Toward Musical Independence:
Metacognitive Strategies Employed by Young Choristers Engaged in Notational Reading Tasks

by

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B. Mus., Mount Allison University, 2001
B. Ed., Acadia University, 2003

A Thesis Submitted in Partial Fulfillment of the Requirements of the Degree of

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in the area of Music Education
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Supervisory Committee

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Abstract

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The purpose of the study was to explore metacognitive strategy usage in young choristers engaged in notational literacy tasks. Constructivist approaches encouraging metacognition are used in many subject areas, but have not been studied within a music context. Music-specific strategies (Killian & Henry, 2005) and metacognitive self-regulatory strategies (Zimmerman & Pons, 1986) were sought to learn how students become musically independent.

Ten extra-curricular honour choir participants were studied using a collective case design. Participants completed a background questionnaire, a notational reading session, a performance of the piece studied in the reading session, and an interview describing their learning, which was recorded, analysed and transcribed. Processes of analysis included case aggregation, direct interpretation, and triangulation. Results indicate 1) learning is an individual process, 2) all students used strategies deliberately, though none evaluated the effectiveness of their choices, 3) students using the most strategies achieved the highest accuracy, and 4) students seemed to enjoy and benefit from discussing metacognitive processes.

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This research would not have been possible without the flexibility of my administrators and teaching colleagues in the Musquodoboit Valley. Humble thanks are offered to the Nova Scotia Music Educators Association for awarding me a professional development grant to assist this research. Without my mentors, Maureen MacMullin and Allison Roe-Smith, the journey would have been rough indeed: your confidence and good humour made all the difference. Profound gratitude is offered to the gifted conductors who so generously allowed me to work with their choristers and assisted me in making arrangements for this work to occur. To the young musicians who took part in this research, I thank you for honestly sharing your time, thoughts, and your love of music.

Dedication

This thesis is dedicated to my family,

without whom this journey would not have been possible:

to my mother Diane, for fostering my love of music from the earliest days;

to my father Tonnie, for his enduring support;

and to my brother Jonathan, for the gift of making music together.

Your belief enabled me to make this dream a reality.

CHAPTER ONE

Introduction: In Pursuit of Musical Independence

Opening Vignette

Early one day, I left school in a hurry to travel downtown to the city music centre to begin my research. The hour-long drive from the outlying area was gorgeous. The air was warm, and the sun was gaining in strength. I was left alone with my thoughts as the highway rolled by. What will I learn about the honour choir choristers today? How can I help my students to want to be part of such a community? Are these singers musically independent? If so, how did they get to be that way?

Fortunately, the office (the size of a closet) that I was to use for my research was already mostly set-up from the previous day. The keyboard and stand were ready to go. All I needed to do was to get the video camera and tape recorders in place. I had met the office staff previously and felt welcome, even though many of them thought I was a student teacher. At last I arrived at the music centre. The final preparations were made in the office adjoining the main staff room, and I went to speak with the accompanist and conductor. All the preparations were in place: I was ready for data collection to begin.

As I entered the room to speak with the musical staff, Dustin, a handsome boy aged 13 with distinctive style, peppered me with questions. He remembered me from the research information session and had returned his permission slip to the conductor after the following rehearsal. Eager not to miss his favourite songs, we started his session early, just before the group began their warm-up. He introduced himself and

willingly put himself to work. The voice that soared through the closed door was pure, round and warm, inviting listeners to stop and enjoy even his first experiences with the music. Dustin's voice had not yet changed and his treble range had that boys' choir bell tone to which so many choirs aspire.

Once Dustin had completed the task of learning a new musical piece, he left the research room, still as chatty as when he entered, eager to return to rehearsal. Dustin exuded confidence from his sporty sneakers to his blazer, through his shining eyes and right up to the top of his shaggy surfer-dude hair style. Upon reviewing his performance and learning of his musical background, it was not difficult to understand why Dustin was so self-possessed. Dustin is a motivated chorister with a strong musical background. He deliberately used a variety of learning strategies as he learned a new song, demonstrating sufficient musical literacy skills to be musically independent.

It would appear to me that all conductors wish their students were like Dustin: motivated, confident, skilled, with sufficient literacy development to become musically independent. It is my hope that by studying students like Dustin, we may learn to be able to better teach our choristers the path to musical independence, so that they too will value music and lifelong music participation in their lives.

Preamble

Metacognition is a relatively new area of study in music education (McPherson & Zimmerman, 2002). Definitions from the field of educational and cognitive psychology consider metacognition to be "knowledge of our own thinking processes" (Woolfolk, Winne, & Perry, 2006, p. 540). Common aspects of the many

definitions of metacognition include what one knows (metacognitive knowledge), what one is doing (metacognitive skill), and/or one's cognitive or affective status (metacognitive experience) (Flavell 1979). For the purposes of this thesis, all consciously used thoughts will be considered inherently metacognitive (Davidson, Deuser & Sternberg, 1994) as those thoughts were learned and are used in a manner that is deliberate. These goal-directed thoughts are called strategies when used in an educational setting.

Contemporary research in constructivist theory shows that metacognition as an educational strategy is quite common. The use of specific metacognitive strategies in many subject areas is an indication of metacognition's growing success and popularity. The underlying belief in teaching strategy usage (which is inherently metacognitive) is to enable students to examine their thought processes, and thereby take ownership of their learning. This is of great significance if read in a musical context; metacognitive strategy skills could facilitate the development of musical independence.

Rationale

In the schools in which I teach, strategy usage is a key to the success of many students. Process and thinking skills that support the learner's independence and growth are consciously taught in many contexts. *Reading Recovery*, an intensive remedial reading program for grade 1 students, teaches sequential strategy use skills in a language arts context. It is common for students in my schools to identify the strategies a teacher is using when reading a story out loud to the class so they too can use those strategies in their own reading. In math, science, and social studies, process

skills are being taught. Across disciplines, common strategies include questioning, predicting, inferring, and making connections to real life settings. As strategies are being used successfully in other subject contexts, I am curious to discover which strategies are already in use in a musical context.

It is my belief that sufficient skill in strategy usage will enable the musician to become more musically independent. For most students, that involves direct instruction in self-knowledge (knowing what the student knows already), in knowledge of the task to be performed, and in knowledge of an array of effective strategies to be used to accomplish that task. A prime goal for music educators is their students' musical independence. This goal of musical independence, however, does not appear to be supported by a strong body of research. An examination of what Wiggins (2001) calls cognitive apprenticeship or apprenticeship in thinking suggests skills that comprise musical independence. They include the ability to engage in real life problem solving situations, to be autonomous or independent, the ability to initiate, test, evaluate, revise and share original ideas, and the ability to take responsibility for and assess one's own learning (p. 18-19).

My personal experiences as a student reveal how strategy use assists a musician's development, especially when taught with a problem-solving perspective related to notational literacy. The early piano curriculum I was taught followed the Frances Clark methodology.[1] Under the guidance of a skilled teacher following this

[1] The Frances Clark methodology aims to first teach the child, then teach music and then teach piano. Frances Clark believed there is no such thing as an unmusical child. According to her method, all students begin on the black keys, and use large motor skills to discover the physical geography of the entire keyboard, not just middle C position. Her piano approach was based on the introduction of a

pedagogy, process and content skills were consciously taught in a sequential manner. These sequential skills included basic understandings of high/low, fast/slow, and interval recognition through gradual introduction to the lines of the staff, called the landmark approach. Solid understanding of these basic concepts as they relate to notational literacy, combined with an array of practice strategies, enabled me to become increasingly independent. These foundational concept skills were later extended to practice strategies. I was taught to isolate musical problems instead of repeating the entire piece of music and identify the nature of the problems as being melodic or rhythmic so I could focus on the area that required attention with an appropriate strategy. Further, I was taught to make informed choices to solve the musical problem by considering the various strategies available (i.e., slow practice, hands separately, hands together). This approach taught me to be deliberate in my problem solving, to be reflective, and to evaluate my progress. These are all aspects of metacognition as they relate to notational literacy and musical independence.

As a participant in high school band and later in university ensembles, it became clear to me that many students were not skilled in musical problem solving, especially in relationship with notational literacy. Many students did not seem to have an approach to learning a piece of music. It would appear that random repetitive trial and error methods were not effective and led to much frustration. For some, this frustration with literacy practices may have contributed to the decision to leave the music program altogether.

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gradual staff, and the landmark approach to reading notation. The Frances Clark method books are published under the title of *The Music Tree*.

As a music educator, I have attempted to teach strategy skills to assist my students to become musically independent. Even so, many of my students are not cognitively aware of what it is to read music. Some find reading music to be ephemeral and mysterious. After two or three years of instruction in notational literacy, some students still ask "When are you going to teach us to read music?" This is after they indeed are capable of reading rhythm, simple melodies, and determining form. Despite attempts to teach strategy and to brainstorm solutions to musical problems, my young recorder students still respond to questions about music they were asked to practice with the statement, "I didn't know what to do." Although students are learning strategies in other subject areas, they do not appear to transfer those larger process skills to music. This leads me to believe that music educators must discover which strategies successful musicians use in a musical context and then consciously and directly teach them to students. I am hoping to discover successful strategies used by young musicians so that they can be then taught to my students to assist the development of their musical independence, and hopefully, as a result, their further desire to pursue life long "musicing" (Elliott, 2001).

Much research has been done in the area of music literacy (Hodges, 1992; Karpinski, 2000; Killian & Henry, 2005). Many definitions of this commonly prized skill are held (Choksy, 1981; Wiggins, 2001). Careful examination of definitions of music literacy, proposed by Choksy (1981), Swanwick (1999), and Wiggins (2001), have led to the definition to be used for the purposes of this thesis:

> Musical literacy is the ability to understand a wide variety of music as it occurs within a broad range of contexts. It refers to one's ability to make meaning out of musical experiences and to use music as a means of

> personal expression. It means understanding the organization of music across time and place, the conventions and cultural characteristics of music, and its role in the lives of people. It means knowing enough about music to function with a certain amount of musical independence- and knowing enough about music to value it in one's life. (Wiggins, p.3)

Although sight-reading is a common method of studying music literacy (Demorest, 2001; Galyen, 2005; Gromko, 2004; Stebleton, 1987), few researchers have examined the connection between self-regulation, a significant aspect of metacognition, and musical independence (Chaffin, Imreh, Lemieux, & Chen, 2003; Hallam, 2001; McPherson & McCormick, 2006; McPherson & Zimmerman, 2002). Self-regulation is a view of learning as skills, to be applied when analyzing learning tasks, setting goals and planning how to do the task, applying skills, and especially, making adjustments about how learning is carried out (Woolfolk, Winne & Perry, 2006).

As previously mentioned, musical independence, though a prime goal, does not appear to be supported by a strong body of research. Wiggins' (2001) cognitive apprenticeship suggests skills that comprise musical independence. In a notational literacy context, it would appear that there are three overarching skill sets: 1) the ability to detect and resolve real-life musical errors, 2) the ability to assemble, lead or participate in a group to make music, and 3) the ability to compose or arrange a musical idea, or to read or perform the idea of another person. In short, these skills involve the imaging of the aural sound with the visual symbol, decoding musical notation, writing musical notation, and realizing the notation in practical settings. This involves many aspects of aurality, literacy, and practical skills in which both are achieved.

Also related to musical independence is the use of cognitive control skills. According to Zimmerman (2002b), cognitive control skills include, but are not limited to, self control skills,[2] self-instruction skills,[3] self-regulation skills,[4] and lifestyle organization skills.[5] Although metacognition, self-regulation, and goal-orientation fields are developing rapidly (Zimmerman, 2002b; 1986), there has been minimal study of this in a music context (McPherson & Zimmerman, 2002). Studies that exist appear to be behavioural observations from a highly quantitative perspective (Killian & Henry, 2005; Hallam, 2001; Smith, 2005). These studies do not appear to focus on young musicians and their experience (Williamon, 2004). They do not appear to be concerned with students' metacognitive use of strategy.

Through study of the strategies musicians use when engaged in notational reading tasks, I hope to gain a better understanding of how students problem solve, self-regulate and become musically independent. The information gathered from this study is an assessment of which strategies students use. The data may suggest which strategies are most successful in notational literacy tasks. This could provide the foundation for the development of a sequential strategy model akin to those being taught in other subject areas. With such data available, educators and researchers will be more knowledgeable about the nature of music strategy use and how such

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[2] Self-control skills involve self-monitoring, self-evaluating, and self-reporting.
[3] Self-instruction skills involve the creation of alternative, specific and/or coping approaches to learning.
[4] Self-regulation skills involve self-monitoring, self-evaluation, self-reinforcement, self-efficacy and the mediation of external influences, and motivation for purposeful action.
[5] Lifestyle organization skills involve goal setting, applying strategies to achieve these goals, and learned resourcefulness strategies. These strategies require a personality of stable beliefs, the above mentioned self-control skills and behaviours.

information might inform practice and inspire musical independence and life-long musicianship.

Purpose

The purpose of this study, therefore, was to explore metacognitive strategy usage in young choristers engaged in notational literacy tasks. Through the use of a collective case study design, processes students use when learning a predetermined piece of music for the first time were examined. Whether those strategies were consciously or unconsciously applied, and the relationship between accuracy in notational reading and strategy use were also explored.

Delimitations and Limitations of the Study

As metacognitive strategy use is a broad overarching area of inquiry, I employed the following five delimitations to provide boundaries that will assist the focus of this study. First, the examination of music strategies occurred in a choral context. Second, five students each from two choirs (10 students) were studied. Third, in order to observe a diversity of strategy use, the two choirs studied included a girls' choir, and a boys' choir. Fourth, due to time restraints, observation of student metacognitive strategies was limited to 15 minutes, and discussion of these strategies limited to 30 minutes per student. Last, participants consisted of students in extra-curricular honour choirs requiring local music specialist teacher approval, successful audition, and parental support.

I acknowledge two significant limitations of this research: first, that students participating within this study were from a broad geographic range, and second, that students participating within this study brought with them a variety of musical

backgrounds (instrumental preparation, classroom music instruction, and choral instruction) and thus did not have a consistent or uniform previous experience.

Assumptions

For the purposes of this study I assumed that students who choose to take part in extra-curricular honour choirs wish to take part, that they are successful in school music, and that their family supports them in these endeavours. I also assumed, that as they wished to take part in such a group, they perceive themselves as being musically successful. I wanted to examine whether perceived success has a relationship with strategy usage.

Looking Ahead

This chapter serves as an introduction to my thesis, outlining the reasons for this research in the pursuit of musical independence. The purpose, delimitations, limitations and assumptions were discussed with this view in mind. The next chapter will explore the literature I consulted in order to plan for this journey into musical independence through metacognition. Chapter 3 discusses the merits of my chosen methodology and procedures and analyses undertaken. Chapter 4 is an exploration of the musical background, perceptions of musical instruction, listening and independent music-making preferences of the participants. Chapter 5 discusses students' metacognitive strategy usage and whether that use is conscious or unconscious. Chorister performance is discussed in chapter 6. Finally, in chapter 7, I present my conclusions and discuss implications for music education and areas for future research.

CHAPTER TWO

Literature Review: In Search of A Road-Map

A Bird's Eye View

The purpose of this literature review is to inform the reader of key areas of research that have significant impact on the understanding of musical independence as it relates to metacognitive strategy usage for notational reading tasks. Awareness of the nature of music literacy and of the multiple definitions of music literacy is a vital foundation. In this review of the literature, musical independence is perceived to be the most significant benefit of musical literacy.

To be musically independent, music literacy skills are required. These skills include performing skills, notational literacy skills, and sufficiently well-developed aural skills to mediate the self-regulation process. Many studies of literacy skills take place within the context of sight-reading, so that musical problem solving can be observed within a relatively brief span of time. Several of these studies are examined for literacy skill acquisition content and also to note research design for the development of my study.

Musical independence is also related to use of cognitive control skills. Multiple definitions of cognition and critical thinking are a challenge to research. Philosphers Rousseau and Dewey, and cognitive theorists Piaget, Bruner, and Vygotsky elucidate discoveries in educational psychology that affect learning in the dominant context of our day: constructivism. Constructivism, an epistemological

theory of teaching and learning, was greatly influenced by these thinkers. In keeping with the constructivist view that learning is an active process, contemporary public school students are consciously manipulating strategies to apply to problem solving within the subject areas of language arts, mathematics, science, and social studies. Strategy usage is becoming more common and more deliberately taught to our students. In an effort to put constructivism into the music education context, Wiggins' and Swanwick's interpretations of constructivism have been examined. Wiggins' view on the zone of proximal development, scaffolding, and cognitive apprenticeship is of particular interest as the rationale for the promotion of these theories is the development of independence.

Many would speculate that musical independence is inextricably linked with motivation. As the participants in this thesis demonstrate high motivation, it seemed advantageous to explore this aspect of achievement. Intrinsic and extrinsic motivation will be explored as a facet of motivation, as will attribution and self-efficacy theories. Theorists reveal that students with strong self-efficacy may be more likely to possess a certain disposition that enables them to self-regulate and use these strategies. The literature will be reviewed in order to understand the reasons why students choose to join and participate in choral music. To that end, Hylton's six dimensions of meaning will be discussed as they apply to students' participation in choral music.

Music Literacy: Definitions, Emphasis, and Ultimate Goals

Most specialist music teachers would agree that music literacy is one of the primary goals of music education. One would incorrectly assume that such a widespread goal would have a commonly understood definition. One definition of

music literacy can be taken directly from the Kodaly philosophy: “true musical literacy — [is] the ability to read, write, and think music” (Choksy, 1981, p. 6). By examining the skills to be taught within Kodaly philosophy, however, we can determine that music literacy involves a much broader range of skills. Foundational skills include “skill in singing, moving, musical memory, inner hearing, reading, writing and improvising” (p. 170). Considering this view, it is possible for the definition to be expanded to include the ability to sing, play, improvise, read, write, and compose using notation, and to think, feel, move, and dance to music.

Likening the process to that of language acquisition, Swanwick’s (1999) model of musical fluency is based on the informal learning methods of orality: “Fluency is the aural ability to image music along with the skill of handling an instrument” (p. 55). Swanwick cautions that one must experience music with other musicers “…long before any written text or analysis of what is essentially intuitively known” (p. 55). This view is shared by many including Dalcroze, Kodaly, Orff and Suzuki. Swanwick asserts the appropriate procedural sequence of music education is to “listen, articulate, then read and write. Music literacy is not the ultimate aim of music education. It is often unnecessary. Musical fluency takes precedence over musical literacy” (p. 55).

Music Literacy, Musical Understanding, and Musical Independence

Wiggins (2001) believes that the goal of musical education is musical understanding, a goal that is achieved by a dialectic understanding of music literacy and orality. Wiggins believes that musical understanding should “empower students so that they can become musically proficient and, eventually, musically independent

of their teachers" (p. 3). She proposes to achieve this aim through a redefinition of musical literacy, one that supports understanding, which involves fluency, orality, and independence. Key elements in Wiggins' definition of music literacy include "the ability to use music as a means of personal expression, … understanding its conventions, … and know[ing] enough about music to function with a certain amount of musical independence — knowing enough about music to value it in one's life" (p. 3).

Music Literacy Skills Required for Musical Independence

In order to be musically independent, certain music literacy skills are required. These skills can be grouped into three segments: 1) performing skills, 2) notational literacy skills, and 3) oral skills. These three areas must work together; they are not mutually exclusive. For the purposes of this review, singing and sight-singing will be the mode through which music literacy and musical independence will be examined.

