be used primarily in sight-singing classes. Students should bring a copy of the Braille textbook to bring to class. At the beginning of each class, students should sing a musical example. This practice would ensure that each student is constantly working on his/her sight-singing ability.

If a student does not know Braille music before entering one of my classes, instruction in the Braille music code should be provided. Graduate assistants who are proficient Braille music readers should be asked to assist in teaching a class that covers the basics in Braille music. Students who are not familiar with this code would receive credit for going to the class. Braille music instruction should be a required component in the curriculum of music majors. Learning Braille music is essential in a blind student's success in a college level course.

These Braille music skills would also help students who are enrolled in music theory and history classes. Students who learn the code would be able to write their answers in Braille and turn them into the professor who is blind. In many music history classes, scores of certain pieces are provided. This helps the student to not only listen to the music, but also see how the music is scored on paper. Through the use of Braille music, blind students could analyze the score of a particular piece of music the same way that sighted individuals do.

Braille Music Translation Programs

Thanks to the wide use of computers in high schools and universities, the process of translating Braille music has become significantly less cumbersome. Programs such as *Duxbury* and *GOODFEEL*® allow a person to translate printed music into Braille. The National Resource Center for Blind Musicians uses the *GOODFEEL*® package from Dancing Dots. This suite of programs includes *Lime*, a music editor, and scripts called *Lime Aloud* making it accessible with JAWS. It also includes *Sharp-Eye*, a music scanning program, and the *GOODFEEL*® Braille

music translator, which can translate properly prepared print music files into Braille. (www.blindmusicstudent.org). These programs are generally used by blind students to print out theory assignments. The *Lime Aloud* scripts are used to print out the assignment so a sighted instructor can read it. The student can also print a Braille copy for himself using *GOODFEEL*®.

These translation programs are extremely beneficial for any blind student who wants to study music. However, it is important to remember that these programs are very expensive. Schools may be hesitant to purchase these programs as a result of budget shortfalls and a lack of funds.

Music transcriptions services are also available. For a fee, a teacher can mail a piece of music to a Braille music transcriptionist. The transcriber would translate the print music into Braille. After the translation is finished, the transcriber can either print the Braille music or send the Braille file back to the teacher. The music teacher would then print the file.

One disadvantage of Braille music transcription services is that Braille music takes a long time to produce. For this reason, teachers are strongly advised to send printed music to music translators at least three months ahead of time. This would give the music transcriptionist plenty of time to translate the printed music into Braille and send it back to the music teacher.

One aspect of ear training that sighted instructors may be concerned about is how to adequately and accurately test a blind student. A teacher may choose to administer a test in Braille, having the student notate his/her answers on a Braille Note. The student would write what he/she hears the teacher play in Braille music notation. The answers could then be translated into print for the teacher to read. One drawback of this method is the lack of Braille music translation software at some universities. Programs, such as *Duxbury* and *Megadots*, make it possible for a printed piece of music to be translated into Braille. However, there are not

very many programs that can translate Braille music into print. One popular music printing program is *Lime*. This software allows a student to enter music notation into a computer. The student could then print out a copy of the assignment to hand into the teacher. *Finale* is a software program where a student can hear a synthesized note played on a particular instrument. The student types in information using a computer and the software program plays back what has been entered. However, there is no equivalent program for the Braille music reader. This particular program is currently inaccessible to the blind student. For this reason, teachers may prefer to administer exams for a blind student orally in their office. The teacher could play each of the examples on the piano for the student to listen to. The student could then tell the teacher what he/she hears and the teacher would then write it down. This would save a lot of time and the student would not have to worry about getting his/her answers translated into print.

If I were working at a school for the blind, I would have access to many different types of equipment. I would be able to Braille, print, and translate Braille music examples for all of the students. As the teacher of an ear training class, I would give each of my students a choice as to how he/she wants to turn in a particular assignment. If a student feels comfortable notating his answers in Braille, I would have him/her E-mail the assignment to me in Braille. I could then read what he/she sends me using a built-in Braille display on the front of my computer. However, if a student wishes to complete the assignment orally in my office, I would allow him/her to do so.

If blind instructors are working with sighted coworkers, they could write lesson plans on the computer and then print them out so a sighted person could read them. All students should be familiar with *Lime Aloud*. This would enable blind students to print their music homework

out so that sighted teachers could read it. This could eliminate the need for a blind student to seek help from a graduate assistant in the notation of music theory homework.

Use of Sleep Shades

There is evidence to suggest that eliminating a person's vision could heighten performance in an ear training class (Carter 2005). Sleep shade training may be used to the greatest affect with interval and pitch identification. When a student does not use his/her residual vision, a sense of hearing has to be relied on more often. Using the shades would allow the student to develop a better sense of hearing so that intervals and chords can be more easily identified. This type of training may improve a student's score on a particular melodic dictation assignment. If a student is listening more intently to an example, he/she may be more likely to identify correct rhythms and notes. Students might be given the opportunity to wear sleep shades voluntarily after a week of trial using the sleep shades in the classroom.

Carter (2005), who is a blind string teacher, has used sleep shades as an effective teaching strategy:

I found myself approaching the students with higher expectations. Teaching is often more than the mere diagnosis of instrumental problems, of course: considering the whole person is often a vital part of teaching. But I know that my tendency is to be a little more on the lenient side, and more gentle with those students who are not adequately prepared for a given lesson. The objectivity I discovered in the sleep shade teaching would help students reach their full potential. (p. 77).

Carter also discovered some new ways of helping blind students. For example, he was able to move a student's hands where they needed to be in order to get the best sound. The author also paid more attention to the musical scores that the student's were learning. Overall, the author's experiences while teaching with sleep shades on were positive. He hopes to continue working with sleep shades in the future.

Chapter 2

Goals And Objectives for Assessing Ear Training Techniques

Introduction

This chapter will begin with a list of the topics presented in *Fundamentals of Sight-Singing and Ear Training* (Fish and Lloyd 1964):

- Unit I Some basic elements in rhythm
- Unit II Basic pitch relationships: Stepwise Melodies in the Major Scale
- Unit III Major and Minor Thirds in the Major Scale: Plainsong
- Unit IV Meter: Elementary Conducting: Rhythmic Ratios of three to One and four to One: Melodies beginning on Tones other than the Tonic: the Alto Clef
- Unit V Simple Subdivisions of the Beat: Melodies Beginning on Upbeats: Perfect fourths and fifths in the Major Scale: the Major Triad: Chorale Melodies
- Unit VI Melodies based on Primary Harmonies: the Dominant Seventh: Rhythmic Canons: Rests: Excerpts from Music Literature
- Unit VII Dotted Notes and Tied Minor Triad: the Diminished Triad: Leaps in All Diatonic Triads: Further Drills on Perfect Fourth and Perfect Fifth: Excerpts from Music Literature
- Unit VIII Forms of the Minor Scale: Further Subdivisions of the Beat Excerpts from Music Literature
- Unit IX Large Melodic Leaps: Triplets: Compound Meter: the Tenor Clef: Excerpts from Music Literature
- Unit X Chromatic Tones: Melodies in Mixed forms of the Minor Scales: Syncopation: Excerpts from Music Literature
- Unit XI Accents and Cross-Accents: Leaps in Triads in Minor Keys: Tritones: Chromaticism, Excerpts from Music Literature
- Unit XII Changing Meters: Modal Music: Excerpts from Music Literature

Topics Discussed in *Harmony and Ear Training at the Piano* (Shumway 1970):

- Scales and Triads in Keyboard Orientation
- Major and Minor Triads in Root Position
- Repeated Triads
- Roots a Fifth apart Tonic and Dominant
- Roots a Fifth Apart the Primary Triads
- Roots a Second Apart
- First Inversion of Triads
- Successive Inverted Triads
- Second Inversion of the Tonic Triad
- The Leading-Tone Triad
- The Supertonic Triad
- The Submediant Triad Roots a Third Apart

The Mediant Triad
 Extensions of the Triad Vocabulary
 Review Choral Harmonization with Triads
 Diatonic Modulation (I)
 Diatonic Modulation II
 Non-Harmonic Tones Passing and Neighboring Tones
 Non-Harmonic Tones Suspension and Anticipation
 Diatonic Seventh Chords Dominant Seventh
 The Supertonic Seventh
 The Leading-Tone Seventh
 The Subdominant Seventh
 The Submediant Tonic and and Mediant Sevenths
 Review Chorale Harmonization with diatonic Seventh Chords
 Introduction to Secondary Dominants
 Secondary Dominants of the Dominant
 Secondary Dominants of the Subdominant
 Secondary Dominants of the Supertonic
 Secondary Dominants of the Submediant
 Chromatic Modulation
 Borrowed Chords
 The Neapolitan Sixth Augmented Triads
 Conventional Augmented Sixth Chords
 Review Melody Harmonization with Altered Chords
 Ninth Chords
 Additional Uses of the Augmented Sixth
 Enharmonic Modulation I
 Enharmonic Modulation II
 Harmonic Sequence
 Modal Harmony
 Parallel Harmony
 Quartal Harmony
 Polychords
 Serialism

In both texts, interval relationships and scale degrees are used as a way of acclimating the student to the piano keyboard. Both books also employ the use of dominant, subdominant, and tonic positions within a scale to introduce intervallic relationships. While both of these texts are similar in some respects, there are also many differences between them. The book by Shumway (1970) shows how ear training can be taught using the piano. However, the text by Fish & Lloyd (1964) presents a more general approach to all of the skills learned in an ear training course. The

book by Shumway (1970) only mentions skills that students can use while playing the piano and says nothing about rhythmic values. However, Fish & Lloyd (1964) include several sections devoted to rhythmic practices.

What Students Must Learn

There are many goals and objectives that a traditional ear training class must cover. One of the first things students must learn is how to recognize intervals. Students must also be able to sight sing using an ear training exercise book. Error detection is a crucial skill that will help students in developing a good ear for music. Melodic dictation practices must be included so students can write down melodies that they hear. Learning rhythmic and harmonic dictation will allow the student to write down rhythms and identify chord progressions based on oral listening abilities.

Scales and Intervals

When a student enters an ear training class, he/she is first introduced to scales and intervals. Intervals may be thought of as the distance between two different notes. A student's ability to distinguish between a perfect fourth and a perfect fifth is crucial to his/her musical development. Scales may be thought of as a series of half steps and whole steps, which are played in a given order. Students must know the difference between a melodic minor and harmonic minor scale in order to further their understanding of musical concepts.

When a student first enters an ear training class, he/she learns small intervals first. As the semester progresses, he/she learns intervals that are farther apart. A student generally learns to recognize a major and minor second before he/she can recognize a major or minor third. After a week of practice with these small intervals, the student is given a test to see how much he/she has learned. Once a student has mastered second and third intervals, he/she can move on to

perfect fourths and fifths. Later in the semester, a student will learn how to recognize major and minor sixths and sevenths. Perfect octaves will also be discussed.

Sight Singing

Sight singing is one of the most important skills that a college student will learn. “Sight singing is a skill that demands practice and concentration. Studies should never be done as mechanical drills, but always as an aspect of the art of music” (Fish & Lloyd 1964, p. xi). When a student sings a piece of music from sight, he/she has no prior knowledge of the piece. He/she is given a piece of paper with a melody on it. The teacher then asks the student to sing the melody with the proper pitches, solfege, and hand signs. The teacher determines the student’s grade based on how well the student accomplishes these skills.

The book by Ottman and Rogers (2011) offers some suggestions for students who are beginning to sight sing. To begin, these author suggest that students sing melodies that move in stepwise motion. All of the melodies in the first chapter of this book are in major keys. “Before reading a given melody, make these general preparations, all of which refer to later chapters in the text as well as to the melodies of this chapter. Look at the key signature. What key does it indicate? On what line or space is the tonic of the key? Does the melody begin on the tonic tone, or on some other pitch? Play the tonic note, but no other immediately before singing.” (p. 12).

These authors also suggest that students look through the melody for skips of certain intervals. The first few chapters in this book deal specifically with intervals in the tonic triad. After students can recognize intervals in the tonic triad, the dominant triad is added. The skips of intervals in the melodies also get larger as the book progresses.

