How Listening to Self-Evaluative Recordings Affects Student Musicianship, Performance, and Perception in the Secondary School Instrumental Music Class

by

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Abstract

The purpose of the study was to explore critical listening skills in the secondary school instrumental music class through the use of self-evaluative recordings. Using an action research approach, I investigated my students' critical listening skills over time and monitored their development. Participants were 25 students in the senior concert band at Burnaby South Secondary School, Burnaby, British Columbia.

I recorded my students on six occasions between March 6 and April 10 2007 and asked them to record themselves at home using the program Audacity on three occasions, making a total of nine recording experiences. After each recording, students listened to themselves and responded in their journals to teacher-developed questions. At the conclusion of the listening portion of the study, students responded to a teacher-developed online survey on self-evaluative listening and performance skill. Thus, the study made use of two methodologies: action research and survey research.

A secondary goal of the study was to gather sufficient evidence to either support or refute current beliefs about critical listening related to performance skill. To this end, I conducted an online survey of 15 Burnaby instrumental teachers. Teacher survey questions were similar to those in the student survey.

Data consisted of student listening journals and student and teacher responses to the online surveys. Analysis consisted of studying the journal responses for common themes and reporting survey results in the form of tables.
The conclusion, drawn from the data, revealed that students’ perception of their sound was drastically different than what was actually revealed on the recordings. However, the data shows that the use of self-evaluative recordings improves students’ perception and listening abilities. Overall, student musicianship (performing and listening) improved as a direct result of using recordings in the classroom.

The conclusion, drawn from the data, revealed that the teachers’ perception of their ensemble’s sound was much different than what was actually revealed on their classroom recordings. Teachers also believe that the use of self-evaluative recordings is an effective way to teach the development of critical listening skills in their classes.
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Chapter One

Introduction to the Study

*The most important thing I look for in a musician is whether he knows how to listen.*

-Duke Ellington

Recently, I have been focusing a lot of my time and effort on improving my students' listening abilities while at the same time developing their skills as active members of my ensembles. To be an active member in a musical ensemble means more than picking up an instrument and playing notes and rhythms correctly. Students need to become active listeners. The inherent responsibility of being an active listener carries a significant amount of weight, which must be carefully balanced with encouragement and leadership from the students’ music teacher. To listen critically, students’ attention and focus should be on how they fit their individual sounds into a large ensemble. Second, students need to participate actively in the projected outcomes of the ensemble. The teacher, in addition to being a mentor and guide, needs to give direction that will eventually lead students to a broad-based awareness of larger models, such as how they, as individual student musicians, are capable of performing in a large ensemble.

Rationale

The secondary instrumental music class is very complex. There are many facets of an instrumental music class that need further research and discussion. The development of critical listening skills is one of these areas.

Throughout my career, I have attempted various methods to help my students listen more effectively. I have demonstrated melodic phrases or rhythms on my trumpet, sung
parts, and given verbal explanations. But were these demonstrations adequate methods of getting students to listen more effectively? Could my trumpet sound like a saxophone, or a tuba, or a flute? When I sang, was it a fair expectation for my students to correlate the sound of my voice with the sound of their instruments? Was it reasonable for me to simply ask my students what I wanted to hear from them? In addition, I would often record my Christmas or spring concerts as an educational tool, but these recordings were played days or weeks after the performance. This method removed the context of active listening which did not help my students be better musicians in the moment (Elliot, 1995). I realized I had to find a more productive way for my students to acquire advanced listening skills.

To develop the idea of critical listening with my students I defined the term as well as taught my students to discover how they could improve their own listening skills. I began using high quality digital recordings to aid my efforts in helping my students acquire better listening skills. Although I found these recordings helpful, they did not address specific performance-related issues, which led me to the following questions: Why do some of my students lack the ability to listen critically and effectively in a large ensemble? Why do students seem to hear differently once their instruments are “down” and not being played? Do self-evaluative recordings improve performance standards? How will increased awareness of critical listening improve students’ performance in a large ensemble?

By focusing my students’ attention and placing the responsibility on them to be better listeners, I discovered something very important. After the students listened to the rehearsal recordings their playing improved. I deduced that the students were hearing
themselves differently in the recording than while they were actually playing. As a result, I started to record my ensemble on a regular basis as a practical method to create an enhanced-listening environment—a pragmatic approach.

All facets of my teaching became clearer when the students heard in their own playing what I had been explaining to them verbally. I became a more efficient teacher, and my students were more involved in the listening process. More importantly, I became interested in learning why students were hearing themselves differently in a recording than when they were performing live.

**Statement of Problem**

I developed a greater interest in this area after hearing the results of my students’ more active listening habits. The fact that they were becoming aware of their listening behaviour was important to me. Although I noticed that my students wanted to improve their intonation, balance, blend, colour-mixing, pitch and rhythmic accuracy, and timbral-balance, I realized that some students were not aware of any existing problems in the ensemble and seemed to lack the skills to correct problems even after they were made aware of them. Puzzled, I began to investigate the literature on critical listening.

I discovered a wealth of research on this topic. Pogonowski (1989) believes that listening should be an “active reflection, as opposed to passive spectatorship” (p. 36). Closer to my area of interest, I found many articles on how to improve the instrumental band program through critical listening. Woodford (1996) believes teachers should provide students with sufficient opportunities to clarify, converse, and logically validate their beliefs
about music. As critical listening is a complex cognitive process, the field of psychoacoustics comes into play. The field is quite scientific, and to fully understand the nature of psychoacoustics, the educator must be fully involved in that process. Although I am interested in this area of research, I needed a more practical approach that would generate critical listening in my classes and produce better sounding performances.

There is very little research on the effect of using self-evaluation through recordings as a teaching tool to improve listening skills in the secondary school instrumental music class. In fact, in Morrison, Montemayor, and Wiltshire's (2004) study, the authors discuss the importance of future research in the area of self-evaluation through recordings to improve listening skills. Lending further support to this approach, Hewitt (2001) contends that students may make imprecise decisions regarding their playing ability without a model to evaluate their own performance. Being informed from the literature, I became interested in investigating self-evaluative listening with my students in the hopes of improving my own teaching practice, the practice of other music educators, and most importantly, the critical listening skills of my students.

Statement of Purpose

Therefore, the purpose of this study was to explore critical listening skills in the secondary school instrumental music class through the use of self-evaluative recordings. As the researcher and teacher of these students, I had a vested interest in this area as it would directly affect my own teaching practice. Using an action research approach, I investigated my students' critical listening skills over time and monitored their development. A
secondary goal of the study was to gather sufficient evidence to either support or refute current beliefs about critical listening related to performance skill. To this end, I conducted online surveys of both my students and other instrumental teachers in my district.

Delimitations and Limitations of the Study

In this study the delimitations were related to sample size—only one class was observed. This allowed me as both teacher and researcher to be fully involved in the study for the entire duration.

Assumptions

During my career as a teacher I have been using recordings as a self-evaluative tool for many years. The recent development of this technology has allowed me to digitally record my students and play it back for them almost immediately. As I am quite comfortable using music technology, my skill and knowledge in this area directly benefited the validity of this study by providing my students with high quality digital recordings to use during their self-evaluation.

Summary

When I began this project I had more questions than answers. I looked forward to discovering answers to some of these questions, but more importantly, I looked forward to the journey that lay ahead. The following chapters include: Chapter 2—Review of the Literature, Chapter 3—Methodology and Procedures, Chapter 4—The Students’ Perspective: The Action-Research Story, Chapter 5—The Teachers’ Perspective: A Further Inquiry, and Chapter 6—Conclusions and Implications for Music Education.
Chapter Two

Review of the Literature

Listening is an attribute with which we are born, but it is a skill we can both develop and engage. As musicians we are listening all the time. We hear ourselves in a large ensemble, but what are we hearing or really listening for? We ask our students to be better listeners—but do they really know what to do to improve their listening skills? We ask our students to be active listeners in our classroom—but do they know how? We ask our students to be better musicians, to provide us with an improved, more in-tune, better-balanced sound—but do they know how to accomplish those tasks? All of these questions have to do with large-ensemble concepts that music educators deal with on a daily basis and that hinge on the ability to listen actively as opposed to listening passively.

The following literature review will address these issues under four main headings: 1) Music Listening Skills, 2) Thinking and Listening Critically, 3) Aural Perception and Cognitive Constraints on Music Listening, and 4) Self-Evaluation and Self-Listening.

Music Listening Skills

Copland states powerfully (1985) the role of the listener:

No composer believes that there are any short cuts to the better appreciation of music. The only thing that one can do for the listener is to point out what actually exists in the music itself and reasonably to explain the what and the why of the matter. The listener must do the rest. (p. 6)
I have always had a vested interest in learning about the development and acquisition of music-listening skills. William Schuman (as cited in Copland, 1985) helped me understand the elements of listening:

The listener is essential to the process of music; music after all consists of the composer, the performer, and the listener. Each of these three elements should be present in the most ideal way. We expect a fine composition to be brilliantly performed, but how often do we think that it should also be brilliantly heard? (p. 23)

According to Schuman, critical listening is a skill—one that is developed over time. However, many students do not feel comfortable with the concept of critical listening, and they find the process to be very difficult and challenging. Schuman (as cited in Copland, 1985) adds another dimension to listening when he explains that “the perceived quality of music is clearly at the mercy of the actual quality of its auditors” (p.24). Students have the unenviable task of being both critical performers and listeners.

Moving to the realm of music education writers, Bennett Reimer (1997) says that “mindful music listening can be among the most complex and most challenging acts of human cognition” (p. 33). Reimer (1997) believes that we as music educators can continue to provide performance opportunities for our students, while at the same time meeting the desires of our culture by including musical activities outside performance in our classes. He believes that listening is one of those activities. However, Reimer (1997) argues that we are not doing a good enough job of attempting to incorporate listening in our classrooms. He
explains, “We must, finally, eliminate the embarrassing and destructive gap between the major way people partake of music in their lives—listening—and our neglect of, and disparagement of, the teaching of listening in our music programs” (p. 34).

Reimer (1997) disagrees with the myth that to be an active participant in something you must be “hands-on.” He substitutes for that cliché a term he identifies as “mind-on learning” (p. 35). Reimer goes on to describe listening as an activity that is not passive but active, and says that this type of listening “requires high levels of perceptual acuity in the extremely intricate realm of sounds” (p. 35). Reimer (1997) dispels four other myths surrounding the act of listening: “that listening is uncreative, that listening is boring and the teaching of it is boring, that listening cannot be assessed, and that all we need to do to teach listening is to teach performing” (p. 37).

Campbell (2005) elaborates the concept of listening when she states: “As teachers of music, we are immersed in musical sound as active participants and as recipients of music made by others. Music blankets us in its timbres, and timings, and it is central to our very identities” (p. 30). Campbell (2005) also believes that listening in our schools is an undervalued activity.

As part of Campbell’s (2005) listening pedagogy, she lists three phases of musical involvement: Attentive listening, Engaged listening, and Enactive listening. Attentive listening focuses on musical structures that are teacher-directed. Engaged listening is where listeners are active participants in the music-making process. Attentive listening focuses on listening
to a recorded work for the purpose of re-creating the music as stylistically accurate as possible.

In a study investigating the acquisition of music listening skills, Hufstader (1997) discovered that there was a learning sequence involved in the detection of timbre, rhythm, melodic pitch patterns, and harmony amongst students. The synthesis of this important study showed that listening skills developed in this order: timbre skills—at the preschool level or before grade one, rhythm skills—by grade five, melody skills—between grades five and seven, and harmony skills—by grade seven or later (Hufstader, 1997).

Haack (1992) describes listening as a “fundamental music skill” (p. 451). In his article, “The Acquisition of Music Learning Skills,” which is a synthesis of research in this field, Haack discusses the developmental aspects of music listening skills under three major headings: Perception and Cognition of Music Elements and Their Interactions, Listener Responses to Music, and Imagery and Memory. Several of the studies Haack references are pertinent to my research and therefore will be discussed in the following paragraphs.

Walker (as cited in Haack, 1992) designed a study entitled “Some Differences Between Pitch Perception and Basic Auditory Discrimination in Children of Different Cultural and Musical Backgrounds” to learn if subjects who were musically untrained could conceptualize pitch and frequency changes in the same way as the trained subjects. He concluded that the trained subjects were “able to employ the concept of pitch while the untrained subjects seemed to be at a more arbitrary level of conceptualization in this ability” (p. 455).
A second study on the topic of perception and cognition is relevant. Geringer and Madsen (as cited in Haack, 1992) developed a study, “Pitch and Tempo Discrimination in Recorded Orchestral Music among Musicians and Non-musicians” involving 200 musicians and 200 non-musicians listening to orchestral excerpts. Interestingly, the data revealed no significant differences in correct responses with regards to pitch and tempo questions between the two groups.

In the area of listener responses to music, Dolgin and Adelson’s study (as cited in Haack, 1992) proved interesting. The authors used the mood terms happy, sad, angry, and frightened to describe musical examples to college students as well as children aged 4, 7, and 9. All age groups “were able to recognize the emotional qualities to a fairly consistent degree, and the ability was found to improve through, and presumably beyond, the age levels employed” (p. 456).

Vincent and Merrion (1996) question how listening skills and abilities could change with the consistent use of multimedia. In Teaching Music in the Year 2050 (1996), the authors discuss how our listening skills and abilities will rely more on visual and kinesthetic input. They write:

Most likely, visual and kinesthetic input will play an increased role in what we now know as hearing. Will the listener be able to listen with ears only, or will the listener require visual assistance and hands-on involvement? Is the ability to concentrate solely on aural input an ability we want to preserve? Is
it possible to retain it? The music educator may have to make room for
expansions to the definition of "listening." (p. 38)

Listening skills relating to imagery and memory have received considerable attention
in recent years (Haack, 1992). Haack (1992) warns that the "persistent presence of colorful
visual imagery when hearing music has implications for music education in terms of
individual perception differences that may significantly influence learning style and possibly
even cause learning problems" (p. 457).

In Haack's (1969) study entitled the "Development of Music Listening Skills of
Secondary School Students," he explains that "the need for more knowledge about methods
pertinent to the orderly development of music listening skills and their underlying concepts
at the high school level has been a problem of great concern to music educators" (p. 193).
He goes on to stress the fact that music listening has simply not been "treated as a particular
area of proficiency" (p. 194). Listening skills can be developed, but most of the typical
music appreciation classes do little to help this development. He claims, "As the performer
develops a variety of skills essential to satisfactory performance, so too, the listener must
become able to utilize perception and intelligence skillfully to gain greater benefits from the
listening activity" (p. 194). Haack (1969) concludes his study by stating that the "ability to
perceive musical and thematic relationships is educable, and that it is an outgrowth of
appropriately organized and actively directed experience" (p. 200). Haack suggests that
secondary school students are capable of mastering the types of concepts and skills involved
in listening and are therefore being underestimated and under-taught when music educators
assume otherwise. We have a responsibility to teach our students effectively, so they will develop the necessary listening skills.

It is suggested by Getz (1966) that music educators teach quality literature to their students when they are learning to listen to music properly. Getz designed a study to describe the effects that familiarity, with regards to repetitive listening, had on students' perceived musical preference. Max Shoen (as cited in Getz, 1966) proposes that “if there is a fixed relationship [between familiarity and enjoyment] the teacher has a guide to follow, which consists of familiarizing the pupils with the masterpieces of musical literature” (p. 178).

Our listening skills have many facets. We need to discover each of these slowly, and allow our students to discover them with us—for it is far better to learn new skills with our students. What an exciting way to learn when both the student and teacher are engaged in critical listening!

Thinking and Listening Critically

Pogonowski (1989) suggests that we should start each class with a selected listening example which “commands attention” (p. 36). Pogonowski (1989) explains her reasoning as follows: “It challenges students to reflect on their theoretical knowledge and to focus their aural skill development” (p. 36). In order to further enhance our teaching practice, we should vary our instructional modes to connect our students to “active reflection, as opposed to passive spectatorship” (Pogonowski, 1989, p. 36). Teachers should be assisting their students, not lecturing them, to develop more acute critical listening skills. Studying
different types of music to discover meaning which perhaps is not that inherently obvious should be one of our goals. She explains, "These skills will help students integrate musical understandings and will provide them with the potential for becoming comprehensive musicians and critical thinkers" (p. 36).