Performing Skills

Before a student can effectively become conversant in notational reading, s/he requires basic vocal proficiencies. Too often, lack of fluency or particular skill hampers a student's abilities to read music efficiently. Karpinski (2000) explains that basic performance skills required for sight-singing include vocal production techniques, including knowledge of good posture, use of abdominal support, controlled and musical using of breathing, and a sufficiently developed vocal range. Karpinski insists that fundamental solmization skills are necessary for musical performance. Rogers (1996) supports this view indicating the ability to sing using solmization is sensitive to the context and tonal patterning of the music. Karpinski

relates this to inculcation of scale through solmization, demonstrating that discernment of scale degrees is related to musical function within a tonal framework. He also insists that it is necessary for the performer to establish the collection of tones and to identify the tonic, essentially creating context and understanding of tonality. He continues to describe the necessary skill break down indicating that a skilled performer must be able to establish pulse, set and change a tempo, feel and regulate meter, and engage in aural imagery prior to sound production. Karpinski suggests that reading from *protonotation*[6] (separate from the ability to read and understand music written in various metre signs and keys) is a necessary component of performance skills that should be taught prior to notational reading.

Notational Literacy Skills

In order to become notationally literate, certain understandings are required. Karpinski (2000) outlines fundamental global skills including concepts of print, directionality of reading, conventions of staff notion, clef, key signature, and a deep understanding of the tonic, metre, and tempo. As well, the ability to visually and aurally recognize and reproduce the starting pitch, range, and tessitura knowing the highest and lowest notes are of great importance. An unconscious grasp of repeat signs or the musical road-map is significant. He indicates that some students take the opportunity to "mumble" through the music to prepare for the sight-reading task at hand. Karpinski notes that the use of eye movement (visual tracking), scale degree

[6] Protonotation refers to the earliest symbolic forms of notation that indicate either the directionality of the melody or shape of the rhythm. Protonotation is often used to introduce the concept of high and low, beat and rhythm in elementary classroom music. Protonotation is also used to introduce the lines of the staff in different keyboard method books. Karpinski describes protonotation as the internalized protounderstanding of pitch notation.

singing, and solmization processes are evidence of notational reading skill development. By transforming rhythms into syllables, by taking part in visual and mental chunking, by reading ahead, and by metric and rhythmic thinking, he speculates that students are better able to monitor their own musical growth. He states that another aspect of notational literacy involves harmonic thinking, arpeggiating chord patterns, and structural knowledge. Fluidity in performing, reading and perceiving voice leading (reading for underlying pattern-not note to note), and the understanding that facilitates adherence to performance indications and musical expression (dynamics, articulation, and phrasing) are fundamental to notational reading success.

Aural Skills (to mediate the self-regulation process)

Without a doubt, a musician's aural skills are a key element in both performance and notational literacy. Radocy (2003) states that "sufficient hearing sensitivity is an essential part of musical ability" (p. 386) and is key to the mediation of self-regulation. This ability to perceive fine nuances has a strong role in the development of musical independence.

Sherbon's (1975) research supports Radocy's statement. Sherbon found that musicians outperformed non-musicians on discrimination tasks tested including hearing threshold, melody, harmony, visual music recognition, musical memory, and pitch.

Karpinski (2000) outlines fundamental listening skills that contribute to music literacy and so lead to musical independence. He includes error detection and correction, awareness of hypermeter, large scale function of form, key relationships,

compositional devices, use of pitch collections, and a general sense of aesthetics in his list of significant skills.

Hodges (1992), Karpinski (2000), and Ottman (1956) acknowledge error detection and correction skills to be an important, though infrequent area of study. As of yet, computer assisted programs for the development of aural skills ignore this element of musicianship. Karpinski indicates that error detection and correction is the least practiced activity in aural skills classes, yet is the most common skill to be used.

> Ideally, every time musicians sing or play from notation a constant process of self-correction takes place between their eyes and ears. The more adept musicians are at detecting and correcting such discrepancies between sound and notation, the more often such errors can be corrected and even avoided in their own performances. (p. 130)

Ottman (1956) found a strong correlation between error detection skills (which he called music literacy) and achievement in sight singing. In real-life applications we know that conductors need to know who made a mistake and where it occurred. Very often, however, the conductor hears a mistake but must return to the same passage to identify who made it or where it specifically occurred. Students likewise need to identify errors and where they took place, in order to correct them. Karpinski points out that study in error detection provides an opportunity for the development of language skills to address errors, and the necessary vocabulary to encourage correction.

Current research in inner hearing is attempting to make sense of internal frames of the mind, noting that distracted inner hearing leads to lower overall performance quality when sight-reading (Wollner, Halfpenny, Ho, & Kurosawa, 2003). Surprisingly, the number of mistakes and fluency do not seem to be

significantly affected. Inner hearing is important in sight-reading, though exact processes need to be examined in greater detail. Further research on mental representation of one's own voice in relation to acoustical information of the outside world could reveal important aspects of music reading strategies. Karpinski (2000) sums it up well saying, "There is a gap between the disciplines of music cognition and aural skills training" (p. 4).

Literature Pertaining to Sight-Reading

Demorest (2001) asserts there is universal agreement for the importance of teaching musical literacy as a means to musical independence. He discusses the perception among choral directors that there is insufficient time for the teaching of sight-singing within the choral rehearsal, and illustrates how numerous brief segments of practice indeed pay large dividends in terms of literacy achievement. His historical survey of sight-singing methods and overview of materials available are enlightening. He identifies factors for success in sight-singing, including instrumental, piano, and choral experience, group and individual sight-reading experiences, assessment of individual sight-singing, and time spent practicing sight-singing. He proposes methods to incorporate sight-singing in rehearsal and specific strategies for the teaching of pitch, rhythm, and sight-singing. This resource is an asset to a broader understanding of the historical and current trends in choral education.

Galyen (2005) concludes his review of sight-reading literature affirming the need for more research on the effect of chunking. He ponders the effect of vocalization and singing on instrumentalists' sight-reading performance, suggesting it be studied in greater detail. Stebleton (1987) found that IQ and word reading skills,

keyboard skills, and rhythm reading ability were significant predictors of sight-reading ability. She also found that proficient readers retain more notes in a visual memory trace and use more eye movements per event in the music than poor readers. She notes that good readers appear to have a greater ability to recognize patterns in music than poor readers, and retain information about the shapes of patterns. In addition, note errors tend to occur in the middle of phrase patterns and sight-readers tend to make inferences about the notes found within the patterns. Stebleton also shows that rhythmic structures may be grouped into patterns and subsequently be viewed as an element of musical grammar. Readers were found to relax at the phrase boundary due to structure and visual layout of the music. Stebleton's last finding indicates that field dependence/independence relates to sight-reading and to certain aspects of rhythmic achievement. Abilities including memory and recall may be related to sight-reading ability.

In another study, trilling speed, handedness, visual reaction time, and auditory reaction time were identified as elements that could explain the speed of information processing in sight-reading situations (Kopiez, Weihs, Ligges, & Lee, 2006). The use of method books and excerpt use to teach sight-reading was compared, finding that a musically innovative teacher could teach sight-reading with a variety of tools (Price, H. E., Blanton, F., & Turner Parrish, R., 1998). It appeared students enjoyed the use of musical excerpts which encouraged positive attitudes toward sight-reading tasks. Gromko (2004) studied predictors of music sight-reading ability in high school wind players. She found that skilled musicians were mentally representing the sound as an image with spatial temporal dimensions. Of great significance was the finding that

students who focus on individual notes may not achieve well in sight-reading. She also found that music intelligence may be composite, drawing on and enhancing development in other domains. Successful singers benefited from many strategies that unsuccessful singers did not (Killian & Henry, 2005). Successful singers responded well to 30 seconds of practice prior to sight-singing, from the use of *tonicization*,[7] hand sign use, maintaining the beat in the body, and the use of steady tempo, all the way to isolation of problem areas in practice, and singing aloud to test an area for comprehension. Unsuccessful singers did not appear to benefit from these strategies: they were neither able to detect nor predict errors. Tonicization had little benefit to their overall achievement.

The strategies that Killian and Henry (2005) identified as being helpful for successful singers were key musical strategies for which I paid very close attention when observing the honour choir students' notational reading sessions.

Cognitive Control Skills

Understanding Cognition

This segment of the literature review deals with the processes of cognition, perception, and critical thinking. There are multiple understandings of cognition, perception, and critical thinking, and the following definitions are provided to centre the reader in the field.

Cognition is defined as "the mental activities involved in acquiring and processing information" (Colman, 2001, p. 140). Cognition is a key branch of

[7] Tonicization is the establishment of a tonal framework. Often, it sounds like a sung tonic triad/arpeggio, or other figure reinforcing the tonic key.

psychology whose main emphasis is on the understanding of thinking. This area is hugely important in the study of educational psychology. Perception is defined as

> the act, process, or product of perceiving, the ability or capacity to perceive, or a particular way of perceiving. In psychology a distinction is conventionally drawn between sensation, the subjective feeling or experience that results from excitation of sensory receptors, and perception, sensory experience that has been interpreted with reference to its presumed external stimulus object or event. (Coleman, 2001, p. 542)

Corsini (1999) defines one meaning of critical thinking as "ability and willingness to assess claims critically and to make judgments on the basis of objective and supported reasons" (p. 236). He defines a second meaning as the "directed mentation that includes such purposeful mental activities as examining the validity of a hypothesis, interpreting the meaning of a poem, or deciding whether a book is worth publishing" (Corsini, 1999, p. 236). Both aspects of this definition are frequently used in music education contexts.

In the fields of psychology, cognition has concentrated on explaining stages of intellectual growth, social interaction in cognitive development, and the difference between how cognitive skills are used by novice and expert. Unfortunately, these findings have not been transferred to the specific domain of music or music education (Davidson & Scripp, 1992). Music psychologists tend to focus on a narrow range of discrimination tasks that limit the generalizability of their findings. Their findings do not seem related to notation, performance skills, or to the critical thinking that musicians require in their work. A comprehensive view of cognitive skills in music is required for greater musical understanding.

Early exploration of this area has produced an interesting matrix of musical skills related to musical production (composition and performance), to perception (discrimination and monitoring skills), and to reflection (critical thinking and the capacity to re-envision work) (Davidson & Scripp, 1992). To ensure musical validity it is necessary to investigate these ways of knowing in both performance contexts and outside of performance contexts. This is an area worthy of greater inquiry.

An approach that could be borrowed from educational psychology examines tasks through discussion of declarative knowledge (about a musical skill), procedural knowledge (steps to carry out the skill), and reflective-knowledge (how the skill could be done differently) (Zimmerman, 2002). Related terms from the field of educational psychology include inductive and deductive reasoning. Corsini (1999) defines inductive reasoning as "the reasoning process whereby inferences and general principles are derived from particular observations and cases; reasoning from the specific scientific method in that it underlies the process of developing hypotheses from particular facts and observations (p. 483). He offers two definitions of deductive reasoning: "1) a fundamental process for discovering truth by making assertions (theoretical statements) and then establishing a hypothesis to be checked to obtain evidence to support the validity of the assertions, and 2) reasoning from the general to the specific" (p. 255). Other related terms from educational psychology include comprehension, remembering, study, transfer, problem-solving, critical thinking, and creative thinking.

Corsini (1999) defines creative thinking as:

> mental processes leading to a new invention, solution, or synthesis in any area. A creative solution may use preexisting objects or ideas but creates a new relationship between the elements it uses, such as new mechanical inventions, social techniques, scientific theories, and artistic creations (p. 234).

Regardless of the approach used, it appears the interpretation of the cognitive task must be grounded within the nature of cognitive skills in music production, perception, and reflection.

Understanding Critical Thinking

Critical thinking, reflective thinking, informal logic, problem-solving, and higher order thinking are often thought to be synonymous. Critical thinking involves the validation of individual meaning construction. This validation occurs when there is a state of indecision challenging an individual to think further, to investigate, and to seek to resolve doubt and settle a difficulty (Richardson & Whitaker, 1992).

Morgan (1984) defines musical problem solving ability as musical independence and initiative based on an in-depth synthesis of several definitions of problem solving, including those of Ausubel, Bruner, Davis, Dewey, Hilgard, and Gagne:

> Since musical independence and initiative are such dearly held goals of music teaching, the link between musical problem solving and musical independence is an important one, especially for researchers trying to tease out the meaning of critical thinking/musical problem solving as practiced in the music classroom. (Richardson & Whitaker, 1992, p.555).

Metacognition and Self-Regulation of Musical Learning

Metacognition is a form of self-regulation that is related to strategy usage. Bandura (1991) conducted research to determine how learners acquired the requisite skills to be able to take control of their own learning and thereby learn effectively.

Zimmerman (1986) states that learning an instrument requires self-regulation, which is evident when learners become "metacognitively, motivationally, and behaviorally active participants in their own learning process" (p. 308). Studies have been conducted to measure the quantity of quality musical practice. Results show self-regulated students control their learning in specific ways (Chaffin, Imreh, Lemieux, & Chen, 2003). Through behavioral self-regulation and the use of self-observation, students adjust and improve performance (Barefield, 2006).

Through environmental self-regulation, students observe their practice, and adjust conditions within their environment. Covert self-regulation is achieved through self-monitoring and adjustment of cognitive and affective states, for example, by focusing on the music instead of the audience, to relax and perform better.

There are six psychological dimensions surrounding the concept of self-regulation. They include the motive for use of the self-regulation process, the method or strategy being used, time management, behavioral control, adaptation of the physical environment, and social factors. Each dimension is related to a specific scientific question and related to specific socialization and self-regulatory processes.

Hallam (2001) studied professional and novice musicians and found that professional musicians "learned to learn." They demonstrated considerable metacognitive skill, were able to accurately identify their strengths and weaknesses, assess task requirements, develop strategies to overcome problems, and otherwise optimize performance. Error recognition was a significant component of these strategies as was the professionals' attention to self-monitoring progress. Hallam's study reveals that basic skills are required prior to metacognitive skills. She suggests

teachers educate students to first be aware of their personal strengths and weaknesses and to gradually assess task difficulty. She encourages teachers to help students select practice strategies that match the task, and to assist students to set goals, monitor progress, and evaluate performance. As students mature, there are many strategies to enhance motivation, memorization, and time management. Strategies can also be employed to improve concentration and performance. Hallam suggests that strategic planning can be used to compensate for other deficiencies.

Zimmerman and Pons (1986) developed interview questions to investigate student use of self-regulated learning, an aspect of metacognitive strategy usage. They specifically target fourteen commonly known strategies. Their study found high use of strategies showed significant correlation with academic achievement. Zimmerman also found that high achievers use more social sources of assistance, contrary to an earlier supposition that self-regulated learners were solitary by choice. In my study, I described the strategies that Zimmerman and Pons (1986) identified in a music context and sought their use when observing the honour choir students' video recording of the 15 minute notational reading sessions.

Zimmerman's (2002a) discussion of self-regulation is highly educational, explaining the significance of self-regulation. He emphasizes that the major function of education is the development of life long learning skills. The relationship between self-reliance and success in life has been explored, and though many students lack self-discipline to achieve their goals, and struggle to learn this skill, research informs us that self-regulation involves self-awareness, self-motivation, and behavioral skill to implement that knowledge appropriately. Self-regulation is not a personal trait that

students possess or lack. It involves selective use of specific processes that must be adapted to each learning task. Component skills include setting goals for oneself, adopting strategies to attain the goals, monitoring one's progress, restructuring one's physical and social environment, time management, self-evaluating one's methods, attributing causation to results, and adapting future methods. The self-motivated quality of the learner depends on perceived efficacy and intrinsic interest.

Zimmerman's table of the structure and function of self-regulatory phases is exceptionally helpful. Published within the text *Musical Excellence* (Williamon, 2004), this table assists musicians in controlling practice strategy. In the forethought phase, the learner is engaged in task analysis (goal setting and planning), and is regulated by motivation beliefs (self-efficacy, outcome expectations, intrinsic interest/value, learning goal orientation). In the performance phase, the learner demonstrates self-control (imagery, self-instruction, attention focusing, and task strategies) as s/he completes the task. The learner engages in self observation (self-recording, self-experimentation) to monitor progress. In the self-reflection phase, the learner becomes involved in self-judgment (self-evaluation and causal attribution). One's self-reaction (self-satisfaction/affect, adaptive/defensive) to the process will mediate whether or not continuation with self-regulation will occur, whether the learner will be satisfied or dissatisfied, and whether or not s/he will choose to adapt strategies used to new situations. Zimmerman (2001) identifies key characteristics of self-regulated learners saying:

> What defines students as self-regulated is not their reliance on socially isolated methods of learning but rather their personal initiative, perseverance, and adoptive skill. Self-regulated students focus on how they activate, alter and sustain specific learning practices in social as well as solitary contexts. (p. 70)

The Development of the Constructivist Movement in Education

Constructivism is both a theory of learning and a theory of knowing that focuses on how people construct their reality and make sense of their world (Hanley, 2002). Influenced by postmodern theory, inquiry-based and concept-based, constructivism is the dominant view of learning today. Constructivist theory purports "it is the individual who must construct his or her own understanding in order to learn" (Wiggins, 2001, p. 3). This theory emphasizes the following seven principles:

> 1) knowledge and beliefs are formed within the learner,
> 2) learners personally imbue experiences with meaning,
> 3) learning activities causes learners to gain access to their experiences, knowledge and beliefs,
> 4) learning is a social activity that is enhanced by shared inquiry,
> 5) reflection and metacognition are essential aspects of constructing knowledge and meaning,
> 6) learners play an essential role in assessing their learning, and
> 7) the outcomes of the learning process are varied and are often unpredictable. (Hanley & Montgomery, p.19, 2005)

The theory of constructivism evolved over a long period of time. Philosophers Rousseau (1712-78) and Dewey (1859-1952) foreshadowed constructivism as we know it today with their desire to emancipate the child learner from restrictive teacher-centred environments of little relevance to the child.

Rousseau, philosopher in favour of liberation of the learner

In *Emile* (1762*),* Rousseau states:

> Teach your scholar to observe the phenomenon of nature … Put the problems before him and let him solve them himself. Let him know nothing because you have told him, but because he has learnt it for himself. Let him not be taught science, let him discover it. (p. 131)

Reacting against the backdrop of the European Enlightenment, Rousseau's ideas regarding natural education have had far-reaching consequences. Like his contemporaries, Rousseau's image of education gradually disassociated from the viewpoints of the church and the bourgeoisie, and perceived public spaces and the nation to be pedagogical objects. In his view, the child is not a blank slate, but a being determined by his own dispositions (Oelkers, 1994). Rousseau rejected the notion of a social objective in teaching, preferring a brand of education that pursues no utilitarian goals. Rousseau's theory of education can be perceived of as education for education's sake. This was a novel idea at the time and set him at odds with his contemporaries.

Within Rousseau's many works, there are three overarching pedagogies that shaped his constructivist philosophy: 1) good human nature, 2) natural development, and 3) negative education (Oelkers, 1994). In his work *Emile* (1762), Rousseau tells us that pure education is determined by the opposition of good nature and corrupt society. In Rousseau's view, the child's good nature will only develop if s/he is educated on her/his own,[8] without others for comparison. He cautions, only when the child is strong enough to maintain this balance may he be confronted with moral

[8] This view of learning from within the child might mislead us into thinking Rousseau's approach is child-centred. Although he believed the pupil's isolation is required to perfect all powers, control over learning was given to the tutor (to decide when the child is ready for the next developmental stage).

distinctions. Rousseau believed that the perfect child is tuned to himself, not to society. Decisions about how the child proceeds are left to a more knowledgeable other (Oelkers, 1994).