In sight singing classes, students are generally taught to sing solfege syllables with the correct notes in the melody. This is a system of “solmization” that was developed by Guido d’Arezzo. Guido d’Arezzo was a Benedictine monk who lived from approximately 991 until sometime after 1033 and wrote one of the most widely read music instruction books of the middle ages. The solmization system passed down from Guido is known today as solfege (or solfeggio). (Ottman and Rogers 2011). This system of syllables has been effective for many years. It allows students to associate the notes on a page with a group of syllables. This in turn may make it easier for a student to sing a particular melody.

Ear training instructors at Radford University use the system of movable do in sight-singing practice. This means that the tonic of whatever key we are singing in is always associated with the syllable do. Movable systems promote relative pitch, fostering a general sense of tonal function and facilitating transpositional skills. Movable-do solfege with do-based minor and scale-degree numbers are primarily used for music of the common-practice era, while movable-do solfege with la-based minor is often used for modal music and some folk music. (Ottman and Rogers 2011).

Many musicians learn to identify notes with fixed solfege labels rather than letter names: the note that North Americans call C is do, D is re, and so on. Like letter names, fixed-do solfege do not vary according to key, so do does not necessarily refer to the tonic note; in F major, for example, the tonic is called fa. (Ottman & Rogers 2011, p. 417)

In both systems of solfege, the syllables do, re, mi, fa, sol, la, and ti correspond to scale-degrees 1 through 7 in a major scale. In minor keys, some of the syllables must be altered to reflect the added sharps or flats in a minor scale. For example, in a harmonic minor scale, the lowered seventh scale-degree is assigned the syllable te instead of ti. The lowered sixth scale-degree is assigned the syllable le instead of la.

Many other solfege systems, such as scale-degree numbers, fixed do solfege, and letter names may also be used to help students learn the different scale degrees. For example, the different notes of a scale can be numbered 1 through 8 depending on where the note falls in a scale. In a C major scale, the C would be given a number 1 and the D would be given a number 2. The syllables do and re may correspond to these scale degrees. Students may use this method to identify the notes of a given melody.

A simple sight singing exercise usually consists of skips in the tonic triad and stepwise motion. The notes in the melody do not go any higher than the octave. As the semester progresses, students may encounter melodies with skips of a major third or perfect fourth and melodies with larger skips in them. The examples will also get longer. A student may begin the semester by singing a four-measure melody. By the beginning of the fourth week, he/she may be asked to sing a melody that is eight measures long.

Laskey (2010) makes an argument for why solfege should be implemented in secondary choral ensembles.

The melodic and harmonic application of solfege enables students to do the following: Aurally analyze music (e.g. key modulations, counterpoint, and harmony), Sing, play, and write harmonic progressions, canons, and part exercises, Write melodic dictations through the aural identification of mode, rhythm, and form, Perform music from multicultural folk literature and Western art music at a highly artistic level. (p. 16)

Solfege has remained one of the most popular systems of solmization for the past millennium.

Error Detection

Error detection involves the teacher playing a melody for the students to listen to. The students have a similar melody written on a piece of paper in front of them. However, some of the notes between the two melodies are different. The student must mark all of the incorrect

notes on his paper. This skill is important because students must be able to recognize when they hear incorrect notes played in an exercise.

When students first begin an ear-training course, the two melodies may only have one or two mistakes among them. As the semester progresses, students are given examples which contain more mistakes. The student must identify all of the wrong notes and mark them with a pen. The teacher then grades the student based on the number of mistakes that the student identifies in a particular exercise.

Many ear-training texts include examples of error detection melodies. Students may use these exercises to practice error detection when they are away from class. Many ear-training books include either an audio CD, or an online tutorial, with them. Students can use these resources to practice recognizing when a wrong note has been played.

Where drill and practice of musical examples is concerned, one study asking participants to locate error detection mistakes found after multiple listening, participants were less likely to accurately find the errors in multi-voiced brass ensemble recordings. Response rates for each successive example were less accurately notated. Identification mistakes outnumbered correct responses in later listening attempts. (Sheldon 2004).

Scale degrees

Scale degree identification is another skill that students learn in an ear training class. In this exercise, the instructor plays either a major or minor scale and one of the notes in the scale. The student must identify the note that was played and which scale degree it is. Different notes in the scale may be assigned different numbers depending on where they fall in the scale. In an A minor scale, the A is given a number 1 and the B is given a number 2.

When students first begin to take ear training, they are usually told to identify only notes in major and minor scales. As the semester progresses, different scales may be added. Students may start out identifying notes in the C major and a minor scales. However, they soon learn to identify scales that contain sharps and flats in the key signature. They are also taught the proper solfege that goes with each scale degree. For example, in the C major scale, the G, or fifth scale degree, is given the solfege syllable sol.

Dictation

Rhythmic, melodic, and harmonic dictation practices are important for all first year ear-training students to learn. When a student completes an assignment, he/she must write down what he/she hears someone play on a piano. Students must know the note pitches and values in order to write them down. This skill is extremely important in the development of a music major's ability to write music.

A simple melodic dictation exercise could consist of a melody that is four measures long. The melody would move in stepwise motion and only half notes and quarter notes would be used. Simple time signatures, such as 4/4 and 2/4 would be included in this example. A student would be asked to write the note values and names on a piece of paper. In the fourth week of classes, the melodic melody would be expanded to eight measures and eighth and sixteenth notes would be added. The melody would also have larger skips of intervals in it. Compound meters may also be introduced at this time. When students first enroll in an ear training class, they are usually told to write only two to four measures of music. After the student becomes comfortable with writing this down, he/she is usually asked to write four to eight measures of music. Pickup notes and tied notes are usually added so that students can learn how to identify and write them on a piece of paper.

When a student completes a rhythmic dictation exercise, he/she is asked to write only the note values that an instructor plays. Examples are usually played using the middle C on the piano. The student must determine whether the note he/she is hearing is a quarter note, dotted quarter note, or half note. Like melodic dictation examples, rhythmic dictation exercises may start out with only two measures. As the semester progresses, more measures are added to the example. Students must also know how to identify rhythms in compound time signatures. Examples may be written in 6/8, 9/8, or 12/8. The student must know how to identify note values in a variety of time signatures.

Sometimes, students may be given two-part rhythmic exercises to complete in class. Fish and Lloyd (1964) offer some suggestions that can help students perform and complete these exercises.

Half the class intones the upper part while the other half claps the other part. Reverse the parts. Perform as duets with one student to each part. Tap the upper part with the right hand, and lower part with the left. Intone the upper part while clapping the lower. Reverse parts. Do each exercise several times.” (p. 7)

This text presents many exercises where one student plays rhythmic values on the piano, and the rest of the class claps the note values. In describing one of these exercises, the authors state

This exercise is to be done with one student at the piano, as the leader. (The improvised rhythmic pattern can be played on one tone.) The leader sets a moderate pulse by playing a group of four steady beats. Next he plays a series of short patterns, each of which adds up to four pulses (using one-pulse and two-pulse values.) The class waits four pulses before imitating the leader’s first pattern. The exercise should continue for six to eight patterns with the class clapping one pattern while listening to the next. (p. 9)

The authors of this book refer to a pulse as the equivalent of one quarter note. This is an excellent strategy that can help students learn rhythmic patterns.

In harmonic dictation, students listen as the instructor plays a series of chords on the piano. A chord may be thought of as a triad of notes played simultaneously. Triads consist of the first, third, and fifth note of the scale. Students must write down the series of chords that the teacher plays.

A simple harmonic progression consists only of 1 and 5 chords. In musical terms, the 1 chord is called the tonic, and the five chords are referred to as the dominant. Students write down whether the chords that the teacher plays are tonic or dominant chords. After a few weeks, 4 chords, or subdominant chords, are added to the progressions.

Students may also be asked to identify chords, which are in different inversions. An inversion may be thought of as a respelling of a particular chord. A C major chord is normally written with the C on the bottom, the E in the second voice, and the G in the upper voice. However, in inversions, the voicing is changed. The E may be in the lowest voice and the C could be in the highest voice. This is referred to as first inversion. If the chord were to be written in second inversion, the G would be in the lowest voice and the E would be in the highest voice.

Students may also encounter V7 chords in later semesters of ear training. A lowered seventh scale degree is added to a regular triad to spell a five seven chord. Five seven chords could also be integrated into harmonic dictation exercises. Inversions may also be labeled with roman numerals to make them easier for students to identify. A regular C major chord is said to be in root position because the C, or tonic of the key, is in the bass voice. This chord is assigned the Roman numeral I. If the E, or middle voice, were in the bass, the chord is labeled with the roman numerals I 6. If the chord were in second inversion, with the G in the bass, it is labeled

with the roman numerals I 6 4. If the chord is a dominant seven chord with the seventh scale degree in the bass, it is labeled with the roman numerals I 5 3.

Paney (2010) conducted a study in which he observed the strategies that students used when writing down melodic dictation exercises. In this study, 14 participants took dictation of a single diatonic melodic line. Each participant was videotaped and watched individually as he or she listened to the melody four times and wrote what they heard. Specific behaviors, such as working in order, starting with rhythms, and singing while writing, were observed. Students were categorized into two groups based on whether they were enrolled in an aural skills class or not. “No significant difference was found in any strategy between those enrolled and not enrolled in an aural skills class. Only one strategy, (completing the exercise) produced a significant difference between those who scored over 70 percent and those who did not” (p. 23).

Listening to music before writing it down may help students hear all of the melodic and rhythmic information clearly. Some researchers encourage students to work on the rhythmic dictation before working on anything else. After the students had written responses, each response was placed into one of five categories. These categories were listening, singing, ordering, gesturing, and finishing.

The students who scored high on the test were no more likely to start at the beginning of the dictation than students who scored low. In this study, neither group started writing their responses after the melody had stopped playing. Some studies have been suggested where students can point to a particular part of the music staff to help keep track of where they are in writing the melody. However, this strategy was not used significantly by either group.

Singing the melody after hearing it did not affect the student’s chances of successfully completing the dictation. Students generally completed the assignment when directed to stop.

The length of time it took a student to finish had no effect on the overall score. The authors conclude that “observable behaviors may not have a significant effect on dictation success.”

(Paney, 2010, p. 23).

Playing by Ear

Playing a melody by ear is another important skill that music students must learn. Musko (2010) presents an article which poses the question is the ability to play by ear supported by research? This study examines current thoughts and practices on playing by ear. The author defines playing by ear as

the performance from memory of pre-existing music that was learned aurally without the aid of notation, without the visual stimulus of watching a live instrumental model and without verbal hints such as being told the song. (p. 49-63)

Research exists which investigates skill development without and with specific musical training. The effectiveness of play-by-ear instruction has also been studied. More research exists on playing by rote than playing by ear.

Musko (2010) also mentions some techniques that students can use to learn ear training. When a student watches someone complete a task and imitates what he/she has just seen, this practice is known as modeling. Modeling gives the instructor many opportunities to observe the student's behavior and offer feedback to the student.

Over the years, a small amount of research has been conducted on the topic of playing by ear. More research needs to be conducted on this topic. New strategies should also be developed to help students who struggle with this practice. (Musko 2010).

Whyatt (2003) suggests that classically trained violinists can improve their listening ability by learning how to play fiddle tunes. Unlike classical music, most of the folk tunes that

fiddle players perform are learned by ear. Instead of relying primarily on music, fiddlers use compact discs or tapes to learn the tunes.

Most of the stylistic elements that appear in Irish fiddle music are not apparent in the written notation. For example, some of the trills, triplets, and finger roles that are found in Irish fiddle music may only be heard on a recording of the piece. Some of the elements that make Irish music sound the way it does are improvised by the player. A particular performer may choose to add some ornamentation to a melody that he reads in a book. For this reason, it is imperative that students listen to performances of Irish music.

The skills discussed in this article may also help a student in learning ear training practices. Like a good fiddler, an ear training student must rely primarily on what they hear rather than what they see. Although music is learned for sight singing and dictation, most of the ear training examples will be played on the piano by the instructor. For this reason, it is crucial for a student to develop a good ear for listening.

Strategies for Ear Training

Fish & Lloyd (1964) present many strategies for helping students learn all of the skills that are covered in an ear training class. In particular, they mention some strategies that will help students learn the information that is presented in their book.