Music educators should guide students into an active and critical listening position. When guiding students into a critical listening environment, teachers should avoid framing questions that elicit one-word answers, such as "When was this piece written?" or "Identify the composer." Instead, Pogonowski (1989) suggests that we should be using language that will invite a more thoughtful approach to our students' thinking. She posits that questions such as "When do you think this piece was written?" or "What musical evidence do you hear to support your position?" are better ways to guide the students into a more active listening situation (Pogonowski, 1989). We must be delicate in our approach to teaching critical listening as our students take risks when we ask them to look within for an answer.

However, the rewards nurturing our students' critical listening habits are worth the effort. As Pogonowski (1989) writes, "There is good reason to believe our students will approach their listening and music making with critical thinking skills if we have set the stage by providing them with the foundation for using these skills in our classes" (p. 38). Woodford (1996) believes that "Teachers must provide students with an ample opportunity to explain, discuss, and logically justify their musical beliefs" (p. 31).

It is one of my fundamental beliefs that students should learn to think critically for themselves. Creating a safe environment where the exploration of learning can take place is
key. Because listening affects us all personally, and in different ways, it is important for music educators to teach students how to listen critically on their own. Critical thinkers and listeners in music need to develop their own skills, and to be aware of their strengths and weaknesses. True learning takes place when the student takes initiative to grow from previously-learned concepts and ideals.

Aural Perception, and Cognitive Constraints on Music Listening

Cuddy and Upitis (1992) describe the aspect of aural perception as follows: “The greatest importance to the music educator is the ability to hear musical relationships in sounded events” (p. 333). According to Cuddy and Upitis (1992), aural perception is called the Musical Experience and has two subcategories: Intervention and Exposure. Intervention refers to varying kinds of interaction a teacher may have with a student where a new “concept or skill is introduced, clarified, expanded, or redefined” (Cuddy & Upitis, 1992, p. 333). Exposure refers to something that is less intentional—listening to music at a party, at the beach, or at a concert (Cuddy & Upitis, 1992). Cuddy and Upitis’s article is broken down into five sections (1992).

In Section One, research methods have been carefully reviewed by Krumhansl (as cited in Cuddy & Upitis, 1992) for their application to music education. They include descriptions of hierarchical relations among tones, keys, pitches, musical sequences, pitch-time patterns, metrical structure, and music that are segmented into elements of motifs, phrases, and sections (Cuddy & Upitis, 1992).
In Section Two, the research focuses on two main topics: Absolute Pitch and Tone Deafness. Cuddy & Upitis (1992) illustrate that "the evidence suggests that absolute pitch—or a superior ability to identify musical notes—is related to musical experience, quite possibly experiences occurring early in life" (p. 337). Cuddy & Upitis (1992) discuss the results from Tone Deafness research:

As with absolute pitch, both genetic factors and early environment have been implicated in the genesis of tone deafness. It is reasonable to speculate that an impoverished musical upbringing could lead to difficulties with musical syntax. Just as a child acquires natural language syntax from exposure to a linguistic environment, so the syntax of tonality may be acquired through exposure to a musical environment. (p. 337)

Section Three focuses on the relationship between musical performance and aural skills. This is a complex process. Here, Cuddy & Upitis (1992) synthesize the research:

The important point arising from theoretical controversy is that performance cannot be directly identified with perception. Motor production systems leading to performance may share mental resources with systems of perceptual organization, but doubtless engage other resources as well. Performance errors, therefore, may or may not indicate perceptual difficulties. (p. 338)
The observation of children is summarized by Cuddy & Upitis (1992) in Section Four:

The evidence from listening tests suggests that perceptual structures for tonal music are present very early in life—earlier than might be suspected from observations of skill development. Thus, it appears that children hear and make sense of tonal structures much more complex than those they can record or reproduce. Further research on this notion would have considerable implications for the kinds of music we choose for musical exposure in early school years. (p. 340)

Finally, Section Five suggests several implications for teaching with regards to aural perception. Cuddy and Upitis (1992) list three main headings: Context and Relative Knowledge—pitch perception should be taught within the context of the melody; Enriching Experience—children need to be given more opportunity to listen; and Criteria for Assessment—it is important that we adopt a criteria that will describe children’s active involvement with the music of our culture.

Moving to the area of cognitive constraints on music listening, Thompson and Schellenberg (2002) quote Howe, David, and Sloboda (1998): “Perhaps the most contentious issue in the psychology of music concerns the relative role of innate structures and learning in musical experience. Some educators and researchers take a dim view of nativist constructs such as musical talent” (as cited in Thompson & Schellenberg, 2002, p. 461). Thompson and Schellenberg (2002) stipulate that there are three classes of evidence that point to the importance of innate cognitive endowments. First, that competence is
achieved early in life; second, that competence is often domain-specific; and third, that
“there is often a marked disparity between models of environmental influences and the
mental representations acquired by learners, which implies that information processing is
constrained by cognitive biases and perceptual predispositions and assimilated into
preexisting knowledge structures” (p. 461).

In their exploration of the cognitive constraints on music listening, Thompson and
Schellenberg (2002) introduce five major topic headings: 1) Fundamentals of Pitch
Perception: Physical Acoustics: Sensory Consonance and Dissonance, Models of Pitch
Perception, Absolute Pitch, 2) Melody: Melodic Intervals, Melodic Contour, Scale Structure
and Enculturation, Large Melodic Structures, Melodic Expectancies, Implicit Memory for
Melody, 3) Harmony and Key: Implied Harmony, Implied Key, Perceiving Voices in
Harmony, 4) Rhythm, and 5) Timbre.

Thompson and Schellenberg explain their findings:

Distinguishing innate from learned factors in music perception and cognition
is challenging because cognitive predispositions not only affect listeners’
perceptions of music, but they also affect music composition and hence
musical structure. Exposure to music structure, in turn, shapes listeners’
perceptions, in that listeners internalize persistent regularities in music. (p.
482)

I have often found it interesting why some students hear certain things in the
ensemble, yet others do not connect at all to a bigger-picture concept. Aural perception is an
important, yet complex topic of research that involves why we humans hear what we hear. As music educators, we do not need to be experts in the field of psychoacoustics, but we do need to be aware of the issues and also of the fact that we all listen to things differently. Thus, in the classroom, our line of questioning should be inclusive and inviting, allowing students with different learning styles the opportunity to learn and grow. Part of this growth involves understanding what work still needs to be done—a self-evaluative process.

**Self-Evaluation and Self-Listening**

Hewitt (2001) discovered that students who listened to a model during self-evaluation improved more than those students who did not. The following areas were tested: tone, melodic accuracy, rhythmic accuracy, interpretation, overall performance, intonation, technique/articulation, and tempo. Results from the study were interesting. Students who followed a model during self-evaluation improved in all areas tested except intonation, technique/articulation, and tempo. When self-evaluation was not undertaken, modeling groups showed no difference in any sub-area (Hewitt, 2001). Hewitt underscores the importance of incorporating self-evaluation into the classroom:

> Assuredly, then, musicians’ ability to effectively evaluate their own performances while using various practice strategies is an essential skill to acquire if independent musicianship is to be achieved. It would seem, then, that the attainment of independent musicianship would allow the student musician to become more involved in decision-making during ensemble rehearsals. Rehearsals, in turn, would become more efficient as students are
better able to correct mistakes and make improvements individually rather than invariably relying on the leader of the ensemble to give directives. (p. 308)

Hewitt (2001) explains that to date there have been no studies to examine the relationship between modeling self-evaluation, and self-listening, which was the reason for conducting his study. Hewitt (2001) concludes that: "Without a model to compare to their own performance, students may make inaccurate assumptions regarding their playing ability" (p. 318). However, Hewitt (2001) indicates that in his study, students were unable to make any significant improvements in their playing when self-evaluation was used as an isolated tool. Although able to self-diagnose strengths and weaknesses, students were unable to prescribe solutions that would help them attain better performance standards. Hewitt (2001) offers the following recommendations:

Teachers should develop strategies to incorporate into their rehearsal/classes that will assist in developing the individual growth of student musicians as well as high-quality group performances. Providing time, opportunity, and the proper structure for students to formally reflect on specific individual or group presentations seems appropriate for junior high students. (p. 319)

Morrison, Montemayor, and Wiltshire (2004) conducted a study entitled "The Effect of a Recorded Model on Band Students’ Performance Self-Evaluations, Achievement, and Attitude." The authors state:
Instructors may hope that presenting an aural example of the music will clarify rehearsal goals for students, or that abstract or relational concepts such as ensemble balance, blend, or style might be more readily understood and perhaps imitated after recordings are heard. (p. 117)

The study investigated the effects of recorded ensemble models in middle/junior high, and high school level band classes, and concluded that although there was a greater improvement-gain initially, there were only small gains made from the control conditions, in intonation, rhythm, and phrasing in a 5-week period. While there were no significant improvements made between the recorded-model group and the non-recorded-model group, the authors stated that “without a recorded model, students may have needed to generate their own personal standard of performance quality” (Morrison, Montemayor, & Wiltshire, 2004, p. 126). The authors suggest that the presence of a model allows students to maintain a more “consistent or objective perspective according to which they measured their progress” (p. 126). It is interesting to note that at both the middle/junior high and high school levels, students in the recorded-model group offered a larger number of comments regarding their own skill and progress than students of the no-model condition.

On a final note, the authors write:

Future researchers might address specific pedagogical techniques for use of recorded models in rehearsals, perhaps in conjunction with students listening to recordings of their own performance and making comparisons to professional recordings. Since teachers’ roles as conductor and instructor are
crucial to the success of classroom rehearsals, the effects of a recorded model on various facets of teachers' preparation and ensemble leadership should also be explored. (p. 127)

To be a self-evaluator does not mean that one should focus only on the negative aspects of learning. A true self-evaluator can see the past, present, and future with regards to his/her learning. In a music setting, self-evaluation is an absolute necessity. Kenny (1998) talks about being a critical thinker in the practice room. We should not separate the classroom from the practice room. Students need to think critically and self-evaluate in both settings, for if we only expect it to happen in one room, it may not happen in another. Self-evaluation is an intrinsic approach to music education; the rewards are from within. Teachers should use every strategy possible to sustain an active approach to self-evaluative processes.

Conclusion

The preceding literature review has examined several issues pertinent to my study whose purpose was to explore critical listening in the secondary school instrumental music class through the use of self-evaluation recordings. Support for my study has come from Hewitt (2001) and also Morrison, Montemayor, and Wiltshire (2004) who recommend that future research examine any possible links between self-evaluative recordings, perception, and performance skills.

However, in my study, I aimed to explore new and innovative ways for my students to self-evaluate and self-listen. Students need to compare themselves to themselves, not
always to a professional symphony orchestra or chamber ensemble. I hoped to diversify my approach, and use music technology in a comforting and inviting way, allowing students to hear first hand—that internal process: Where have I been? Where am I now? and Where am I going?

Byo (1990) states eloquently that our main focus of teaching instrumental music should be listening, and how our students play an active role in that process:

The instrumental music teacher, elementary through university level, must regard training the ear as a primary goal. How else do students develop concepts of sound, style, rhythm, tuning, balance, and phrasing? Most importantly, how else do students become musically independent, able to understand musical issues and make appropriate performance choices—longer/shorter, higher/lower, louder/softer, faster/slower? When student musicians make musical decisions through critical listening, they are involving themselves actively in the music-making process. A rehearsal structure that promotes active involvement through listening is one that can generate exciting rehearsals through meaningful interactions among students, conductor, and music. (p. 46)

Having completed the review of literature, the following chapter will explain the methodology and procedures for the study.
Chapter Three

Methodology and Procedures

The purpose of this study, to explore critical listening in the secondary school instrumental music class, grew out of concern I had with my own teaching practice. I felt that there was a connection between students’ listening skills and the outcomes of their performance in a large ensemble. Employing an action research design, I used self-evaluation and self-listening through recordings to see if there was a connection between critical listening skills and overall performance in my instrumental music program. I was concerned that, in addition to not having critical listening skills to hear the inaccuracies of their playing, my students did not possess the necessary skills to identify, diagnose, or correct these inaccuracies. A secondary goal of my study was to gather sufficient evidence to either support or refute current beliefs about critical listening related to performance skill. In order to address this issue, I conducted online surveys of both my students and other instrumental music teachers in my district. Action research was the basis for this study, as I wanted to see how the results would directly influence my own teaching practice. The data from this study consist of reflective listening journals from my students, and quantitative/qualitative online surveys from both students and music teachers. The online surveys were conducted at the end of the study as an addendum to the reflective listening journals collected during the study. Thus, my study makes use of elements of two research designs: action research and survey research. In this chapter I will first describe action research and explain my role as researcher.
Action Research

Kemmis and McTaggart (1982) define action research as "Trying out ideas in practice as a means of improvement and as a means of increasing knowledge about the curriculum, teaching, and learning" (p. 5). The concept of action research was developed by Karl Lewin in the early 1940s, when he applied it in a number of community experiments (Kemmis and McTaggart, 1982). The Action Research Spiral involves four main sections: Plan, Action, Observation, and Reflection (see Figure 1).

Figure 1. Action Research Model
Kemmis and McTaggart (1982) explain how to carry out an action research plan:

- To develop a *plan* of action to improve what is already happening,
- To *act* to implement the plan,
- To *observe* the effects of action in the context in which it occurs, and
- To *reflect* on these effects as a basis for further planning, subsequent action

and so on, through a succession of cycles. (p. 7)

The design of the action research process was developed to be flexible and cyclical.

The authors explain that because it is impossible to anticipate everything that needs to be accomplished, Lewin's model overlapped action and reflection to allow "changes in plans for action as the people involved learned from their own experience" (p. 7). The authors outline that one of the main goals of action research is to "bring together through mutual attraction, discourse and practice (in the one dimension) and construction and reconstruction (in the other), so that improvements in practice and in understanding can be made systematically, responsively and reflectively" (p. 10).

As a practitioner in the professional field of music education, I conducted this research to facilitate and improve my own teaching practice. Thus I acted in the dual role of teacher and researcher.

**The Researcher's Role**

Kemmis and McTaggart (1982) explain that:

You do not have to begin with a 'problem.' All you need is a general idea
that something might be improved. Your general idea may stem from a
promising new idea or the recognition that existing practice falls short of aspirations. In either case you must centre attention on:

- What is happening now?
- In what sense is this problematic?
- What can I do about it?
- General starting points will look like—
  - I would like to improve the ...
  - Some people are unhappy about...
  - What can I do to change the situation?
  - I am perplexed by...
  - ...is a source of irritation. What can I do about it?
  - I have an idea I would like to try in my class.
  - How can the experience of...be applied to...?
  - Just what do I do with respect to...? (p.18)

From the very beginning of my teaching career I noticed that students were having difficulty with musical perception. I had recorded my students in the past, but because of weak technology, the process was grueling, cumbersome, and time-consuming. The net result was a recording of poor quality which had very little educational value. As technology advanced, our music department was able to fund the purchase of more advanced recording equipment, including a Superscope CD-recorder, and two permanently affixed AKG condenser microphones. The setup was a music teacher’s dream. Literally at the push of a
button, I could record my students’ performance or rehearsal, without having to waste valuable class time to set up microphones, deal with a spaghetti-array of microphone cords and connections, as well as setup speakers for playback. My system was completely integrated and ready for educational use. This kept my teaching style in the moment, which allowed for immediate responses from my students as they listened back to their sound. Their memories were fresh and their feedback was thought-provoking.

With the proper equipment to record my students in high fidelity, my action research project began to take shape—as did my role of teacher and researcher. My suspicions regarding the quality of my students’ musical perceptions could now be officially confirmed or denied through this research.