According to Rousseau, the child's development is natural because it corresponds to the different natural phases of life. In this view, the child will not understand before his time; he must go through developmental stages[9] before he is able to understand problems of higher order. Natural education, according to Rousseau, is more than a developmental theory; it is about the arrangement of the learning environment, which must also conform to the developmental stages. Both Rousseau and Dewey placed great importance on a child's learning environment (Marlowe & Page, 1998). Rousseau's concept of natural education is not child-centred, but rather presupposes the child's raw nature.

Rousseau's last significant pedagogy purports that negative education, a practice of removing the child from societal influence and either positive or negative values, does not mediate between virtue and truth. By withholding society from the child, this will benefit his undisturbed development of nature and provide an objective viewpoint for the child. This view supports the constructivist view that children construct their own learning. It also supports the social constructivist view that children learn through others. Rousseau believed in order to preserve the ultimate goodness of the child, the child must not be able to learn from negative influences.

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[9] Rousseau's stage theory shared elements with that of Piaget. Rousseau's developmental stages were poorly developed in comparison and contradicted in his own writing (Oelkers, 1994). Ultimately, Piaget's developmental theories were scientifically examined and adopted into the dominant discourse of educational psychology (Woolfolk, Winne & Perry, 2006).

Dewey, forefather of public schooling as we know it today

Dewey's pragmatic philosophy did not look beyond the realm of the ordinary for solutions, but rather to everyday experiences (Soltis, 1994). He believed through experience and purposeful action, understanding of the world can be acquired. Furthermore, he believed that human culture was constantly evolving, adapting, and changing with experience.

Dewey (1916) viewed education as "continual reorganization, reconstruction, and transformation of experience" (p. 50). He believed for an experience to be educative, one must make a connection between what one does and the consequence of doing it (1916). Moreover, doing is inextricably linked to one's purpose. Dewey believed real-life problems are the natural stimulus to thinking. Thinking is a process where a real-life problem arises from current circumstance: suggestions to solve this problem come to mind, data is observed, a hypothesis formed, acted upon, and thereby tested (p. 153-163).

For Dewey, learning was always considered to be active, stemming from real-life experiences solving a problem. This belief was quite different from the dominant thought of his day. Dewey believed education was about cumulative and unending acquisition of knowledge, combinations and re-combinations of that knowledge, and the reorganization of educative experiences. This circular process he called growth. For Dewey, this growth is transformative, causing one to examine and re-examine his or her own experiences.

Contrary to the writings of Rousseau, most of Dewey's writings centred around creating real-life, social contexts for learning. He advocated for the formation

of mini-societies within the school, believing people learn their roles and the ways of society by being immersed in social situations that mirrored social reality (1900, p. 14). This call, for the creation of mini-societies in which to learn, was significant in his time and paved the way for further reforms, leading to the development of a public school system that we see in many areas today.

Piaget, **author of revolutionary theories of learning**

A Swiss epistemologist and psychologist, Piaget (1898-1980) was not only a key figure in understanding cognitive development but also a key player in developing the foundations of constructivism. Piaget's work (1970) was deeply concerned with understanding the growth of knowledge, and how it emerged from its "most elementary forms and on to… [develop] in[to] ulterior levels, including scientific thinking" (p. 6). According to Piaget, knowledge is constructed through actions of the subject exerted on physical, social, and conceptual objects. Piaget rejects the notions of genetic structures within the mind: his beliefs are constructivist, interactionist, and fundamentally interdisciplinary (Ribaupierre & Rieben, 1994).

Piaget understood thinking through the concept of schema theory, which demonstrated how a given level of knowledge emerges from a reorganization of the preceding one. This process of reorganization is called "reflexive abstraction" and focuses on transferring mental reorganization to a higher level of thinking of what was previously learned at a lower level (Ribaupierre & Rieben, 1994). Growth and reorganization of an individual's schemas are related to a person's desire for equilibration. Equilibration is based on the interplay between assimilation (incorporation of new ideas into an existing system) and accommodation

(modification of existing schemes or structures by newly assimilated elements to respond to the environment). Cognitive dissonance, a conflicted state of understanding, is thought to be the most significant reason for meaningful learning. Desirous of ridding the mind of this uncomfortable state, the learner must resolve the dissonance through learning. Piaget believes this is an important source of cognitive development. Equilibration is required to resolve cognitive dissonance (Ribaupierre & Rieben, 1994).

Piaget believed intelligence develops through a series of stages or levels (Woolfolk, Winne & Perry, 2006). Piaget's stage theory described a hierarchy of behaviours to reflect different cognitive operations. Mental imagery, perception, memory and language are discussed as they refer to his stages. His original theory[10] referred to four stages: sensorimotor, preoperational, concrete operational, and formal operational. Piaget believed all students progress through these stages in order. He emphasized the mechanisms that allowed growth from one stage to the next and believed those mechanisms are influenced by maturation, experience, and social factors. The most important factor to him was equilibration (Piaget, 1985).

Piaget had many beliefs about education: education should focus on the development of general schemes rather than teach specific skills (Woolfolk, Winne & Perry, 2006); education should be more process oriented than content oriented; teaching methods should put more emphasis on the child's actions; and curriculum should take into consideration the child's developmental sequence. As a result,

[10] Piaget changed the number of stages and the respective ages of children in those stages at various times in his life. Since that time, different educational psychologists have proposed their own interpretations of his theory.

teachers should promote active learning, pay attention to the child's own way of learning/thinking, and adopt positive interpretations of student reasoning, even if it is logically faulty. Some teachers believe an appropriate goal is to expedite a child's process through Piagetian stages. This sometimes leads to direct teaching of tasks, like conservation (Ribaupierre & Rieben, 1994), or higher-order thinking.

Piaget influenced educational psychology by placing pedagogical emphasis on the child's activity, on direct-teaching of higher order thinking skills, and on continued emphasis on process rather than product.

Vygotsky, **toward social construction theory**

A social constructivist, Lev Semyonovich Vygotsky (1896-1934) believed that learning occurs on two planes: the social-individual and the public-private (Hiebert & Raphael, 1994). Social-individual learning occurs with interactions through more knowledgeable others: learners begin to understand concepts and later to extend them to other contexts and meanings.[11] Public-private learning occurs through interactions with what has been learned in a public domain: learners adopt and adapt what has been learned and begin to use it privately.

As students move from the public to the private domain and from the social to the individual domain, concepts become internalized. To do this they engage in processes of appropriation, transformation, publication, and conventionalization (Hiebart & Raphael, 1994). Reciprocal teaching is an example of how teachers model the relationship of strategies (questioning, summarizing, clarifying, and predicting). Through modeling, thinking aloud, and prompting students, teachers help

[11] Meanings and interpretations in this context are socially constructed.

those less experienced begin to use these strategies in the context of learning within a public domain. Learners may appropriate those strategies exactly as learned, using them in a variety of contexts while they work individually.

As students move toward the individual/private, they tailor strategies and concepts to meet their own purposes (Vygotsky, 1978): they adopt what they have learned and they transform the strategies they have learned to make them meaningful for their own learning contexts. Eventually the abilities become tools to be used to achieve individual goals (Hiebart & Raphael, 1994). When those goals are controlled, students have internalized the convention.

Vygotsky championed a concept called the *zone of proximal development* (Woolfolk, Winne & Perry, 2006). This construction was the image of how to take a learner from his or her developmental ability level to the next level. Vygotsky believed that students could move through the zone of proximal development with social assistance from a more knowledgeable other, in ways that they could not independently. Further, he asserted that learning in this way[12] assists students in reaching their goals. This belief has had significant impact in the development of co-operative learning in the contemporary classroom.

Bruner, advocate of scaffolding and discovery learning

Influenced by both Vygotsky and Piaget, Bruner (1915-) is a key figure in the advocacy for discovery learning. His essay, "The Art of Discovery Learning" (1962), outlined the benefits of his methods, namely that discovery learning promotes an increase in intellectual potency (techniques for problem solving), a shift from

[12] Learning from other experts involves the strategies of modeling and reciprocal teaching.

extrinsic to intrinsic motivation (gratified by the act of discovery itself), learning heuristics of discovering, and improved memory of learned materials (because it was learned in a rich context).

Constructivism in the Music Class

Rousseau, Dewey, Piaget, Vygotsky, and Bruner have had a significant impact on the development of constructivism and current educational pedagogy. Advocates for conscientious music education, their ideas are championed by Wiggins (2001) who declaims constructivist approaches to music education through her book *Teaching for Musical Understanding,* and Swanwick (1999) who pronounces his own interpretation of these methods in his book *Teaching Music Musically.*

Wiggins (2001) and Swanwick (1999) readily adopt Piaget's schema theory as a construct to understand cognitive processes. Wiggins explains, "schemas … are mental structures or constructs that are interconnected, formulating networks of understanding" (p. 4) She emphasizes each schema is different for each individual: "No two people have had identical life experiences or perceive their life experiences the same way" (p. 5). She illustrates how schemas help us to organize our world by recognizing the appropriate "slots" for new information: when we process a new idea, we look for aspects of prior experiences with which to associate ideas we already know.

Wiggins (2001) details how schemas accept new information, direct our actions, and have the capacity to direct the plan of how new learning and understanding will take place. She elaborates on the nature of schemas and how those schemas frame our world:

> Since our network of schemas reflects life experience, each of us possesses a different network, arranged in a different way. One can say that our prior life experiences and our interpretation of that experience frame our view of the world, and, in many ways, determine how we will choose to act and react in new experiences. Multiple perspective is related to diversity issues because people bring to situations prior experience that is reflective of the culture in which they live. (p. 7)

Swanwick's (1999) conception of schema theory is not unlike that of Wiggins, though it is detailed in an invariable four-step process. Swanwick likens his concept of schema theory to the process of discursive metaphor. Swanwick believes: "We internally represent actions and events to ourselves; we *imagine.* We recognize and generate *relationships* between these images. We employ systems of signs, *shared vocabularies.* We negotiate and *exchange our thinking* with others" (p. 7).

Based on this theory, Swanwick encourages music educators to bring music education into the foreground, to extend our schemas flexibly, keeping Piaget's "internal representations, the manipulation of images, the production of relationships between these images, the creation and development of shared vocabularies and the negotiation and exchange of ideas with others" (p. 34). These internal representations allow metaphoric realignment, carrying possibilities for "cultural transmission and cultural transformation" (p. 35). Swanwick exhorts his readers to "keep musical processes open in as many layers as possible" (p. 35). Swanwick takes his metaphor theories further, suggesting that old images recombined and metaphorically transformed are an intuitive form of what Piaget called constructional play (1999, p. 52).

Wiggins honours Gardner for his contributions to constructivist theory through his book *Frames of Mind* (1983), a discussion of his multiple intelligence theory. Throughout the remainder of Wiggins' writing, she explores musical thinking through the lens of Gardner's musical intelligence, made possible by thinking through musical schemas as introduced by Piaget.

Also influenced by Vygotsky's social constructions of learning (1978), Wiggins (2001) explains how schema theory within a social cognitive framework assists student learning through the use of Vygotsky's zone of proximal development. In the constructivist music class, knowledge is learned first on the interpsychological level (through interacting with someone who is more knowledgeable[13]) and later on the intrapyschological level (when we are able to operate independently from the knowledgeable other).

The process of learning from interpsychological level to intrapyschological, an understanding of the zone of proximal development, is significant as it supports the view that a child can gain greater competence with the help of a knowledgable other than he or she would be able to achieve on his or her own. When embarking on new experiences, the learner is highly dependent on learners with more knowledge. By working with those with more knowledge, the novice is able to attain greater heights than he or she would be able to achieve without that help. If there is a significant difference between the learner's ability with and without help, one could say there is a gap between those levels of competence.

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[13] According to Vygotsky (1978), this knowledgeable other may be anyone in society (brother, mentor, teacher, peer).

Vygotsky (1978) claims the goal of education is to place the student between the level of proficiency in what the student achieves on his or her own and the level at which he or she can be successful with student support. If a teacher asks a child to practice something below his or her proficiency zone, the child is working on something he or she has already learned. The teacher may be offering support when it is no longer needed. If a teacher asks a child to practice something beyond the zone, the teacher is asking the student to achieve beyond his or her capabilities within the zone of proximal development. In order to provide for social learning through the zone of proximal development, Wiggins (2001) affirms that music classes should have many experts at a variety of different levels and that students need to have their learning needs met by tasks that are neither too difficult to achieve individually, nor too difficult to achieve with support.

In order for this learning to take place across the zone of proximal development, scaffolding must occur. Scaffolding[14] occurs when students learn from others so they can function independently. Working hand in hand with the expert, novices complete the tasks in which they are confident. As necessary, the expert fills in and provides support.[15] The goal is to gradually remove that support so the student is functioning with independence. Wiggins notes that students often scaffold for each other in classroom settings, regardless of teacher awareness of this phenomenon.[16] Wiggins affirms that "part of providing scaffolding is helping students develop

[14] This process of experts providing support for novices is called scaffolding and was identified and promoted by Bruner (1960).
[15] Teachers and students must decide what degree of support is required, when scaffolding is necessary and when it is not.
[16] Wiggins offers three common examples of student scaffolding: 1) Students clarify the teacher's instructions, 2) answer classmate questions in group activity, and 3) ask advice of each other prior to speaking with the teacher.

metacognitive skills (understanding how one learns, developing strategies for problem solving). Students can learn "how to learn" through working with the teacher, but also through working with peers" (p. 16). Wiggins (2001) asserts that peers are often better models than teachers as they share a more common perspective from a shared base of common prior experience.

In order to establish a common framework for learning, teachers and students must share knowledge of the learning situation, understanding of the problem to be solved, possible solutions, and evaluation strategies. To do this, teachers and learners must work together to build bridges from present understanding and skills to reach new understandings and skills. Teachers and learners must arrange and structure participation in activities that encourage shifts in responsibilities of ownership, moving towards competence. This process is called guided participation.

Wiggins (2001) and Swanwick (1999) share a common vision of music education. They insist that 1) the learner must interact with the subject matter taught and actively strive to construct knowledge through experience; 2) the learner must solve the problem, not simply listen to a report about the solution from the teacher; 3) the learner must be aware of what he or she is supposed to be learning, because without that knowledge the learner is unable to take responsibility for his or her learning role; and 4) that teachers need to understand their students' prior experiences as this will help to monitor student progress to facilitate their growth. The greater the shared understanding of the learning situation, the greater the learning experience will be (Wiggins, 2001).

Paired with Wiggins' (2001) musical cognitive apprenticeship[17] experiences, a vibrant learning environment (featuring hands-on interactions with music and opportunities to interact with peers and teachers) fosters the ideals of musical independence. She writes, "Over time, participating in musical cognitive apprenticeship should enable individuals to develop the understanding and skills such that they are able to apply what they know to solve new problems on their own" (p. 46).

Motivation

As musical independence[18] is a series of skills and attitudes to learning, it is logical to assume that musical independence is inextricably linked with motivation. It is likely that the skills that comprise musical independence require a high degree of motivation to be achieved.

The participants in my research were extracurricular honour choir students, students who were recommended by their school music teachers, who made the choice to audition to belong to their respective ensemble, had parental support to do so, and who were musically successful in the audition process. These honour choir students were highly motivated. As their high degree of motivation was one reason for their selection, it is imperative that motivation is understood as an important facet of this study. Woody (2004) describes the drive exceptional musicians possess to pursue and achieve excellence. The choristers in this study are exceptional in that

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[17] Wiggins describes cognitive apprenticeship as a guided participatory, holistic, real-life, and problem solving experience.

[18] In chapter one, musical independence was defined through the lens of Wiggins' (2001) concept of cognitive apprenticeship. Skills for musical independence include the ability to engage in real life problem solving situations, to be autonomous or independent, the ability to initiate, test, evaluate, revise and share original ideas, and the ability to take responsibility for and assess one's own learning (p.18-19). In a music literacy context, those skills include 1) performing skills, 2) notational literacy skills, and 3) oral skills.

they are voluntarily working at the highest levels available to them through the extracurricular public school program, demonstrating the type of drive for music making that we would desire in all our music students.

Motivation is typically examined through observable behaviours: choices and preferences of students, intensity of action taken, persistence in a task, quality of student investment in the task, and affective[19] and cognitive[20] indicators of motivation (Maehr, Pintrich & Linnenbrink, 2002). In a music context, these observable behaviours could include choosing music practice over an alternative extracurricular activity, the level of commitment to an ensemble, the amount of time invested in learning a musical skill, the attention given during the rehearsal session, and the emotional and intellectual investment in musical endeavours. This overview of the literature will examine chorister choice for participation in music and reasons for their ongoing choral participation.

Intrinsic Motivation

Intrinsic motivation theory notes the affective aspects of motivation. There are several models of this: self-determination theory, flow and intrinsic motivation, and personal and situational interest (Maehr, Pintrich & Linnebrink, 2002). Self-determination theory fixates on the individual's drive to satisfy three needs: need for competence, the need for autonomy, and the need for relatedness. Satisfying these needs lead individuals to be more intrinsically satisfied. When students are intrinsically motivated, they are more likely to seek out and master challenges which

[19] Affective indicators include the role of emotions and feelings in the motivational process. Pleasure or displeasure with a task (based on affect) can be inherently more or less rewarding.
[20] Cognitive indicators include how a person's thoughts influence his or her motivation.

satisfy their need to be competent and self-determining. In order to intrinsically motivate students, the challenge needs to be within a student's zone of proximal development: too easy a task and it is boring; too difficult a task and students may abandon their efforts.

In his work on flow, Csikszentmihaly (1993) emphasizes the need for perceived control, the desire for autonomy and the need to master the environment. He views motivation as something that stems from the discovery of new goals. When Csikszentmihaly (1985) studied individuals in intrinsically motivating activities, he found that they experienced complete absorption in the activities. "The holistic sensation that people feel when they act with total involvement, " (p. 6) he called *flow.* As a result of this experience, participants lose track of time and space. Flow experiences take place when the task to be completed is well balanced: it is neither too easy, nor is it too demanding.

Personal interest as motivation is a personality trait or characteristic that is relatively stable, an enduring disposition of the individual (Krapp, Hidi & Renniger, 1992). This particular interest is typically centred on a given activity or topic. Situational interest is more concerned with the environment (Hidi & Anderson, 1992). Researchers look for general principles to describe how the features of the environment can generate interest. When one is situationally interested in a specific topic, it is possible that interest can develop into a personal interest.

Extrinsic Motivation

Extrinsic motivation comes from outside of the student. Ziglar (1986) describes two types of extrinsic motivation. What he calls incentive motivation is when a reward is offered in return for musical tasks. This type of incentive is not unusual in music education. Ensembles are often rewarded through music trips and festival awards. With this type of motivation, the rewards must continually get better to remain attractive for students to continue to strive to attain them. Ziglar suggests creating merit charts and musicianship awards as forms of extrinsic motivation that encourage the development of intrinsic motivation.

Ziglar's second type of extrinsic motivation is called fear motivation. This can be an individual student's fear of failure or a teacher's message that a particular wrong note will ruin the piece of music. Fear motivation is not unusual in music education, whether intentional or, as is most common, unintentional. One must question the consequence of fear motivation. It can initially garner results. The question is if that practice is likely to inspire life-long musicianship.

Attribution Theory

Asmus' (1986) explanation of the theory of attribution in a music context attempts to explain students' understanding of their success in music. As Weiner, (1974) demonstrated in his original explanation of the theory, there are four general causes to which people attribute their success and failure: luck, effort, ability, and task difficulty. Effort and ability are internal attributions, coming from within the individual, that remain stable and constant. Luck and task difficulty are external

attributions, coming from outside the individual, that are considered unstable and changeable.