Do each rhythmic and melodic study in its entirety. Do not stop to make corrections. Stopping breaks the flow of rhythm and leads to a halting and insecure performance. When you make mistakes, go back and isolate them: practice the weak spots: then perform the entire study correctly several times before moving on to the next one. (p. xi)

Before beginning a study, it is important that the student read through the entire example before attempting to perform it. The student should pay special attention to any rhythmic or melodic problems. When a student finds a problem, he should make a mental note of it and analyze the problem as it relates to the materials around it.

The authors suggest that a student always look ahead in the exercises that they are working on. It is important for students to not only pay attention to the notes they are playing, but to also know what notes are coming up. “Try to read groups of notes as patterns rather than as a series of individual notes—as you read words and phrases in a book. Reading music note by note is like reading a story letter by letter” (Fish & Lloyd 1964, p. xi). This is an excellent point that the authors make. Students may think of musical notes as representing letters on a page.

The authors also make some suggestions about playing a particular example on an instrument. “Locate the first note of each study on the piano, pitch pipe, et cetera. However, do not play through a study on the piano or any other instrument except where specifically indicated? Using an instrument will lead merely to rote memorization and will impede your learning of sight-singing skills. (p. xi)

Shumway (1970) presents many ways that ear training and sight singing can be learned in a traditional setting. He lists some ways that students can play triads and scales on the piano. “Play major and minor scales (one or both hands), saying the name of each scale degree as you play. Practice playing any given scale degree in various keys: for instance, subdominant in G major E minor, D major, and B minor, or median in A major, F-sharp minor, E major, C sharp minor ECT.” (p. 1). These procedures provide excellent techniques that students can use to practice ear training.

Memory Strategies

Jukka (1999) notes that more research must be conducted to find out what strategies students use to memorize different melodies. Research in this area must focus on the process of memorization rather than a student's ability to complete the task. With further research, ear-training instructors may be able to more clearly understand the difficulties students have with memorizing melodic content.

The author describes how memory can be divided into two parts. Memory may be

divided into long term and short-term memory. Long-term memory contains procedural and declarative knowledge. Declarative knowledge refers to objects and names such as musical pitches. Procedural knowledge refers to how one uses the declarative knowledge. Rules for generating melodies are one example of procedural knowledge. (Jukka 1999).

This article discusses a study in which students were tested to see if they could memorize different melodies. In conducting this study, the author hoped to find out what is occurring in an individual's brain when they write a musical melody. The findings of this study are interpreted from the point of view of the student who memorizes the melody. (Jukka 1999).

Each of the students in the test group was between 19 and 25 years of age. All of the students attended the University of Jyväskylä in Finland. Each student was asked to write two different melodies. These melodies represented two different levels of difficulty. Students were allowed to hear each of the melodies ten times at the most. Each student listened to the melody through a set of speakers on the computer. The students were given unlimited time to complete each exercise. Each student's response was recorded on the computer. The steps that each student used to complete each exercise were stored on the computer in a separate file. (Jukka 1999).

When completing the study, the subjects had to recognize that the melodies they were hearing were simple folk tunes and write down what they heard. Students listened for familiar melodic fragments that were easily recognizable. This type of memory strategy is referred to as reasoning. (Jukka 1999).

There are some instances where the students were not able to use familiar melodies to memorize specific patterns. When students were unable to recognize a particular melodic gesture, they generally improvised the melody or composed a melody that they thought was

correct. Students who completed the study used strategies, such as recognizing familiar phrases, and knowing that some patterns are repeated to complete the exercises. (Jukka 1999).

The author also discusses what short term memory is capable of. The capacity of one's short-term memory is highly dependent on what the long-term memory has processed. If the melodic fragment in one's short-term memory is very stable, it is easy to keep track of this melodic content. Instructors are strongly encouraged to teach rhythmic and melodic content which is typical of specific music cultures. (Jukka 1999).

Improvisation

Dobbins (1980) mentions some ways that students can learn to improvise. In particular, he mentions how musical styles may be differentiated.

Exposure to a particular type of music over a long period of time results in the recognition of common melodic and rhythmic prototypes that characterize the style. Formal study usually begins with simple rote imitation of the teacher and mastery of elementary principles of notation and music reading. Unfortunately, music education too often ends when this second stage has reached an advanced level of development, where the student can read, memorize, or otherwise recreate music of considerable technical difficulty. Reading music is merely what the term implies, whether it involves playing from a score or from memory. It is an important and necessary stage of development, but it is of little ultimate creative value if it does not lead to a capacity for spontaneous musical expression. (p. 37)

This author encourages students to be creative in their interpretation of other people's works.

The process and discipline of improvisation provides the sole access to the advanced stages of musical development, in which musical conversations within a group and spontaneous expression of musical ideas as a soloist become possible. Improvisation can be studied in relation to any music style. In fact, the numerous stylistic varieties of improvisation existing within the broad categories of jazz, Western classical music, Indian music, African music, and other musics from throughout the world are analogous to the various verbal languages and dialects found in each particular culture. (p. 37)

Kowalchyk and Lancaster (1996), provide some excellent strategies that can help students learn basic ear training skills.

This ear training book is designed to be used with Alfred's Basic Piano Library, Lesson 1 Book 1A. This book is coordinated page-by-page with the lesson book, and assignments are ideally made according to the instructions in the upper right corner of each page of the ear training book. (p. 1)

The instructor is presented with a book containing musical and rhythmic examples. The students receive a book with directions for each exercise. Students are to listen as the instructor plays each example. The instructions for each exercise are clearly written so that students understand which skill they are practicing.

In this text, a number of basic ear training skills are covered. Students are asked to determine whether melodies move up or down based on the example that the instructor plays. Students are also assessed on a variety of rhythmic drills. For example, a teacher may play a given rhythmic pattern. Students must clap the pattern that the teacher has just played. Students may also be asked whether notes are played loud or quietly. In one section of this book, the teacher is asked to play some notes quietly and others loud. Students are to circle whether the notes are piano or forte.

Challenges of Blind and Sighted Students

There are many challenges that a sighted student wearing sleep shades might face in an ear training class. One example of a challenge is how to sing the sight singing exercises without a Braille music book. Unlike printed music, Braille music is meant to be memorized one or two measures at a time. Blind students must play with one hand while reading the music with the other hand. After completing a line of music, he/she must switch hands and repeat the process. Many blind individuals do not have access to Braille music. This is because Braille music takes

up a lot of room and universities may not have adequate funding to provide Braille music transcription services for blind individuals.

To overcome this challenge, classroom instructors must be willing to provide descriptions of sight singing exercises to their blind students. For example, if an exercise is written in 4/4 time and the key of D major; the instructor must let the blind student know that the exercise has a key signature with two sharps in it. The meter of the exercise is 4/4. This would let the blind student know this information without the use of a book.

An instructor of ear training could also help his/her blind students with sight singing by breaking the exercise into small phrases that can be easily memorized. Example 6.47 in Ottman and Rogers (2011) may be divided into four small phrases (p. 90). The instructor could play each phrase and then ask his/her blind students to sing what he/she just played. After all of the phrases have been played, the instructor could ask his/her students to sing the entire example all the way through. Although this type of memorization is not sight singing, it may be another way that blind students can participate in sight singing exercises.

If a blind student does not know how to read Braille music, he/she must rely on his/her sense of hearing to allow him/her to obtain all of the information that is presented in an ear training class. He or she must listen to the instructor's instructions for a particular exercise. For example, if an instructor tells the class that a sight singing example has no sharps or flats in it and the ending note is a whole note C, the blind student will know that this exercise is in the key of C major without having a Braille music book in front of him. The blind student must also use his/her hearing to identify minor harmonic progressions. In the key of a minor, the blind instructor must be able to hear the difference between a I chord and a V chord.

For some blind students who do not know Braille music, memorizing musical examples may be one way that he/she learns ear training and sight singing concepts. A teacher could play a harmonic progression for a blind student to hear. The blind student would have to memorize the chord progression in his/her head and know the relationship that the chords in the progression have with each other. If a blind student is unable to hear the chord progression in his/her head, the instructor must teach that student how to do this. The instructor should ask the student to spend some time outside of class singing and playing chord progressions. Students should be encouraged to spend at least 30 minutes a day, three days a week, practicing this crucial skill.

Blind students who do not know the Braille music code must rely on their memory to complete written ear training exercises. If an instructor plays a melodic dictation example for the class to hear, the blind student must memorize this example in small fragments. He or she must remember the notes and their corresponding values for each measure of the exercise. Instructors of ear training and sight singing classes must keep in mind that a blind student may need more time to complete in-class assignments. This is because memorizing an exercise takes more time than reading the exercise from a Braille music book. Classroom instructors must allow blind students extra time to complete the in-class assignments of a particular day.

For a blind student who knows Braille music, listening to harmonic progressions and practicing them outside of class is imperative to his/her success in ear training. Instead of memorizing the progression and telling the teacher what he/she hears, a student who knows Braille music could write his/her answers in Braille. The student's answers could then be translated into print so that a sighted instructor could read them. Whether the blind student learns by memory or Braille, he/she must be able to hear the relationship that certain chords have

with each other. Practicing this skill outside of class will allow the student to rapidly improve his hearing.

If a student has trouble hearing a particular chord, instructors should be encouraged to work with that student outside of class. An instructor could play a chord on the piano and ask the student to sing the notes back to him/her. Students would be asked to match the pitch that the instructor plays. This would allow the student to gain a better sense of pitch and chord relationships without the use of any type of music.

Blind students may also face challenges in writing chord progressions for a sighted instructor to read. If a blind person does not know how to write in print, how can a sighted instructor check his/her work in class? For a student who knows how to notate Braille music, writing the answers in Braille and translating them into print is one option that can be utilized. However, this option would require the use of Braille music translation software which may be too expensive for some universities to purchase. A student who does not read Braille music could tell the instructor his/her answers orally in class. Once all of the chord progressions have been played and the sighted students have written their answers, an instructor could ask a blind student to recite his/her answers out loud for the class. This would allow the instructor the ability to check a blind student's work without the use of paper and pencil.

Along with these challenges, sighted students may find that an instructor provides too much description during the experiment. This could distract the sighted student from learning all of the information, which is included in each day's lesson. Sighted students may also have a harder time hearing the notes and interval relationships that are presented within each exercise. For this reason, sighted students will be encouraged to spend some time outside of class playing

notes and chords on the piano. The student must sing the notes out loud so he/she can hear what they sound like.

Both the sighted and blind instructors should work hard to ensure that clear demonstrations are provided, but also note that sighted students could become distracted if too much description is provided. Instructors should also explain each exercise in a clear and accurate way so that it can be understood by each participant in the experiment. The instructors must also provide time outside of class when the students can meet with them to discuss any problems that were encountered during a session.

Personal Experience

The student researcher is lucky to have had all of the training in Braille that he received during his years of secondary education. He began learning to read literary Braille when he was 5 years old and has been reading both grade one and grade two Braille proficiently for over 20 years. He did not have any experience with Braille music until he was a junior in high school. While the student researcher was taking private piano lessons, his teacher thought that he should learn to read Braille music as well. The sighted instructor had a copy of the print book and the student researcher had a copy of the same book in Braille. The teacher and student researcher would follow along with each other to complete each of the exercises. When he enrolled at Radford University, there was not a way for him to obtain Braille music. Because of this, the student researcher had to learn all of the skills that are covered in ear training and music theory by ear. While completing his master's degree at Radford University, he bought a copy of the book *How to Read Braille Music* (Krolick, 1998) and memorized it. Because of this invaluable resource, the student researcher was able to learn Braille music on his own. He now uses a Braille copy of the sight-singing book *Music for Sight Singing* (Ottman and Rogers, 2011) in his

position as a graduate teaching assistant in an ear training class. Thus, the student researcher is able to follow along when the students are sight singing.

When he was enrolled in ear training a few years ago, there were many ways that the student researcher learned these traditional techniques. At the time, the student researcher did not have access to Braille music. As a result of this, he completed all of the exercises orally in the instructor's office. In a sense, perfect pitch has made it easier for him to identify intervals and scale degrees.

When completing a melodic or rhythmic dictation exercise, the instructor would play the example for the student researcher. He would then tell the instructor what he heard. He would include note names and values, as well as accidentals. For rhythmic dictation, the student researcher would only tell the teacher the duration of each note.

Harmonic progressions were easy for the student researcher to hear, because he can identify where chord progressions are going. Because of his heightened sense of hearing, it is easy for him to hear specific notes and chords. The student researcher was able to tell what the next chord should be in a logical chord progression. He was able to distinguish the different chords in a progression based on how the chords sound. For example, a tonic chord has a different sound and tone quality than a dominant chord.