As the school year of 2006-07 began, I made sure to discuss critical listening terminology with my students on an on-going basis, including all large-ensemble concepts of dynamics, blend/balance, balance, pitch, tuning, intonation, articulation, and rhythm. I did not want the terminology to impede upon the valuable time I needed for research once it began, so I prepared the students as best I could beforehand.

At this point, it is necessary to define the terms used in my research.

Definition of Terms

Critical Listening

Critical listening involves “active reflection, as opposed to passive spectatorship”

(Pogonowski, 1989, p. 36).
**Self-Evaluation**

Self-evaluation involves both process and product. It is a form of narrative writing in which students describe their learning in a particular course of study and make qualitative judgments about it (Evergreen State University, 2006).

**Self-Listening**

Self-listening involves a process in which students are actively listening to themselves, either in a group or individual setting. An expected outcome of self-listening is that students will learn and acquire the necessary skills to advance their own performance abilities—a qualitative process (Dudley, 2007).

**Ensemble Critique**

An ensemble critique is an activity where students critique the performance of the ensemble in rehearsal and make plans for practice and revision. Students identify specific problems with their performance as individuals, and write detailed plans for practice. The plans for practice provide the students with direction for their personal practice. Students also identify problems with the performance of the ensemble as a whole and provide suggestions for improvement and revision. Students’ suggestions for improvement and revision provide the students opportunity to contribute to the rehearsal direction and artistic decisions of the ensemble (British Columbia Ministry of Education (1995) *Music 8 to 10 Integrated Resource Package, p. D-20*)
Individual Critique


Large Ensemble Concepts

It is important to define the terms used in some of the survey questions.

- **Absolute** large-ensemble concepts (no variance): Pitch, Tuning, Intonation, Rhythm.
- **Variable** large-ensemble concepts (variance): Balance/Blend, Dynamics, Articulation.

In other words, regarding *tuning* for example, there is no argument as to what 440 Hz is—it is absolute. However, there could be discrepancies regarding articulation, where there could be slight deviations from person to person—it is variable.

Human Ethics Approval

Before proceeding with this study I received approval from the Human Ethics Committee at the University of Victoria (see Appendix A). I then received permission from the students and their parents (see Appendix B), the Principal of Burnaby South Secondary School, and the Burnaby School District (see Appendix C) prior to beginning the research project with my students and the Burnaby instrumental music teachers.

Setting, Data Collection, and Recording Procedures

I undertook this study at my school, Burnaby South Secondary School, in Burnaby, British Columbia, Canada, from March to June 2007. The students participating were my Senior Concert Band, comprising of twenty-five students in grades 10-12. The primary
sources of student data were reflective listening journals\(^1\) as well as a qualitative and quantitative online survey. Student journals were not graded, and although their participation in my study was completely optional, they all willingly participated. In order to obtain a third-party perspective, I also asked the Burnaby district instrumental music teachers to complete an online survey (similar in nature to the students' online survey). The goal of this survey was to have tangible data to either support or refute current beliefs about critical listening related to performance skill as well as to have an opportunity to compare teacher responses with my students.

I wanted to know what students were thinking when they listened to themselves play in a large ensemble. So, I began writing down questions related to my problem, and thus, my research project began to take shape. Initial themes and questions were then developed. I anticipated that these initial questions would vary slightly throughout the duration of this research.

- Who are you listening to?
- Why are you listening this way?
- Is the act of listening an acquired skill?
- Were you surprised to hear what you actually sounded like on a recording?
- What aspects of your playing does a recording emphasize?
- Do your expectations of how you think you sound match the reality of the recording?

\(^1\) Guided listening responses to teacher-developed questionnaires.
- Does listening to a recording of yourself help you improve your sense of overall blend and balance?

- How do you think your playing improves after listening to a recording of your ensemble?

- Do you think a recording is a true representation of what you are actually hearing?

Many of these questions were used as prompts for the student reflective listening journals and also for the student online survey. As stated earlier, I added a third-party perspective by surveying the secondary music teachers of the Burnaby School District as well. By surveying the teachers, I was able to remove myself further from the data, thus removing any personal bias. The questions I posed to teachers were similar to those asked to students:

- Are students able to identify their own musical perceptions?

- Are students able to identify their ensemble’s musical perceptions?

- Does the use of recordings help the students’ understanding of overall musicianship?

- Does the use of recordings help to develop critical listening skills?

- Should recordings be used in the classroom on a regular basis as an integrated part of the instrumental music curriculum?

I recorded the senior concert band on six occasions between March 6, 2007 and April 10, 2007. I recorded Holst’s 2nd Suite in F for Military Band, the Pavanne chorale, and Chorales #1, and #2 from the Foundations for Performance in Band method book. In
addition, I asked students to record themselves at home on three occasions. This made 9 recording sessions in all.

Data Analysis

Over the course of the recording sessions, I collected my students' reflective listening journals, which contained their responses to my questions pertaining to the connection between critical listening skills, perception, and musicianship. After all the qualitative data were collected, I categorized student responses into common themes for each question. At the end of the recording sessions, I collected student data from an online quantitative/qualitative hybrid survey. The majority of this survey was quantitative; however, a few questions required some qualitative insight. For example, “If you answered yes, please explain.” The qualitative data from the student listening journals was used to clarify the data collected from the online survey. After the student data was collected I conducted an online survey from the secondary instrumental music teachers in my district. The purpose of this data was to understand if and how other music teachers were using self-evaluative recordings in their classrooms.

Data Verification

The fact that I had multiple sources of data—student journals and online surveys from both students and teachers—allowed me to analyze my results and achieve a more solid sense that what I discovered was, in fact, valid.
Conclusion

The questions I wanted to ask my students began to take shape and I was ready to
begin the official research phase of this project. I was anxious, nervous, excited, and
professionally-invigorated to start collecting the data that I truly wanted to discover—my
Action-Research story began.
Chapter Four

The Students' Perspective: The Action-Research Story

This chapter chronicles my action-research journey. The evidence presented has provided me with insight into my own teaching practice. I begin by discussing the rationale for the music I chose to record and by explaining the positioning of the microphones in my classroom. This is followed by a section on home recording. The chapter continues with descriptions of the recording sessions, each of which is followed by a discussion of student journal responses. The chapter concludes with an examination of the results of the student online survey.

Listening: Process over Product

The results of this study show how my students listened critically, responded, and reacted to self-recorded instrumental music. I chose music that we had already been working on in class by recording the senior concert band on six occasions between March 6, 2007 and April 10, 2007. I recorded Holst's 2nd Suite in F for Military Band, the Pavanne chorale, and Chorales #1 and #2 from the Foundations for Superior Performance in Band method book.² I wanted the focus to be on students' listening skills, and not on their sight-reading or technical skills. I also wanted the music to be inspirational and beautiful. The senior band had been working diligently on the Holst Suite in F for a few months, and so this was a perfect piece to record. The Chorales and the Pavanne were pieces that the band had rehearsed many times, and so my students were quite familiar with the music.

² Some of the pieces were recorded more than once.
As the quality of the class recording was integral to the project, microphone placement was crucial. The two microphones were placed high (at least twelve feet from the floor), at the front of the room, pointing at an approximately 45 degree angle towards the middle of the group. The microphones were approximately ten feet apart from each other, creating the X/Y or stereo image. In my professional and unbiased opinion, I believe these microphones, which were professionally installed, provided a true image of our ensemble’s sound.

Recording at Home

Recording individually is a very important task that not only increases a student’s awareness of his/her sound, but also helps the student integrate an individual sound into the large ensemble. Based on all the literature that suggests the importance of recording in the classroom setting, I decided to ask students to record themselves at home on three occasions, deeming it to be just as viable and important as recording students in class. Thus, the total number of recording experiences was nine—six were conducted in class and three at home.

Midway in the study, students were asked to record themselves using a free program from the internet called Audacity. This program was first introduced to me by Dr. Steven J. Capaldo at the University of Victoria in 2005. Audacity not only allows students to record themselves in a high-quality environment, but also it allows students to layer their sounds like a pancake, thus enabling them to switch between tracks quickly and easily. Any anomalies regarding their playing can then be identified more easily.
Following their home recording, students were asked to answer journal questionnaires regarding their experience and make notes on any musical concepts they heard on playback.

Holst's *Second Suite in F*, "Song Without Words" (II Movement)

My first class recording was of the senior concert band performing Holst's *Second Suite in F*, second movement "Song Without Words." It was the only recording we did of this piece. The goal of this recording was to determine what the students were hearing when they listened critically. Although we had been rehearsing that piece and that movement for some time, it quickly became obvious to the students that there was a "more than meets the eye" mentality when it came to listening critically. The movement itself is full of difficult nuances and includes tough technical writing that is typical of Holst. There are very exposed sections, and slow moving passages that make it difficult for even a professional ensemble to master. Students were asked to make comments directly related to their performance on Holst's *Second Suite in F*, by responding to two questions: 1) *Do your expectations of how you think you sound match the reality of the recording?* and 2) *What aspects of your playing does a recording emphasize?* A sampling of their responses follows.

Recording #1

1) *Do your expectations of how you think you sound match the reality of the recording?*

The students’ expectations did not match the reality of the recording. A review of student responses suggested two main themes: 1) tuning problems were not apparent until
listening back to the recording, and 2) balance/blend problems were not obvious while playing, but were revealed on the recording. Jennifer commented on these two themes:

The similarities between how I thought the group sounded and what I heard on the recording include the poor balance—we were all over the place and the balance [sic] was constantly changing. As expected, the lead clarinet sounded “reedy” and the intonation wasn’t great. Also, I noticed while we were playing and when we were listening that the different groups of instruments did not blend well. The recording revealed some things to me that I did not notice when we were playing. For example, it was not smooth—the music sounded choppy and forced at times. Also, in the second half of the piece the melody was not on the foreground. I also noticed when listening to the recording that we were not in tune at all times.

Amber’s submission is similar to Jennifer’s relating to balance/blend and tuning; however, Amber touches on a very important subject—the lack of attention to tuning by choice. She wrote:

A recording emphasizes blend, balance and tuning the most. Because we are surrounded by the same/similar instruments, we often misjudge the blend, and especially the balance. And when I’m playing, I rarely pay attention to tuning unless it’s a very exposed note, so the recording gives me a better idea of tuning than just listening to myself while playing.

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3 Names used are pseudonyms.
4 Student quotations are unaltered. Thus, there are frequent grammatical errors.
A third student, Michael, explains his thoughts, which virtually match those of Jennifer and Amber:

Tuning was clearly different in the recording, most obviously in the flute section. The flutes and the saxophones both had a radically different timbre, often sounding “airy” and, in the flutes, too bright. This could have something to do with the tuning as well. Due to the different tonality of instruments, the blend was also altered. Several backing parts stood out more than usual, over-taking the melody not in volume, but in tone. Instruments that stood out were, once again, flutes and saxophones.

The musicians in the ensemble appeared to be hearing the same concepts through the help of the recording. Despite the complex nature of Holst’s Second Suite in F, the students still managed to hear the same things.

2) What aspects of your playing does a recording emphasize?

As expected, responses to this question highlighted two concepts that a recording emphasized: 1) tuning, and 2) blend/balance. These answers directly correlate with the answers to journal question #1. William’s comments help explain an emerging theme:

The recording definitely emphasizes blend and balance, as well as intonation.

You are much more likely to get a better idea of blend and balance when listening to the band as a whole, as opposed to playing in one section of it.
Leanne explained her reasons, but also provided an explanation:

The recording emphasized more of the balance and tuning of the overall band. Some parts of the piece sounded very “trebly” which could have been due to the placement of the microphones. I think that as a band we could try listening across/around the band which might help with balance and being more aware of where the melody is moving. The melody movement between instruments was also emphasized. Gaps between “pass offs” of the melody were obvious.

John discussed his thoughts on the matter, while at the same time talking about a factor that is frustrating for musicians once they have listened to a recording of themselves: “Recordings reveal a lot about blend as well as tuning. The recording showed us that tuning was off; the recording also brings to light wrong notes that in a live scenario would quickly be forgotten.”

I was thrilled that my students could explain in depth what they were hearing. The most exciting part of this research was to try to investigate why my students were hearing what they were hearing, without any third-party to influence their decisions. Amber summed up a lot of my own thoughts when I was recording the group when she said that she misjudged a lot of what she was hearing because she was surrounded by similar instruments. Long before this research began, I would often talk about these issues with my students, but they never really seemed to “get it” as explaining concepts never really worked. It was not until they heard themselves firsthand that they started to understand deeper, more meaningful concepts.
A New Plan: Using Action-Research to Re-plan, Act, Observe, and Reflect

I quickly realized that Holst's Second Suite in F was too difficult a piece with which to introduce the concept of critical listening skills through the use of recordings to my students because of the advanced technique that the piece required. Therefore, I opted to use this piece only as an evaluation of initial listening skills.

As the researcher, I decided to move directly to the *Chorales* as these pieces gave a much more homogenous approach to listening. To explain, in these selections, all members play together and the technical demands are not as great as in the Holst piece.

**Chorale #1 and Chorale #2: Foundations for Superior Performance in Band**

After a lengthy warm-up, I recorded the senior band performing *Chorale #1* and *Chorale #2* from *Foundations for Superior Performance in Band*. Students were enthusiastic to perform pieces that were much easier, both musically and technically. Students did not receive their journal questions until after their performance and recording. We did not rehearse this piece before that day's recording session, as I did not want to influence what the students were thinking or even listening for in the music; I wanted it to be completely self-derived. The only thing I mentioned to the students was for them to use their ears as much as possible and make adjustments while they were playing.
Recording #2

The students did not perform Recording #2 very well. There were severe intonation problems, mixed in with balance/blend, and dynamic insecurities. At the end of the recording, I handed out the journal questions that related to what they had just performed. Students were asked to listen to Recording #2 and then give feedback on the following two questions: 3) Are there instruments in the band that you heard on the recording that you are unaware of in class and/or rehearsals? and 4) What can you learn personally, and what can the band learn as a whole, as a result of listening to yourself in a large ensemble on a recording? A discussion of student responses to these two questions follows.

3) Are there instruments in the band that you heard on the recording that you are unaware of in class and/or rehearsals?

Brian commented on a very common theme amongst these musicians: their lack of focus on listening to the larger ensemble. He said, “I wasn’t listening to the band much, especially the inner parts, because I knew I was out of tune so I was focusing to play in tune, instead of listening to the band more carefully.”

Amber discussed her reasons:

Yes, the lower range instruments, such as bass. Sometimes the instruments that do not play the melody as well are brought out. This is because when I am playing, I pay attention mostly to myself. I’m concentrating on my music the most and only occasionally listen to other instruments.
Michael explained his thoughts:

The recording made me more aware of the flute section. I could hear them in class; however, they were much more prominent on the recording. Overall, they had a much brighter and sharper sound than I remembered, which made them stand out.

Many students, like Michael, commented on the flutes' balance/blend problems. Over many years of teaching, I have noted that it is easier for humans to hear higher pitches than lower pitches, and that an ensemble must work diligently to bring out the lower pitches of a selection, simply because of the nature of acoustic physics. This was a topic of contention though, as I was simply unable to explain through words what I was hearing and how I wanted students to realign their playing to suit my needs. I realized that they need to make these corrections regularly, and in most cases without teacher/conductor input.

Therefore, I was excited that my students were providing insight into concepts that I had been trying, albeit unsuccessfully, to teach them.

4) What can you learn personally, and what can the band learn as a whole, as a result of listening to yourself in a large ensemble on a recording?

Ryan discussed how the microphones are close to what an audience would hear:

I can learn how I am fitting into the blend/balance of the band.

Because the microphones, in our case, are closer to the position of the audience than we are, it helps us hear what the audience and the conductor are hearing.
Susan discussed similar thoughts to Ryan’s: “The recording gives me a better understanding of how my instrument fits into the sound of the band from the audience’s perspective.” Denise explained many concepts that she could learn:

When I listen to myself in a large ensemble I am able to adjust my tuning and blend to match the overall sound of the band. I can learn whether I am sharp or flat or if I am playing at the correct volume and style.