Young children typically believe that their best efforts will be successful. Asmus (1986) discovered children believe effort is the main reason for their success in music. As students progress through school, students' effort related attributions change toward ability related attributions.

Teachers can influence student perception of success and failure by emphasizing the stable internal attribution of effort (Asmus, 1986). Student success should be praised as a result of hard-work, rather than as an outgrowth of inherent ability.

Self-efficacy

Concerned with the role of competence judgments and expectations, Bandura's (1989, 1997) self-efficacy theory represents people's judgments of their abilities. Self-efficacy is typically understood when discussing a particular goal or orientation; it is more situational than theories of self concept. To grasp this, imagine a musician with a good self-concept. S/he may demonstrate poor self-efficacy in the specific task of a particular performance involving a specific technique s/he has yet to master. Self-efficacy is determined by the individual's self-knowledge and their perceptions of the task to be completed.

"Perceived self-efficacy determines how people feel, think, motivate themselves and behave" (Bandura, 2001). High self-efficacy results in people approaching learning situations as challenges to be mastered, rather than avoided. This nurtures intrinsic interest. With this outlook, challenging goals are set and

commitments are made to achieve them. If failure occurs, efficacious people spring back, attributing lack of success to inadequate effort or insufficient knowledge, both attributes which they can learn. People with high efficacy perceive threatening situations with control and assurance. This outlook promotes goal accomplishments and reduces stress and vulnerability to depression.

Persons with low self-efficacy avoid difficult tasks that might be damaging to the ego. They have low goals and feeble commitment to their dreams and ambitions. When difficulties arise, these achievers dwell on their shortcomings, the challenges to their goal, and negative outcomes. They reduce their effort and give up when in difficulty. Following a failure, people with low efficacy require a great deal of time to emerge from their set-back. Because failure is attributed to lack of ability, it does not take much for them to lose faith in their abilities and fall prey to stress and depression (Bandura, 2001).

Perceived self-efficacy is concerned with people's beliefs in their capabilities to exercise control over their own functioning and over events that affect their lives (Bandura, 2001). These self-beliefs shape life choices, degree of motivation, quality of functioning, resilience to adversity, and vulnerability to stress and depression. Four main sources of influence shape these beliefs: mastery experiences, observing people with comparable life experiences effectively balancing task demands, social conviction of the ability to succeed in given activities, and inferences of personal strengths and vulnerabilities. With strong self-efficacy, real-life stumbling-blocks can be overcome through persistence and effort.

In the world of music education, teachers know that music study requires a significant level of autonomy: it is important to assist the child to decide where, what, and how to practice. McPherson and McCormick (2006) studied practice strategies of students preparing for summative examinations. They discovered that self-efficacy results in the greatest variance of perception of exam results. Students who report higher levels of practice tend to rehearse music in their minds while making critical judgments about the success of their work. They organize their practice in ways that make efficient use of time and maximize learning. These musicians demonstrate high levels of intrinsic satisfaction for learning their instrument.

Nielsen (2004) studied learning strategies in instrumental and vocal individual practice in higher education. Nielsen examined how students' self-efficacy beliefs relate to the strategies they chose to use. The results indicated that students in general applied cognitive, metacognitive, and resource management during practice. Students high in efficacy were more likely to be cognitively and metacognitively involved when trying to learn the material compared to those students low in efficacy. There were significant differences in female and male students' self-efficacy. Nielsen's results confirmed Zimmerman and Pons' (1990) research: females are less efficacious than males.

One might ask when these beliefs begin and the significance of those beliefs in student life. Bandura, Barbaranelli, Caprara, and Pastorelli (2001) studied the self-efficacy beliefs of children, and how those beliefs shaped their dreams and career paths. It would seem that parental self-efficacy and aspirations for their children are mediated through the children's perceived efficacy and academic aspirations.

Children's perceptions of academic, social, and self-regulatory efficacy guides their occupational choices. Perceived occupational self-efficacy directs children's considerations for their life's work. It is children's perceived self-efficacy rather than their academic achievement that determines their perceived occupational self-efficacy, and thereby preferred choice of work. Perceived occupational self-efficacy predicts the traditionality of career choice. Student self-efficacy is a significant component of student motivation.

Reasons for and against student participation in choral music

One of the most pervasive questions in music education is why some students choose to make music a part of their lives and why others do not. There seems to be an abundance of research documenting the reasons students do not take part in choral groups (Mizener, 1993; Monks, 2003; Peterson, 2002; Smith 2006). The reasons vary from declining positive attitudes in music (Mizener, 1993), to lack of singing experience, confidence and motivation (Smith, 2006), to the perception of lack of singing ability which then hinders voluntary choral participation (Peterson, 2002), to the changes of the singing voice in puberty, confusion of identity, combined with extreme sensitivity of students in adolescence (Monks, 2003).

Though not as plentiful, research into reasons why students do choose to make choral music a part of their lives is very insightful (Adderley, Kennedy & Berz, 2003; Conway & Borst, 2001; Kennedy, 2002). Conway and Borst (2001) interviewed 10 students who chose to continue from middle school choir to high school choir to determine the reasons for their decision. They found that students and parents were positive about the choral program and indicated continued interest in high school

choral singing. Choral experiences appeared to be positive in school, home, and church life: parents enjoyed hearing their children sing. Key reasons included students' enjoyment of teamwork, camaraderie, and working with a group. Conway and Borst found that the primary reason for continued participation in a high school choral ensemble was an enjoyment of singing.

Kennedy (2002) examined the experiences of 11 junior high boys in a choral elective course. She found reasons for boys' membership in the choir included love of singing, the influence of the teacher, and peer influence. The boys' perception of benefits from membership in the choir include teacher aspects — the boys liked and were motivated by her; musical aspects — the boys liked singing, the repertoire selection, and performance opportunities; non-musical aspects — the boys enjoyed the non-academic nature of the course, the absence of much written work, and the accessible grading; and social aspects — the boys valued their friendships, group experiences with different grade levels, field trips, and opportunities to meet other people, including girls.

In the study *"A Home away from Home": The World of the High School Music Classroom* (2003), Adderley, Kennedy, and Berz explored motivations to join music ensembles and to remain, as well as the meaning and value of membership from participants. Interviews with 60 participants demonstrated musical,[21] social,[22] academic,[23] and family[24] reasons for membership in ensembles. Participation in

[21] Musical enjoyment seems to be an important reason for membership, as does the notion of increased exposure to other types of music.
[22] Students enjoyed being a part of a group, "to feel part of something" and "to make friends."
[23] Students appreciated the balance in the curriculum: to "get away from school work" or to be "more well rounded" from participation in a musical ensemble.

ensembles was thought to bring musical,[25] academic,[26] psychological,[27] and social[28] benefits. Relationships were noted as important for student well-being and growth.

All three articles shared Hylton's (1981) findings of numerous dimensions of student-perceived meanings of the choral experience. Student responses revealed perceived meaning in membership in choral ensembles in five categories: achievement, spiritualistic, musical-artistic, communicative, psychological and integrative. Kennedy (2002) speculates that lack of response in the spiritual dimension may be due to the "age of the informants or … due to the secular age in which we live" (p. 32).

Summary

This chapter detailed the literature reviewed in preparation for this research. Music literacy and independence were explored, as were the skills that are perceived to be essential for their development. Inquiry into sight-reading studies provided specific strategic knowledge of music literacy in action. Aspects of cognition were examined to better understand the many facets of research in this area. Through this exploration, the notion of self-regulation as an aspect of metacognition was described. Examination of problem-solving strategies employed by students today assisted an

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[24] Family reasons include parents encouraging/pressuring students to join, or student knowledge of parents' previous experiences in music.
[25] Musical benefits include performance opportunities, exposure to a variety of music, and acquisition of musical skills and knowledge.
[26] Academic benefits include career preparation for musicians, high standards, honours credit, an ensemble on a resume (that might increase chances to be admitted to college), and improved time management. Students believed music makes you smarter.
[27] Psychological benefits include personal qualities, personal growth, emotional outlet, and atmosphere. Students believed responsibility, commitment, perseverance, self-discipline, and humour were fostered through performance ensembles.
[28] Social benefits include friendship, being in a group, community, working collaboratively.

understanding of aspects of self-regulating learners, those who seem to favour metacognitive strategy usage. The evolution of constructivism, its applications and support in the music class was examined. This theory is of significance to my research as it insists students create their own knowledge and directly learn strategies to enable them to do so. Metacognition is a higher-order strategy endorsed by constructivists as leading to overall independence.

A comprehensive study of motivation, intrinsic and extrinsic motivation, attribution theory and self-efficacy theory was offered. By reviewing the literature of why students choose to take part or not to take part in choral music, I have gained insight into the possible motivations of the participants in this study.

The following chapter outlines the methodology used for this research, the rationale for such a decision, and the specific procedures involved in the study.

CHAPTER THREE

Methodology: The Medium Carries the Message

Rationale for Methodology Choice

As stated in chapter 1, the purpose of this study was to explore metacognitive strategy usage in young choristers engaged in notational literacy tasks. There are several possible ways in which to study this topic. With sufficient resources of time and participants, this could be studied from a quantitative perspective, generating data that may be generalized to the larger population. Borg and Gall (1996) define quantitative research (or positivist research) as:

> Inquiry that is grounded in the assumption that features of the social environment constitute an objective reality that is relatively constant across time and settings. The dominant methodology is to describe and explain features of this reality by collecting numerical data on observable behaviors of samples and by subjecting these data to statistical analysis. (p. 767)

This bird's eye view of the data would be highly useful to a great many individuals, though it would not necessarily elucidate the many unique processes involved by individuals becoming musically independent.

Another way to study this topic is from the qualitative perspective. Denzin and Lincoln (as cited in Borg & Gall, 1996) believe

> Qualitative research is multimethod in its focus, involving an interpretive, naturalistic approach to its subject matter. This means that qualitative researchers study in their natural settings, attempting to make sense of, or interpret, phenomomena in terms of the meanings people bring to them (p. 768).

In this tradition, the goal is not generalizability but a deep understanding of the unique aspects involved in smaller sample sizes. This method does not require the

large sample size to eliminate bias in quantitative data analysis; however, data collection in qualitative research is often a time-consuming process as the investigator aims to craft in-depth profiles of participants. Furthermore, qualitative data analysis allows the participants to inform the researcher as to their inner-most thought processes. In this tradition, informants' experiences are respected and they are able to take an active role informing the researcher. This may ultimately lead to greater understanding of their individual circumstances. Qualitative research honours the individual's experience and affords participants the respect that they deserve.

This study examined the many processes students use when engaged in notational reading tasks in an attempt to discover whether those strategies are consciously or unconsciously applied. As learning can be a highly individualized process, it is sensible and logical that this study occurred within the qualitative domain, allowing the students to speak for themselves.

Use of the Collective Case Study Design

The design employed is qualitative in nature and contains many elements of collective case study method (Creswell, 1998). Collective case study was chosen to examine ten participants (five each from two choirs), gathering rich information from multiple sources within the choral learning context. These sources of information included questionnaire, interviews, field notes, and observation (video and audio sources). For the purposes of my study, I have sought strategies identified in Killian and Henry's (2005) study of successful and unsuccessful sight-singing preparation and performance and self-regulatory strategies from Zimmerman & Pons' (1986) study on the structured interview for my exploration of the learning processes of

young choristers. This has allowed me to make concrete connections between studies within the disciplines of educational psychology and music education.

Participants and their Context

This study of metacognitive strategy usage examines a sample of 10 students aged 11-16. These students came from two different city-wide honour choirs in a large eastern Canadian city. Five choristers came from a Boys' Choir, which accepts singers from age 9 until the voice has changed. Five choristers came from a Youth Choir, which is an all girls' ensemble, comprising choristers from age 12-18. Students within the Youth Choir may have had the opportunity to sing in the Girls' choir, which takes singers from age 9-12, prior to joining the Youth Choir. Students in the Youth and Boys' Choirs may be able to join the smaller and more prestigious chamber choir when they have gained enough experience and have passed a similar audition. This chamber choir accepts singers starting at age 16. Boys from the honour choir whose voices have changed are brought immediately into this choir regardless of their age.

Taking part in the city honour choirs is a big commitment. Both the Boys' Choir and the Youth Choir rehearse after school in a central downtown location and require recommendation from each chorister's music teacher, a successful audition prior to admittance in their respective choir, as well as consent from each chorister's parents. Furthermore, parents are required to provide transportation to and from all rehearsals and performances. Students eligible to participate in these choirs come from a large geographical area within the city. Parents of the Boys' Choir take a very active role in the organization of the rehearsal and communication with other parents. While the

boys rehearse, a team of parents fills communication binders, collects permission slips, and assists with the management of the group. Both the Youth and Boys' Choirs are held in high regard and typically perform in local and provincial music festivals and take part in tours both local and national (every few years). The choirs appear to be warm and supportive environments for musical learning. The community within each choir was readily apparent from my first meeting with the choristers.

In order to study higher order thinking skills associated with metacognition, students were deliberately selected between the ages 12-16, as Piaget believed that was the time for the development of formal operations, or the ability to think abstractly (Woolfolk, Winne, & Perry, 2006). Following the principles of purposeful sampling (Creswell, 1998), I attempted to include the broadest selection of participants possible to view the greatest number of strategies at work. For this reason, I chose to work with both boys and girls, and students from the largest possible array of ages and experiences. Although I was able to obtain a broad range of participants, I was not able to select for age and experience as I would have liked. Only 5 girls and 6 boys returned their consent forms.

Role of the Researcher

Merriam (1988) ascribes great import to the interactive and interpretive role of the researcher. "The investigator is the primary instrument for gathering and analyzing the data" (p. 36). The researcher must interact with participants to minimize distance between researcher and participant, and disclose his/her values and biases. Merriam suggests the researcher must remain tolerant of ambiguities within the data collected and within the case study field (there are few set routines to follow), be sensitive to

context, people, setting, overt agendas and body language of participants, and make every effort to be a good communicator by way of seeing and hearing everything, and listening with empathy (p. 38). In my interactions with the choristers in this study, I have endeavoured to be warm and open in order to remove distance between subject and researcher, thereby encouraging participants to be informative and active.

As the goal of my study was to examine metacognitive strategy usage and musical independence, it is possible that my research bias led me to see or to encourage students to reflect on their learning in this light. In my opinion, the fact that students signed a consent form outlining my purpose and goals disposed them to be willing to discuss their learning with the research goals in mind. In my role as interactive interpreter, I did my utmost to present my findings with honesty, aware that I can never be entirely neutral and that my perception of the participant has a bearing on the research being completed. In order to balance said bias, interpretation and analysis followed principles common to qualitative research design. As an interactive interpreter, I have been tolerant of ambiguity, reading, re-reading, and coding the data (Merriam, 1988). I have endeavoured to be sensitive to my participants, their emotions, and the contexts in which I have asked them to share their learnings. I have endeavoured to communicate well, getting at the root of the problem, using good questioning techniques, demonstrating empathy, and being a good listener.

Data Collection

Borg and Gall (1996) indicate that questionnaires and interviews as methods of data collection are widely used in educational research contexts to gather information about that which is not directly observable, particularly when the area of inquiry relates to "feelings, motivations, attitudes, accomplishments and experiences of individuals" (p. 288). Data collection gathered for the purposes of my study include musical background questionnaires, interviews, audio and video recordings of the notational reading session, and the performance following the notational reading session. Also, field notes were taken during data collection, and observations of the videos were recorded.

Human Ethics

Any time research is conducted using human subjects, special precautions must be taken to ensure participant well-being. After my proposal was approved by my supervisor, I made successful application to the University of Victoria's Research and Human Ethics Board to carry out my research prior to any contact with participants (see Appendix A).

Consents

Once Ethical Approval was received and conductor consent was obtained, I attended a Boys' and Youth choir rehearsal to invite choristers to take part in my research. At that time, letters of consent were sent home for both chorister and parental approval (see Appendix B). Conductors of each group collected consent forms at subsequent rehearsals prior to data collection taking place. At each of two

contact sessions, students were required to sign indicating their ongoing agreement to take part in the research.

Pilot

Following ethical approval, key elements of my study were determined and conducted with a pilot group of 4 students aged 12, 13, 14, and 16. The pilot was conducted to determine whether the procedures for the notational reading session were appropriate, whether 15 minutes for that task was sufficient, whether the musical background questionnaire was useful, whether the interview questions would elicit usable responses, and to trouble-shoot for technical difficulties during the study. As a result of the pilot, it was decided that I would set each student's tonality prior to the notational reading session and the performance, and that I would set the timer myself (some students forgot to set it). It appeared that 15 minutes for the notational reading task was appropriate. Although some students felt they would have benefited from additional time, others finished with some time to spare. Pilot students were questioned about the interview following the experience and all felt they understood the questions and that they could respond in a meaningful manner. There were no major technical difficulties during the pilot, although I came to understand why it was necessary to have two different tape recorders when one tape recorder jammed prior to the first pilot interview. By conducting this pilot I was able to refine my general procedures, practice my interviewing skills, and gain confidence in my ability to conduct a study of this type. Through this pilot I became aware of the physical challenges of setting-up and taking down equipment in limited time.

Procedure

Session 1: Consent, Notational Reading, Performance, and Musical Background Questionnaire

Consent

Before students left their rehearsal to take part in the first session, I double-checked their consent form with their conductor. The conductors and I pre-arranged the order for students to leave, ensuring students missed as little rehearsal time as possible. This was especially significant, as the annual music festival was approaching. Students were informed of the order for their participation (names were written on the board) so they would be able to slip out of the room when I came to the door, with minimal disruption to the other singers.

Notational Reading Session

Prior to students entering the practice room individually, all students were read the following instructions: “Welcome. Thank you for taking part in my study today. The goal of this session is to learn an entire piece of music in the best way you know. A triad will be played to set your key. The opening note will be played for you. Please read the soprano line/top voice line throughout this session. You will have 15 minutes to learn this music. A timer will give a short beep every 5 minutes and a long series of beeps when 15 minutes has gone by. When the timer goes off the last time, please come and get me. I will be sitting outside the door. At that time, I will come into the room and ask you to “perform” what you have learned. This is your opportunity to ask questions. Would you like me to repeat any of the steps I just read? Do you have any questions for me?”

After having the opportunity to ask questions or seek clarification, students individually entered a practice room equipped with a keyboard and a timer set for 15 minutes. I played a triad in the key of their piece to establish the tonality and played the first note of their piece. Students were video-recorded during this time.

Performance

Following the 15 minute notational reading session, I entered the room to re-set the video and audio recording equipment. Once students were introduced for the video/audio equipment and their tonic triad and starting note established, I left the room for the duration of the recording.

Musical Background Questionnaire

Students completed a musical background questionnaire (see Appendix C) following their first notational reading session and performance. The questions were created after reflection upon the diversity of students and skills within the choirs to be studied in an attempt to better understand the many variables of musical background within the multiple cases. Understanding that individual learners have various levels of language literacy, I attempted to frame the questionnaire so that students could either circle the appropriate answer or fill in a form with two or three word answers. The pilot participants completed these questions quickly and efficiently and appeared to answer them with accuracy.

Session Two: Consent, Selecting a Pseudonym, and Interview

Consent

To ensure on-going consent and to fulfill the requirements of the Human Ethics Board, students completed an additional consent form to indicate their

continued consent to participation in the study and to indicate their awareness that they could indeed withdraw at anytime without penalty.