To complete error detection exercises, the instructor would have to play both melodies on the piano for the student researcher. He would keep track of both of the melodies in his head. Thanks to his excellent memory, this was easy for him to do. He would then tell the instructor the notes that were different.

When the student researcher was an undergraduate student, he did not have access to Braille music. Therefore, he was not able to complete the sight singing exercises. His grade

comprised all of the other skill areas except for sight singing. Unfortunately, there was no way for him to obtain Braille music at the time.

Purpose of Present Project

The purpose of this exploratory project is to understand the challenges that sighted students face when working with either a blind or sighted instructor in a traditional ear training class. Data will be gathered in the form of background surveys on participants' experiences with prior sight-singing and ear training as well as prior music experiences. Participants will also be asked to answer questions on a researcher designed tool to gather information to answer the following question: How much of a role does sight play in a student's ability to complete traditional ear- training exercises? Students who participate in this experiment will be answering these questions based on their own personal experience in each session.

Chapter 3

Methodology for the Assessment

Participants

This project will consist of students who are currently enrolled in the freshmen level of ear training and sight singing at Radford University. There are approximately 60 freshman level participants in the music department at Radford. Only students who are currently enrolled in the freshmen level of ear training and sight singing at Radford University were eligible to enroll in this project. Participants who have visual impairments could have been, but were not, included in this experiment.

Participants who are sophomores, or in higher levels of ear training, may have too much experience in this subject area and will be excluded from this experiment. The skills assessed in this study are designed for those participants who are currently working at the freshman level in ear training. Graduate students will also be excluded for the same reason.

Volunteers who will participate in this project will be solicited through the use of fliers in the department of music at Radford University. An example is provided in Appendix A of this document. The student researcher created a short flier, which described the experiment and would occur in each of the sessions. This flier was posted on bulletin boards in the music department at Radford. Participants had the option to choose whether to participate in this experiment by contacting the student researcher by E-mail.

Design

On the first day of the experiment, each participants was given a background survey, which contained the following questions:

1. What instrument do you primarily play?
2. How long have you been playing your principal instrument?
3. What kind of musical training did you receive before enrolling at Radford University?
4. How many years of preparatory work have you completed?
5. Did you take any piano lessons? If so, how many years?
6. Have you had music theory classes before? If so, how many years?
7. Have you had ear training classes? If so, how many years?
8. Have you had the opportunity to work with students or teachers who are blind?
9. What is your overall feeling about working with a blind professor?

The purpose of this survey is so that the principle investigator and student researcher can get a sense of the musical background that each student possesses before participating in this experiment. This survey includes questions that ask participants to indicate what their principle instrument is and how many years he/she has played his/her instrument. Questions regarding the participant's initial feelings about working with a blind instructor and interacting with individuals who have vision loss are also included.

Along with these surveys, each participant was required to fill out a consent form approved by the institutional review board at the university. This means that the participants had the right to decline the invitation to participate in this experiment. Students were not required to participate and there was no penalty placed on the student if he/she chose not to take part in this project.

In addition to this, all student responses were given to an anonymous assistant in the music department. This assistant must have completed the CITI human subjects training, which

is mandated by the Institutional Review Board at Radford University. This assistant typed each of the journal entries and surveys and presented them in an accessible format for the student researcher and principal investigator. Participants did not place any personal, identifying marks on their journal entries or surveys. Data was stored securely on a university owned computer requiring password access. Only the principle investigator and student researcher had access to the primary data. These measures were taken so that each student's responses were kept confidential and so that the principle investigator and student researcher would not know who wrote which response.

Participants, as well as both instructors, completed a researcher-designed tool following each session, which describes their feelings about the session with emphasis placed on specific challenges that they faced as well as positive reflections on the experience. The journal questions are as follows:

1. Did you wear sleep shades during this session?
2. Did you work with a sighted instructor or a blind instructor during this session?
3. What is your feeling about what we have studied today?
4. What teaching techniques used today were particularly effective?
5. What teaching techniques used today did you find challenging?
6. Describe the instructional method of this class.
7. Did you find this instructional method helpful or challenging?
8. What aspects of this instruction did you like or dislike?

The journal entries written by participants and teachers were examined to determine whether patterns exist which allow conclusions to be made about the instructional method of the sighted teacher compared to the blind teacher. The teaching for each session lasted approximately 25 to 30 minutes. After the teaching concluded for the session, participants had 10 to 15 minutes to write their journal entries.

The purpose of the journal questions listed above is so that the student researcher can note the particular challenges that both sighted and blind individuals face in a traditional ear training classroom. Specifically, the student researcher will look for patterns, which are found commonly throughout each of the journal responses. These questions focus on the instructional methods and teaching techniques that each instructor will employ in his/her method of teaching. It is important to note that the blind student's experience in this experiment will be different from the sighted student's experience. Because the blind student relies on descriptions more than the sighted student does, he/she will miss some of the information if an instructor fails to accurately describe a certain aspect of an exercise. Conversely, a sighted student may feel that a description was not needed for a particular exercise. The blind students will describe the instructional method for each day differently than the sighted students will. For example, a blind student could provide more descriptions in his/her journal entries. He or she could say that a sighted or blind instructor provided too little, or too much description for a particular concept. Conversely, a sighted student might say that an instructor did not provide enough visual examples in a particular session. Sighted instructors could write information, chord progressions, and sight singing examples on the board for students to read. A blind student would not be able to obtain this information if the instructor does not explain it to him. A blind instructor would not be able

to write on the board. He or she would explain the information orally to the students in his/her session.

In three of the group sessions, participants were asked to wear comfortable eye shades over their eyes. The purpose of this instructional technique was to allow students to develop new techniques that they may not be able to learn without the use of sleep shades. For example, if a participant cannot see the notes on a page of music, he/she must use his/her memory to complete the exercise. The purpose of the sleep shades in this study was to allow students the opportunity to develop and implement new approaches and instructional methods for completing traditional ear training exercises.

Students who participate in this experiment will spend some time wearing sleep shades over their eyes but will not know what it is like to be blind. Thus, the sighted students wearing sleep shades in this experiment may face many new challenges. For example, a student who primarily uses his/her sight to complete written ear training exercises must find another way to let the instructor know his/her answers. To accommodate this challenge, instructors should allow students to meet with them after each session has concluded. This would allow the sighted student wearing sleep shades to spend some time learning how to hear harmonic progressions in his/her head. The sighted student wearing sleep shades could also recite his/her answers after the sighted students have finished working on the exercises for a particular session. Students would also be able to ask questions and make suggestions on how to cover a particular exercise.

Participants will have the option to participate in group sessions. Based on the student's individual schedule, the participants will attend each session when he/she is able to participate. Two sessions were conducted by the sighted instructor and four sessions were conducted by the blind instructor. Sessions had no impact on the sight singing and ear training curriculum taught

at Radford University. Students were not responsible for any of the information covered during this experiment. Both the sighted and blind instructor taught the exact same curriculum for each day.

Lesson Plans

The lesson plans for the experiment are as follows:

Session one: Use examples from Ottman and Rogers (2011 p. 81) to demonstrate minor harmonic progressions. A minor harmonic progression may be thought of as a series of chords played in a given order. The harmonic progressions used on this day were primarily focused on the tonic and dominant chords. The chords are assigned the roman numerals I and V respectively. Students were asked to sing exercises from this sight-singing book both in groups and individually. For example, students were asked to sing exercises 6.9, 6.10, and 6.11 (p. 81) as a group.



6.10 *Lustily* *f* *Germany*

6.11 *Allegretto* *mp* *Louisiana*

Participants then volunteered to sing exercises 6.13, 6.14, and 6.15 (p. 82) individually.

Harmonic progressions within each melody were identified and analyzed by the students. In chapter six of this book, the dominant chord, or V chord, is presented throughout each of the melodies. Participants were asked to identify which triad or chord outlined in the melody.

Participants are to listen for the chords that are being presented in each melody. For example, in measure three of exercise 6.9, the notes A, F sharp and D appear in that order. Participants would identify these three notes as belonging to the one, or tonic, chord in the key of D major.

Participants will be asked to examine each melody for examples of chords which are being outlined by the notes in the melody. In measure 8 of example 6.10, the V chord, or dominant chord is being outlined by the notes in the melody. Participants identified this chord by telling the instructor the notes that they heard in the melody.

6.13 *Allegro risoluto* Netherlands

6.14 *Largo* Sweden

6.15 *Fast* England

Some of the exercises covered during this group session, such as example 6.9 (Ottman & Rogers, 2011, p. 81) are referred to as canons. In a canon or round, the students are typically divided into groups depending on how many voices are required. For example, a canon for four voices would require that the students be divided into four groups. The first group of students

will begin singing the melody of the canon. After a few measures, the second group of students will begin to sing the same melody while the first group continues to sing. This procedure of students beginning to sing at specifically indicated times will continue until all four voices have begun to sing. The round continues until only one group is singing. Many of the exercises in this book are canons and are arranged for a certain number of voices.

In the sessions conducted for this project, in order to ensure that these canons are sung correctly, each instructor asked the students in his/her group to pay special attention to when to begin singing. In addition to this, each instructor asked one of the students to tap the beat with his/her foot. This kept everyone on track so that the canon was sung correctly.

Session 2: Students studied minor harmonic progressions through ear training. As stated earlier, a harmonic progression may be interpreted as a series of chords, which are played in a given order. For this exercise, each instructor played a minor harmonic progression on the piano, which is in the key of a minor. After playing each chord in the progression, each instructor paused for a moment. This allowed the students to sing the notes of each chord of the progression using the proper Solfege syllables and arpeggiating each of the notes. In addition to this, each student had to notate the progression on a piece of manuscript paper providing the chord Roman Numerals and notating each note of the chord with a note name. For example, if the instructor played the chords A minor, D minor, E major, and A minor on the piano, students would have to write the Roman numeral which expresses the function of each chord, (whether the chord has been assigned the roman numeral i, iv, or v) and write the notes for each of the four chords. For example, the notes in the a minor chord are a, c, and e. Each student would write each of the note names beside each chord number. In this experiment, progressions in the key of A minor will include:

Progression 1: i- v- v- i

Progression 2: iv- i- v- i

Progression 3: iv- iv- v- i

Progression 4: i- iv- v- v

Progression 5: v- iv- i- i

Progression 6: i- v- iv- i

After all of the students wrote down their answers, each instructor went over them with the students that he/she was teaching.

Session three: Students sang different examples to demonstrate effectiveness of memory strategies in sight-singing. Each of the exercises, in session three were drawn from the sight singing book that is used in class every day. Exercises covered on this day included: 6.41, 6.43, 6.47. (Ottman & Rogers, 2011, P. 89) Students were asked to sing the first three of these examples as a group.

6.41 Canon for 4 voices 1 2 3 4 Haydn

6.43 Andante Germany

mp

mf



Progression 4: C Major, I - I 6 4- I 6

Progression 5: d minor, I 6 4- I- I 6

Progression 6: A Major, I- I 6 4- I 6

After these exercises were completed, students and instructors had time to write reflective journal entries. After each entry was handed in, the experiment concluded.

When a Student Encounters Problems with the Exercises

There are many strategies that each instructor will use if he/she finds that a student is having trouble with an exercise. At the beginning of each session, each instructor will conduct a brief review of each concept that will be studied each day. For example, on the days that the students will be sight singing, each instructor will ask if there are any questions about sight singing in general. This will allow the students to ask questions about the material that will be covered each day before the experiment begins. If students have trouble with a particular example from the sight-singing book, each instructor might allow the students to review the example as many times as they need to so they will be able to clearly understand all of the concepts that are presented.

If students are wearing sleep shades, each instructor could provide descriptions of the sight singing exercises. For example, before singing exercise 6.10, (Ottman & Rogers, 2011, p. 81) the instructor might tell the students that the melody contains one flat in the key signature. This melody is also written in 4/4 time and the melody primarily focuses on the note F. This would let the students who cannot see the music know that the melody is in the key of F major. In example 6.11, each instructor would tell his/her students that this exercise contains one sharp and is written in 3/4 time. The last note in this example is a quarter note G. The students would then know that this example is written in the key of G major. Providing descriptions of the sight

singing exercises will allow the sighted students who are wearing sleep shades to participate in this part of the experiment without having to see the notes that are written in the book.