I wondered how I could teach from the audience’s perspective, as Ryan indicated. How does one teach this concept? For me, this task was nearly impossible. I have always asked my students to imagine that they were sitting in the audience listening to themselves play. Although this was a decent teaching method, it was far too abstract for them to fully understand the nature of the concept. However, many students commented on the relationship between recordings and the audience perspective. The recordings in and of themselves turned an abstract concept into a concrete one that they could both relate to and understand. As their teacher and researcher, I was thrilled that they were beginning to understand larger musical concepts that I discuss regularly.

Recording #3

After students had finished writing their answers to the first two questions, we re-recorded Chorale #1 and Chorale #2 in succession. My role as teacher to researcher reversed and I handed out another two questions. Question #5 related to Recording #3 only.
5) How does a recording (as a set of ears) differ from your own ears when you listen?

Susan explained her listening process: “When you are using your own ears to listen, it is easier to hear the instruments close to you (usually your own instrument).” Lisa talked about her listening focus: “The recording sounds different than what I hear while I’m playing. The recording focuses on everything it receives and I focus on myself and other flutes.” Rebecca simplified her thoughts: “I believe the recording is able to pick up more of an overall sound.”

Once the students completed question #5, they were then asked to respond to question #6, which was related directly to the playback of Recording #2 and Recording #3.

6) After hearing the second recording, were there any discernable differences from the first recording?

Leanne commented on the differences she did not hear: “I think that there were slight changes compared to the first recording, but nothing so vast that it made a big difference; I think the recording sounded pretty much the same as the first recording.”

Devon mentioned a similar thought to Leanne’s: “The recording seemed similar.”

Jennifer had a similar thought: “I don’t believe that there was a major change in the first and second recordings.” However, Amanda gives some insight into how we learn to listen differently:

The first recording is more of a chance to hear the overall sound, while the second time is when you start to notice the little things and start to hear dynamics, blend, tone and tuning, the different parts, and ways to improve.
Although there were no significant improvements in the first and second recordings, I was still excited that my students were able to note that in their journals. It told me that they were starting to listen to many advanced concepts at once, while at the same time aiming to improve their own playing.

**Recording #4, #5, and #6: Recording at Home**

At this point in the study, I felt it appropriate for the students to begin the recording process at home using *Audacity*. The students were asked to record themselves playing either *Chorale #1* or *Chorale #2* three times. Over the course of these recordings, the students were asked to make critical notes about their playing for improvement, and note any differences, improvements, or items that stayed the same. They were also asked two additional questions: 1) *What was beneficial about this recording exercise?* and 2) *How do you think this exercise will transfer into a large-ensemble setting?*

Leanne, in response to *Audacity* assignment question #1 (*What was beneficial about this recording exercise?*), explained how the use of home recordings had helped her:

The recording picks up various small details which might go unnoticed until one listens to the recording. The recording shows how we actually sound as opposed to how we think we sound.

It is those small details that are sometimes the hardest to notice in a live rehearsal, and the most difficult to fix even once they are detected. Also in response to the same *Audacity* assignment question, Jennifer discussed how her perception changed after hearing a recording:
I realize that the tone and quality of sound that I actually produce when I play is different from what I hear in my head while I am playing. When I listen to myself as I am playing I hear myself as sounding warmer and more mellow; however, on the recording I sounded harsh and almost scratchy. This indicates to me that I need to concentrate more on maintaining a clear and consistent tone while I am playing and working on trying to produce a clearer sound.

Students thought that they were able to hear what they actually sounded like, which in turn, gave them insight into personal improvement. In response to the same Audacity question, Ryan explained:

This exercise really allowed me to focus on myself and my sound only. Instead of having my sound blend into that of the band, I am able to focus on my tone, intonation, and technique. Multiple recordings helped me to work on mistakes and to hear my attempts again and again. It gave me a chance to think of how to fix them and retry again.

I wanted to know if students were capable of transferring the knowledge learned through individual home recordings to a large-ensemble setting. I noticed that in my teaching, students focused a lot of their time and energy on "making the band sound better," without much thought of their own personal contribution. Michael, in response to Audacity question #2 (How do you think this exercise will transfer into a large-ensemble setting?), stated:
In a large ensemble, there are even more things to worry about. We love to make sure all the parts fit together in terms of volume, tonality, and tuning. We focus more on how we sound as a group rather than our own sound. This can be tricky, as we may not hear a large difference if we improve; we only hear the difference when we improve as a group. It is important to listen both to ourselves individually, and as a group, as each provide different kinds of feedback and allow us to notice different things.

Based on the evidence, I found the home recordings to be a useful learning tool. As a result of this evidence, I plan on using more home recordings as part of my music classes learning outcomes.

*Pavanne* from Foundations for Superior Performance in Band

The *Pavanne* chorale was recorded three separate times in one session: *Recording #7*, *Recording #8*, and *Recording #9*. However, *Recording #9* was not played back for students until a separate class almost a week later. The reason for delaying the play back of *Recording #7* was to give students the time to mentally digest their previous journal submissions.

**Recording #7 and Recording #8**

The following two questions were asked of the students in response to the playback of *Recording #7*, and *Recording #8*: 7) *Does listening to a recording of yourself help you improve your sense of overall blend & balance?* and 8) *How do you think your playing improves after listening to a recording of your ensemble?* Examples of student responses follow.
7) Does listening to a recording of yourself help you improve your sense of overall blend & balance?

Monika had the most insightful answer to this question:

Yes. Playing in an ensemble is all about listening to each other and playing like one. Listening to the recording improves our sense of blend and balance because we now know what we missed and know how to blend the melody with all the other counter-melodies.

William explained his occupation with his own part: “Yes. When playing the song, you are most occupied with your own individual part and perhaps trying to make it blend, but with a recording, you are only listening.” Ryan described how he listens critically: “In being able to pinpoint where I was out of balance or where I did not blend in well with the band, I can fix myself to make my sound fit more nicely into that of the band.” I really loved what William wrote: “...with a recording, you are only listening.” It made me wonder whether we ask too much of our students. We demand that they are both amazing players and great listeners at the same time, when in reality those skills are very difficult to ascertain even when separated.

8) How do you think your playing improves after listening to a recording of your ensemble?

Leanne talked about improvement in terms of making choices:

I don’t think a person improves in his or her playing, but more changes the way he or she plays to try and fit into the blend and balance of the band. I
think that my playing did not improve after listening to a recording of our ensemble. I think I was too focused on my part and trying to play louder.

Jennifer discussed how she tried to make improvements, but felt the band’s overall sound did not improve:

The second time we played I played out more and tried to match the sounds of the other instruments so that the band would be more balanced and have a nice blend of sounds and textures. While this may have improved my personal playing, I didn’t notice an improvement in the band.

Amber discussed how she did not improve because she was focused on her playing:

I actually made more mistakes the second time than the first. I think this is because after learning what to improve, I’m concentrating on those things and trying to correct them, instead of paying attention to my playing, resulting in more mistakes.

As a teacher, educator, and researcher, I believe the most difficult concept to teach and learn is improvement. There are so many variables, and often times our students rely on teachers to tell them whether or not they are improving. The focus of this study was not on improvement; however, it was directly related to what they were hearing, and to that end, I was pleased that my students were starting to think about improvement as a concept that they had control over.
The Final Recording

The evaluation of Recording #9 involved no performance that day; only listening. As mentioned earlier, the reason for delaying the play back of Recording #7 was to give students the time to mentally digest their previous journal submissions. Therefore, the students were strictly responding to what they heard on the recording. The last day of responses proved to be the most insightful from the students. They were quite appreciative of the fact that they could rely solely on their listening skills and not worry about meeting a certain performance standard.

The following two questions were directly related to the playback of Recording #9: 9) How do you think the ensemble's playing improves after listening to a recording of your ensemble? and 10) Do you think a recording is a true representation of what you are actually hearing? A discussion of student responses follows.

9) How do you think the ensemble's playing improves after listening to a recording of your ensemble?

Jennifer discussed significant improvement within a particular section, but also commented on the need for continual progress:

The flutes have finally gotten it that they have to adjust their volume accordingly because there are more of them than any other instrument. I think that the band sounded a lot better once the flutes stepped back a little because our sound as a band was more rich and solid, and the light airy sound of the flutes just sounded like the icing on the cake—the cake being
the remainder of the band. The band can still, and perpetually will have to, work on tuning. We are in tune for long held notes usually, but we need to learn that our tuning changes with each note we play, and we need to be constantly listening and adjusting our embouchures, not our instruments. I think that is why we are not always in tune, because everyone thinks that it is the instrument that is flat or sharp. But adjusting the instrument is only a preliminary step. After that, it's the position and shape of our embouchures that makes the difference.

Susan definitely thought there was improvement: “The balance also improved. I could hear the counter-melody when in the first recording I hardly heard it at all.” Michael discussed a specific improvement he was pleased with: “The ensemble’s tuning improved by leaps and bounds over the first recording, as we were all more aware of mistakes we were making, and our individual place in the band.”

10) Do you think a recording is a true representation of what you are actually hearing?

Ryan thought it was impossible for a recording to be a true representation of what a performer is hearing:

No, I don't think a recording is a true representation of what I am hearing because I will have different perceptions as to how or what I will hear compared to the microphones. The position is the biggest difference though, because this allows me to pick up certain pitches and instruments better than
the microphone. These reasons are why a recording can never be a true representation of what I hear.

Michael discussed his thoughts on the musician’s listening focus:

No, I think it is inaccurate. What we hear is different than what the microphones pick up because what we hear is affected by how much we focus on our own playing. What we hear from a recording is impartial, and when we listen to it, it’s usually our main focus. A recording is a true representation of what we actually play, but not what we hear while we are playing.

Rebecca discussed her thoughts on the musician’s listening focus as well:

No, I don’t think a recording comes close to a true representation of what I am actually hearing. When listening to a recording, I am able to pick up on many details that I did not initially hear when I was playing. The sound of the band is completely different and I think this is because when I am playing, I am mostly focused on the brass. The recording obviously does not focus on one section of the band, so it’s easier to hear the overall sound.

Finally, Shawna explained why the microphones pick up what they do:

Firstly, the placement of the microphone is not where I am sitting. In addition, the microphone captures sound more objectively, while my own ears hear things closer to me as louder (more so on the recording). Secondly, because I am playing an instrument while I listen, this affects what I am
hearing as what I hear as I play will have two distinct units—it will always be a comparison between me and the rest of the band, not a single unit of the band as a whole.

The evidence shows that students heard themselves differently on a recording compared to what they heard while they played. Common problems students heard, such as tuning, balance/blend, pitch, and intonation, were their primary concern during playback.

The final question, which was posed to the students at the conclusion of the study, was question #11: What, overall, have you learned from being involved in Mr. Dudley's research this year? The following are selected responses from this question. Amanda described what she learned from the recording research:

I learned that music is much more than what you hear—there is so much that needs to go into it. It takes tremendous effort and skill to play or conduct a musical ensemble. To make everything perfect is really hard, and it takes time to make a piece sound really amazing. When listening to music, it becomes more clear that there are so many different components which one can listen to in any given piece. This research made our class realize most of all that we are all part of an ensemble—all of our parts affect the sound of the piece. Each note, rhythm, dynamics, and articulation, make the song. Every person contributes. This was a really helpful, insightful project.
Denise, answering the same question as above, provided her thoughts on her own critical-listening learning process:

I've learned that listening to myself and listening to the band is a very important skill. This skill improves a person's technique and a person's way of playing on their instrument. I also learned that the sounds that my ear perceives may not be the sounds that everyone else is hearing—it often sounds a lot worse in a recording. I've learned that recording and playback is a good way to practice and improve my flute-playing.

**Microphone Position**

Students brought up the placements of the microphones on more than one occasion, as some believed that the microphone position was to blame for their perception of sound. Below are comments that students made about the microphones:

- Simon: The recording emphasized the different balances of the sound because the position of the microphone is different than our ears.

- Ryan: The recording brings forth the clarinets and the saxophones more than I thought I heard. This may be because they are closer to the microphones than the trumpets are and this brings them forward more. Depending on what the microphones are set to pick up and/or filter out, and the distance from the microphone, the recording will be what it is. Also, wherever the listener is positioned while playing/listening, the expectations of
one may differ from the recording due to the difference in sound waves picked up.

- John: The woodwind section was much more prevalent on the recording as opposed to rehearsals, probably due to mic positioning.

- Amanda: Your section may be loud, you may be further away from certain instruments, you tend to focus on your own part, and the mics are positioned closest to flutes/clarinets. Therefore [you tend to] hear more of them on the recording than when playing.

Microphone position was not a topic that I discussed with my students, but it is very interesting to note that many students commented on the placement of the microphones to explain why they were hearing what they were hearing. It was interesting to me that many of the students in the back rows (brass, lower brass) were quick to point the finger at the flutes and clarinets, simply because they were closer to the microphones.

Concluding Thoughts on the Recording Sessions

Students did not hear an improvement in their playing between Recording #2 and Recording #3; however, students did notice an improvement in their playing between Recording #9 and Recording #7. This indicated to me that the students were becoming more aware of differences in their playing as a result of hearing themselves in the third-person. A reminder to the reader: Recording #2 is Chorale #1 & Chorale #2 (take one), Recording #3 is Chorale #1 & Chorale #2 (take two), Recording #4, #5, and #6 is Recording at Home, and Recording #7, #8, and #9, are all recordings of the Pavanne (takes one, two, and three).
Overwhelmingly, students claim that a recording cannot be a true representation of what they are hearing. A number of themes developed from their discussion: 1) The microphones are in a different location, and therefore, the perspective of what the microphones pick up will be different; 2) A recording picks up everything, and students indicated that their perception changed depending on how much they were concentrating on their own part(s); 3) While playing, students are hearing mainly themselves, or the people in their direct vicinity, and therefore, do not have the capacity to hear what the microphones are picking up because of their listening focus; and 4) Although the students believe that the microphones are not an accurate representation of what they are hearing, they believe that the microphones are an accurate representation of what the conductor and the audience would hear.

One comment that is very important is Leanne’s: “I don’t think a person improves in his or her playing [through listening], but more changes the way he or she plays to try and fit into the blend and balance of the band.” I believe this comment to be fundamental to this research. One cannot expect that over a short period of time an individual’s technique, including tone quality, will dramatically improve with the use of classroom recordings; however, a realistic expectation is that students will improve and develop their critical listening skills, which may, in turn, help to improve their individual techniques over an extended period of time. Although the net-result in my study was an improved performance, it was the development of critical listening and self-evaluation skills in a large ensemble that was more important to me as the researcher.
I knew that recording these students on six separate occasions and asking them to record themselves at home three times demanded a lot from their playing, listening, and writing skills. Therefore, I wondered whether students were responding directly to what they were hearing in the moment, or simply reiterating previously learned concepts that I had taught them. I was also cognizant of the constraints put on them with all the journal questionnaires they had filled out. Therefore I determined to construct an online survey in order to 1) discover if student responses to my questions on listening would remain constant over time, 2) delve a bit deeper into some questions that I often wonder about as a music educator, and 3) gather additional student data in a user-friendly survey format. The following data were collected from an online survey, which students completed at the end of the study.

The Online-Survey

This survey was conducted at the end of the study, and contained the following types of questions: likert-type, yes/no, multiple choice, and open-ended questions. For example, “If you answered yes, please explain.” See Figure 2 for survey questions. Although there were 25 students in total that took part in the study, only 21 actually responded to the online-survey, due to excused absences on the day that the online survey took place.
Figure 2. Student Online Survey

Information
Please fill out the following personal information. This will remain confidential.
   Name: ____________________________________________
   School: __________________________________________

1. When your ensemble has been recorded, your perception of your sound matches that of the recording.
   ○ Strongly Agree
   ○ Agree
   ○ Undecided
   ○ Disagree
   ○ Strongly Disagree

2. Classroom and/or concert recordings reveal these aspects of your ensemble's playing:

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<thead>
<tr>
<th>Aspect</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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<tbody>
<tr>
<td>Pitch</td>
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<td>Blend/Balance</td>
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<td>Tuning</td>
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<tr>
<td>Articulation</td>
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3. Were there occasional problems you heard on your ensemble's recording that you were unaware of in class and/or rehearsals?
   ○ Yes
   ○ No

4a. Do you think a recording is an effective tool for evaluating your ensemble's musical ability and/or listening skills?
   ○ Yes
   ○ No

4b. If yes, why?