Selecting a Pseudonym

After my initial presentation to the choirs, both groups indicated general curiosity about the process of the study. When I indicated that student identity would be protected through the creation of pseudonyms, interest was piqued! The boys asked if they could choose their own names. Surprised by their reaction, I indicated I would have to think about it. Stake (1995) indicates that matters of confidentiality "can be negotiated with all relevant parties agreeing to the change" (p. 57). As I had 5 participants in each group, I had intended to divide the alphabet into 5 sections and choose a girl's and boy's name from each and give a name to each participant in the order they took part, i.e. Student 1 (A-E), Student 2 (F-J), Student 3 (K-O), Student 4 (P-T) and Student 5 (U-Z). As the selection was something that SO interested the students (they asked about it AGAIN at the next session), I decided that I could involve them in this process, giving them ownership, and helping them enter into a better relationship with me prior to the interview. In order to facilitate this, I generated a list of possible girls' and boys' names reflecting the various ethnic backgrounds in each group (French, English, Irish, Welsh, and Muslim). Students were shown only one column of the sheet (with their name choices) and asked to highlight the name they wanted to be called in the study. At this time I reminded them that this name was their protection of confidentiality and to keep their names to themselves. The girls and boys appeared to be thrilled with the idea of choosing their own names. Not all students chose a name from their own ethnic heritage. Some

children preferred a name that was less identifiable than their original names and others preferred a name that sounded more exotic.

Interview

Following the signing of the second student consent form and the pseudonym selection, the choristers took part in an individual 30 minute, follow-up interview. The purpose of this interview was to gain an understanding of each chorister's musical background and problem solving strategies for the specific notational reading task they had performed the week before. I examined whether those strategies were consciously or unconsciously applied and tried to gain an understanding of each chorister's general strategy usage. The first portion of the interview was semi-structured (Borg & Gall, 1996), based on fixed questions (see Appendix D) pertaining to the student's musical background and listening preferences and informed by the questionnaire each student completed the session before. By asking relatively safe questions, I hoped to develop rapport with participants, and, at the same time, gather detailed information on the complex variables in each student's background.

The second portion of the interview was also semi-structured. The questions were developed in response to viewing each participant's video recording of the notational reading task. This portion of the interview was semi-structured to gather student understanding of their learning process and to become aware whether strategies were consciously or unconsciously applied. Following the second portion of the interview, students were shown key segments of the video and questioned on their strategy usage again, to jog the memory of those students who needed to be reminded of the context of the previous week.

The last portion of the interview was semi-structured to discern the students' larger understanding of musical problem solving. Throughout the interview I attempted to probe students' understanding by asking "Can you tell me more about that?" or "Please tell me more about this." Sometimes I would rephrase student answers to check for my understanding. Students often elaborated or corrected my understanding. Stake (1995) suggests, "trying out the questions in pilot form should be routine" (p. 65). Students in the pilot completed the questions with ease and generated fascinating commentary on their learning.

Analysis

Multiple forms of analysis took place. In accordance with Stake's (1995) processes of analysis, I was able to determine several emerging themes through direct interpretation and case aggregation. This was especially significant when examining the frequency of strategy usage and student comments on musical background in both the musical background questionnaire and in the interview. After determined searches for correspondence in larger patterns, the results of the questionnaire were coded. Video footage and tests of strategy usage[29] were examined for frequency of strategy usage. The audiotape of the performance and performance accuracy was also assessed. The transcriptions of the interviews were coded. Observations were

[29] To assess student use of strategies, definitions of the strategies in a musical context were created based on the strategies identified by Zimmerman and Pons (1986) and Killian and Henry (2005). These strategies were sought in student notational reading sessions and the frequency of their occurrence was noted as part of this research. Each time a student displayed a learning strategy that matched a definition, a tally was made. If it was possible that two strategies were being displayed, both were indicated. If a strategy was used in an on-going manner, to gather notions of frequency, each minute that strategy was used would be indicated again.

recorded in the effort to triangulate the findings with the other forms of data (Creswell, 1998, p. 202).

Summary

This chapter was an exploration of the methodology used in this study. A rationale for my decision to study this topic in the qualitative domain, particularly in the method of collective case study, has been presented. I have described the participants and outlined my role as researcher. My research procedures for data collection have been explained in great detail, and the processes for analyses and interpretation have been described.

The following chapters will address my initial research questions and themes which emerged from the data. Chapter 4 will explore participant profiles with an emphasis on musical background, and my impressions of student reactions to session one and session two. Chapter 5 will explore learning strategies employed and self-reported. Chapter 6 will describe student performance and chapter 7 will present findings and conclusions.

CHAPTER FOUR

There Are Many Voices in a Choir:

Tuning-in to the Individual Chorister

Introduction

Chapter 4 presents portraits of the choristers who took part in this research. Five members of the Youth Honour Choir and five members of the Boys' Honour Choir will be described. Each participant's physical appearance, musical background and preference, self-reported methods of learning music and self-reported preference for independent music learning, will be discussed, hopefully leading to a deeper and richer understanding of the complex individuals who make up our choirs. Participant confidence, response to the musical background questionnaire, notational reading session and performance and interview will be discussed, as will aspects of each participant's musicianship.

Profiles of the Youth Honour Choir

Emily

Emily is a tall slim girl in grade 9, who recently reached sweet 16. She dresses more or less in the style of her age mates. A spunky girl, in the reading session she sported happy face stickers on her cheeks, daring someone to notice her, laughing them away if they did. Her long hair is worn in a pony tail. She looks decidedly casual in appearance, in loose and artfully faded blue jeans with a purple polo top. Her casual dress seems contradictory to her studious behaviour in rehearsal, in the reading session, and later in the interview. Emily's face is intent when she is singing.

When changing pieces in rehearsal, or off-guard in casual exchanges of conversation, she seems ready to laugh with her friends. When at work, she demonstrates excellent posture and focus.

Emily has a fairly strong musical background. Instrumentally, she has been playing the flute for 4 years and viola for 5 years, taught by a variety of school board music teachers. Emily is somewhat self-conscious about her lack of piano training, though she is very confident in her abilities to play the flute and viola. Chorally, she has sung with three different choirs for a total of 9 years choral singing experience. Of those 9 years, 4 were under the direction of a well respected master-teacher. Vocally secure in her part, she sings in the alto section. This is her second year in the Youth Choir and in the city schools honour choir programs.

Emily appears to have very well-rounded tastes in music. Her parents "don't like modern music," though they listen to a variety of ethnic music and jazz (especially Diana Krall and Nora Jones). Emily commented that they sometimes listen to classical music at home. When asked about her preferences, she indicated she really enjoys playing baroque music, but that is usually on her flute, not in singing. She enjoys listening to modern music, especially Nelly Furtado and Gwen Stefani.

Socially, it would appear choir is important to Emily. She has taken part in the Nova Scotia Choral Federation Youth Choir Camp (YCC), a program that is not aligned with school programs, though one many music teachers recommend for interested singers. This camp is offered in the summer, requires a substantial financial commitment to attend, and is one where parents must make arrangements for

transportation to and from camp a couple of hours outside the city. Former choristers of the YCC speak passionately about the community building opportunities at the camp, about the conductors there, and of the beautiful music made in just a short week.

Emily described her experiences learning music in schools as being heavily influenced by note-naming and rote learning. She claims to have learned note-naming from "playing the flute, because it's always in the treble clef." She continued to describe her learning saying "I learned it (music) with my flute and then I just used that (the notes) with normal music." She described her use of rote learning explaining:

> When I just started working in choirs, I didn't know how to play any instruments, so I didn't know how to read music or anything like that. So I just listened to what the teacher was saying and I would repeat after her. Eventually I got to seeing how it connected with the music on the paper.

When asked about her independent music learning preferences, she explained her preference for a combination of learning by ear and reading the music.

> I just can't pull a note out of the air by looking at the music. I like to be able to hear the note sometimes, get a few starting notes or a little bit of encouragement from maybe an accompanist or somebody singing with me and sort of, the parts that are easy I can read from the music.

Emily was very apprehensive about taking part in the reading session. Although she clearly wanted to participate, she seemed to feel she wasn't a very good reader because she didn't know how to play piano. That being said, when she began the notational reading task, she got down to business and made very good headway. She was the sole participant to seek social sources of information and seek

clarification of the task she was asked to complete[30]. It appeared she was retaining overall formal information, helping her to make sense of what she was reading.

Emily appeared to enjoy the interview. She was pleasant, cheerful, and a refreshing conversationalist. Emily articulated her thoughts with a good deal of clarity, demonstrating the ability to reflect upon her own learning.

It would seem Emily views herself as a capable individual with a good level of musicianship. Her voice is secure, light, has good tone, and it would look as if she is somewhat of a leader in her section. Emily appears to be quite focused and motivated. Like many adolescents, she has periods of doubts. She, however, did not let that doubt affect her performance at the two literacy sessions and she appears to have learned from her participation in this study.

Ginger

Ginger is an attractive girl of average height and willowy build. In grade 9 and having recently celebrated her 16th birthday, Ginger's dress is similar to those of her peers. Her medium-long dark brown hair is cut in a long angled bob, bangs loosely framing her oval face. Favouring hoodies and close-fitting jeans, Ginger is the picture of unstudied style in the junior high "in-crowd." Confident almost to the point of cocky, Ginger throws herself into whatever she does. Her face is an open-book. Mild disdain shows with the roll of the eyes, the crossing of her legs, or the ill-disguised glance to her fellow choristers. When she is fully enjoying the music, her face is equally transparent: her eyes glow, her face seems lit from within, and she

[30] Emily was the only participant to seek social sources of assistance during the notational reading session. This will be explained in greater detail in chapter 5.

seems to channel the ephemeral meaning of the song the group sings with minimal effort and untainted joy.

Ginger has had many musical experiences. Self-taught for 4 years, Ginger is familiar with the piano and violin and has developed a basic proficiency in each. She has played trombone in school band for 3 years and has played viola in orchestra for 2 years. She has sung with her school choirs for 5 years. She prefers to sing soprano 1, though she tells me she is often asked to sing different parts because she has a good range. This is her first year in the Youth Choir and in the city honour choirs.

It seems that Ginger was at one time extremely motivated in her choral endeavours. She has attended the Acadia Summer Music Choir Camps, another well respected music camp program featuring social and musical development. Located approximately an hour and a half outside the city, this camp is held on the university campus and requires a hefty financial commitment as well as parents who agree to arrange transportation.

Ginger's musical tastes can only be described as eclectic. She explained: "As long as it has a decent beat and a pretty good tune, then I can handle anything. I listen from heavy metal, to techno pop, to classical and my parents more like the oldies." She continued the discussion telling how she loves to dance to pop and hip hop.

Unexpectedly, she revealed that she likes to write her own songs at home:

> Whatever I am thinking, if like it's rap, I'll write that down. If I'm thinking of hip hop or any type of music I am thinking that would go with that song, then I'd use that, and sometimes I'll even put in some slow songs, that kind of thing.

Ginger reported her music learning experiences in schools were influenced by many methodologies including hand signs/solfege, note-naming, questioning, and composition. When asked about the use of hand signs she shows attitude, rolling her eyes, and emotion. "*Do, re, mi*, blah, blah, blah. They (the teachers) use the *do, re, mi* syllables and that's basically it. Pretty simple, pretty straightforward." When asking her about the use of note-naming, she told of her first experiences in piano class. Her explanation of rote teaching was most focused on repetition when teachers identified mistakes, and her understanding of questioning to teach music seemed linked to her band teacher checking for understanding of trombone slide position, i.e. "What position is that? Are you sure? Etc." Ginger has some strong feelings about her experiences working with composition as a music education strategy. She believes composition

> gives you more of an experience about it (music) and it helps you learn it even more. It's like when you are trying to memorize a test. You write it down and then you make your notes. That's kind of what I would be doing with the reading or the, like, the writing part of it.

Ginger indicated on her musical background questionnaire that, when learning music independently, she prefers to use a combination of learning by ear and reading the music. However, in her interview, she mostly commented on listening.

Ginger seems to have no shortage of confidence. In fact, her apparent over-confidence causes me to wonder if it was not in fact a bluff, to maybe cover over her feelings. Her demeanour in the notational reading session was somewhat arrogant. She took cell phone calls leaving the rehearsal, didn't appear to listen to instructions, and then giggled effusively leaving the research room. She ran back to rehearsal,

being very disruptive in the halls, and came back to check on one of her friends in an equally loud voice during the rehearsal break. Her attitude may have disposed her to misunderstand or listen without understanding to the instructions. As a result, her performance could not be evaluated in the same way as her fellow choristers.

Ginger had no difficulty discussing her thoughts and feeling in an interview, though her earlier displays of attitude made it challenging to hold an in-depth conversation and made me doubtful of the veracity of her statements. Initially her musical background was quite impressive. Upon closer inspection, it seems that Ginger, though she has a wealth of experience, has rudimentary knowledge throughout. In her interest in learning many instruments, she has not made the commitment to learning one or two well. In her enthusiasm to do everything, one might wonder where exactly she excels.

Ginger has a real flair for the dramatic, and it would not be hard to imagine her becoming deeply involved in musical theatre in the future. The pop style that Ginger enjoys has found its way into her singing style. She scoops and slides, when not reminded by the conductor, in that breathy tone so featured by many popular artists today. Ginger has a well developed range and a good sense of intonation. Her natural enthusiasm often inspires her fellow choristers. After seeing her sing "with her eyes," there can be no doubt why she is musically valued in her choral community.

When Ginger is motivated, you could not find a keener student. Through her musical background questionnaire, it would seem this motivation is often short-lived. Unfortunately, her interest in the city honour choir has followed her previously

established patterns. One month prior to the end of year concert, a month after my last session with the girls, Ginger quit the Youth Choir. When the conductor contacted Ginger's mother to inquire as to the cause of the decision, the response given was that Ginger simply wasn't interested any more.

Margot[31]

In grade 8 and 14 years old, Margot is a young girl of average height and stocky build. Possessing a dark complexion with a funky shag hairstyle, Margot's individuality is announced with a trumpet, yet this seems to be in contrast with her reserved nature. Dressed in a vibrant pink tee with brown ribbon details outlining a cupcake, Margot seems just a little bit spunky. With Margot's peer group, this kind of look is usually cool, as long as it doesn't get too much attention. Margot's brown eyes seem to wear a shield, as if she doesn't really want to let anybody in, or at least, only on her terms. Margot seems to be very perceptive, aware of the many dynamics in her peer-group.

At the time of this study, Margot was becoming more and more musically involved. Margot has studied piano for 3 years. She started when she was six, played for a couple years, then stopped after her teacher moved away. This past year she has resumed taking piano lessons after a 7 year hiatus. Through the city schools music program, she has also played the trumpet for 3 years. Deeply interested in singing, Margot has taken voice lessons for the past 2 years. Chorally, however, she has very limited experience. This is her first year participating in any choir: both in her junior

[31] This name was her choice and does not represent her Muslim heritage in any way shape or form. I believe Margot may have chosen this name because she seems to want to fit in and French is one of the dominant cultures in Maritime society.

high choir and the youth honour choir. Margot reports experience in solo singing; however, it appears it has been primarily through her private voice lessons. Margot sings soprano 1 in the Youth Honour Choir.

Margot's family seems to have typical music tastes. Her parents like Billy Joel and light pop music. When the family is about the town, they seem to enjoy whatever music is playing on the radio station. Margot sings theatre tunes in her voice lessons and the school choir seems to focus on folk songs and anthems for peace.

It would appear rote teaching played the dominant role in Margot's music education. "He (the teacher) usually sings a song through … then I hum the tune… I (oo) it." It is not surprising then that Margot prefers to learn by ear. She explained: "I learn stuff more by hearing because I can, like, hear it and play it back in my head a couple of times and then I memorize it and I can sort of sing it."

To the outside observer, Margot appeared to be very confident and business like in the notational reading session. She listened and followed instructions in a manner that was very matter-of-fact. After watching the recording of what occurred inside the room, I changed my opinion of her confidence. Margot experienced many emotional outbursts during the practice session. Her tension was palpable and frustration was very high. In the interview session Margot was very pleasant. It was sometimes challenging to get her to explain her responses. Margot's age and experience seem to be somewhat different from her peers in the Youth Honour Choir. She did not respond to interview questions with the same degree of sophistication. She had a difficult time articulating her experiences in detail. Margot is somewhat of

an enigma. On the one hand, she is confident and anxious to please, but on the other hand, she is insecure in her musical abilities and unwilling to communicate.

Margot seems to enjoy choir for music's sake. A singer with a strong, clear voice, she has chosen to enter the choral world after taking part in vocal study. She appears to be dependable and committed to the group, with a well developed circle of friends. It would be interesting to learn the extent to which Margot's social group and satisfaction from singing motivated Margot to join both her junior high choir this year and the Youth Honour Choir.

Talibah[32]

Very tall and slim, Talibah is 13 years old and in grade 7. From outward appearances, she seems indistinguishable from her peers. Dressed in a crop-top hoodie cardigan, with a short black tee, layered over a long yellow tee and slim-fitting jeans, Talibah is the picture of the teenage norm. Her hair is worn back in a hair band and tied into a ponytail; loose bangs frame her face, which always seems happy. Mellow and laidback, she doesn't appear to have a care in the world. When she sings, her eyes do the work. Expressive and engaging, her music-making is about communicating a message.

Talibah doesn't appear to have an extensive formal musical background, though her home music life seems to be very rich. Instrumentally, she is a beginning percussionist who has been working on snare drum technique for 2 years. Chorally, she was a singer in the elementary girls' city honour choir last year. This is her

[32] This name was her choice and does not represent her ethnicity in any way. I believe she chose this name because it seemed somewhat exotic and that thought was very interesting to her.

second year of choral experience at the honour choir level. More content to sing in the lower register, Talibah sings the alto part.

Talibah seems to have an appreciation for a variety of music. Her mother loves Robbie Williams and *Great Big Sea*, while Talibah listens to hip hop at school dances. Her family actively makes music; Talibah jams with her brother, she plays the drum set, and he plays the guitar. Her family sings a variety of hymns in slow and fast styles at her own church and to those they visit. She explained: "We travel a lot, so we go to other churches too, where songs are very upbeat and everyone joins in. (In one church) they had a big screen, and everyone got to sing. That was good." It was with some regret that Talibah told me she wasn't in her church choir because it practices at the same time as Youth Honour choir.

Talibah acknowledges that her music teachers have used many different approaches to teach music. She described the hand sign approach: "We learnt some with the *do, re, mi* (showing the hand signs with her discussion). When we practice, sometimes we do it with the hand signs to try and make the notes sound better." In discussing note-naming, she informed me that her class started reading from notation in grade 4 and 5 at the same time they began recorder. She explained "I played recorder, so I did the *FACE* [33]and *Every Good Boy Deserves Fudge."* [34] She said this was helpful because "When I play bells and when I play percussion, then I can use that. And when I sing I can sing the different notes if I don't have something (an instrument) with me normally." Talibah understood teacher questioning in the context

[33] *FACE* is a common mnemonic device to remember the names of the notes in the spaces on the treble clef from bottom to top.
[34] *Every Good Boy Deserves Fudge* is a common mnemonic device to remember the names of the notes on the lines on the treble clef from bottom to top.

of students modeling musical examples, or in the context of teacher's assessment of musical understanding. Questioning for Talibah was not related to problem-solving or critical thinking. Talibah brightened up when I asked her about composition. It seems that she used composition in school choir and in music class in elementary to "work with different notes … to come up with (on our own) a little music thing. It helped me learn the notes better. We wrote them down. We sung [sic] them to the class."