When students study minor harmonic chord progressions and chord inversions, each instructor will play each progression three times. After all of the progressions have been played and sung, each instructor could ask the students if there are any questions regarding what they have just finished studying. If there are no questions, each instructor will know that the students are not having problems with the concepts that will be presented in this experiment. Each instructor will also allow students to ask questions outside of the sessions if they so choose.

Sighted students wearing sleep shades will find differences when working with a sighted instructor versus working with a blind instructor. For example, a blind instructor may provide more verbal descriptions of musical exercises and chord progressions than sighted instructors would provide. Conversely, a sighted instructor may not verbalize the information to the extent required for an individual wearing sleep shades. Sighted instructors need to be able to verbalize concepts clearly to students who are wearing sleep shades. An instructor who is blind may be more proficient at this task because he/she understands that students who are blind rely on descriptions and verbal cues for the majority of the information which is presented in class.

Sighted instructors also need to know how to advise a blind student how to find resources for learning Braille music. If a blind instructor knows the Braille music code, he or she could teach a blind student the Braille symbols. Blind instructors may also be more aware that blind students rely on their sense of hearing more than sighted students do. Thus, it may be easier for a blind instructor to teach a blind student the basics in ear training and sight singing based solely on listening and memorization.

Chapter 4

Results of the Assessment

Out of 11 surveys the following responses were recorded.

1. What instrument do you primarily play?
 - a. Student 1: Vocal
 - b. Student 2: Percussion and voice
 - c. Student 3: Tuba, cello, voice, guitar
 - d. Student 4: Voice
 - e. Student 5: Voice/percussion
 - f. Student 6: Piano, guitar, double bass, bass guitar, percussion, voice
 - g. Student 7: Voice, guitar, bass clarinet, clarinet, piano
 - h. Student 8: string bass
 - i. Student 9: this changes often, now I play guitar primarily
 - j. Student Researcher: violin and mandolin
 - k. Sighted Instructor: Voice

2. How long have you been playing your principle instrument?
 - a. Student 1: 6 years
 - b. Student 2: Percussion – 7 years, voice – 2 years
 - c. Student 3: Tuba – 11 years, guitar – 10 years, cello – 2 years, voice – 2 years
 - d. Student 4: 14 years
 - e. Student 5: 6 years voice, 3 years percussion
 - f. Student 6: 14 years

- g. Student 7: Voice – 4 years, Guitar – 9 years, Bass Clarinet – 2 years, Piano – 11 years but not really
 - h. Student 8: 5 years
 - i. Student 9: I play guitar lately as a 12-year old. I began learning it around 16 and only started playing it classically the beginning of this year.
 - j. Student Researcher: I have been playing the violin for almost 16 years. I have been playing the mandolin for almost four years.
 - k. Sighted Instructor: I have been singing since early childhood.
3. What kind of musical training did you receive before enrolling at Radford University?
- a. Student 1: chorus during high school
 - b. Student 2: Private lessons for 6 months
 - c. Student 3: Tuba lessons on and off 4 years plus two years of lessons in university
 - d. Student 4: 2 years of piano lessons, 1.5 years of voice lessons, 6 years of band
 - e. Student 5: high school; choir and band. Concord University vocal studies, band.
 - f. Student 6: Classical, self-taught
 - g. Student 7: AP music theory, private guitar lessons, private voice lessons
 - h. Student 8: high school orchestra
 - i. Student 9: I began taking piano lessons at age 6, joined band at 11 and marching band at 13-18
 - j. Student Researcher: I took three years of private piano lessons before enrolling at Radford. During these lessons, I was introduced to Braille music. I also took one

year of private music history instruction. In addition to this training, I also participated in several years of private lessons in violin study. I was also fortunate enough to participate in a string ensemble during my senior year of high school. I am a self-taught mandolin player.

- k. Sighted Instructor: I had formal voice lessons in the classical tradition. I also took piano and guitar lessons before starting college.

4. How many years of preparatory work have you completed?

- a. Student 1: None
- b. Student 2: None
- c. Student 3: None
- d. Student 4: 6 years
- e. Student 5: All-district choir
- f. Student 6: Piano training
- g. Student 7: hard to say
- h. Student 8: 4 years
- i. Student 9: 12 years of piano, 7 years of band, 5 years of marching band, a year of bass lessons and just a few months of guitar lessons.
- j. Student Researcher: I have a standard high school diploma from Patrick Henry High school in Roanoke Virginia. While I was an undergraduate at Radford University, I completed the two years of music theory courses that are required for most college music degrees.

- k. Sighted Instructor: : I have a standard high school diploma from Hughesville High School in North Central Pennsylvania. I took some general music classes in high school and also some classes in theater.
 - l.
5. Did you take any piano lessons? If so, how many years?
- a. Student 1: No, but I have one semester so far in college done.
 - b. Student 2: No
 - c. Student 3: No
 - d. Student 4: Yes, 3 years
 - e. Student 5: Dad taught me basics
 - f. Student 6: Yes, 14 years.
 - g. Student 7: Yes, tentatively 3 years
 - h. Student 8: 1 semester
 - i. Student 9: 12 years
 - j. Student Researcher: 3 years of private piano lessons
 - k. Sighted Instructor: I have a standard high school diploma from Hughesville High School in North Central Pennsylvania. I took some general music classes in high school and also some classes in theater.
6. Have you had music theory classes before? If so, how many years?
- a. Student 1: No
 - b. Student 2: No
 - c. Student 3: Not until university

- d. Student 4: 1 year
 - e. Student 5: No
 - f. Student 6: No
 - g. Student 7: Yes, 2 semesters
 - h. Student 8: 1 semester
 - i. Student 9: 1 year of theory in high school, not extensive. I did learn how to read music in elementary school with Mrs. Carr.
 - j. Student Researcher: I did not take any music theory courses before beginning college. However, I have a standard high school diploma from Patrick Henry High School in Roanoke Virginia. While I was an undergraduate at Radford University, I completed the two years of music theory courses that are required for most college music degrees.
 - k. Sighted Instructor: I did not take any music theory courses before beginning college. However, I also took a music theory elective during my senior year. I completed the two years of music theory that are required for most college music degrees.
7. Have you had ear training classes? If so, how many years?
- a. Student 1: Just this past semester of college
 - b. Student 2: No
 - c. Student 3: No
 - d. Student 4: No
 - e. Student 5: No in Ear Training and Sight Singing 1

- f. Student 6: No
 - g. Student 7: Did that in theory
 - h. Student 8: 1 semester
 - i. Student 9: Only last fall semester
 - j. Student Researcher: Prior to entering the music program at Radford, I had not taken any ear training classes. At Radford, I took the two years that are required for any student in the music program.
 - k. Sighted Instructor: I took the standard two years of ear training that is required for most college music degrees.
8. Have you had the opportunity to work with students or teachers who are blind?
- a. Student 1: No
 - b. Student 2: No
 - c. Student 3: No
 - d. Student 4: No
 - e. Student 5: I am totally open to it.
 - f. Student 6: No
 - g. Student 7: not until now
 - h. Student 8: No
 - i. Student 9: Never, would love to.
 - j. Student Researcher: I was able to interact with students and teachers who are blind at the Virginia Rehabilitation Center for the Blind and Vision Impaired. This is a center, located in Richmond Virginia, where any individual who is blind

or visually impaired may receive the training so that he/she can live independently. While attending this program, I was able to make many friends and work with many teachers who are blind or visually impaired. I must say that I enjoyed my time at this training facility.

Sighted Instructor: I have had several music therapy clients who are blind. My graduate teaching assistant is also completely blind. I have never worked with an instructor who is blind.

9. What is your overall feeling about working with a blind professor?
 - a. Student 1: It may be a little easier when the assignments are described instead of shown.
 - b. Student 2: I am interested and curious
 - c. Student 3: I feel like there will probably be a differentiation in methodology, perhaps those students sight oriented will have a tougher time.
 - d. Student 4: I am excited to learn in a different way and help out Daniel.
 - e. Student 5: I am fine with it.
 - f. Student 6: indifferent, mostly
 - g. Student 7: Indifferent
 - h. Student 8: (no response)
 - i. Student 9: Excitement. I've felt often that the lack of sight heightens hearing perception and if I was going to lose one of the five senses, it would be sight.
 - j. Student Researcher: I have no problem working with a blind professor. To me, it does not matter if the professor is blind or not. It depends more on the teaching

style of a particular individual. While I was at the Rehab Center, I was able to work with many blind instructors with many different teaching styles. Personally, I enjoyed working with the teachers that explained things in a clear and logical way. Some of the teachers at the Rehab Center did not really teach. They expected you to figure things out on your own. I liked working with the teachers that showed me how things were supposed to be done.

- k. Sighted Instructor: I am very intrigued about this possibility because I am interested to observe how a blind person teaches.

To get a general sense of the musical background that the participants in this study possessed before beginning their studies at Radford University, the student researcher handed each student a background survey. The first question on this survey asked each participant to identify their principle instrument. The responses to this question were quite diverse. Some participants sang while others played guitar, drums, or participated in their school's band. Some participants played many different instruments, such as the bass guitar, cello, and tuba. The responses to this question show that many different students play a wide variety of instruments.

The second question on the background survey asked participants to indicate how many years they have been practicing their principle instruments. Like the first question on this survey, the responses to this question were very diverse depending on the individual participant's musical experience. Some participants have been playing their principle instruments for a short time while others have been playing their instruments for many years. Thus, each participants experience in music is unique to this study. Every participant is coming from a different musical background before beginning this study.

The third question asked participants to indicate how many years of private instruction they had completed on their principle instrument. The participants's expertise on his/her principle instrument varies considerably from participant to participant. Some have taken lessons for many years while others have only been studying music seriously for a few years. The background of each participant varies drastically depending on the situation. Some have had many years of preparatory work in high school and others have not. Most of the participants who took this survey have had many years of piano lessons. The amount of piano lessons varies by individual. Some have taken only a few semesters of piano lessons while others have taken piano for over a decade. Participants were also asked to indicate how many years of music theory they had completed before enrolling at Radford University. As with most of the questions on this survey, the answers are different depending on the high school experience. Some participants began their studies at Radford with very little experience in music theory and ear training. Others have had several years of work, which prepared them for a music degree. All of the participants who were given this survey had never worked with blind students or instructors. However, all participants were willing to work with a blind instructor and generally enthusiastic about the prospect. When asked to state his/her feelings about working with a blind instructor, one participant commented by saying "Excitement. I've felt often that the lack of sight heightens hearing perception and if I was going to lose one of the 5 senses, it would be sight." Others were fine with this possibility and others were indifferent. Although none of the participants had any experience in working with blind individuals, they were very receptive to this idea.

Analysis of the Journal Entries

Session 1 – Blind instructor (sight-singing exercise)

Question 1

- a. No
- b. No
- c. No
- d. No
- e. No
- f. No

Question 2

- a. Blind
- b. Blind
- c. Blind
- d. Blind instructor
- e. Mr. Daniel, who is blind
- f. Blind

Question 3

- a. I felt good about it
- b. I didn't like the fact that everyone didn't have to sing alone
- c. It was like a day in class
- d. Feeling alright, just reviewed material that we went over in class.
- e. Pretty basic, no trouble at all.
- f. Our lesson covered material we have already learned, so it felt more like review.

Question 4

- a. The teacher would have us identify the tonic and dominant chords afterwards
- b. Repetition

- c. Singing in unison and canon
- d. Determining the pitches when going over solo singing and orienting to the key.
- e. He was quite patient, I did not over use the piano. I found that this was liberating and I had to rely on my memory more. I pleased to find he could rise to the occasion.
- f. Daniel was patient and helpful- supportive as well. Orienting to the key was done well.

Question 5

- a. Occasionally, the instructor would start playing in the middle of the student's singing and would disrupt the student's attempt.
- b. It's hard to tell
- c. Individual singing
- d. None so far.
- e. He didn't seem to be inclined to let us (can't read) to the key by default, we had to ask. This might just be his teaching style rather than a symptom of his disability.
- f. There was some confusion on tempos when the group sang together. It may have been more helpful if Daniel had tapped his foot.

Question 6.