   ___________________________________________________________

   ___________________________________________________________
Figure 2. Continued

4c. If no, why not?

5. After recording yourself privately, you have improved your playing in the following areas:

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<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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</thead>
<tbody>
<tr>
<td>Pitch</td>
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6. Having your ensemble recorded regularly will allow you to have a greater understanding of large-ensemble concepts.

○ Strongly Agree
○ Agree
○ Undecided
○ Disagree
○ Strongly Disagree

7. Having your ensemble recorded regularly will help increase your critical listening skills.

○ Strongly Agree
○ Agree
○ Undecided
○ Disagree
○ Strongly Disagree
8. You complain that you cannot hear/focus on different instruments when you are playing.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

9. You are surprised to hear what you “actually” sound like when a recording is played back.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

10. After you listened critically to a recent recording, you noticed significant improvement in the following areas of your large ensemble’s playing:

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<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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<tbody>
<tr>
<td>Pitch</td>
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11. Listening critically is an acquired skill.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

12a. Do you think recording your ensemble in your class and/or concert is a beneficial learning tool?
   - Yes
   - No
Figure 2. Continued

12b. If yes, why and how?


12c. If no, why not?


Perception of Sound

Many of the survey questions pertained to perception of sound. The Merriam-Webster Online Dictionary defines perception as: "awareness of the elements of environment through physical sensation; a mental image." Before the study began I had many discussions with my students on what the word perception meant. I even went so far as to read the definition from the dictionary to them, so we were all on the same page; the students understood clearly the definition of perception before the study began. They also understood that it was of interest to me how my perceptions as conductor might differ from theirs (as musicians), and further to that, how their perceptions might differ from what a recording truly revealed. In the literature review Haack (1969) stated: "As the performer develops a variety of skills essential to satisfactory performance, so too, the listener must become able to utilize perception and intelligence skillfully to gain greater benefits from the listening activity" (p. 194). The literature also suggests that it is an advanced cognitive skill to be a perceptive listener.

The following section presents the results of the student online survey. Each item will be reported in turn and, to help explain the results, relevant comments from student journals will be added.

I wondered if the students’ perception of sound would match what the recordings revealed. This is important if students are to be more responsible for making positive choices in their music-making (see Table 1).
Only 29% of students agreed with the statement posed in survey item #1 and felt that their perception of sound matched the sound that was revealed on their recordings. Conversely, 66% of students disagreed, and 5% strongly disagreed with the same statement. I wondered why there was such a disagreement with the statement. I also wondered what I could do as an educator to improve those numbers.

The results of survey item #2 seem to emphasize variable issues such as articulation, blend/balance, and dynamics, while in actuality absolute issues such as tuning, intonation, pitch, rhythm came to the forefront in a recording. The numbers in the vertical column represent the numbers of students (see Table 2). For example, with respect to pitch, 9
students indicated they strongly agreed, 9 students indicated they agreed, and 3 students were undecided, totaling 21 student responses.

Table 2

*Classroom and/or Concert Recordings Reveal These Aspects of Your Ensemble's Playing*

[Bar graph showing student responses to aspects of ensemble playing]

The survey data seems to suggest that absolute concepts—tuning, pitch, intonation, and rhythm—are the most important and prevalent concepts that classroom recordings revealed. As a researcher, I had to question why articulation was the lowest of concepts revealed. Further research may explain this, but it is interesting that in all the journal questionnaires collected, students rarely discussed articulation as being a priority to either their listening or their playing improvement. One exception was William, who did discuss articulation in his journal response to question #2 of the recording series: *What aspects of your
*playing does a recording emphasize?* His response helps explain why students seemed less concerned with articulation than with intonation. He wrote:

When listening to the recording, you are more likely to pay attention to intonation because you are looking for the quality of the music and the tone of the notes. Articulation, notes, and rhythm are your primary concern when playing, less so when listening. Tuning is more frequently heard when one group (instrumentally) plays alone.

Further review of journal responses located several references to tuning. Brian indicated how a recording revealed his tuning: “The recording really emphasizes my tuning. Often times I do not realize that I am out of tune when I am playing but when I listen to the recording of myself, I notice every out of tune note.” Jennifer revealed the reasons she considers intonation to be an important concept that is exposed in recordings:

A recording emphasizes intonation primarily—it’s like when you talk, you hear yourself differently than other people hear you. I found that although I thought I knew what I sounded like when I was playing, I sounded more “reedy” than I usually do. This was emphasized by listening to the recording.

And Rebecca explained her perception of playing and listening:

The recording seemed to emphasize the tuning, blend, balance and intonation. These aspects aren’t as easy to hear when playing because the musician may be focused on their own part or on their own section, so they can’t necessarily hear the band as a whole. Dynamics and articulation were
easier to hear when playing, possibly because the recording doesn't have the ability to emphasize it as much.

Moving to survey item #3, 95% of students agreed that they were hearing problems on the recordings that they were unaware of in class and/or rehearsals (see Table 3). This made me question my own teaching practice, and I wondered what I could do to improve my own method.

Table 3

*Were There Occasional Problems You Heard on Your Ensemble’s Recording That You Were Unaware of in Class and/or Rehearsals?*

![Pie chart showing 95% Yes and 5% No.]

Many students discussed their reasons for this phenomenon in their journal responses. The following comments came from the journal question #4: *What can you learn personally, and what can the band learn as a whole, as a result of listening to yourself in a large ensemble on a recording?*
Shawna discussed how the recording varied from her original perceptions:

The recording seemed to change the balance (higher, sharper instruments sounded louder) and there didn't seem to be enough bass (it seemed ok while playing). Timbre changed—low brass and bass seemed more muted, flutes seemed more airy, trumpet seemed sharper, clarinet more reedy. Because of this, the blend seemed to change. The sharper instruments stood out too much. I could hardly hear my own part, though I thought I was being loud enough while playing.

Michael's comments are quite similar to Shawna’s regarding tuning and timbre:

Tuning was clearly different in the recording, most obviously in the flute section. The flutes and the saxophones both had a radically different timbre, often sounding airy and (in the flutes) too bright. This could have something to do with the tuning as well. Due to the different tonality of instruments, the blend was also altered. Several backing parts stood out more than usual, over-taking the melody not in volume, but in tone. Instruments that stood out were, once again, flutes and saxophones.

Brian had some similar insight, but he also discussed blend as an issue:

The recording was not as full as I thought it sounded. In terms of blend, the flute was too loud and the lack of tenor and bass part was noticeable in the recording, but not in the performance. Flutes were much louder than what I have heard, while other instruments were softer than what I perceived. In
summary, balance, blend, intonation, and timbre in the recording were much
different than I heard in the performance.

Based on the student responses, the following concepts emerged as those that a
recording reveals. They are listed in no particular order: tone quality, blend, intonation,
tuning, balance, and pitch.

Tone quality was purposely left off the online survey, as I wanted the students to
focus on tuning, pitch, rhythm, intonation, balance, dynamics, blend/balance, and
articulation. As the researcher, I felt the concept of quality was a very difficult one to talk
about objectively. However it is included in the list of concepts noted here as students did
discuss it in their journal submissions.

The results for survey item #4a are presented in Table 4. As can be seen, 100% of
students agreed that a recording was an effective tool for evaluating an ensemble’s musical
ability and/or listening skills.
I was intrigued that all the students agreed that recordings were an effective tool for evaluation. This led me to investigate the data further.

The following are some comments from student responses to survey item #4b, If yes, why?

- Zoe: With a recording I would be able to tell how the band (and I) actually sound as opposed to how I think the band sounds. If my perception was off, I would be able to adjust that and gain a better sense with the recording.
• Amber: After playing a piece, the ending tends to leave more of an impression, while the beginning is somewhat forgotten. Listening to the recording refreshes our memory and "evens things out," so that we can look at the music as a whole.

• Karen: While I am playing, I cannot concentrate fully on listening. By using a recording, I noticed many problems, and this helped me and also my ensemble to correct them. Furthermore, I developed my listening skills by noticing that I was not focusing on playing as one, but playing individually. Ensemble is not only about individual technical skills, but being as a group or sounding as one.

• Shawna: A recording can playback exactly what was played by the ensemble—so judging musical ability in the recording would be essentially the same as judging the actual playing. An ensemble’s listening skills can be judged by noting any disparity between the perception of their playing and their perception of the actual recording.

• Susan: The recording enabled us (the players) to hear the balance and blend of our band while we were not playing an instrument. This revealed whether or not we were listening across the band to other instruments. We could also distinguish the phrasing and musicality that the entire band was using throughout the piece.

• Denise: A recording allows us to hear more than just our own playing within an ensemble. Though we often try hard to listen to others while we play, we still end up listening mostly to ourselves in the end. With the recording, the focus is not on just us, it is the "real" sound of the entire band (how the sounds are actually perceived by
an audience). Thus, when we know our "authentic" sounds, we can then truly try to correct our mistakes and improve in our playing.

- Rebecca: When a band is performing, it is ideal that they play with the audience in mind. A recording can reveal the sound that the audience hears. This sound may be different from what the musicians are hearing, because they may be focusing on particular areas and may not be able to hear the band as one group.

These responses suggest that the students have difficulty hearing the overall musicality of the ensemble when they are playing. Conversely, it appears that when the students are not actively involved in performance, they are more able to listen critically to large-ensemble concepts. It is clear that students believe that recordings are an effective tool to evaluate an ensemble's musical ability and/or listening skills. The common theme that can be drawn from these comments is that the students have difficulty hearing themselves in a larger context while they are actively performing. It appears as though when their instruments "are down" they have a much easier time listening across the band, allowing them to be more assertive in their critical listening skills.

Survey item #5 dealt with students' home recording experiences. Many students felt their playing improved with both absolute and variable large-ensemble concepts as a result of recording themselves at home (see Table 5).
This graph proved to me that students thought recordings were a useful tool to improve their playing. Although instrumental music educators teach many concepts, it is the art of teaching large-ensemble concepts that can be particularly difficult and challenging. Based on these results, I knew my students appreciated the assistance recordings offered to develop their own critical listening skills.

Large ensemble concepts are things I talk about everyday in my music classes. It is important to me that my students comprehend these concepts to the best of their ability, but the inherent difficulty lies in determining whether or not that knowledge is fully understood (see Table 6).
All students either agreed or strongly agreed with survey item #6: *Having your ensemble recorded regularly will allow you to have a greater understanding of large-ensemble concepts.* Denise clarified her feelings about recording a large-ensemble in response to journal question #7: *Does listening to a recording of yourself help you improve your sense of overall blend & balance?* She wrote, “Listening to recordings allows me to hear details and subtleties that I did not hear during the actual performance. Therefore, I am able to pick up the flaws and mistakes that I am making and then improve my playing.”
Rebecca had similar comments to Denise's, related to what she was hearing in the large-ensemble: “The recording is also a good opportunity to listen to myself as well as my section to see if we are matching up to the blend and balance of the entire band.”

I then wondered whether students believed that having their ensemble recorded regularly would increase their skills to listen critically. Because musicians are faced with very difficult and challenging tasks when we ask them to listen critically, some find immediate success, while others need time to process this complex information (see Table 7).

Table 7

**Having Your Ensemble Recorded Regularly Will Help Increase Your Critical Listening Skills**

![Pie chart showing the percentage of students' responses]

Sixty-six percent of students agree with survey item # 7: *Recording your ensemble regularly will help increase your critical listening skills.* Five percent of the students were
undecided about the statement. Some students in my class were fairly new to the notion of critical listening, and this could account for the result.

In an effort to understand the results in Table 7, I reviewed the responses to journal question #5: *How does a recording (as a set of ears) differ from your own ears when you listen?* John discussed his thoughts regarding the choice to listen or not to listen: “When we are playing, our ears are biased to our own sound, as well as the sound of the ensemble. When you are playing, you are hearing what you want to hear, and not necessarily what is being played.”

Amanda explained her thoughts when she listens to a recording: “After hearing it (the recording), you immediately begin to think of ways to improve.” This statement notes the positive affect that a recording can have on an ensemble’s individual listening skills. Amanda’s words imply that she is doing a certain amount of thinking and learning even after her instrument is at rest. Devon explained the importance of knowing his music better so he could focus on the incredibly difficult task of listening: “When listening to the recording, you can notice more things such as tuning, because you are not focused on playing your part. This is why it is better to know your part as well as possible.” Amanda also gave her thoughts on using recordings in the classroom: “Most importantly it gives you the true sound. It gives you the audience/listeners’ perspective, not just the players’ perspective. Listening as an outsider gives us the chance to hear everything you’re doing right, and everything that’s wrong.”
Perhaps some students are making a conscious choice to listen to themselves or to the bigger ensemble, while others simply may not have the skills to do either, leaving individualized and large-ensemble critical listening skills to chance. Amanda explains:

The recording gives the entire band's sound—not just yours, or your section's sound. You have a much more personal idea (hearing yourself) of what it sounds like. When the recording plays it's the real sound—it hears every part of every instrument in the band, unlike our own ears.

Shawna described the objectivity that the recordings provided:

The recording is recorded from the front of and above the band, while I am sitting in the band when I'm listening. Because of this, my playing and the playing of people around me seem louder to me, while a recording is more of what an audience would hear. In addition, a recording captures more details than I am when I'm listening and playing, and captures them more objectively. When I'm listening, each note seems like just a moment in time, but a recording seems more permanent and fixed.

Amber illustrated a common statement that music educators may hear in their classrooms:

"When we listen to a recording, things we don't usually pay attention to are brought out, so it gives us a more accurate representation of the music." I wondered, based on Amber's comments if this was an anomaly, or if there were other students who were only focusing on themselves in rehearsal (see Table 8).
Table 8 reveals some very interesting data. I used the word “complain” in this item because as the research developed, the more advanced students became upset that less skilled students were neither listening properly nor adjusting their balance. I wondered if anyone would agree with the statement posed in survey item #8. Interestingly, although 71% either strongly agreed or agreed with the statement, 10% of students disagreed with the statement entirely. Emma talked about the musician’s laziness when it came to the act of listening, which could help explain the disagreement. Her comments were from journal question #3: Are there instruments in the band that you heard on the recording that you are unaware of in class and/or rehearsals? She wrote: “The reason we hear more of the lower instruments on the recording is because we naturally tend to hear and listen more to the higher pitched
instruments, i.e., flutes, trumpets, because they are easier to hear.” Emma’s statement explains that because of passive listening, musicians may choose out of habit to listen to what is easier for them to hear, and therefore, it is not that they complain about not being able to hear/focus on certain instruments in the ensemble, but rather, that they have made a conscious choice not to do so.

A further review of student journal responses revealed that students focus on themselves when playing. Peter, in response to journal question #5 (How does a recording (as a set of ears) differ from your own ears when you listen?), described what music teachers fear the most: “One tends to focus more on his/her instrument than other instruments.” Monika’s statement is very similar to Peter’s: “When you listen, you usually pick up what you want to hear. Or you would mostly hear your own section. However, a recording picks up everything and plays back the ‘realistic’ sound.”

Michael described poignantly the unbiased point of view from the microphone’s perspective. He also reiterated his listening focus:

These “ears” are different because they are more impartial. They’re placed more or less equal distance away from everyone. Our own ears are in our own bodies, closest to our own instrument. When we play we are focused on what we are playing individually, and we may have an inaccurate view of the band as a whole. Listening to the recording allows us to focus on what everyone else is doing, as we are not concentrating on our own playing.
These comments suggest that although students have good intentions to listen with a deeper focus, they admittedly concentrate on themselves or individuals in their vicinity.