When asked about her independent music learning preferences, Talibah indicated she preferred to use her ear. She explained:

> I'm not as good with being given a piece of music without any notes…like without knowing any of the notes. Um, I prefer to learn from echoing back so that I can get… so I can know what it sounds like… have an idea of the piece.

Although she did not talk specifically about rote learning in her interview, she indicated on her music background questionnaire that it was one of the methods with which she was taught. Her self-report of music learning strategies seemed to be heavily influenced by repetition and memorization, something that, though common to musical practice, seems to have a lot in common with methods taught through rote teaching.

Fairly confident, Talibah asked very good questions prior to beginning the notational reading practice session. Viewing Talibah's practice session, I saw many strategies at work. I was therefore quite surprised after hearing her performance. She seemed to have completely disregarded all semblance of a polished "beginning and ending." Talibah re-started her performance 3 times,

and I'm not certain that she ever really finished it. As a result, her performance could not be examined for overall accuracy.

During the second session, the interview, there was another strange occurrence. After choosing her pseudonym, Talibah began to pretend to be a different person. She started speaking with an exaggerated accent and invented an exotic personality. After discussing the purpose of the interview and assuring her that I wanted to know her, as she really was, she seemed to settle down to business once more. The remainder of the interview went as planned, but a concern remained in the back of my mind about the trustworthiness of this participant.

A very interesting case, Talibah has a high level of confidence and seems to have a lovely voice. A motivated chorister, I am sure she would go the extra mile. Although she does not mention her friends, I suspect they are a motivating factor for her participation in this group.

Vivienne

In grade seven and 12 years old, Vivienne stands poised and confident before singing her first notes. Of average height and build, dressed in a powder-blue hoodie-cardigan and close-fitting jeans, she looks very young and impressionable in contrast to her steady nerves. With chestnut brown hair tied back, a fringe of bang escapes. She is bejeweled wearing long silver dangly earrings and a simple silver heart around her neck. Her eyes seem to reach out to others, when one might think they would be hidden behind her glasses. This young girl has a real presence; she seems so childlike and yet so very mature at the same time.

Vivienne has a musically rich background although her formal music education is really just beginning. This is Vivienne's first year singing in the Youth Honour Choir. An active participant in school musicals, she has sung solos in *The Music Man* and *The Wells Fargo Wagon*. Vivienne prefers to sing in her middle range and is usually asked to sing soprano 2 or alto. Instrumentally, she has been playing piano for 2 years. She has been very busy this year preparing for her Royal Conservatory of Music Grade One exam. For the past two years she has also been learning to play trumpet in her school band.

Vivienne's family listens to a wide variety of music. Vivienne attributes much of her listening habits to her family's British and Scottish heritage. Her family listens to groups like *The Rankins* and makes music in the Celtic style. She notes they really like listening to music in Gaelic. A typical preteen, Vivienne listens to the radio. Her station of choice is C100 — a contemporary light rock and pop station. Vivienne's family doesn't just listen to music together, they make it together too.

> We are always going up to Cape Breton … doing like the square dancing and stuff. My brother plays the fiddle… a lot of the time he is doing songs that we know, and I'll sing with him when he plays that. Sometimes on the piano I'll just make up a tune to go with him.

Vivienne described many methods by which she was taught music. Interestingly enough, she mentioned her older brother as her primary music teacher. She indicated that she learned the notes and their names from him, because he took piano lessons first.

> I used to sit in there and I would just kind of listen to their lessons because I would do my homework at the same time. I wasn't really paying attention to my homework. She would always name off the notes and so does our band teacher. She used a lot of note naming

> before we could read the notes. She would write the names above the notes before we could play them.

Vivienne touched upon rote teaching in choir: "We do quite a bit of echoing actually, because Mrs. T. will example something and we have to try and do it." She switched very quickly to speak about a method she obviously enjoys—composition. She explained how she and a friend were in the process of writing a piece called "I Can't Believe It's Only Two Lines." She was quite excited because their piece uses repeat signs on each line, so it sounds much longer than it looks. She hopes her band teacher will want them to do another piece next year. She believes using composition has helped with her notes: "I used to have so much trouble with my notes, but now I finally know them all and it's actually really interesting trying to get all the bars and to get four notes in each one and stuff."

When asked how she prefers to learn music independently, Vivienne explained how she likes to use her ears best. "If I see something, sometimes I will have trouble doing it. If my teacher explains it to me, I will do better. If I heard the song before, usually I can get it much better."

Working with Vivienne on this study has been a real pleasure. She was cheerful and pleasant throughout both sessions. She did not appear to be apprehensive in the least. She completed her notational reading session and performance in a manner that was business-like and efficient. Her demeanour in the interview session was open and honest. She made her thoughts known in an articulate way. It was obvious that she enjoyed thinking about her learning processes.

Musically, Vivienne is still very young. Her voice has that breathy/unfocused sound often associated with adolescent girls. I believe Vivienne's "can-do" attitude makes all the difference in how her sound is projected. Her tone is quite good and her intonation is still developing. I had the pleasure of hearing her sing a solo following the data collection and I was astounded at the growth I heard in only a few short weeks. A motivated chorister, Vivienne is the type of keen singer every conductor wants in an ensemble.

Profiles of the Boys Honour Choir

Dustin

In contrast to his big voice, Dustin, a small boy aged 13, stands ready to sing. Tanned skin and shaggy hair, he exudes a casual confidence. His eyes don't miss a thing; he seems perennially alert and ready for action. Outgoing and self-assured, he keeps a steady stream of intelligent conversation flowing. Whether he is dressed in a blazer or a long sleeved polo top, he never seems to quite fit the "average" mold of his peers. It isn't just about his appearance, but rather, about his energy. There is something about Dustin that causes people to take note and listen.

For someone so young, Dustin has a great deal of musical experience. He started playing the piano at age 4, and began taking voice lessons at age 9, a year after he joined the Boys' Honour Choir, with whom he has sung for the past 5 years. He continues to study piano and voice and has achieved a high degree of proficiency, gathering accolades at local music festivals. This past year he has begun learning to play the guitar. Having participated in his elementary school choirs for the past 2

years, this brings his combined choral experience to a total of 7 years. During that time he has sung many solos. It is no surprise that Dustin has been singing key roles in semi-professional musicals for the past few years.

An interesting boy, Dustin has been exposed to a variety of different music styles. Having sung choir solos in songs by Simon and Garfunkel and Leonard Cohen, he is open to soft pop, though his family prefers Q104's more hard-core rock n' roll. Dustin admits he doesn't listen to "the really contemporary stuff" because he likes "the older music." If he is going to make music at home, he chooses "belters…like a very large older kind of singing piece…do you know 'Bridge Over Troubled Waters?' Like that." At school he avoids his friends' musical preferences for contemporary pop and rap. It seems he deliberately chooses to be an anachronism, he doesn't try to fit in – he tries to stand out. He goes for what he knows he likes, the old stuff.

When asked about his music instruction, Dustin acknowledged he has been taught using a number of different methods. Dustin explained his hand sign and solfege use through demonstration: he sang the scale (*do, re, mi, fa, so, la, ti, do*) while using his hand signs. He explained that solfege and handsigns have helped him:

> because if anyone gives me a C, I can be like *do*, and that's a C (singing C and showing the hand sign *do*). You can use the scale with the technical names too, like the tonic, supertonic, that kind of thing.

Dustin referred to rote singing as something particularly practiced within the Boys' Choir:

> She [conductor] would sing a section and then we would sing it directly after her. As to like help us learn exactly how it goes. When we're learning using that technique it's really for dynamics, so we can

> properly understand how it's supposed to, like, fluctuate within the music. How it's supposed to go up, louder, softer.

Dustin mentioned note-naming as a method taught in conjunction with his early piano instruction. He described the mnemonics of "Creepy Critter C, and Fireman Fred" as a tool to learn to read the notes. He believes this note-naming approach has helped:

> especially with me, being able to read music beforehand. I joined my school choir the year after I joined honour choir. I went into school choir with a lot of experience and knowledge about music and stuff and I was often helping other people read the music and stuff.

When I asked Dustin about his composing background he told me that none of his teachers ever really taught him to compose. He indicated, however, that it was his piano teacher that encouraged him. As a result of this encouragement he entered a piece in the Atlantic Provinces composition competition, where he came in fourth. Dustin says composing helped him with theory, and in understanding where to put tonic chords in his accompaniment. This is important to Dustin because he is getting ready to take his Royal Conservatory of Music grade 3 harmony next year. He believes composition "is definitely a part of theory that you would want to learn."

After understanding the extent of Dustin's musical background I was very curious about his preferred method of learning music independently. On his musical background questionnaire he circled the response, "I prefer to learn music independently with a combination of learning by ear and reading the music." He explained that when he's:

> learning by ear it's usually the teacher singing it first and then me singing it after, or like me hearing the piano first and reading what I have to sing because I can see the music in front of me or play it on the

> piano. Cause I'm hearing it by ear. By reading the music I'm taking the music and saying to myself, okay, I see that this is supposed to be *forte,* and this is supposed to be *piano*. Or, this is supposed to be faster; so I can better myself when I'm singing.

Dustin clearly synthesizes the sounds he is hearing with the notation he is reading, taking note of larger patterns. It seems, in his description, he is self-directing and checking for understanding.

It was a pleasure to work with Dustin in both sessions of this study. I very much enjoyed listening to him sing and found myself fascinated with his answers. Open-minded and articulate, he was able to put his experiences into words. His experiences and unique perspectives were intriguing. Sometimes I was a little suspect of his confidence that leant a little towards self-importance. In retrospect, I feel he was being a typical adolescent boy, seeking approval from someone other than his regular music teachers. I can only imagine it would be a challenge to remain humble in light of so many exceptional musical experiences, especially without the maturity of experience. There is absolutely no doubt about this boy's musicianship: he is a student to be watched. I expect to hear great things from him some day.

In terms of motivation, Dustin puts himself entirely into his music. He makes careful arrangements to honour his commitments, considering his very busy schedule. Dustin is truly every conductor's dream. His leadership is likely to be very significant to a good many young boys entering choir for the first time.

Isaac

Tall, slender, and fair, Isaac stands ready to sing. Gangly limbed and little bit awkward, 14-year-old Isaac is eager to be moved into the high school-aged chamber honour choir when his voice changes. Isaac confides in me that since he has been singing alto for a long time, he thinks he will join the new choir next year. Sporting a trim and tidy haircut, his eyes look through dark-rimmed glasses. Dressed in a navy blue t-shirt featuring aboriginal art work and a pair of loose fitting jeans, Isaac looks a lot like his peers, though he is clearly much older than any of the other boys in the choir. Although he wouldn't be chosen as the picture of style, he very well might be chosen as the picture of average adolescence.

Isaac has, by anyone's standards, a well-developed musical background. He has played piano for 7 years, saxophone for 3 years, and is in the process of teaching himself to play guitar. Combined, he has 10 years of choral music making experience: 3 at his middle school, and 7 in the boys' honour choir. Isaac's middle school choir was directed by a well known master teacher. Although he has sung solos, he does not remember exactly which pieces and on which occasions. Isaac does not study voice, though he professes a deep love of singing.

A diverse listener, Isaac enjoys jazz and contemporary pop, which he sometimes plays on the piano. From time to time Isaac jams with his brother, playing piano duets when family and friends gather round. At other times, Isaac likes to sit down at the piano and announce and play his favourite tunes for all and sundry. Isaac describes his family's taste as leaning toward alternative music, especially *Red Hot Chilli Peppers,* Jack Johnson, and *ColdPlay*. Although he claims the family doesn't

listen to music in social situations, he says it is always playing in the background, "like ambient music." Isaac seems to enjoy his instrumental band experiences, especially when the repertoire is based on movie soundtracks like *The Lord of The Rings* and *Pirates of the Caribbean*. Isaac is definitely open to a variety of musical styles.

Isaac recalls being taught music through a few different methods. His recollection of note-naming was not associated with the use of mnemonics like *FACE,* but consisted of learning the names of the notes as being matched with a certain line. His experience with note-naming was linked with quiz-show style learning games. Isaac also remembers questioning techniques as being linked to game-show style participation. One of Isaac's fond memories seems to be about the use of action games or circle games as part of a movement-based approach. Circle and action games have often been key areas in lower elementary education. Echo learning or rote learning seems to have had a large role in Isaac's music education. Isaac described rote or echo teaching as follows:

> That's when you play or sing back. I'm really good with my ear so that's how I play the piano. It came to me when I first started playing. By listening I could easily correct if I was singing a little bit off; then I could correct it and make it sound really good.

When asked to describe his own independent musical learning, Isaac repeated his earlier thoughts abut how he likes to learn by ear: "When I first hear songs, I usually play them." He went on to tell about how he used that process in the past. He clarified, saying:

> After I heard one boy in the choir was playing a song on the piano, I went home and I played it, and then a few weeks later I bought the

> sheet music, and the way I was playing it was exactly as it was written. I heard it and I went home and tried to figure it out to see how it would work and I just got it pretty quickly. It just came to me.

Isaac was a fine participant from whom to gather data. He sounded very confident beginning the notational reading session; he followed all pertinent instructions. His musical background questionnaire was completed thoroughly and he even came back the following session to add something he had forgotten. In the interview, he was open and honest. He articulated his thoughts very well. In all, Isaac is a very agreeable boy from whom I learned a good deal.

Confident, Isaac seemed very capable and mature throughout this process. He thoroughly read every word of every consent form and asked very intelligent questions. Musically, he is quite secure in his part. His tone is lovely and I am sure he is a fine role model for the younger boys in his group. He was the only singer who performed a vocal warm-up prior to beginning the notational reading session.

Any chorister who has made and honoured a 5-year commitment to any ensemble is automatically somewhat exceptional. Music is indeed very significant to Isaac and he has gone out of his way to understand different ways in which to learn. I hope he will remain an active singer in the city honour choir programs.

Nathan

Crowned with a head of thick brown hair, 11 year old Nathan gets ready to sing. Large and watchful, his deep brown eyes, clad in curly eyelashes, look around the research room. His youth is immediately apparent; naiveté is written all over his fair face. A small but sturdy boy, Nathan is ready to tackle any challenge head-on.

Dressed in a red Ottawa senators t-shirt, he seems to be like many other preadolescents, outwardly a little rough-and-tumble. Nathan seems to be quite different from many of his other chorister friends. When singing or solving a problem, Nathan concentrates intently. Eager to please, Nathan puts himself to work in a manner that is determined and self-possessed. He demonstrates faith in himself and in the tasks he will be asked to complete.

Nathan does not have an extensive formal music background. Last year Nathan sang in his school choir for the first time. After enjoying that experience, and upon his music teacher's recommendation, he auditioned for the Boys' choir. This is Nathan's first year taking part in city honour choir programs. He sings soprano 1. Proud to have sung a solo in his school Christmas concert this past year, Nathan tells me he really enjoys singing though he does not take formal voice lessons. Instrumentally, Nathan has been playing the fiddle for 3 years. He is looking forward to taking bagpiping class this summer. He is currently too young for the instrumental band program though he eagerly awaits band instrument testing day next year.

Nathan tells me he and his family prefer to listen to country music, though I think he means "Celtic" music. His family's favourite group is *Great Big Sea* and they often go to Cape Breton *ceilidhs*. Nathan's interest in Celtic music sounds like it has grown: his current elementary music teacher, known to be innovative and community-minded, held a *ceilidh* at school and invited the parents and students to dance traditional sets. When asked to describe the music he is learning in school, he initially claimed he isn't really learning anything. With further questioning, he explained how in violin he learns to play fast and slow. He really likes the

"Mississippi Reel." He continued to elaborate on his school music experiences, explaining that his class is learning about aboriginal music, though his earlier comments suggest that isn't really important to him. With little encouragement, he commented very positively about his school choir, explaining how he enjoys learning music in French and that he just started to learn French this year. For Nathan, learning is exciting. Sometimes I am not certain he is aware of the extent of the material he is being taught.

When asked about the ways he has learned music, Nathan only spoke about rote learning. He believes rote learning is for solving troubles with a part. "If like the choir was having trouble learning a part, they [teachers] sing it for us and then we have to repeat it and then we can hear what we have to sing." He believes this is a good way to learn because "you can hear how to tune your voice."

When asked how he learns music on his own, he stated a preference for learning music by ear. He explained:

> I usually like to sing the song by myself for a bit and then if my voice doesn't sound right, if I'm shaky I try to make it stronger, and tune it the way I think the words should sound like.

Nathan responded very well to the notational reading session, the performance, the musical background questionnaire, and the interview. An interesting boy, I enjoyed getting to know him and learning from him. Not always able to articulate his process, I asked Nathan a variety of different questions in the interview.

The youngest chorister in this study, Nathan possesses a fine voice with a very nice tone. Unfortunately for Nathan, his approach to singing the song by himself did not help him to realize the notation, nor did it demonstrate his singing expertise. He

learned many things in that notational reading time, but not necessarily what I expected. His musicianship is still emerging and holds great promise for the future. The monotone singing that I heard in this study is not representative of what I heard in rehearsal.

A motivated individual, Nathan desperately wants to please. Boys' Choir seems to be a real community where differences are honoured. I am certain that Nathan does his best to be a good singer. His determination alone makes him an asset to any group.

Quincy

12 years old, tall, slim, and athletic, Quincy stands ready to sing. Dressed in a vibrant yellow "running buddy" t-shirt and baggy jeans, Quincy seems very confident about the notational reading session that is about to start. Fair-skinned, blond with glasses, his long face and analytical expression makes me think of a young Harry Potter.

For a boy of 12, Quincy has a well-developed musical background. Quincy's first instrument was the recorder; it was used to prepare him to begin piano lessons. After his recorder experiences, Quincy began taking piano through a local program called the *Keyboard Connection*. He has played piano for 7 years since that time. In mid-elementary school, Quincy began to study the violin. He has taken 5 years of lessons from the City String Program. For the past two years, Quincy has played flute in instrumental band. Chorally, Quincy has sung in well-respected ensembles for a combined total of 9 years. Quincy has sung with his school choir, whose director is considered to be a master-teacher, for the past 5 years. He has sung with the Boys'

Honour choir for 4 years. Though Quincy does not take voice lessons, he spoke fondly about one of the solos he sang with the BHC.

> I sung [sic] a verse of "Old Joe Clark," and wore a hat and acted it out as if I was going to Old Joe's house for supper. Half of the school won't let me forget it because Honours Violins were there too… they saw people from my school (laughter).

Quincy's musical preferences have been shaped by a musically diverse home life and educational experiences. Quincy described his family's listening habits as changeable, related to what's on the radio at the time. He mentioned that Jack Johnson is a current family favourite. Quincy explained that "It's never death metal, or super rock, or rap, or anything like that. Sometimes we'll listen to classical while waiting for something." In school Quincy described his peers' listening habits and his habits when he is with them:

> We listen to *ColdPlay* and the *National Anthem* (more laughter). I don't bring MP3 players to school. At the school dances it is just a combination of music. There's sometimes rap, slow songs, and fast songs. Sometimes the songs are computer generated.

When asked about the music Quincy makes at home, he explained:

> I usually play more classical type music. I do jazzy pieces and pieces that don't have a category. My brother is more into pop and jazzy pop. Oh and I like music from *Star Wars* too. Sometimes I do fast music on the fiddle. But in band, we are doing *Lord of the Rings* and "In the Hall of the Mountain King."