- a. Orient to the key of chose example, sing chose example, after several examples, have student's individually sing.
- b. Sight sang as a group in major keys, individual singing in minor keys, journals
- c. It was interactive and individualized
- d. Fairly straight forwards
- e. Quick, with high, but reasonable expectations.
- f. To find the tonic and dominant in sight-singing examples. To review basic sight-singing examples.

Question 7

- a. No more helpful or challenging than normal

- b. Challenging
- c. It was helpful
- d. Helpful
- e. Both, I felt very stimulated
- f. Helpful in that it was a good review. Challenging when it came to keeping in time with the entire group.

Question 8

- a. N/A
- b. Also, blind instructor should carefully look over examples, not voluntary- instructor picked us.
- c. Challenging ourselves to keep up
- d. I like orienting to the key and group singing, I definitely do not like solo singing at all
- e. I very much liked the fact that he didn't use a lot of piano.
- f. I liked being able to sing alone. It's nice to hear your own progress.

Session Two -- Daniel Jenkins (minor harmonic progressions)

Question 1

- a. Yes
- b. Yes
- c. Yes
- d. Yes
- e. Yes
- f. Yes

Question 2

- a. Blind
- b. Blind
- c. Blind instructor
- d. Blind
- e. Blind
- f. Blind

Question 3

- a. Very educational
- b. Good
- c. It was difficult to keep the sleep shades on, but I felt like I could pay better attention to each individual note in the progressions.
- d. Playing chords and singing along
- e. Not quite sure why we had to write down stuff. For the teachers benefit, (presumably sighted)
- f. Very challenged

Question 4

- a. Reviewing each individual chord
- b. Identifying chord progressions
- c. Deciphering each note in chord progression
- d. Playing chords and singing along
- e. N/A
- f. Using the sleep shades to really listen to what the chord was

Question 5

- a. Having us write chords
- b. None-maybe writing them down
- c. Same as above
- d. Identifying chords with no visual circles such as hand signs
- e. Not clearly stating correct answers
- f. Writing down the chord progressions

Question 6

- a. Playing 4 chord progressions, students write progressions down, review
- b. Sleep shades, instructor played progression and we wrote them, then we sang them
- c. Hearing and writing down minor chord progression
- d. It was all dictated
- e. Focused, paced, well topical.
- f. Facing the challenges of working with not being able to see

Question 7

- a. challenging
- b. not really
- c. challenging and helpful
- d. helpful
- e. challenging today
- f. challenging

Question 8

- a. the non-vision
- b. writing it down

- c. I liked the idea of this exercise
- d. I disliked how we could listen to other people without thinking for ourselves
- e. Did not like writing, I felt like if he played gave us a second to think and then asked us what the chords were would've been more helpful.
- f. N/A

Session 3 Blind instructor (memory strategies in sight-singing)

Question 1

- a. Yes
- b. Yes

Question 2

- a. blind
- b. blind

Question 3

- a. I felt good
- b. Effective mostly, I feel that succeeding sessions would be beneficial for sighted and blind students.

Question 4

- a. Repeating after each measure
- b. Mostly effective-nothing seems to stand out-except for the sleep shades made me think more of the interval and sound of the song rather than the notes.

Question 5

- a. The rhythm
- b. Refreshing, we sometimes had a rhythm that was not subdivided enough, leading to a confusing melody.

Question 6

- a. Play measure, purport measure, sing full song
- b. We would listen to a song measure by measure and sing them back to Daniel. We had gone through the song we would try to sing from memory.

Question 7

- a. Helpful
- b. Challenging at parts. I feel we needed to recap just about every 4 measures.

Question 8

- a. N/A
- b. N/A

Session 3 -- Sighted instructor (memory strategies in sight singing)

Question 1

- a. Yes
- b. Yes
- c. Yes
- d. Yes
- e. No

Question 2

- c. sighted
- d. sighted
- e. sighted
- f. sighted

Question 3

- c. Lab more done than previous sessions.

- d. Interesting
- e. I found today's session extremely effective for my ear training studies
- f. It was a lot of imprinting and memorization.

Question 4

- c. The teacher let us use methods that we decided were necessary. When one asked for limited aid for the sake of sound it was allowed I feel like this helped immensely, previously this was not so.
- d. Listening and repeating melodic sequences
- e. Repetition and clear rhythms singing alone after reviewing the selection multiple times over
- f. Repetition was effective

Question 5

- c. The occasional misstep on the piano, its tough to filter out other sounds.
- d. Having to remember a lot at a time
- e. Sometimes- the length of the second piece jumps in between notes.
- f. Stopping, changing what we were doing

Question 6

- c. Play, sing, focus, do it very straightforward
- d. Sleep shades, instructor play melody piece by piece until we learn it all the we sang it back.
- e. Call and response and repetition
- f. It was dictated and somewhat individualized

Question 7

- c. helpful immensely helpful
- d. Helpful

- e. Helpful
- f. I found it helpful

Question 8

- c. Not a fan of sleep shades.
- d. It's a little harder to articulate rhythm when blind
- e. Very supportive and fun
- f. I was using parts of mind that I don't use often

Session 4 Blind instructor (chord inversion)

Question 1

- a. No
- b. No

Question 2

- a. Daniel
- b. Blind

Question 3

- a. Interestingly, I don't think I could say whether it was effective or not, as this seems to be a basis study. Open mind
- b. I feel like I understand how to identify inversions much better.

Question 4

- a. the repetition, same inversions, never doubled, and how we kept listening for the inversion
- b. Explaining the intervals for each inversion

Question 5

- a. When Daniel plays an inverted chord, he wants to let go of the treble notes as he ends it- but I'm treble oriented enough that that really messes me up.
- b. Singing inversions

Question 6

- a. N/A
- 2. Explain the difference in inversions and how to listen for them in a progression

Question 7

- a. Challenging, not enough to be overly useful
- b. Helpful

Question 8

- a. See above
- b. I liked how it was straight to the point.

Session 4 - Sighted instructor (chord inversions)

Question 1

- a. No
- b. Yes

Question 2

- a. sighted
- b. sighted

Question 3

- a. I feel good
- b. Feeling better about normal ear training

Question 4

- a. reviewing chords afterwards
- b. using the sleep shades for sight singing because it makes you focus more on how the melody flows and adjusting to the pitch.

Question 5

- a. none
- b. Solo singing with shades

Question 6

- a. play inverted chord, write IC down, sing IC
- b. A little different than a normal ear training class because we couldn't see the music in front of us.

Question 7

- a. helpful
- b. very helpful

Question 8

- a. I liked the review
- b. Using the sleep shades to match pitch, I definitely liked.

Blind instructor Journal Entries

Session 1

I was the blind instructor for this session. Basically this session was a review of chapter 6, the tonic and dominant chord chapter in the sight-singing book for class. Some of the examples that I presented for the students were ones that we had gone over before. The students did not wear sleep shades during this session. I could tell that some of the students were struggling with sight singing individually. However, I believe that this session went well for all of the students involved. As the instructor, I was able to conduct the session without any major problems. I thoroughly enjoyed teaching the students in this session. They were all very well behaved and a pleasure to work with.

Session 2

This session focused on minor harmonic progressions in the key of a minor. The students wore sleep shades during this session. Several questions were raised regarding the procedure including why the progressions had to be written down and why the students had to sing them. I explained to the students that whether they wore sleep shades or not, they should know how to both sing and write these progressions. However, I feel that I could have done a better job of explaining how harmonic progressions work. For example, if I hear a five chord, I should listen for a leading tone and the fifth note of the scale. I could have done a better job of explaining this. After the students took the shades off, they did very well on each of the exercises. As the instructor I found it hard to play the progressions at first. However, as the progressions went on, it became easier to play them. I should have explained to the students that singing the chord inversions was not a good idea. It was easier for the students to sing each chord in root position rather than the inversion I played it in.

Session 3

Today I conducted a session where the students wore sleep shades and sight sang from memory. I feel like I did a better job of explaining the exercises to the students than I have done in the past. The students struggled with remembering some of the examples because the second one was very long. I think that was the only challenge about this session. The second example that I played for the students was very long. I feel that the students were not use to using their memory to complete exercises. The students in this session wore sleep shades. Because of this, they had to rely on their memory rather than reading off a page of music. Other than that, I feel that it session went very well. I like how I am improving as an ear training teacher. it was hard for the students to keep track of all of the information in their memory. I also feel like the students were not use to conducting ear training class in this manner. However the strategy of breaking the exercises into small pieces proved to be very effective.

Session 4

Today, I worked with two students on identifying chord inversions. The exercise went fairly well and I made sure to explain everything to the students as well as I could. One of the students had a hard time identifying the chords because he/she was not use to the exercise. My general belief is that it will take practice to master all of the skills in ear training. I explained to him that I would be willing to answer any questions that he had. Overall, I feel that the session went very well and I can tell that I am becoming a better teacher through this experiment.

Sighted Instructor Journal Entries

Session 3

Question 1: Not answered

Question 2: Sighted

Question 3: N/A

Question 4: Repetition

Question 5: Would have used a tactile cue to support rhythmic learning

Question 6: Kodaly approach using aural skills training through repetition

Question 7: Helpful

Question 8: I would imagine that it is exhausting for students

Session 4

Question 1: No

Question 2: Sighted

Question 3: Important component of aural skills

Question 4: repeated patterns

Question 5: N/A

Question 6: Playing chords over and over

Question 7: helpful

Question 8: N/A

Over two weeks of instructional time, the student researcher was able to solicit eight volunteers to participate in this study. The first session of this experiment was conducted with six participants and taught by the blind instructor. This session focused on sight singing examples as previously indicated. The participants did not wear sleep shades during this session. Most of the participants, as well as the blind instructor, in this session felt that this was a review of material that was previously covered in class. One participant wrote about the material

covered in this session, “Feeling alright, just reviewed material that we went over in class.” In response to the same question, the student researcher noted “Basically this session was a review of chapter six, the tonic and dominant chord chapter in the sight singing book for class. Some of the examples that I presented for the students were ones that we had gone over before.”

While some of the participants felt this session was a review of concepts covered in previous lectures, some chose to answer this question differently. One commented, “I didn’t like the fact that everyone didn’t have to sing alone.” However, most of the responses to this question confirm the finding that this session was a review of sight singing concepts, which were covered in class. The student researcher noted that everything went well during this session and there were no major problems with the instruction of this lesson.

Question four asks participants to describe teaching techniques which were particularly effective. Participants in session one repetitively sang in canon and unison oriented to the key of a particular exercise. One participant chose to answer this question by commenting on the instructor’s teaching style. “He was quite patient, and did not over use the piano. I found that this was liberating and I had to rely on my memory more. I was pleased to find he could rise to the occasion.” Other participants had similar comments regarding the blind instructor’s teaching style. It seems participants had to use whatever techniques they thought were appropriate to complete the exercise. Some believe that repetition and memorization are helpful techniques, while others think that orienting to the key of a particular exercise is helpful in sight singing.

Question five asked participants to reflect on the aspects of the session, which were challenging. Some had no challenges with this session because it was a review of sight singing. The student researcher did not feel that there were any challenges in teaching this session. However, others noted a few challenges with this instruction. One participants commented

“There was some confusion on tempos when the group sang together. It may have been more helpful if Daniel had tapped his foot.” Another participant did not like sight singing individually. A third participant noted that the instructor would play the piano while someone was sight singing. Instead of helping the participant keep his/her pitch, this was distracting. The biggest challenges participants faced in this session were singing in time with the group and sight singing individually.

The next question asks participants to describe the instructional method employed during this session. Most all of the participants noted that this session began with sight singing examples in major keys as a group. After three examples, participants were selected to sing examples in minor keys individually. In describing the instructional methods of this session, one participant noted “It was interactive and individualized” while another noted “Fairly straightforward.” Overall, the instructional method of this lesson was very basic. Participants were asked to sight sing in groups and individually.

Question seven asks participants to indicate whether the teaching techniques used in this session were helpful or challenging. Most felt that the techniques were helpful. One commented it was “Helpful in that it was a good review.” Because this session was a review for most of the participants, the techniques that were employed by the blind instructor were very helpful in sight singing.

The last question asked participants to note aspects of the teaching that they liked or disliked. In answering this question, one participant noted “I liked orienting to the key and group singing. I definitely do not like solo singing at all.” On the other hand, another commented “I liked being able to sing alone. It’s nice to hear your own progress.” The responses to this

question are very diverse. Thus, it is hard to accurately draw any conclusions from this information.