Our role as music educators is to guide our students to become better listeners. We need to show them every possibility to achieve that outcome. It would be lovely for students to hear exactly what we are hearing; however, the evidence suggests we are falling short of that goal. I became very interested in finding out whether students were surprised by what they actually sounded like in a recording (see Table 9).

Table 9

You are Surprised to Hear What You “Actually” Sound Like When a Recording is Played Back

Fifty-one percent of students agreed with the statement and 29% strongly agreed. Ten percent of students were undecided about the statement, and 10% disagreed with the
statement entirely. These results indicate that, indeed, students hear themselves differently in a recorded-model than what they had previously thought they sounded like.

Next, I was interested to know where my students thought the large ensemble had improved, as a result of listening to the recordings (see Table 10).

Table 10

After You Critically Listened to a Recent Recording You Noticed Significant Improvement in the Following Areas of Your Large Ensemble’s Playing

One hundred percent of the students either strongly agreed or agreed that balance was an improved area, while 3 students disagreed and 11 students were undecided as to whether articulation had improved. It is interesting to note that student responses to survey item #10 show a definitive ranking of most revealing concepts. Balance was ranked first, while articulation was placed last. I wondered whether students were unaware of the
importance of articulation, which may have contributed to the number of undecided votes. More research is needed to find out exactly why students are ranking articulation last as a variable concept.

The acquisition of skills has always been an interesting subject for me. Can the ability to listen critically be developed? Is it skill-based? Are we born with certain listening traits? At this point in the study I wanted to know what the students felt about their listening skills, as this could greatly impact the way I teach listening in the future.

Table 11

*Listening Critically is an Acquired Skill*

Almost three quarters (71%) of the students either strongly agreed or agreed that critical listening is an acquired skill (see Table 11). Twenty-four percent of the students were
undecided, and 5% disagreed with the statement entirely. Still, as their teacher, it made me wonder why nearly 25% of the students were undecided about the statement.

In their journal responses, some students demonstrated that they were quite upset their listening skills were not at a higher level, which could account for some of the lower percentages. For example, Brian, in his response to journal question #2 (What aspects of your playing does a recording emphasize?), wrote:

I really wish that either we have more recording sessions or other people can pick on me a little more so that I could understand my faults and fix them. I am sort of ashamed that what I heard on the recording was different from what I heard in the band but at the same time I am glad I was able to listen to myself and find what to work on.

Denise, in response to the same journal question above, posited that her skills are acquired:

Since this exercise trains a musician’s listening, a musician can apply their acquired listening skills in a large ensemble setting by listening to the people around them. First of all, the most important person to listen to in the band is the bass—it keeps the beat and produces the note that the ensemble should tune to. When musicians listen to the bass, they will be able to stay in unison and play with good tuning. Listening to others in the ensemble also improves the overall mood of the music. The piece will blend better, the phrasings would be more expressive and the dynamics would be more noticeable.
A third response to this question highlighted the fact that being an active listener helped overall playing. Ryan explained:

I have learned many things on actively listening and thinking about how to fix my problems. For example, to fix my tone, I thought of how my lips were positioned inside my mouth and how I am blowing into my trumpet. This helped me adjust my embouchure to better the quality of my sound and my tone. Overall, I learned much about listening and more on playing the trumpet better.

Anne talked about how she wanted to focus on the skill of listening, but felt she could not develop that skill properly when she was busy playing her part in the ensemble: “I can really concentrate on just listening to the music and how it was played rather than concentrating on reading the notes or playing.”

Listening critically is a very important task in the large ensemble, and 71% of students feel that this skill is acquired. Based on the journal responses, it would appear that students want to focus on the act of listening, but feel that their learning is being impeded by other distractions or focal-points of concentration, i.e. playing in the band, general acoustics, seating positions etc. It appears that students are much more at ease towards developing their own listening skills when that is the central focus, i.e. not playing their instruments.

Jennifer dealt with those very issues when she answered journal question #5: How does a recording (as a set of ears) differ from your own ears when you listen?
A recording differs from my own ears when I listen to the band playing in terms of location. I sit in the front row on the very edge of the band and because of this while we are playing I hear a lot of myself and the people around me. In order to hear the other instruments in the band I have to actively listen and concentrate.

It is obvious that Jennifer wants to focus and concentrate on the skill of listening, but she finds it difficult in terms of acoustics and seating position. Jennifer is probably more shocked at how a recording sounds when she is dealing with the listening issues she described. In fact, many of the students mentioned seating position and room acoustics as a possibility as to why they thought they sounded a certain way.

I wondered whether my students were noticing the benefits of this exercise in their music class (see Table 12).
The students agreed (100%) unanimously that recording their ensemble in their class and/or concert was a beneficial learning tool. I was pleased that my students agreed with my intuitions regarding the usage of recordings in the classroom. Some of the students’ responses to this question were especially insightful and are included below:

- Brian: Yes, it is a beneficial learning tool. Although it is not a perfect replica of the performance, it does give a replication of how the ensemble sounded which is often good enough to evaluate the group’s strength in such areas like tuning, rhythm and articulation.
- Ryan: Recording in an ensemble in class or concerts is a beneficial learning tool as when you look back upon it, you can make critical notes and
judgments and learn how to evaluate improvements as well as make them in future rehearsals and concerts.

- Emma: Hearing yourself on a recording helps you to know how you really sound. By knowing what you really sound like, you can improve your overall balance, tuning and rhythms, among many other things. Thus, we can learn from our mistakes from the recording and perform better in class and in concerts.

- Susan: By listening to recordings, students can learn from the mistakes that they hear. A recording can be listened to over and over, so if anything is missed listening to it the first time, it can be replayed. By listening to a series of recordings, students can track their progress as they make improvements and also catch any repeated mistakes that need to be fixed.

- Denise: Recording an ensemble’s playing is a productive and beneficial learning tool for both the entire band and for the band members themselves. It teaches them to play better as a whole, rather than as an individual. It greatly improves the sound quality of the entire band and the skills of each member of the band.

Based on these responses, it seems that students are focusing on two key themes: the increased ability to fix mistakes, and the increased ability to be active members in a large ensemble. Shawna’s statement to the same question is an amalgamation of all the students’
comments: “Listening to recordings can give an ensemble insight into existing playing
problems as well as allowing the students the opportunity to practice their listening skills.”

Conclusions

After collecting and evaluating all of the qualitative and quantitative data, my action-
research journey continued. It was now time for me to decipher and draw possible
inferences. The areas that stood out the most for me were 1) the benefits of learning to
listen, 2) listening critically, and 3) the audio-mirror.

The Benefits of Learning to Listen—A “Listenersal”

Learning to listen is being mindful of the music—quality literature deserves our
unwavering attention. We must teach our young musicians how to be better listeners while
they are directly involved in the large ensemble, for they are their own audience. In
performance-based music classes, many of us think we are teaching critical listening to our
students. The fact of the matter is, critical listening needs to be taught before, during, and
after our notes are played and heard.

To go further—we should do away with the term rehearsal anyhow, as it references
re-hearing things. Hearing, as we are well aware, is not the same as listening—one is passive
and one is active. We hear things all the time, but that does not mean we are truly listening.
We should replace the word rehearsal with listenersal. It is a wonderful word that
encompasses the true-meaning of what our music classes signify. Our music classes should
be centralized around the word listener. Every concept we teach, every theory lesson we
approach, and every history lesson taught should hover just slightly above the concept of
listening. We should never forget that our ears will guide our musical spirit—and a trained ear will not deceive.

Copland (1985) writes:

In a sense, the ideal listener is both inside and outside the music at the same moment, judging it and enjoying it, wishing it would go one way and watching it go another—almost like the composer at the moment he composes it; because in order to write his music, the composer must also be inside and outside his music, carried away by it and yet coldly critical of it. A subjective and objective attitude is implied in both creating and listening to music. (p. 14)

Listening Critically

Based on the results of the online survey and student journal responses, it would seem that students are better able to make improvements in their playing by using recordings in the classroom. Responding to the final journal question (What, overall, have you learned from being involved in Mr. Dudley's research this year?), William described the challenges of being a critical listener:

Overall, I learned that you cannot trust your ears to listen to everything and make a judgement. You are not hearing exactly what your sensory receptors detect; all the signals must be deciphered at the brain first. It is your brain that acts as a filter; you subconsciously decide what you want to be hearing, and drown-out other components. If you analyze something with the "naked
ear" you will hear the piece once and forever miss certain aspects of the music. A recording, however, holds no bias in terms of sound. It picks up everything—from the scuffling in the trombone's chair to the third clarinet's wrong note. You'll hear something different when you listen to the played-back recording and perhaps more things if you listen to it again. These are the actual sounds. It is your mind that determines the music.

I was impressed with what William had written. He expressed such an understanding about perception and cognition. His words, "You subconsciously decide what you want to be hearing, and drown-out other components," reveal much about the nature of listening critically. Students want to be better listeners and they want the autonomy to decide what to listen to, and when to listen to it. In an answer to the same question, Shawna explained:

I have learned the importance of listening in music. When I listened to the recordings, I was able to hear things I never heard when I was playing, and because of this, the recording helped me fix these things I notice and improve. I want to be a better listener—to be able to identify these things while I am playing and not just when it is played back to me. From this project, I've learned that to be a better musician I need to be a better listener. I've also learned how useful a tool recording is in improving playing.
Are students “drowning-out” sounds in the band when they play their instruments, and are these conscious or subconscious decisions? My students needed a tool that would help them understand the effect of their musical choices—they needed an Audio-Mirror.

The Audio-Mirror

Rehearsing an ensemble has more innate challenges than are even imaginable. As conductors, we are listening for tuning, pitch, balance/blend, articulation, rhythm, texture, timbre, tuning, and intonation, while at the same time attempting to keep our students enthusiastic and excited about listening to the music that they themselves are creating. We try our best to listen to these concepts every time we teach, and share our thoughts with them. The most difficult aspect of teaching students what we hear is that sound is not permanent; it is a moment in time. Once we place the baton on the conductor’s stand and begin describing what we are hearing, we are immediately teaching abstract concepts to our students, and they may begin to rely on what we are saying as a truth, despite what their own ears may be telling them. How are students to remember what they sounded like two or three minutes ago, or even two or three seconds ago, especially when the evidence points to students not really listening to anyone but themselves in a larger-context anyhow?

The audio-mirror is a term I coined to express what students need in the classroom. Based on the evidence gathered from this study, it is obvious that students want to know exactly how their sound fits into the ensemble’s sound—but how we teach the audio-mirror is a bigger, and more advanced method. More importantly, we must understand that if the evidence is pointing to a gap, it is the music educator’s job to fill it in. If we choose to ignore
the evidence then we are simply teaching a one-sided point of view—our view, which leaves no room for personal or intrapersonal decision-making to happen.

Amber summed up the audio-mirror concept by saying: “Regular recording improves our listening skills, which in turn improves our playing. Learning to know what to listen to and how to listen improves the musical aspect of our playing, which cannot be established with just practicing.”

The evidence the students provided in this study made me realize how important this research was to my own teaching practice. I knew this research was benefitting not only my students’ skills to listen critically, but their performance skills as well.

I wondered whether I was the only music educator who felt this way, and therefore decided to survey fifteen Burnaby Music Educators to see if there were some similarities in our thinking. Chapter 5 will examine questions that shed some light on what music educators think about their use of recordings in the classroom.
Chapter Five

The Teachers’ Perspective: A Further Inquiry

This chapter describes my quest to determine if and how recordings were being used in secondary instrumental music classrooms in the Burnaby School District. It was important for me to find out if other music teachers were recording their students in the same manner I was.

First I will present the results of a survey conducted on the recording practices of Burnaby instrumental music teachers. Following this, I will examine some of the differences in perception between the surveyed music teachers and senior band students and suggest how the use of recordings can help students and teachers be more effective listeners and performers.

This online survey was conducted in May 2007 (at the end of the study), and contained the following types of questions: likert-type, yes/no, multiple choice, and qualitative questions. For example, “If you answered yes, please explain.” See Figure 3 for survey questions. Of the 15 secondary instrumental music teachers in Burnaby invited to participate in this online-survey, all responded. Although these teachers knew they were responding to a survey related to my research, they were not aware of any specific details of the content of my study.
Figure 3. Teacher Online Survey

Information

Please fill out the following personal information. This will remain confidential.

Name: _________________________________

School: __________________________________________

Subject(s) and levels taught: ____________________________

Institutions attended: _________________________________

Degree held: _______________________________________

Institutions attended: _________________________________

Degree held: _______________________________________

Institutions attended: _________________________________

Degree held: _______________________________________

1a. Have you ever recorded your instrumental ensemble, either in a formal way (i.e. recording studio) or in an informal way (i.e. school concert)?

☐ Yes
☐ No

1b. If yes, do you ask your students to critically listen, evaluate, and respond to those recordings (tick all that apply)?

☐ Critically listen to recordings
☐ Critically evaluate recordings
☐ Respond to recordings

The following questions apply only if you have recorded your ensemble formally or informally:

2a. Where have you previously recorded your ensemble (tick all that apply)?

☐ Winter/Spring Concert
☐ Classroom
☐ Recording Studio
☐ Other

2b. If other, please explain:

________________________________________________________________________

________________________________________________________________________
3. When you record your ensemble, your perception of the ensemble's sound matches that of the recording.
   - [ ] Strongly Agree
   - [ ] Agree
   - [ ] Undecided
   - [ ] Disagree
   - [ ] Strongly Disagree

4. Classroom and/or concert recordings reveal these aspects of your ensemble's playing:

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5a. Were there occasional problems you heard on your ensemble's recording that you were unaware of in class and/or rehearsals?
   - [ ] Yes
   - [ ] No

5b. If yes, please identify some of those problems:

   ______________________________________________________
   ______________________________________________________
   ______________________________________________________

6a. Were there occasional problems your students heard on your ensemble's recording that they were unaware of in class and/or rehearsals?
   - [ ] Yes
   - [ ] No
7a. Do you think a recording is an effective tool for evaluating your ensemble's musical ability and/or listening skills?
   - Yes
   - No

7b. If yes, why?

7c. If no, why not?

8a. Do you ever assign your students to record themselves privately at home or at school?
   - Yes
   - No

8b. If yes, please respond to the following statement. If no, move to Question #9.
After recording themselves privately students will improve their playing in the following areas:

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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intonation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhythm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. Do you think it would be valuable to incorporate recording of your ensemble into your regular teaching curriculum?
   - Yes
   - No
10. Recording your ensemble regularly will allow your students to have a greater understanding of large-ensemble concepts.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

11. Recording your ensemble regularly will help increase your students' critical listening skills.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

12. Many students complain that they cannot hear/focus on different instruments when they are playing.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree

13. Many students are surprised to hear what they “actually” sound like when a recording is played back.
   - Strongly Agree
   - Agree
   - Undecided
   - Disagree
   - Strongly Disagree
Figure 3. Continued

14. After you and your students critically listened to a recent recording, you noticed significant improvement in the following areas of your large ensemble’s playing:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pitch</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Blend/Balance</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Dynamics</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Balance</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Tuning</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Articulation</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Intonation</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Rhythm</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

15. Critical listening is an acquired skill.
   - ○ Strongly Agree
   - ○ Agree
   - ○ Undecided
   - ○ Disagree
   - ○ Strongly Disagree

16a. Do you think recording your ensemble in your class and/or concert is a beneficial teaching tool?
   - ○ Yes
   - ○ No

16b. If yes, why and how?

16c. If no, why not?
I needed to know how many music teachers were in fact recording (either formally or informally) their students (see Table 13).