Quincy reported being taught music with a variety of strategies. His experiences learning through note-naming are closely associated with his piano learning experiences in the *Keyboard Connection* program: "She [teacher] asked if the parents could stay too. We would have contests … she would hold up the card for you to say the name of the note before the parent." Quincy also associated rote

learning with his keyboard experiences. In this context, he relates it to echo-clapping. When probed, he discussed rote learning in band:

> She would sing it, the piece out once for us, then she would play the notes and everyone would repeat after her. So play the notes, sing the parts, and everyone would have to repeat and keep on going in bigger and bigger sections, until we learn the whole piece.

Quincy's understanding of the use of teacher-directed questioning referred to memorization of lyrics and sometimes for understanding of inner hearing related to being able to sing a particular note after a prolonged instrumental accompaniment.

Quincy's preferred method of learning music independently is to use a combination of reading and listening. He explained the reasons behind his decision:

> I'm really good at sight-reading. I do a lot of listening through the Royal Conservatory of Music CD tracks that go with my book. The CD was played by a really skilled musician, so like, they play perfectly. You would just listen to it and then if you went back and you were stuck, you could see what it sounded like and play it better.

Quincy responded very well to the notational reading session, performance, musical background questionnaire, and interview. He was interesting and quite articulate; I feel I understand a great deal about his learning process. It seems Quincy has a very strong self-concept. He was very confident and demonstrated strong musicianship. His voice is a pure soprano. A very controlled individual, when Quincy focuses on achieving a goal, it is easy to see that he achieves. Highly motivated and committed, Quincy would be a welcome addition in any choir.

Zeke

Tall, thin, and dark-haired, Zeke looks more like a young man than a boy of 12. Shortly after our introduction, Zeke was sure to inform me that he would be 13 in a few months time. His tan face is square-shaped, framed by longish brown hair falling in unruly waves. Dressed in a comfortable hunter green hoodie and dark pants, like most preteen boys, Zeke places comfort ahead of appearance. Without any fuss, he is ready to sing.

Zeke has had many musical experiences. Instrumentally, he has played piano for a very long time (he forgets how long). For the past 3 years he has played the violin as part of the City String Program. In addition, he has played clarinet as part of the instrumental music program for the past 2 years. Self-taught on drums, Zeke is also involved in informal music making. Chorally, Zeke has had a combined total of 9 years of choral music making. He has sung with the Boys' Honour choir for 5 years and with his school choir for the past 4 years. His school music teacher is known locally as a master-teacher. Although Zeke does not take voice lessons, he has performed solos, including "Once in Royal David's City."

Zeke's musical tastes can only be described as eclectic. "At home I listen to jazz and blues and rock," while his parents listen to other types of music. At his church they perform African songs and he plays "a really neat percussion instrument, it is like a box it has a hole in the back and strings inside." When he is at his house "[he] play[s] classical music on the piano and make[s] up [his] own jazz tunes and stuff." At school his class sings songs like *The Beatles* "Yellow Submarine." The band plays classical and jazzy tunes (on the clarinet).

Zeke reported learning through two main methods in his music education. He described his experiences in solfege and hand-signing like this: “During elementary school we learned each the *do, re, mi,* well, all those notes, and [while] we were learning them, we would learn those signs at the same time.” He described rote teaching: “The teacher would sing the part, either using *do-ti-do* (using his hand signs), or the actual words, and then she’d sing it … a couple of times and we would have to repeat it. “

When asked about how he prefers to learn music independently, Zeke stated a preference for learning with a combination of hearing and reading the music. He thinks:

> The teacher should sing it, but you can read along with your music and follow it as you are going instead of just learning the piece and then when you are given the music, you don’t know how to read it or you don’t know what part it is. It’s easier to know right from the beginning.

Zeke was a fine chorister with whom to carry out this research. He approached all aspects of the data collection with openness, honesty, and articulated his thoughts well. Zeke has an unusual personality: he is both very matter-of-fact and calm at the same time that he is enthusiastic. After witnessing his somewhat distracting behaviours in rehearsal, I was pleasantly surprised at the depth of his reflection and involvement in this research. Unfortunately, the interview session with Zeke had to be shortened due to family commitments. Every moment he was taking part, however, was efficiently conducted and with a willing attitude on the behalf of the chorister.

Zeke is a confident musician whose lovely alto voice is deep, warm, and resonant. He demonstrated superb vocal independence and ability to maintain his own part. Deeply analytical, Zeke's process was fascinating to study. A gifted musician, I expect to hear about Zeke in the local music scene in the near future.

Summary

This chapter provided in-depth portraits of choristers from the Youth Honour Choir and the Boys' Honour Choir. Physical appearance, musical background and preference, self-reported methods of learning music, and self-reported preference for independent music learning were described to gain knowledge of the many dimensions of the individuals who participated in this study. Participant confidence levels, interactions with the researcher and research materials, as well as musicianship, were discussed.

In the next chapter, learning strategies based on the studies of Zimmerman and Pons (1986) and Killian and Henry (2005) will be sought after in each chorister's notational reading session and in the interviews that followed said reading session. Frequency of observed findings and student self-reporting will be discussed.

CHAPTER FIVE

Metacognitive Strategy Usage: Thinking about Their Thinking

Overview

This chapter is an exploration of the metacognitive strategy usage of 10 participants in extracurricular honour choirs, engaged in the notational reading task of learning a new piece of music within a 15 minute notational reading session. This chapter explores both researcher observation of these strategies from the video recording, and student discussion of learning through the 30 minute interviews which followed the notational reading session one week later.

The strategies of particular interest come from two studies: Killian and Henry (2005) and Zimmerman and Pons (1986). Music-specific strategies were identified by Killian and Henry in their study *A comparison of successful and unsuccessful strategies in individual sight-singing preparation and performance.* In my study, all participant behaviours and self-descriptions are analyzed for the following successful sight-singing strategies identified by Killian and Henry (2005): tonicization, use of hand signs, keeping the beat in the body, keeping a steady tempo, singing out loud during practice, finishing the melody within the time frame, and isolation of problem areas. Strategies from the field of educational psychology, and specifically, the self-regulatory strategies associated with metacognition come from Zimmerman and Pons' (1986) study *Development of a structured interview for assessing student use of self-regulated learning strategies.* In my study, these more global strategies are described as they might occur within a music-specific context, and participant

behaviour and self-description are analyzed for strategies associated with self-regulated individuals, including self-evaluation, organizing and transforming, goal-setting and planning, seeking information, keeping records and monitoring, environmental structuring, self-consequences, rehearsing and memorizing, seeking social assistance, and reviewing records.

Observations of the targeted strategies occurred in two different ways. Killian and Henry's (2005) musical strategies were observed to determine if they occurred or if they did not occur. Zimmerman and Pons' (1986) strategies were observed for their occurrence and for the frequency of that occurrence. Strategy-use can be difficult to determine (one strategy may look decidedly similar to another). In my study, if it appeared that one of two strategies could be in use, both were indicated. If a strategy was repeated for a long duration, each minute that the same strategy was used, it was indicated again. There was no effort made to regularize observation of student learning strategy as all students used a variety of strategies with varying frequency in order to achieve the same task, in this case, to learn a new piece of music within 15 minutes.

In order for students to comment on their learning, it was important to have some understanding of their background. Participants reported on how they were taught music in their musical background questionnaire the week prior to their interview. After watching their notational reading sessions on video, I created a set of questions that pertained to their musical background and then added questions that addressed both general music learning situations and the specific study, which involved learning a piece of music in the notational reading session. Students were

asked how they learned the music in both general and specific contexts. If students indicated they could not remember a specific context (from the notational reading session) of questioning, I cued up their video to show them the context for the question, in order to remind them of the processes they used in their learning. It was fascinating to hear what students remembered without cues and what they could add when they saw their footage.

Procedures of observation and self-reporting described in this chapter were influenced by the sight reading and self-regulation literature as well as research texts. The idea to show students specific contexts of a question through video tape when they were unable to remember (in the interview), was my own.

Music-Specific Strategies Identified By Killian and Henry

Each strategy discussed shall be identified and supported with a learner's self-reporting of this strategy. Table 1 is included to assist the reader's global comprehension of how the participants put Killian and Henry's (2005) strategies into action in the notational reading session.

Table 1. Student usage of strategies as identified by Killian and Henry (2005).

	Emily	Ginger	Margot	Talibah	Vivienne	Dustin	Isaac	Nathan	Quincy	Zeke
1. Tonicization		✓			✓	✓	✓		✓	✓
2. Used Hand Signs										
3. Kept the Beat in the Body						✓	✓			✓
4. Kept a Steady Tempo		✓				✓			✓	✓
5. Sang Out Loud during Practice	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6. Finished the Melody Within the Time Frame		✓				✓	✓	✓	✓	✓
7. Isolated Problem Areas		✓	✓			✓	✓		✓	✓

1. Tonicization

Tonicization is the establishment of a tonal framework in which to maneuver. In the notational reading session, that sounded like a sung tonic triad/arpeggio, or other figure reinforcing the tonic key. Ginger, Vivienne, Dustin, Isaac, Quincy and Zeke all used tonicization in their notational reading session: 60% of all participants used this strategy. Henry (2001) found that students who used tonicization as a strategy had significantly greater success in sight-singing.

Emily had difficulty with tonicization, and I speculate this is for two reasons: 1) sounds were coming into the room from the rehearsal next door, and 2) she had limited knowledge of the piano. Emily did try to reinforce her opening pitches, but was frequently unsuccessful. Vivienne spent about a minute and a half internalizing her opening triad. First she played the triad on the keyboard, and then she sang the triad in words. She explained:

> I try to hear it so I can sing it. I always have trouble if I haven't heard it… Oh gee, I'm not going to be able to do it just looking at it. I can't really match my voice, my voice will start cracking if I don't [listen and then sing the triad].

2. Used Hand Signs

Use of hand signs (often associated with Curwen, Glover, and Kodaly) has been correlated to overall sight-reading success (Killian & Henry, 2005)**;** hence I watched for the utilization of this strategy. None of the participants used hand signs.

3. Kept the Beat in the Body

Killian and Henry (2005) indicate that keeping the beat in the body is a strategy often associated with more successful singers. In this study, Dustin, Isaac, and Zeke, 30% of all participants, did so.

Dustin kept the beat in his body throughout most of the notational reading session. He commented on how physically keeping the beat made him aware of his internal rhythm challenges:

> I could tell [that the rhythm was a mistake] because I was constantly tapping the beat out on my leg while I was singing it. So, what happened is that I was singing … and then I realized that it wasn't with the beat and that the rhythm has to be like within the beat and I realized that it didn't work properly.

Isaac also kept the beat in his body. He explained how tapping helps him with the rhythm. "I find tapping helps me, so *ta, ti-ti*, all that sort of stuff, it's pretty simple once you tap. It's kind of like being a metronome."

4. Kept a Steady Tempo

Also related to rhythmic tasks is the ability to maintain a steady tempo. According to Killian and Henry (2005), 100% of all high and middle accuracy singers perform this strategy. In my study, Ginger, Dustin, Quincy, and Zeke, 40% of participants, kept a steady tempo.

Ginger kept a steady beat throughout her session and performance. She explained her private strategy saying**,** "it's easier to get the beat if there is something there. Like at home I usually stamp my foot when I play my instruments." Dustin agreed with Ginger. He started to snap the beat with his fingers, and then announced loudly**,** "It's 4/4 time." He explained how he checked the tempo marking that says

> quarter note equals 108. I know 108 is very fast. Instead of me singing slowly I knew I had to sing it faster and realized that I was counting to 4/4 time so there was four beats in the bar. I realized by doing this [snapping and stamping] I could really hear it. I was doing it almost to feel it instead of hearing it. It helped me make sure I had the beat at all times.

5. Sang Out Loud During Practice

Singing out loud as a strategy is related to higher sight-singing success. Killian and Henry (2005) speculate on the possible reasons for this: it may reflect a high level of individual confidence; it provides students with the opportunity to hear the melody and to determine if it has been sung correctly**;** and, if it is in fact correct, it may help student memory to be able to accurately reproduce it in performance. If the melody is incorrect and the student perceives that fact, s/he may have the opportunity to work out the errors. All of my participants (100%), sang out loud.

Emily supports Killian and Henry's findings. She explained why she hums and sings out loud during her practice. She said, "It's nice for me to hear it a couple of times over and over again to sort of get into the feelings of it and start remembering what my starting note is." Emily sings so she can hear the tune and make adjustments if she believes it is necessary.

6. Finished the Melody Within the Time Frame

In Killian and Henry's (2005) study, finishing the melody within the time frame was achieved more often by high-accuracy singers. In my study, Ginger, Dustin, Isaac, Nathan, Quincy and Zeke, 60% of the singers**,** finished within their allotted 15 minutes. Time management skills seem to be very important in notational literacy tasks. Although Margot didn't complete the melody within the time frame it

was definitely one of her goals. “I was trying to learn the whole piece in the time frame,” she said. “I was kind of like getting nervous, and was like, I can’t learn it in 6 minutes.” Likewise, Talibah did not complete the melody within the time allotted, yet described it as an important strategy:

> If I am having trouble with something, I will work on that, but I will try to get the whole piece done. If I am having more trouble on something I focus more on that than the rest until I understood [sic] it.

She indicated at the end of the interview that given more time, “there seems to be another part of the music that I didn’t get to yet.”

Quincy, who did finish within the allotted time, spoke about how he organized his practice. He wanted to ensure he had enough time to sing the piece through a couple of times and then look at his trouble spots. When he saw the 10 minute mark on the timer, he went to “see how many times I could go through it and then if I would have any time after just to look around… look at a couple of things.”

7. Isolated Problem Areas

Research suggests that higher-accuracy singers know how to skim the music, and skip over repeated sections, or items that are easy for them to sing (Killian & Henry, 2005). They are more likely to isolate musical problems, presumably, using their time on what they know they need to learn. In my study, Ginger, Margot, Dustin, Isaac, Quincy and Zeke, 60% of all participants**,** isolated problem areas.

Although Emily did not appear to isolate problem areas in this notational reading session, isolating the problem spots was the one strategy she suggested when I asked what she would still like to do if she had more time. Nathan as well, though he did not demonstrate isolation of musical problems, described specifically how he

would isolate problem spots if he had more time to work with his piece. Likewise, Talibah, who also did not appear to isolate problems, described that as one of her approaches. She said:

> Instead of just going through the entire piece, because if you were building something and instead of just laying out something that was really wobbly… In order to be strong, you do it in chunks, because then it will be stronger and you would know it better. Instead of doing everything that you didn't know very well.

Margot did not appear to work on her music in isolated sections, but she, too, reiterated what Emily said: that with more time, "I would sing the whole song through and then the little parts that I didn't understand." Dustin definitely isolated problem sections. He explained, "I realized that it was the difficult part I wanted to make sure I had it, right, fresh in my mind."

Global Metacognitive Strategies of Self-Regulation as Identified by Zimmerman and Pons

Each strategy discussed shall be identified; frequency of observation shall be described, as shall learner's self-reporting of this strategy. Table 2 is included to assist the reader's global comprehension of how the participants put Zimmerman and Pon's (1986) strategies into action in the notational reading session, within the music education context.

Table 2. Student frequency of strategy usage as identified by Zimmerman and Pons (1986)

	Emily	Ginger	Margot	Talibah	Vivienne	Dustin	Isaac	Nathan	Quincy	Zeke
1. Self- Evaluation	14	14	16	9	12	10	10	1	9	7
2. Organizing and Transforming	1	2	2			5	4		2	
3. Goal-Setting and Planning				2		3				
4. Seeking Information	2	2		2		3	3	1	1	1
5. Keeping Records and Monitoring										
6. Environmental Structuring			2		1	2	2	1	2	2
7. Self-Consequences	1	3	11	2	1	10	1	1	1	
8. Rehearsing and Memorizing		5	7			6	2	9	5	4
9. Seeking Social assistance	1									
10. Reviewing Records										

1. Self-Evaluation

According to Zimmerman and Pons (1986), self-evaluation strategies indicate that a student is checking or evaluating her/his work. In a music context, self-evaluation strategies may look or sound like a student singing a melody note and then checking with a pitch-source (keyboard, piano, tuning-fork, etc). It may also include the student singing the melody unaccompanied, periodically inserting a given pitch note to check for accuracy. This, of course, could be a student self-correcting, based on aural perception, which would include rhythm and text as well as melody. In this study, 100% of the students used self-evaluation as a metacognitive learning strategy. Ninety percent used this strategy the majority of the time (see Figure 1).

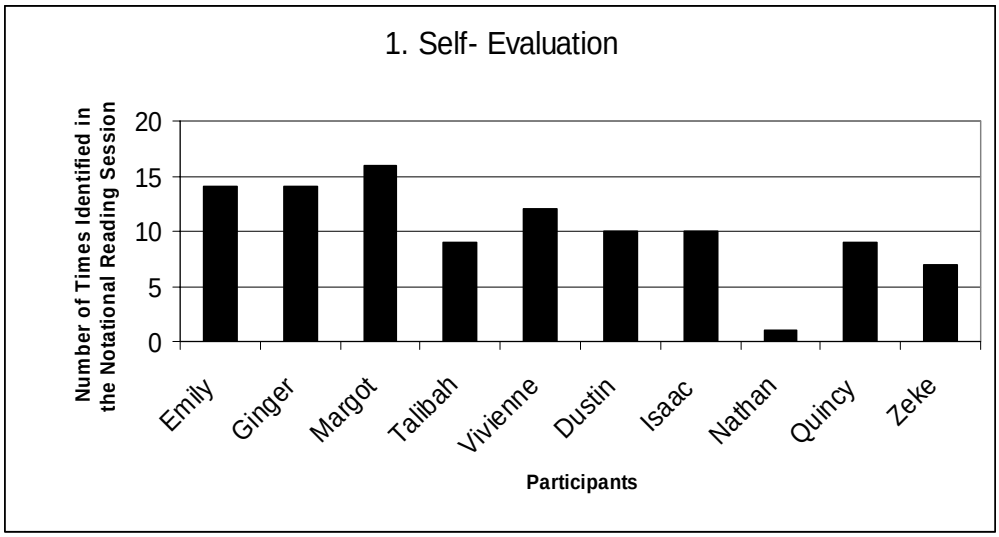

Figure 1. Frequency of student usage of self-evaluation as a metacognitive strategy of self-regulation.

According to Vivienne, repetition is one of the ways she self-evaluates her learning. For her, repetition is a way of using her inner hearing. She explained:

> I find if I keep repeating something, I know it's better and better, the more I keep on doing it. If I find it doesn't sound quite right, or it doesn't sound good, I just keep doing it until I can get it right. Normally I'm pretty good if I'm hearing a note and I'm a note off. Like I know at the end I had a whole bunch of trouble… I was totally off, but I just try and match it. Especially when I have the keyboard, because then I know that a note goes with another note, but I can tell if it's off.

Dustin seems to have acquired a lot of expertise in self-evaluation as a practice strategy. He uses it in a variety of ways. His first discussion of self-evaluation was somewhat different than Vivienne's. Although he too uses repetition to self-evaluate his understanding, it appears to be done in a more holistic manner, a layered form of checking for understanding, rather than relying on self-evaluation as a form of error detection. He elaborated:

> I looked over it and made sure that I played it on the piano over and over again just to make sure that I understood what I was singing. … It all

> made sense, so I just played it on the piano over and over again, and then I sang it. I went back to "oo" just to make sure I had the rhythm and then what I did was add in the words. I did it and I eventually ironed out the problems.