Session two was conducted on the same day as the first session. The same participants were included, except each person wore sleep shades over his/her eyes. The blind instructor conducted this session. The session consisted of six minor harmonic progressions. Participants listened while the blind instructor played each progression. After each progression was played, participants sang each note of each chord in the progression and wrote the roman numerals of each progression on manuscript paper.

When asked about their overall feeling about what was studied in this lesson, most commented that the experience of wearing sleep shades while completing this exercise was very educational. One participant commented “It was difficult to keep the sleep shades on, but I felt like I could pay better attention to each individual note in the progressions.” Wearing the sleep shades allowed the sighted participants to utilize senses that they had not used before. When answering this question, another participant noted “It was educational; I understand what tools I do and don’t need for listening.” Overall, the participants in this session felt that the sleep shades were helpful in allowing their other senses to be used while identifying minor harmonic progressions.

Participants were then asked to identify techniques that they found challenging. Most of the participants found writing the chords on paper wearing sleep shades to be a major challenge in this lesson. One participant noted that one of the challenges was “Identifying chords without visual cues.” Another found “Writing down the chord progressions” to be a challenge. The biggest hindrance to the participants in this study was not being able to see while dictating chord

progressions. Practicing this skill while wearing sleep shades may improve this situation drastically.

The responses were divided on whether the instructional methods used in this session were helpful or challenging. About half of the participants said the techniques were helpful, while the other half of the responses noted they were challenging. Thus it is hard to draw any accurate conclusions from this information. The answers were split right down the middle on this question.

Many participants noted that they did not like writing the progressions on paper while wearing sleep shades. The student researcher explained to students that writing the progressions on paper was beneficial. Although each participant in this session wore sleep shades, he/she was still able to complete the exercise with very high accuracy. Working with sleep shades did not appear to reduce the accuracy of the responses.

Session three of this experiment took place two nights after the first two sessions were conducted. Five participants attended this session, which was taught by the sighted instructor. The students were asked to sing examples as previously described.

Students were asked to describe some teaching techniques that were particularly effective in this session. One technique that one of the participants mentioned was “using the sleep shades for sight singing because it makes you focus more on how the melody flows and adjusting to the pitch.” Another technique that was effective during this session was “listening and repeating melodic sequences.” To complete each of the examples, the sighted instructor had to break the melody into small sections, which could be easily memorized. The participant sang each phrase and retained it in his/her memory while listening to the next phrase. Because the participants in this study were used to sight singing the music, this particular memorization strategy may not

have been utilized very often. Thus, the students were able to employ many new strategies of learning and retaining information in this session.

Participants in this session were then asked to identify some techniques that were challenging. In answering this question, one noted “having to remember a lot at a time” as one of the challenges that he/she faced. The participants may not have been used to this teaching strategy. Thus, they found it challenging to complete the work when one of their senses was eliminated.

In describing the instructional method of this session, one student noted “Sleep shades, instructor plays a melody piece by piece until we learn it all then we sang it back.” This proved to be an effective teaching technique because the melody was broken into small phrases, which could be easily memorized by each participant. Most of the participants found this instructional strategy helpful because it allowed each participant to memorize the melody rather than read it from the book. One student also noted “I was using parts of my mind that I don’t use often.” Based on these comments made during this session, the strategies that were employed by the sighted instructor were very effective in allowing the students to sing from memory.

Session four, which was taught by the sighted instructor, took place two nights later. One participant attended this session and did not wear sleep shades over his/her eyes. During this session, the participant was asked to identify chord inversions in any key. The sighted instructor played the tonic note of each key. The participant was then asked to sing the notes of each chord and write the roman numerals of each chord inversion. The participant found this lesson to be easy because it was a review of concepts that had previously been covered in class. This individual did not note any particular challenges with this session in his/her journal entry. The participant felt “reviewing chords afterwards” proved to be an effective teaching strategy.

Two more sessions were conducted by the blind instructor: sessions Three and Four. During the first of these sessions (session four), the participants were asked to write, sing, and identify chord inversions in any key. The participants in this session did not wear sleep shades during the instructional period. Journal entries from this session did not reveal any significant feedback from which to draw information.

One final session was conducted by the blind instructor (session three). During this session, two participants were asked to wear sleep shades and sing musical examples as previously described. The instructor would play each example, breaking the melody up measure by measure. After each measure was played for the participants, the instructor would ask the participants to sing what had been played. Before the last measure was played, the instructor asked each participant to sing the melody individually from memory. One participant noted that an effective strategy that was utilized in this session was “Repeating after each measure.” The rhythmic aspect of this exercise was challenging for this participant. One participant noted “the sleep shades made me think more of the interval and sound of the song rather than the notes.”

The second exercise played in this session was very long. Thus, some of the participants struggled with remembering all of the measures that were played. However, the student researcher feels that this was the only challenge that was encountered in this session. An effective strategy for memorizing melodies is to break the melody into small pieces.

Conclusion

Memorizing melodies, listening for chord inversions and sight-reading musical examples have been used to teach ear training and sight singing. Fish & Lloyd (1964), Shumway (1970), and Ottman and Rogers (2011) all make the case for traditional ear training techniques and

methods. Many of the articles presented in the literature review also support these traditional approaches.

Questions remain as to the role sight plays in the effectiveness of these techniques. Because the participant pool in this project numbered only 8 students, it is difficult to draw accurate conclusions from the data collected. The current project, therefore, recognizes that more work needs to be done in this area. However, a number of casual observations may be made which might lead to a more comprehensive study in the future. Some of these observations include:

1. When the students wore sleep shades in a particular session, they had to use their memory to complete exercises rather than their sight.
2. Participants did not mention instances when a blind instructor provided too much or too little description for a particular exercise. The sighted instructor was no more likely to write information on the board than the blind instructor. Thus, the techniques and strategies employed by both the sighted and blind instructor were the same. The techniques and approaches to teaching were identical regardless of sight.
3. Some participants felt that sleep shades enhanced the ability to listen more intently to the exercise.

My Vision for an Ear training Curriculum

If I were creating an ear training curriculum for a class of college students, there are many things that I would include. First, I would create a syllabus that includes all of the goals and objectives for the course. This course would last four semesters or roughly two years. These goals would include mastery of melodic dictation, rhythmic dictation, pitch, interval, and chord identification, and a basic working knowledge of music. In order to successfully complete an ear training program, students need to be proficient in all of these skill areas.

Fish and Lloyd (1964) defined some general terms related to ear training.

Ear training, in essence, means becoming aware of and identifying sounds that you have heard thousands of times, and learning to notate them. Learning to sight read means learning to see a note, not just as an isolated symbol, but as a sound that is a part of a group of sounds making up a phrase or a part of a total work. (p. xi)

I wholeheartedly agree with the definitions that these authors present in their book. I would stress the importance of learning these skills to all of my students.

During the first week of class, I would introduce basic musical terms to the students. I would explain what measures, notes, scales and rhythm are and provide examples for the students to listen to. A note may be thought of as any given pitch which can be played on any instrument. A scale is a collection of notes, which are arranged in a particular order. Rhythm is the process by which a student counts and keeps track of a beat in his head. A measure is a series of notes that constitute a beat in any time signature. After presenting these basic music terms, I would then play some major scales on the piano. The most common scale to start with is the C major scale. I would also introduce the solfege system to all of the students. Using the solfege syllables provides a way for the students to relate a note to a particular note name. Because this is a lot of information, I would present all of the musical terms on a power point that the students can print out and keep. The individuals who are blind may wish to have this information translated into braille. These terms are not only used in ear training, they are also useful in beginning music history, music theory, and introductory piano classes.

At the end of the second week of classes, I would have a quiz on the terms presented on the power point. I believe that it is important for the students to memorize all of these terms because they are essential in any music class that a student wishes to take. After the quizzes have been graded and returned to the students, I would then introduce intervals and chords to the class. An interval may be thought of as the distance between any two notes. Chords are a series of notes which are played simultaneously. These terms would also be on a power point.

I would first introduce the intervals minor and major second and minor and major third. I would not only encourage the students to write these intervals in music notation, I would also require the students to sing these intervals out loud. This would help each student gain an awareness of how the notes relate to each other. It would also help the student not feel nervous when it comes to sight singing.

After introducing the smallest intervals, I would introduce intervals such as perfect fourths and fifths into the curriculum. Many of the sight singing examples that students have to sing could include these intervals. After all of the intervallic and melodic relationships have firmly been established, it is time to bring sight singing into the mix. Each student would have a sight singing book with examples for him to sing. Sight singing is one of the most important skills that a student can learn. I would strongly advise students to spend at least an hour a day in a practice room working on their sight singing skills. If a blind student were in my class, I would make sure that a Braille copy of the sight singing book. If a student does not feel comfortable using Braille music, I would work with that student to develop the necessary Braille music skills that he needs.

Fish & Lloyd (1964) stress the importance of sight singing and reading from a purely practical standpoint, a prime requisite for anyone entering the music profession is the ability to sight-read. With the high and varied demands on musicians today, efficient reading becomes all the more important. (p. v)

For this reason, I would stress the importance of learning to sight read and sing to all of my students. These skills are invaluable no matter what level of study a particular student is learning at.

I would also require the use of an ear training book. This book would have practice exercises for the students to work on. Homework examples could also be provided for each of

the students. This would give the students extra opportunities to practice all of the skills that they learn in class.

After three weeks of practice and hard work, I would give a quiz to the class. This quiz would consist of interval recognition, pitch identification, and chord recognition. Students would have to listen to examples that I play and write down what they hear. After all of the examples have been played, I would grade the tests based on what the students got right. If I were working with a blind individual, I would allow that person to take the interval and chord identification quiz orally in my office. I would do this to allow the student to listen to each example and tell me which interval I had just played. Also, there is no adequate way to quiz someone on intervals using Braille music.

Because I am blind, I may need help grading all of the papers that students hand in. Many of the rhythmic and melodic dictation exercises are written on manuscript paper. To accomplish this, I would review each test paper with a sighted graduate student. The student could see how each of the notes is written and tell me what he sees.

If I were testing a blind student, I would ask him to take the test orally in my office. I would ask him to tell me the notes, their values, and the note names. I would not worry if the student could not write the note on a musical staff. If a student feels better about writing his answers in Braille music notation, I would have him E-mail his paper to me as an attachment. I would also have access to Duxbury so that I could check the entire Braille music notation. This would allow me to read the Braille answers and determine his grade.

After the quiz on intervals and chords has been completed, I would introduce rhythmic and melodic dictation concepts to the students. To complete melodic dictation exercises, students must write down note values, rhythms, and solfege symbols for examples that I play on

the piano. Again, I would employ the help of a graduate assistant to help with the grading of each assignment. If a student wishes to provide his answers in Braille music notation, I would have him E-mail me his paper.

After another three weeks has gone by, I would quiz the students on melodic and rhythmic dictation practices. This would give the students plenty of time to practice what they are learning. Along with quizzes and tests, I would require a few in-class assignments which would not be graded. These are meant to let me gauge how well a particular student is doing. It would also allow me to know if there are any skills that need a little more work.

When the first semester is finished, I would give an exam on all of the concepts that were discussed that semester. The first exam would primarily focus on major keys and tonic triads. These concepts are generally the easiest for the student to grasp. The student's overall grade would be determined by a combination of assignments, sight singing exams, and attendance points.

In the second semester of the curriculum, I would introduce minor scales to the students. It may be hard for a student to adjust to working in minor because the key signature and note names are completely different. For example, the key of C major does not have any sharps or flats. However, the parallel key of C minor has three flats. It may take some hard work, but I would be more than willing to assist the students in any way that I can. The concepts that I introduced in the first semester would build on each other. I would constantly review the concepts that the class have previously learned to make sure that no one forgets anything. The sight singing examples would also get harder as the curriculum rolls along.

During the third and fourth semesters, things would progressively get harder. Melodic dictation exercises and sight singing examples would become more chromatic in nature. Special

attention should be paid to whether a note is sharp or flat in a key signature. Movable do would also be employed as a way of helping the student relate the syllable do to the first note of a scale. Grading practices would also be critiqued more thoroughly. As a student learns new concepts, the grading must reflect what he is learning.