Table 13

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you Ever Recorded Your Instrumental Ensemble, Either in a Formal Way (i.e. Recording Studio) or in an Informal Way (i.e. School Concert)?</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>80%</td>
</tr>
<tr>
<td>No</td>
<td>20%</td>
</tr>
</tbody>
</table>

Of the 15 secondary teachers that responded, 3 had never recorded their groups, so they were exempted from the remainder of the survey. However, with that data in mind, only 80% of the Burnaby teachers who responded to the survey had recorded their students. The remainder of the survey was with 12 secondary instrumental music educators who had recorded their ensembles. Further research into this area would allow for introspection as to why 20% of instrumental music teachers in Burnaby are not recording their students.
The second part of the question dealt with how teachers used recordings in the classroom (see *Table 14*).

**Table 14**

*If Yes, do You Ask Your Students to Critically Listen, Evaluate, and Respond to Those Recordings?*

I found it encouraging that 11 of 12 teachers had asked their students to critically listen to recordings, 7 of 12 teachers had their students evaluate recordings, and 11 of 12 teachers had their students respond to recordings. The data would suggest that these music educators are attempting to teach critical listening in their classes. To further investigate this question, I needed to know where teachers had been recording their students to give me a better idea of how they were teaching critical listening in their music classes (see *Table 15*).
They were given the choice of Winter/Spring Concert, Classroom, Recording Studio, or Other.

Table 15

*Where Have You Previously Recorded Your Ensemble?*

The above data are enlightening, as 11 of 12 teachers have recorded their students in their *classrooms*. As well, 9 of 12 teachers have recorded their students at either a *winter* or *spring concert*. It would appear that teachers are giving their students ample opportunity to learn about critical listening in their classes. One teacher recorded his/her students in the *recording studio*, and under *other*, one teacher had his/her students recorded in festival and/or workshop settings.
The fact that teachers are recording their students is promising, but it is the learning generated from using this tool that I was interested in as a researcher. How did the teachers' perception of their students' sound differ from a large ensemble recording?

**Perception of Sound**

I was interested to find out whether the teachers' perception of their students' sound matched what they heard on the recordings (see Table 16).

Table 16

*When You Record Your Ensemble, Your Perception of Their Sound Matches That of the Recording*

![Pie Chart]

Seventy-six percent of teachers *agreed* with this statement and felt that their perception of sound matched the sound that was revealed on their recordings, while only 8% of staff *disagreed* and *strongly disagreed* with the same statement.

Despite the 76% of teachers (plus 8% who *strongly agree*) who claimed their perception of sound matched their recordings, Table 17 outlines some major variance on a
similar question. I wondered how there could be such a discrepancy between the teachers’ perception of sound and sound that is in its raw form?

Table 17

Were There Occasional Problems You Heard on Your Ensemble’s Recording That You Were Unaware of in Class and/or Rehearsals?

There are many comments relating to why Burnaby teachers felt that they were hearing problems on a recording that they were previously unaware of in class and/or rehearsals. If the response was yes, teachers were asked to elaborate. Pseudonyms will be used. Alice, a teacher, discussed her reasoning to this question:
Usually my perception of balance and blend is different when I am removed from the podium and able to listen to a recording without the distraction of the "conducting task." In general, perception of balance, pitching and identification of incorrect notes, rhythmic accuracy, etc. is more refined when listening and not "performing."

Ashley, another teacher, pointed out her reasons: "Usually balance issues and sometimes problems with rhythms in the percussion section. Usually the tuning sounds a lot worse than I actually thought it was." Similarly, Scott explained his thoughts: "Sometimes being able to listen without having to lead the band at the same time allows me to hear rhythmic, balance, and intonation problems that may not have sounded as prominent during the original performance."

I found it interesting that 76% of teachers felt their perception of sound matched their recording, while 92% of them also felt that they heard problems on their recording that they were unaware of in class and/or rehearsals. More research may examine why these music teachers were not aware of problems until a recording is played back.

Next, I was interested in finding out what aspects of an ensemble’s playing are revealed in a classroom recording (see Table 18).
According to the data, musical perception seems to focus on more variable issues such as articulation, blend/balance, and dynamics, while in actuality absolute issues such as tuning, intonation, pitch, rhythm came to the forefront in a recording, which would explain Alice, Ashley, and Scott's opinion about perception.

Interpretation of Table 18:

Table 18 Data

<table>
<thead>
<tr>
<th>Absolute Concepts (in order of most revealing)</th>
<th>Variable Concepts (in order of most revealing)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Order</strong></td>
<td><strong>Concept</strong></td>
</tr>
<tr>
<td>1</td>
<td>Pitch</td>
</tr>
<tr>
<td>2</td>
<td>Tuning</td>
</tr>
<tr>
<td>3</td>
<td>Intonation</td>
</tr>
<tr>
<td>4</td>
<td>Rhythm</td>
</tr>
</tbody>
</table>
I found it interesting and noteworthy that the data tended to be evenly distributed between the concepts (both *absolute* and *variable*).

As a music educator, I have often been perplexed when students could not seem to hear what I was hearing during a rehearsal. I wondered whether Burnaby music teachers felt the same way (see *Table 19*).

**Table 19**

*Were There Occasional Problems Your Students Heard on Your Ensemble's Recording That They Were Unaware of in Class and/or Rehearsals?*

With 100% of music teachers answering *yes* to the preceding question, I felt the full-scale importance of this study, and I knew I was investigating an issue critical to music education.
Based on the results of the study with my students, I knew that recordings were an effective tool to evaluate musical ability and/or listening skills, but I wondered if Burnaby staff felt the same way (see Table 20).

Table 20

_Do You Think a Recording is an Effective Tool For Evaluating Your Ensemble's Musical Ability and/or Listening Skills?_

Conclusively, music educators in Burnaby responded that recordings are an effective tool to evaluate an ensemble's musical ability and/or listening skills (see Table 20). Teachers voluntarily submitted their thoughts on the use of such recordings. Due to the insightful nature of their comments, I have included all of them here.

- Jeremy: Gives an accurate accounting of all members of the group, helps with critical thinking, and encourages improvement within the ensemble.

- Parent: All students to focus on listening rather than listening while playing.
• Chad: It trains students to evaluate their own playing as well as that of the ensemble in a critical manner, and emphasizes the importance of constant critical listening while rehearsing or performing.

• Alice: Depending on the quality of the recording, I feel it really allows the students to critically evaluate the "overall" performance. The students have a great deal of difficulty playing and listening at the same time...they are too focused on the various tasks at hand, i.e. fingering, tempo, notes. Recording allows them to be removed from the task and listen from a different perspective...there is a difference based on where they sit within the group as well. A recording gives a better overall sound scope.

• Lorraine: Benefits students who are largely unaware of how the ensemble sounds.

• Ashley: I think if it was a written assignment for them to evaluate the recording, then yes, it is a useful tool. If it just happens as a class discussion, many students may not speak up- which doesn't really work for evaluating the whole class. Listening to a recording allows the student to hear the ensemble from a new perspective, and often they are surprised at what they hear, especially in terms of balance. It helps them to learn the piece better because they start to hear all the parts and how it all fits together. The key part is if they actually adjust their own playing based on what they hear in the recording. To make the recording-as-evaluation useful to the teacher...it's good to do a "before" and "after" recording to note improvements.

• Darren: Allows students to focus on listening rather than listening while playing.
• Joanna: When students are playing, they can’t hear the ensemble as a whole. A recording lets them take a step back and hear how they fit into the group and how the whole ensemble sounds. Students’ listening skills and playing skills will improve if they’re given a chance to listen to a recording of their ensemble, critique it and try to improve/correct the problems they heard.

• Debbie: If the recording is accurate it is an excellent tool for evaluating student’s listening skills. It also gives them a credible resource for understanding how they really sound. They may not listen to their teacher but they will respond to something they hear for themselves.

• Thomas: It provides instant feedback to the group and allows them to hear what the conductor mostly hears at the front of the group.

• Adrian: It allows students to refine their efforts and have a tangible result played back to them; they can then make further refinements and repeat the recording session.

• Scott: Many students rarely hear what is going on as a whole and how their part fits into the big picture. Listening to a recording from the other side often puts their individual parts into perspective, allowing them to better understand how to approach their various roles within a composition.

• Geoff: It allows them to hear the full ensemble as opposed to focusing on their own role. Wrong notes are very apparent as well.
These responses suggest that these Burnaby secondary instrumental teachers feel their students' perception and listening skills are developed by using classroom recordings. Debbie's comments sum up well the purpose that recording serves in a classroom setting: "It also gives them a credible resource for understanding how they really sound."

Having students record themselves at home was something that was taught to me at the University of Toronto, during my undergraduate studies in music education. It was a concept that really appealed to me, but putting it into practice became a challenge. Most music classes I have taught are performance-based, which does not leave much opportunity to delve deeper into more advanced concepts. One of the reasons for this study was to stretch my own professional practice, with the hope that my students' music education would be stronger and more sustainable. Having them record at home was one of these golden opportunities. I wanted to know whether my Burnaby colleagues were availing themselves of this evaluation tool as well.

**Recording at Home**

The following research questions investigate using the medium of recording outside the classroom, in a private one-on-one setting (see Table 21).
Table 21

Do You Ever Assign Your Students to Record Themselves Privately at Home or at School?

The data shows that only 33% of these Burnaby music teachers have asked their students to record at home, leaving 66% who have never asked their students to record at home. The reasons for this could be numerous. One possibility is that music teachers would like to see more data on this subject before they ask their students to record themselves at home. Another possibility is that the technology to be able to do this activity is fairly recent, so teachers may not even be aware that this option is possible.

Similar to Table 18 (see page 105), teachers were asked to identify concepts (both absolute and variable) that improved as a result of recording performances at home (see Table 22).
Table 22

After Recording Themselves Privately Students Will Improve Their Playing in the Following Areas

![Bar Chart]

Interpretation of Table 22:

Table 22 Data:

<table>
<thead>
<tr>
<th>Absolute Concepts</th>
<th>Variable Concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td>(in order of most revealing)</td>
<td>(in order of most revealing)</td>
</tr>
<tr>
<td>Order</td>
<td>Concept</td>
</tr>
<tr>
<td>1</td>
<td>Pitch</td>
</tr>
<tr>
<td>2</td>
<td>Intonation</td>
</tr>
<tr>
<td>3</td>
<td>Rhythm</td>
</tr>
<tr>
<td>4</td>
<td>Tuning</td>
</tr>
</tbody>
</table>

The few teachers who had asked their students to record themselves at home placed pitch as their number one choice and intonation second in terms of improvements made.

The most revealing part of this data is how articulation was rated. In Table 18: Classroom and/or Concert Recordings Reveal These Aspects of Your Ensemble’s Playing, teachers placed articulation in last place, but in Table 22 they placed it at the top of the list of
improvements made. These responses revealed to me that I need to be more focused on articulation in my professional practice.

Next I was interested in finding out whether teachers thought it would be valuable to incorporate the use of recordings into the music curriculum (see Table 23).

Table 23

Do You Think it Would be Valuable to Incorporate Recording of Your Ensemble into Your Regular Teaching Curriculum?

The response was overwhelmingly in favour. One hundred percent of the teachers agreed with this statement.

I wondered if teachers thought that recordings would provide students with a greater understanding of large-ensemble concepts (see Table 24).
Table 24

Recording Your Ensemble Regularly Will Allow Your Students to Have a Greater Understanding of Large-Ensemble Concepts

All teachers agreed that recording their ensembles regularly will allow for students to have a greater understanding of large-ensemble concepts. It is interesting to note that when students were asked the very same question, only 43% strongly agreed, which shows optimism on the teachers’ behalf.

Listening Critically

I was interested in knowing whether or not teachers thought that recording their students would increase their ability to listen critically (see Table 25).
Table 25

*Recording Your Ensemble Regularly Will Help Increase Your Students’ Critical Listening Skills*

The evidence in Table 25, suggests a virtual agreement with the statement:

I was shocked to find out that 92% of teachers agreed that students who record and review their ensemble practice on a regular basis are more likely to improve their critical listening skills.

**Listening Focus**

With respect to listening focus, the evidence strongly suggests that although students have good intentions to listen with a deeper focus, they admittedly concentrate on themselves or individuals nearby (see Table 26).
I was shocked to find out that 92% of teachers thought their students could not focus on other instruments while they were playing. It would appear that Burnaby teachers need to be doing a lot more in their classrooms to advance their students’ listening skills. A methodical use of recordings could help fill that gap.

The Audio-Mirror

It would be lovely for students to hear exactly what we are hearing; however, the evidence from the Burnaby teachers suggests that they are falling short of that goal (see Table 27).
Many Students are Surprised to Hear What They “Actually” Sound Like When a Recording is Played Back

Fifty-eight percent of teachers strongly agree and 42% agree (totaling 100%) that students are surprised to hear what they “actually” sound like when a recording is played back.

If recordings are a useful tool in the classroom, I needed to know specifically what would improve in an ensemble’s playing as a direct result of using them (see Table 28).
Table 28

**After you and Your Students Critically Listened to a Recent Recording, You Noticed Significant Improvement in the Following Areas of Your Large Ensemble’s Playing**

![Graph showing improvement levels in various areas](image)

**Interpretation of Table 28 Data:**

**Table 28 Data:**

<table>
<thead>
<tr>
<th>Order</th>
<th>Concept</th>
<th>Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rhythm</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>Pitch</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>Intonation</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>Tuning</td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Order</th>
<th>Concept</th>
<th>Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Blend/Balance</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>Dynamics</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>Balance</td>
<td>11</td>
</tr>
<tr>
<td>4</td>
<td>Articulation</td>
<td>10</td>
</tr>
</tbody>
</table>

It is interesting to note that the data presented in Table 28 are fairly constant between all categories. Teachers placed *rhythm* first and *tuning* last. Similar to Table 18 *articulation* was also ranked last. More research would be needed to find out exactly why teachers are ranking articulation last as a *variable* concept.
Some students are naturally gifted musicians. I wondered whether teachers thought listening was a skill that people were born with, or whether it was an acquired skill (see Table 29).

Table 29

**Critical Listening is an Acquired Skill**

Burnaby teachers are confident about critical listening being an acquired skill—75% of them *strongly agree*. This evidence suggests that they believe that listening is a skill that develops or can develop over time as Schuman (1985) indicated in Copland’s *What To Listen For In Music*. If listening is an acquired skill, I wondered why the teachers thought 92% of their students could not focus their listening-attention to other members of the ensemble, as shown in Table 26. If students simply focus their time and energy on their own instruments or parts, will teachers ever truly achieve the success they are looking for? I now know more
conclusively as a result of this data that I need to focus my attention on the continual development of listening skills in my classroom.

The Benefits of Learning to Listen—A “Listenersal”

Learning to be a better listener is just as important as listening itself. I was interested in finding out whether the teachers believed that using recordings in the classroom was a beneficial teaching tool (see Table 30).

Table 30

Do You Think Recording Your Ensemble in Your Class and/or Concert is a Beneficial Teaching Tool?

The instrumental music teachers in Burnaby believe in the benefits of using recordings in the music classroom to help teach critical listening to their students. Below is some direct feedback from the teacher’s online survey in response to Do you think recording your ensemble in your class and/or concert is a beneficial teaching tool (see Table 30):
• Jeremy: Gives instant feedback which they can analyze themselves and make the necessary changes.

• Chad: It gives the students a different listening perspective.

• Alice: It allows the conductor and the performers to step back from the mechanics and physical restrictions that use our focus, allowing a more critical ear and perceptive evaluation.

• Lorraine: Students hear different facets of their playing, they have more tangible evidence of abstract concepts like balance, blend, dynamics, tone.

• Amanda: To teach the students about critical listening and give them opportunities to practice it. To allow them to evaluate their own performance so that they can improve.

• Darren: Encourages active listening and reflection.

• Joanna: It is another tool to help students assess their progress and to make them realize that they have a responsibility to listen to the whole, not just their own part.

• Adrian: It allows me to evaluate the class at a later time (I can listen to it later to plan for future classes and have a focus rather than on spur of the moment decisions). I can find ways to strengthen some of the weaknesses that are clearly heard on the recordings but not always in classes. It also allows students time to reflect and respond to their performance and take action on the next playing/rehearsal.
• Scott: It is because it allows students to objectively listen while they are not playing, enabling them to focus on how they fit into the overall performance.