I would also encourage students to seek help from anyone in the music department. Tutors are always ready and willing to work with a student if he needs help with anything. Online programs would only be used to help students get more practice on all of the ear training skills. I would not require any assignments to be completed online. I firmly believe that this ear training curriculum could ensure the best possible learning environment for a college student. Special attention must be paid to those individuals who need special accommodations to complete the course.

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Appendix A
Forms
Adult Informed Consent – survey research

Title of Research: The impact of Sight on the Process of Teaching and Learning Aural Skills

Researcher(s): Daniel Jenkins (student), Dr. Bruce Mahin, (faculty advisor)

During four 50-minute sessions we will ask you to be in a research study: which examines the challenges a blind instructor faces in a traditional classroom of sighted participants and blind students. In addition, it will study the challenges that sighted participants face when being taught by a blind instructor. The study will examine feedback provided by sighted participants wearing sleep shades to determine the extent to which reducing sight impacts the participant's learning experience.

This experiment will consist of participants who are currently enrolled in a freshmen level ear training class. One group of participants will be divided in half. Half of the participants will receive instruction wearing sleep shades over their eyes. The other participants will not wear shades at all. The sessions will be divided equally between the sighted instructor and the blind instructor. Specific learning objectives will be determined for the sessions. Each instructor will have unique questions they will ask students in the session. Participants and both instructors will complete a written report following each session which describes their feelings about the session with emphasis placed on specific challenges that they faced as well as positive reflections on the experience.

The reports written by participants and teachers will be examined to determine whether patterns exist in order that conclusions may be made about the instructional method of the sighted teacher compared to the blind teacher. Questions on the survey will not ask for personal information which might identify the author of the responses.

In this experiment, participants will be asked to complete surveys. Questionnaires will be given to the participants to determine the background in ear training that the participant possessed before enrolling at Radford University. Questions regarding musical background, and experience with blind teachers, will also be evaluated to develop a comprehensive picture of the pool of participants.

If you decide to be in the study, you will be asked to wear sleep shades in four 50-minute sessions over the course of two weeks. *Approximately 20* people will be asked to participate in this study.

This study has no more risk than you may find in daily life

There is no compensation from being in this study

There are no direct benefits to you for being in the study.

You can choose not to be in this study. If you decide to be in this study, you may choose not to answer certain questions or not to be in certain parts of this study.

If you decide to be in this study, what you tell us will be kept private unless required by law to tell. If we present or publish the results of this study, your name will not be linked in any way to what we present.

If at any time you want to stop being in this study, you may stop being in the study without penalty or loss of benefits by contacting: Dr. Bruce Mahin (Principal Investigator), Daniel Jenkins (co-investigator) or Prof. Patricia Winter (instructor).

If you have questions now about this study, ask before you sign this form.
If you have any questions later, you may talk with Dr. Bruce Mahin (Principal Investigator), Daniel Jenkins (co-investigator) or Ms. Patricia Winter (instructor).

If this study raised some issues that you would like to discuss with a professional, you may contact: Ms. Patricia Winter (instructor) in Porterfield 143 or by email at pwinter3@radford.edu
Dr. Bruce Mahin (principal investigator) in Porterfield 162 or by email at bmahin@radford.edu.

This study has been approved by the Radford University Institutional Review Board for the Review of Human Subjects Research. If you have questions or concerns about your rights as a research subject or have complaints about this study, you should contact Dr. Dennis Grady, Dean, College of Graduate and Professional Studies, Radford University, dgrady4@radford.edu, 1-540-831-7163.

It is your choice whether or not to be in this study. What you choose will not affect any current or future relationship with Radford University.

If all of your questions have been answered and you would like to take part in this study, then please sign below.

_____ Signature	_____ Printed Name(s)	_____ Date
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I/We have explained the study to the person signing above, have allowed an opportunity for questions, and have answered all of his/her questions. I/We believe that the subject understands this information.

_____ Signature of Researcher(s)	_____ Printed Name(s)	_____ Date
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Note: A signed copy of this form will be provided for your records.

Research Study Seeking Volunteers

This is a research study, which examines the challenges a blind instructor faces in a traditional classroom of sighted students and blind students. In addition, it will study the challenges that sighted students face when being taught by a blind instructor. The study will examine feedback provided by sighted participants wearing sleep shades to determine the extent to which reducing sight impacts the participant's learning experience.

Inclusion and exclusion criteria:

- Participants must be currently enrolled in a freshman ear training class.
- Participants in this experiment may or may not have visual impairments.
- Participants who are sophomore level or above may have too much experience in this subject area and will be excluded from this experiment. Graduate students will also be excluded from this experiment. Participants under the age of 18 years old at the time of the research sessions will be excluded from the experiment.
- These sessions will have no impact on the ear training and sight-singing curriculum. Participants will not be graded or tested on the information covered during this experiment.

If you are interested in participating in this study contact:
Daniel Jenkins (co-investigator) at 22dJenkins@cox.net OR
Dr. Bruce Mahin (Principal Investigator) at bmahin@radford.edu

Appendix B

Annotated Bibliography

Byrne, J. (2003). The Blessings and problems for those with perfect pitch. *Clavier*, 42 (6), 18-23. This article will describe the disadvantages and advantages of perfect pitch to a music student. Perfect pitch may be thought of as a person's ability to recognize the exact note that someone else has just played. This article is of particular interest to me because I have perfect pitch myself. It deals with techniques.

Carter D. (2005). Hearing is believing: reflections of a blind string teacher. *American String Teacher*, 55 (3), 76-77. This article discusses a training technique that string teachers may use with their blind or visually impaired students. This technique makes use of sleep shades or blindfolds that students wear. These blindfolds make it impossible for students to see anything. The benefits of this type of training program are also discussed. This article is about techniques.

DeGroot, J. (2008). Ear training for jazz improv. *Teaching Music*, 15 (5), 50-51. This article talks about many different ear training methods that jazz improvisation singers can use. It is important for jazz improvisers to know basic ear training skills such as interval recognition. These skills are not only important for vocal performers; they also need to be taught to instrumentalists as well. This article is classified under techniques.

Dobbins, B. (1980). The national association for music education improvisation: an essential element of musical proficiency. *Menc The National Association For Music Educators Music Educators Journal*, 66, (5), 81-85. This article offers many strategies that students can use while improvising melodies.

Fish A. and Lloyd N. (1964). Fundamentals of Sight Singing and Ear Training. New York, Toronto: Dodd, Mead and Co. This book presents many different projects that students can

use to learn sight singing and ear training skills. These projects are designed for anyone, regardless of prior music experience, to use. Along with these projects, many techniques for learning ear training are discussed.

Groeling, C. Good (2003). Intonation starts early. *Instrumentalist*, 57 (11), 20-22. This article mentions the causes of bad intonation, the affect that this has on an instrumental music ensemble, and the way to correct this problem. Generally, bad intonation is a result of a music teacher assuming that a student can hear a particular note and know how to play the note correctly on their own. Teachers should work with students to correct the problem of bad intonation.

Jukka, L. (1999). Strategies in writing melodies. *Bulletin Of The Council For Research In Music Education*, 141, The 17th International Society for Music Education: ISME Research Seminar University of Illinois Press, 81-85. This article presents many strategies that students can use to memorize music.

Kowalchyk, G. and Lancaster E. L. (1996). Piano Ear Training Book Level 1 A, Second Edition. Van Nuys, California: Alfred Publishing Company. This book presents many exercises that students can use to practice ear training concepts. Each exercise is designed to help students with a specific skill. All concepts are covered from rhythm to melody.

Krolick, B. (1998). How to Read Braille Music An Introduction, Second Edition. San Diego, California: Opus Technologies. This is a self-help book which describes how to read the Braille music code. All of the concepts, such as measures, note names, and rests are clearly illustrated and discussed in this text. Examples of musical exercises are provided which clearly describe each concept which is discussed in this book.

Laskey, A. Kodaly (2010). Concept in the secondary choral classroom: increasing the use of kodaly-inspired techniques. *Kodaly Envoy*, 36 (3), 16-18. This article mentions some of the reasons why this particular method of study is not used in choral classes in the United States. One cause may be the improper use of ear training techniques for choral music. This article is about techniques.

Musko A. M. (2010). Playing by ear: Is expert opinion supported by research?. *Bulletin Of The Counsel For Research In Music Education*, spring (184), 49-63. This article examines many practices of playing by ear. This may be thought of as playing a piece of music that already exists from memory without the use of notated music. This article may be an effective strategy in teaching ear training to blind students.

Ottman, R. W. and Rogers, N. (2001). *Music for Sight Singing*, Eighth Edition. Upper Saddle River, New Jersey: Pearson Prentice Hall. This sight singing book that is currently used in the ear training classes at Radford University. Over 21 chapters, this book presents simple melodies that students can sight sing. Rhythmic examples are also included so that students get a sense of what rhythmic practices are used.

Paney, A. (2010). Dictation strategies of first-year music students. *Missouri Journal Of Research In Music Education*, 47, 23. ISSN: 0085-350X. United States RILM Abstracts of Music Literature. This article mentions a study where participants dictated a line of music which they listened to. Each of the participants was videotaped and certain behaviors were analyzed. The scores of all of the participants were compared and evaluated. The many strategies that participants used to complete the exercises were also evaluated and included in this study. This article deals with testing different ear training strategies.

Philips, K. H. (1996). Teaching singers to sight-read. *Teaching*, 3 (6), 32. This article discusses several different techniques and strategies that are useful in teaching students how to sight read. Tips for improving music literacy and teaching oral reading skills are also provided. Basically, this article deals with improving a person's ability to sight read music versus listening to it. This sounds like a teaching strategy or technique.

Placek, R. W. (1990). Technology for teaching. *Music Educators Journal*, 76 (8), 6. This article mentions several different technological innovations that are available to help blind students learn ear training and sight singing skills. Some of these innovations include various software programs and Braille music books. Specific things that students should listen for, such as the quality and tone of certain instruments are also mentioned. It deals with different ear training techniques.

Saslaw, J. K. (2009). Teaching blind methods for teaching music theory to visually impaired students. *Music Theory Online*, 15, 3-4. Collected Work Diversity In the Music Classroom: Confronting the Politics of Inclusion and Access. Published in United States RILM Abstracts of Music Literature This article discusses the author's experiences while teaching sight singing and music theory to blind and visually impaired students. Some of the topics that are mentioned in this article include the use of computer programs in the study of music, the pros and cons of Braille Music, and the connections between theory and Braille Music. This article also shows how the use of Braille music affects how a student learns in the classroom. Differences among Braille and Print music may arise because of the differences in the two codes. This article deals with different teaching techniques and strategies.

Seddon, T.(2010). Ear training in rehearsals. *Instrumentalist*, 64 (12), 26-30. This article discusses how basic ear training skills can be implemented in an ensemble or a group of

instrumental players. Before participating in a group setting, students must learn the basics of music such as chord structure and interval recognition.

Sheldon, D. A. (2004). Effects of multiple listening on error-detection acuity in multi-voice, multi-timbral musical examples. *Journal Of Research In Music Education*, 52 (2). This article takes a look at the ability of brass and woodwind instrumental players to accurately complete error-detection problems through repeatedly listening to the exercise. Examples of these exercises are taken from band and woodwind instrumental writings. This article deals with testing different techniques.

Shumway, S. (1970). *Harmony and Ear Training at the Keyboard*. Dubuque, Iowa, Wm. C. Brown Company. This book presents 45 different units of study that students may use while studying ear training at the piano. Topics discussed include interval recognition, how to play scales and triads, and how to recognize major and minor triads.

Whyatt, C. (2007). From violin to fiddle: bridging the gap. *The American String Teacher*, 74-75. This article mentions several ways the students who normally play classical music on the violin can begin to learn how to play simple fiddle tunes. In addition, it also mentions many benefits that playing the fiddle can offer the student.

Zeeuw, A. M. De. (1977). Teaching College Music Theory Classes that Include Blind Students. *College Music Symposium*, 17(2), 89). This article describes some modifications that teachers of music theory must make in order to accommodate students who are blind. Along with visual examples of music, verbal explanations must also be given so a blind or visually impaired individual may be able to follow along. Examples of music must also be performed so students can hear what the pieces should sound like. Resources for finding Braille or recorded sources of music are also listed. Strategies for teaching are discussed.