• Geoff: It allows the students to focus on the collective effort and not on the emotional component of a performance.

The Burnaby teachers surveyed provided some excellent evidence into the usage and effectiveness of recordings in the secondary school instrumental music class. Not only do these teachers think that students will learn to be better listeners as a result of using recordings, but also they feel that this method will allow them the opportunity to take a step back and be reflective about what they are listening to as well.

A Final Comparison

To conclude, I would like to make some comparisons between the data collected from the 12 teachers and data collected from my 25 senior band students. It would appear that the teachers’ perceptions of sound are quite different to my students’ perception of sound. I would like to suggest a couple of reasons for this differentiation. First, as conductors, teachers are not playing instruments, while students are performing and playing their instruments. Second, teachers have the score in their heads, something that students most likely do not have. This phrase refers to a conductor’s ability to have an aural image of the music from simply looking at the full score. Students do not have this luxury unless we provide them with a full score and teach them how to hear all the parts simultaneously. This is a highly complicated skill, one that is far above the capabilities of most high school students and teachers. Third, as skilled musician-teachers with one or more university
degrees we possibly have better listening skills than our students, and we are able to discern small nuances that may go unnoticed by the novice-ear.

The results of both the student and teacher data have reminded me how important it is that I teach the development of listening skills every day. The data have confirmed many beliefs I have had about listening critically to music—listening is an acquired skill that needs to be thoughtfully nurtured and cared for. Our music students believe that what we are trying to do is important to their education as well, and when they buy-in to concepts and ideals authentic learning can take place. Based on the evidence, it is clear that both teachers and students agree that using recordings in the classroom will fundamentally improve listening skills. However, it is also clear that we are not doing a good enough job to promote and facilitate the use of this medium to help acquire and develop such knowledge from our students.

The final chapter in my action-research journey will sum-up my project, briefly point out some important evidence, as well as discuss implications for music education.
Chapter Six

Conclusions and Implications for Music Education

In this concluding chapter, I will first revisit some of the questions posed to both students and teachers. Questions were selected due to their relevance to the project. Next, I will reflect on how this action research project has influenced my own practice. Finally, I will offer some implications for music education.

Revisiting the Questions: The Researcher’s Perspective

1. *Who are you listening to?*

   My students are trying to listen to the larger ensemble, but they have difficulty pulling themselves away from their own parts, especially if it is technically challenging. Although the teachers surveyed are conscious that their students are aware of problems in the large ensemble, their students find it difficult to listen “across the band”. Both the students and the teachers advocate the use of recordings in the classroom as a means to improving this type of listening skill. Finally, as a result of using recordings in the classroom, students state that they are better able to determine problems as they happen, and make instinctual decisions that will positively impact the musicality of the ensemble.

2. *Why are you listening this way?*

   My students believe their listening skills are based on habits. They are used to passive listening, as opposed to active listening. When thrust into active/critical listening, some of them have difficulty with the transition, especially when there is a recording in place to monitor their every move. Students commented on not being able to fix mistakes that
they did not know existed in the first place. Students thought that their listening habits were acceptable and therefore, did not attempt to correct mistakes in the moment. Both my students and the teachers surveyed were unaware of these errors until a recording was played back. How can my students correct problems in the moment, if they are unaware of them in the first place? It may be the way my class is structured.

My classes are structured to be performance-based. I have tried to incorporate a comprehensive approach to music education, including areas other than performance, but this becomes impalpable when I am being driven to perform for the next concert or festival. My students are used to performing—not listening. Therefore, the inherent responsibility of my job is to try to bridge the gap between performance and musical aptitude. This can only be achieved by incorporating critical listening skill activities into daily music classes. Keeping listening at the forefront will ensure that these skills do not deteriorate, even with a performance-based focus.

3. Is the act of listening an acquired skill?

According to my students and the teachers surveyed, the answer to this question is undeniably yes. The literature review suggests that although there are varying degrees of skill when it comes to listening, listening is part of the human psyche and human cognition.

Therefore, although we are born with certain innate traits, like the ability to listen, listening critically is a skill that can and should be developed. Accordingly, teachers should be teaching critical listening skills as much as possible to allow students the opportunity to
learn and grow as a standard learning outcome of their class. If this component of human
cognition is natural, then one could argue that it is also critical that we develop, nurture, and
discover it. Using recordings in the music class is an exceptional way to help achieve these
learning outcomes.

Based on the data, the Burnaby teachers are confident that *listening* is an acquired
skill. My students, however, did not vote with the same confidence, as twenty-four percent
of them were undecided. As a researcher, I believe this was partially due to the fact that the
students were quite surprised to hear what they sounded like on the recordings, and in many
cases were disappointed with the initial results. Because of this disillusionment, I believe my
students may have been second-guessing their own listening skills and/or abilities, as they did
not appear to have the ability to correct problems *in the moment*.

4. *Were you surprised to hear what you actually sounded like on a recording?*

As a researcher, I had a hunch as to how the students would react to this question.
Interestingly, Burnaby teachers were not surprised to hear what the students sounded like;
however, they indicated that they were unaware of problems on the recording—a slight
contradiction. My students, however, answered *yes* to the question, as well as *yes* to being
unaware of problems on the recording. Time and time again, my students commented on
their inability to listen *across the band* while they were performing. However, my students
noticed slight improvements in their playing after listening to subsequent self-evaluative
recordings. They also became more aware of what to listen for in the ensemble in
preparation for the next recording. It appears that the use of recordings in my classroom substantially increased my students' ability to listen critically in a large ensemble.

Allowing my students more than one opportunity to listen to a recording and improve performance-standard was important. My students wanted the opportunity to improve—they thrived on it. As my student Rebecca pointed out in her online survey: "Regular recording improves our listening skills, which in turn improves our playing. Learning to know what to listen to and how to listen improves the musical aspect of our playing, which cannot be established with just practicing." As a researcher in this project, I could not point out obvious concepts for performance improvement—I had to entrust the students' own listening skills to make that judgement. It appears that after numerous recordings my students tried to improve both their performance-standards and critical listening skills, and they became less surprised to hear how they sounded after they were recorded numerous times.

5. **What aspects of your playing does a recording emphasize?**

For my students, tuning and pitch were in the top category of absolute concepts, and balance and dynamics were in the top two of the variable concepts. On more than one occasion, my students mentioned the fact that when they play they are focusing their attention on more variable concepts, and while listening (and not performing), they tended to focus on the absolute concepts. The absolute concepts became much more apparent in the recordings as they were not initially at their centre of attention.
The teachers felt that while both *variable* and *absolute* issues were emphasized in a recording, the recordings helped bring the *absolute* concepts to the forefront. One teacher, in particular, mentioned that it was easier to listen when they were removed from the podium, allowing them to listen without distraction. Another teacher noted that it was easier to listen without having to *lead* the band, which helped explain to me why the *absolute* concepts were more revealing in a recording.

6. *How do you think your students’ playing improves after listening to a recording of their ensemble?*

One of my students synthesizes both the teacher and student reflections in one statement:

*My playing improves after listening to a recording because I hear exactly what I sound like in the band. I usually get the right notes and rhythms, but a recording tells me if I sound musical enough—I usually find out I could improve.*

However, my students are not yet convinced that a recording will help their individual performance skills per se, but they are convinced that those skills will be put to better use after hearing themselves in a different context. In that light, my students are then better able to identify their own musical perceptions.

The teachers seem convinced that using recordings in the classroom will improve listening skills. However, there is not enough teacher data in my study to support that improved listening skills will translate into improved performance skills. One teacher stated
that when students are playing, they can't hear the ensemble as a whole. A recording lets them take a step back and hear how they fit into the group and how the whole ensemble sounds. Students' listening skills and playing skills will improve if they're given a chance to listen to a recording of their ensemble, critique it and try to improve/correct the problems they heard.

7. *Should recordings be used in the classroom on a regular basis as an integrated part of the instrumental music curriculum?*

My students wanted to know what they sounded like from the teachers' or the audience's perspective. The development of their perception was very important to them.

The following student comments sum up the results of my research project.

Susan explained what she has learned from being involved in the research this year:

I learned how different we may sound to others when we are playing, be it by ourselves, or in a large ensemble setting. How we perceive our sound is not how others (such as our audience) actually hear our sound. This surprised me, but there are many factors that contribute to our perception of our sound, such as the sound of our own instrument. I think recording is a good tool to help improve our playing because it shows us how we may really sound and allows us to replay the recording. After each recording, we did improve as an ensemble.
Michael commented on why a recording's feedback is more beneficial than a teacher's explanation:

I have learned how useful listening to oneself can be when trying to learn the intricacies of a piece. Getting feedback from a person might not be very useful, as it is not always easy to understand what doesn't sound right. By listening to a recording of what someone plays, they could easily identify what exactly is going on and what needs to be fixed.

As a final point, I wanted to reiterate a comment that Leanne made regarding her involvement in this research:

I have learned the importance of listening in music. When I listened to the recordings, I was able to hear things I never heard when I was playing, and because of this, the recording helped me fix these things I noticed and improve. I want to be a better listener — to be able to identify these things while I am playing and not just when it is played back to me. From this project, I've learned that to be a better musician I need to be a better listener. I've also learned how useful a tool recording is in improving playing.

Of the teachers surveyed, 100% of them feel that the use of recordings in the classroom should be an integrated part of the instrumental music curriculum. To sum up how teachers felt about this issue, I wanted to reiterate a comment made by Adrian:
It allows me to evaluate the class at a later time (I can listen to it later to plan for future classes and have a focus rather than on spur of the moment decisions). I can find ways to strengthen some of the weaknesses that are clearly heard on the recordings but not always in classes. It also allows students time to reflect and respond to their performance and take action on the next playing/rehearsal.

From Research to Action

The goal of my research project was to improve my own teaching practice. In the beginning phases, I felt a bit blindfolded as I meandered through the process of coming up with an idea, developing a research method, seeking ethics approval from the university, and eventually conducting my first-ever research project with my own students. The practice of recording student performances for self-evaluation purposes was not entirely new to me, but I had more unanswered than answered questions which drove me to design this research project. Once things began to take shape, there was always a quiet voice in my head that reminded me of the importance of the study. That voice was the impetus to get my project off the ground, and to keep me on-track when I deviated from it—as I did, many times. For a project (of any sort) to be meaningful to me, it had to be practical. There are three modes of basic learning—visual, auditory, and kinesthetic. For me, I had to be able to virtually feel the results—the tactile individual in me was not at rest until this happened. As a music teacher, I had to walk away feeling as though I was improving something. I did not want my completed research project to lie on a shelf knowing that it improved my writing skills, while
leaving my teaching skills untouched. Some of the best teaching I have ever done was when I utterly failed. Why? Because I knew never to try that again. This project, in a sense, was a risk. I was risking valuable teaching time in the classroom, I was risking the respect of my students, and I was risking the respect of the teaching staff in Burnaby.

Although this project will sit on a shelf somewhere, the evidence collected from it is directly improving my own teaching practice. I am now more aware of the subtleties of listening and I focus a lot of my attention on sounds that are not as obvious to hear in the large ensemble. I now have many successful class discussions regarding listening in ways that I previously found very difficult to teach. My questions are worded differently now to my students. Before this study I would have asked, What are you hearing? Although this is a valid question, I found it was too open-ended. After my study I now ask a more specific question, Why are you hearing what you are hearing? Because my line of questioning has slightly changed, I have found that my students’ responses are more thought-provoking, which have allowed for some very fruitful classroom discussions.

Another huge turn-of-events for me was the more efficient use of valuable classroom time I had with my students. With assemblies, Professional Development Days, holidays, and early dismissals all encroaching on teaching time, the method of recording my students regularly to improve performance and critical listening skills has become a jewel-in-the-rough for my professional teaching career.

A musical concept that used to take minutes to explain, now takes seconds. After the completion of my study, I had a sense my students’ ears were getting metaphorically bigger.
My students were listening to the bigger-picture, as I no longer needed to stop as often to have lengthy discourse to remind them of previously learned concepts. It was as if both teacher and student were thinking alike. I have to admit—it was a wonderful thing when my students began taking control of their listening skills for the betterment of their ensemble.

Conducting this research project has been personally and professionally invigorating. My own professional growth has been renewed as I look towards the future of music education in British Columbia.

Implications for Music Education

As a teacher and researcher, I am committed to further investigating the positive implications that recordings have in a variety of music classes, including concert band, jazz band, concert choir, and music composition/technology. Future research may involve the development of a method or curriculum which focuses on Critical Listening Learning Outcomes achieved through the use of recordings in the classroom. The British Columbia Music IRP (Integrated Resource Package) states that: “Listening to live or recorded music should be an active experience for audience members. Teachers should encourage students to become immersed in the music aurally, emotionally, and physically” (British Columbia Ministry of Education (1995) Music 8 to 10 Integrated Resource Package, p. 78). The British Columbia IRP (1995) also discusses critical listening as a learning outcome:

In this unit, the teacher instructed the students on the concept of critical listening, with a goal of improving the balance and blend in their concert
band. Students were asked to determine the requirements for a balanced sound and to examine the conditions under which a successful performance could be achieved. Evaluation was based on the teacher assessing student rehearsal logs and score editing skills. (p. 214)

It is encouraging that the BC IRP suggests critical listening as a learning outcome through improved blend and balance in an ensemble. However, it fails to mention the use of classroom recordings as a means to meet that outcome. The BC IRP (1995) suggests the following strategies for teachers:

Students kept a rehearsal log that documented their progress in learning and interpreting their selection. Each group met with the teacher in a setting similar to an instrumental sectional to discuss and plan for an effective performance of the musical piece. A recording was made of the sectional rehearsals, and the students made notations in the scores identifying areas that required attention, specifically in relation to balance and blend. (p. 214)

Although a recording is mentioned, it is only a sectional recording, and no mention is made of the steps that should be taken after the recording has taken place. Therefore, I believe the current teaching curriculum needs to be updated to involve the use of recordings to develop students’ ability to listen critically, with a method that allows teachers to fully and properly teach critical listening.

Many music classes in British Columbia are performance-based, and many teachers are content with this situation. I am not suggesting that we reinvent current educational
philosophy, but we can enhance it to allow students the opportunity to fully develop their
listening skills (instrument, jazz, choral, and music composition/technology) and cognitive
capacity. The evidence from my study suggests that my students want to be challenged in
the area of both instrumental and critical listening ability. Moreover, they want to be guided
in their learning of critical listening.

Will the use of recordings improve performance skills? The answer to this question
needs more research. However, if the goal of listening and evaluating one’s own ensemble
performance prior to a competition is strictly to increase a performance score at local or
international festivals, recording one’s students in the classroom will probably not assist with
that objective. Then one may ask: Why bother recording at all, if it won’t help my group’s
performance skill? The journey to the answer is not simple; however, it is an achievable
expedition. If time and energy are devoted to developing students’ critical listening skills,
they will begin to develop their own ears, and I believe that that should be the number one
goal.

Recordings by themselves cannot make decisions, and to that end, it is the students
that will need to make appropriate changes in their performances. Eventually they will learn
to improve their own listening skills, relying less on a recorded model, while relying more on
their own ears. Fundamentally, it is this development that will guide our students’ personal
autonomy to formulate decisions that will positively impact the level of an ensemble’s
musicianship, performance, and perception in the secondary school instrumental music class.
Generally-speaking, I have found this project to be of fundamental importance to the secondary music class. The act of recording is a simple one, but the concepts learned from using recordings properly in the classroom are incomparable. The proper use of recordings in my class has created discussions that I never thought were possible. I realize every day that I have so much to learn about listening and learning. There is no better way to begin to fully understand music and its inner-workings than to discuss listening in an open and honest way with your students. I know I still have a plenty to learn, but it is the journey that excites me the most.

**Final Thoughts**

I would like to personally take this opportunity to thank the students and teachers of the Burnaby School District, who participated in this research study. Their input was invaluable and more importantly, they solidified the validity of this study by their honest and professional remarks.
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