Dustin's second discussion of self-evaluation referred to how he worked with a section of the music he was isolating. Although part of this strategy is organizing and transforming, which will be explained next, what Dustin does within that isolated section is self-evaluation. As he put it:

> I just gave myself the first note, exactly as it is going to be done in the actual performance. So what I did is, I gave myself the starting note and then I went directly into the speech part which is where I was actually supposed to be starting. So then I occasionally gave myself the note, when I thought to my ears I was out of tune, as to one of the notes because it could end on one note and then I could have a rest and then start on another note that wouldn't be, like very, … an awkward jump- I think, to a different note. So I just play that note to make sure I had it: but, I only played it when I thought I heard something that wasn't quite right with my tuning.

Dustin created a strategy whereby he only periodically played his notes to check his pitch accuracy/tuning. He created this strategy to try and most closely reproduce the performance task following the notational reading session. Dustin self-evaluates his understanding throughout. This process seems to come from a feeling of confusion or uncertainty. He told me:

> I didn't feel like I really knew what I was doing, that I was doing it properly. So what I did is, I played it and I did the steps and the last one is where I sang it with the keyboard, is to make sure that I had it.

Again, Dustin self-evaluates his understanding when he is unsure. To self-evaluate he follows steps that match his learning outcome, in this case, singing the music with piano support, to ensure comprehension.

2. Organizing and Transforming

According to Zimmerman and Pons (1986), organizing and transforming strategies indicate that a student is organizing his/her time or transforming information to improve learning. In a music context that might be evident in the way a student plans practice time, in the way s/he gathers information, and works on music sectionally, organizing and prioritizing the time. This might be observed in this study by how the student uses the timer to assist practice. In this study, Emily, Ginger, Margot, Dustin, Isaac and Quincy, 60% of the participants, used this strategy. Emily, Ginger, Margot and Quincy, 40%, used this strategy infrequently, while Dustin and Isaac, 20%, used this strategy more commonly (see Figure 2).

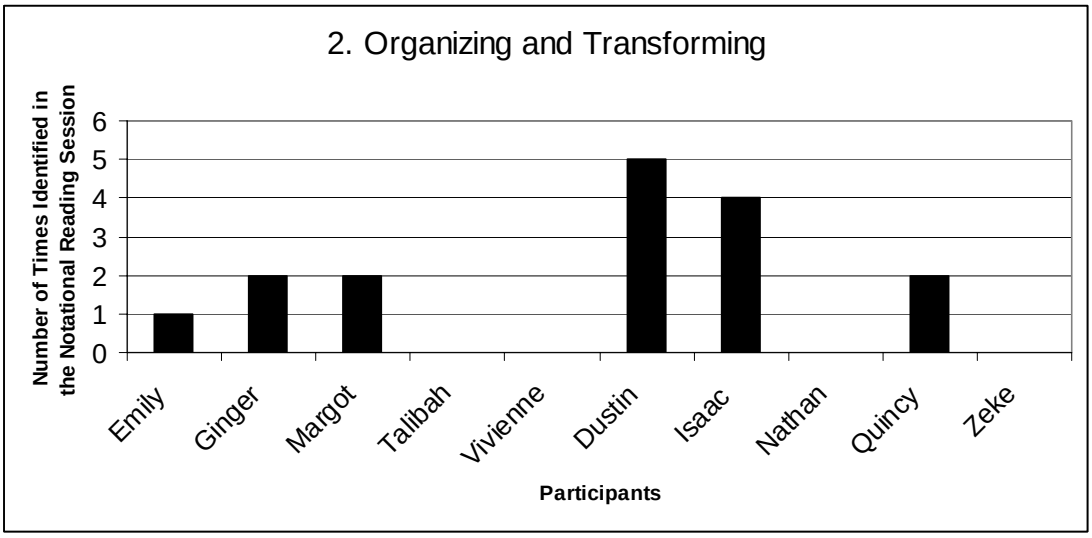

Figure 2. Frequency of student usage of organizing and transforming as a metacognitive strategy of self-regulation.

Ginger described her approach to how she organizes sectional rehearsing:

> I find it easier when you don't work on the whole thing. I learned this while memorizing speeches. Where if you**,** like, read the whole thing through and through, and then you try to memorize it. You can always memorize the first part, but the rest of it will be troublesome. I like to do

> it [practicing] piece by piece and then maybe do the individual pieces over and over again and then work on the whole thing. Then it'll probably get easier.

Dustin seems to be very efficient at managing his time and isolating trouble spots. He was having difficulty connecting the main melodic sections of the music with the rhythmic speech introduction. To remedy this situation, he did a series of run-throughs of the melody section, only periodically inserting a melody note with the assistance of the piano. Then he focused on putting rhythmic speech and melody sections together.

Quincy commented on how he organized his time through sectional rehearsal in order to correct musical problems. He explained:

> I made a mistake, for example, in the beginning, the repeat section. I wanted the top line and I was singing it and I just went down to the bottom line. I went back and corrected myself and that's the way I learned piano. You are supposed to go back and practice. If you keep on playing it wrong, and never try to correct yourself, you are never going to learn. You might learn, but it's going to take you much longer.

For Quincy, organizing time and practice means effectively solving problems, not concentrating on rote-repetition that is seldom self-correcting.

Margot described her organization of the rehearsal as being required because of the timer. "I just learned the first part and then I – the timer was getting- arg- it was going by pretty quickly so at the end I had**,** like, six minutes, so I was trying to put it all together." As a result of the time frame, Margot was forced to move more quickly to be able to learn the entire piece.

3. Goal-setting and Planning

Zimmerman and Pons (1986) suggest goal-setting and planning strategies are deliberate activities to assist students in achieving their goals. In a music context, this may appear to be students isolating musical problems and attempting to solve them. It would appear that Talibah and Dustin, 20% of the participants, used this strategy, however infrequently (see Figure 3).

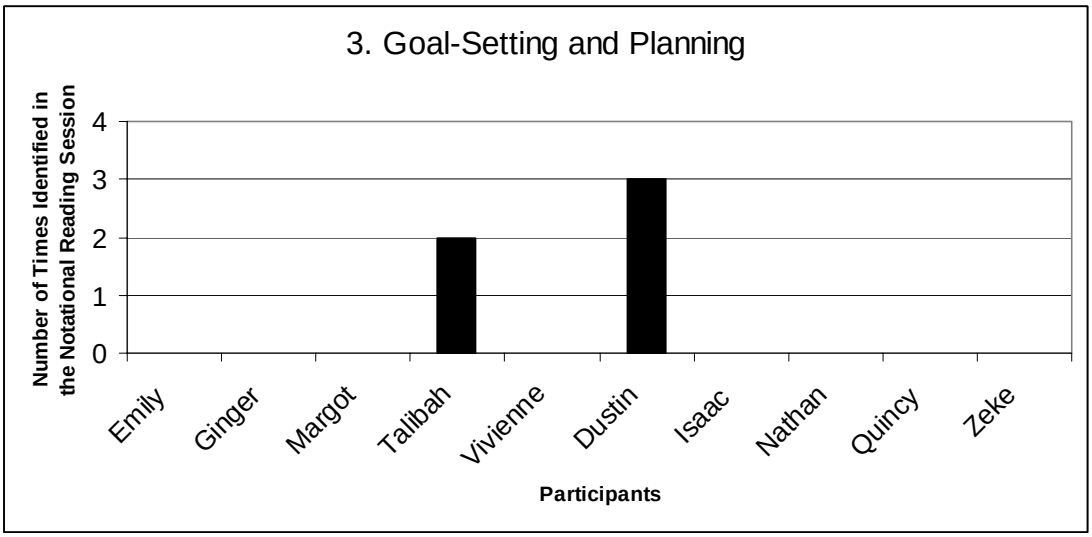

Figure 3. Frequency of student usage of goal-setting and planning as a metacognitive strategy of self-regulation

Talibah used a chunking strategy to help her achieve her goal without wasting time. Talibah repeats herself on "new notes." She explained: **"**Those were notes that were higher and I wasn't familiar with higher, so I wanted to go over them so that I could familiarize myself with them a little more." Following that segment, she related how "when I am now singing this song, it is not just the ups and downs. I need to recognize how the notes match the words." Chunking helped her to sing more accurately.

Dustin demonstrated goal-setting and planning when he isolated problems within the musical work. For Dustin, this problem-solving process is deliberate. Dustin identified a "tricky spot for me because it wasn't anywhere else in the music and I was used to the music being repetitive." In order to solve his dilemma, he went back to counting. He played it on the piano. He tried to put it into context and sing it together in its entirety. He described his deliberate strategies to plan and achieve his goals:

> If I don't understand something, I do it slowly and make sure that I get all of it and I use the piano to help me with that. And the beat is the same. I felt like I was going too slow [referring to his song] and then I speeded [sic] up to the pace I was already going. I had to play the difficult part on the piano a couple of times. Sing it with the piano. Then I tap out the beat to make sure I'm doing it at the right pace and then I sing it to make sure that I have it.

4. Seeking Information

Seeking information is an important self-regulatory strategy. Zimmerman and Pons (1986) associate this seeking and gathering of information as coming from non-social sources. In a music context this strategy is evident in the student reading and re-reading the score for more information. Eighty percent of the students, Emily, Ginger, Talibah, Dustin, Isaac, Nathan, Quincy and Zeke, used this strategy (see Figure 4).

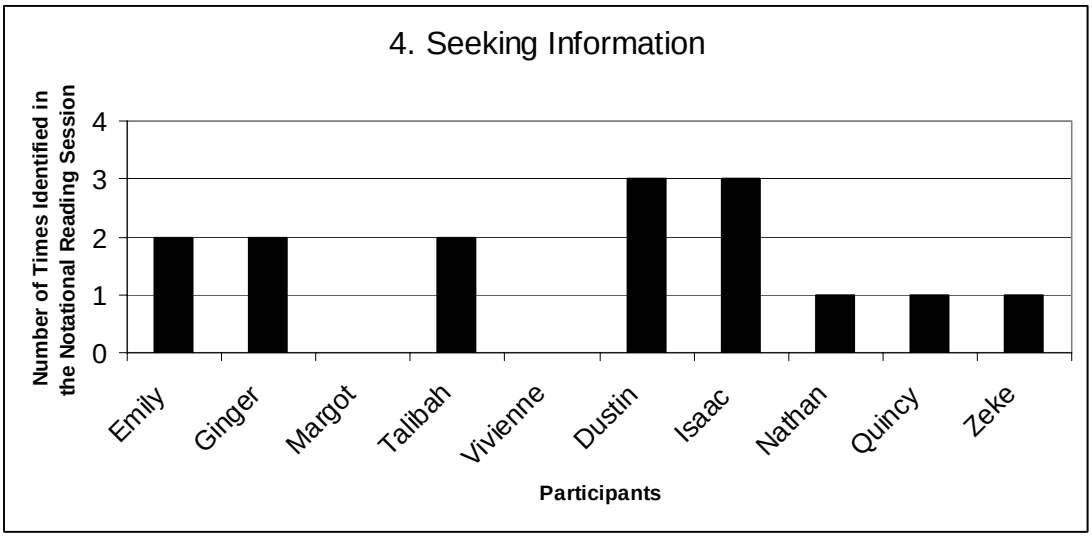

Figure 4. Frequency of student usage of seeking information as a metacognitive strategy of self-regulation.

Isaac seeks information when he is having difficulty. He likes to understand the larger and smaller patterns. For him, understanding how sections repeat (related to formal relationships), when they are the same or are different, is important. He told me about the role of seeking information in the context of the notational reading session:

> The flipping [reading] through all the pages was about finding the parts that I was messing up on and me figuring out where's that part. It was a way of reflecting back on the music and seeing it again.

When I asked Nathan what he was doing while reading the pages he responded: "I was just looking through the music to see if I could get a picture of what the tune would look like." He continued:

> On the second or third page, there's a top line [soprano] and a bottom line [alto] and I go straight [stay on the top line because I sing the soprano line]. I found out it didn't make any sense to do both lines. Then I realized that I was doing the first verse, and halfway through there is only one line (both soprano and alto parts sing in unison).

This was a huge revelation for Nathan, a first year chorister, demonstrating his emergent understanding of concepts of score reading and directionality in music. His understanding of this came out of his confusion and knowledge that reading both the soprano and alto line did not make sense. As a result, he sought more information, and re-read and re-examined the score.

5. Keeping Records and Monitoring

Zimmerman and Pons (1986) refer to this strategy as a student initiated attempt to record events or results. In a music context, this might refer to the keeping of a practice log or other motivational chart set-up. None of the students in this study demonstrated this strategy.

6. Environmental Structuring

Environmental structuring is defined by Zimmerman and Pons (1986) as a student initiated attempt to select or arrange the physical setting to make learning easier. In a music context, the student might physically manipulate the sheet music, s/he may move the stand, or adjust his or her physical position to make learning easier. In this study, Margot, Vivienne, Dustin, Isaac, Nathan, Quincy and Zeke, 70% of all students, demonstrated this strategy (see Figure 5).

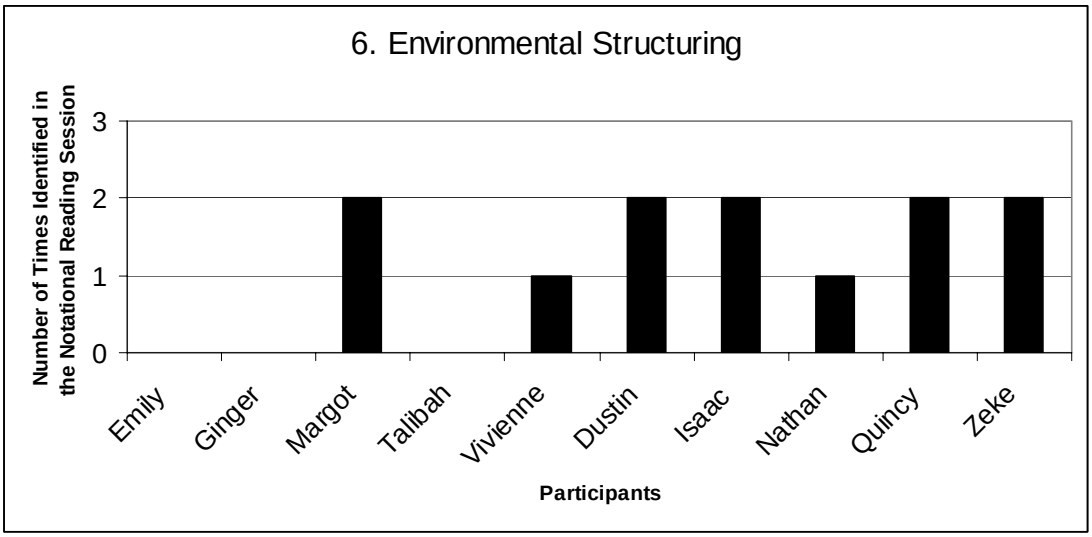

Figure 5. Frequency of student usage of environmental structuring as a metacognitive strategy of self-regulation.

Dustin used this strategy from the first moment he entered the practice room. He walked over to the stand, picked up the music that had been on the stand, folded it so it would stay open on the stand, and when that was not satisfactory, Dustin picked-up the music again, manipulating it throughout the session. He describes this in his own words:

> I picked up the music because I found that while I had it on the stand it was difficult to look at all the time, but I could see it. So, I just picked up the music to make sure that I was looking at it right.

Environmental structuring may seem insignificant; however, I do not believe that to be the case. I witnessed many students struggling because of difficulties they had physically manipulating the score. Understanding this strategy may be beneficial to students.

7. Self-consequences

Zimmerman and Pons (1986) indicate self-consequences are student-initiated attempts, arrangements, or imaginations of rewards or punishments for success or failure. In a music context this may be evidenced by the student giving self-praise or self-punishment aloud. In this study, 90% of all participants used this strategy to one degree or another. Emily, Vivienne, Isaac, Nathan and Quincy seldom used this strategy, while Ginger and Talibah used it with more frequency. Surprisingly, both Margot and Dustin used this strategy extensively. This was evidenced by the high degree of motivational self-talk demonstrated throughout their reading session (see Figure 6).

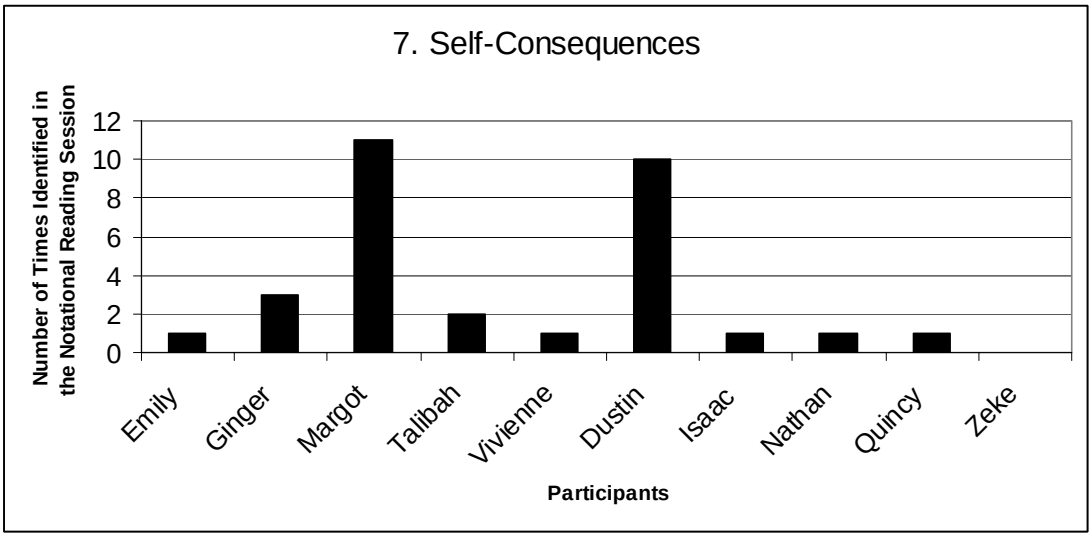

Figure 6. Frequency of student usage of self-consequences as a metacognitive strategy of self-regulation.

Margot's use of self-consequences seemed to focus on self-punishment. She frequently made reference to the difficulty of the reading task and disparaged herself. About 5 minutes into the session she exclaimed, "This is hard." Immediately

following, she had a mini-burst of productivity and jumped back into the music. Shortly after, she responded with "Frustrating!" and then immediately, "It's okay… I suck." Although these comments do not do anything for her self-concept, they do seem to spur her on to more intense/focused work. After she really noticed the timer, she exclaimed, "Oh my God, 6 minutes!" This caused her to reevaluate her work and recommence. When she again looked at the timer and noticed 2 minutes left, she responded, "Frustration. No!" Margot's self-talk seems to be a motivator, an impetus to spur her on to more activity.

Dustin's use of self-consequences was mostly positive. He commented on his own learning aloud and to himself throughout the notational reading session. Although he directed himself through speech "It's 4/4 time," "shoot, missed the 2nd verse," and "I'll go over the hard parts," these directions seemed to be conversational and reassuring to him, and thereby, rewarding. More study into self-directed speech would be fascinating.

8. Rehearsing and Memorizing

Zimmerman and Pons (1986) tell us that these are student-initiated efforts to memorize material by overt or covert practice. In a music context this is evident through entire piece or section repetition (not from self-evaluation), repetition using an instrument, followed by repetition without an instrument. In this study, 70% of participants used rehearsal and memorization strategies. Isaac used this strategy infrequently, while Ginger, Dustin, Quincy and Zeke used it with more regularity. Margot demonstrated the highest use of this strategy (see Figure 7).

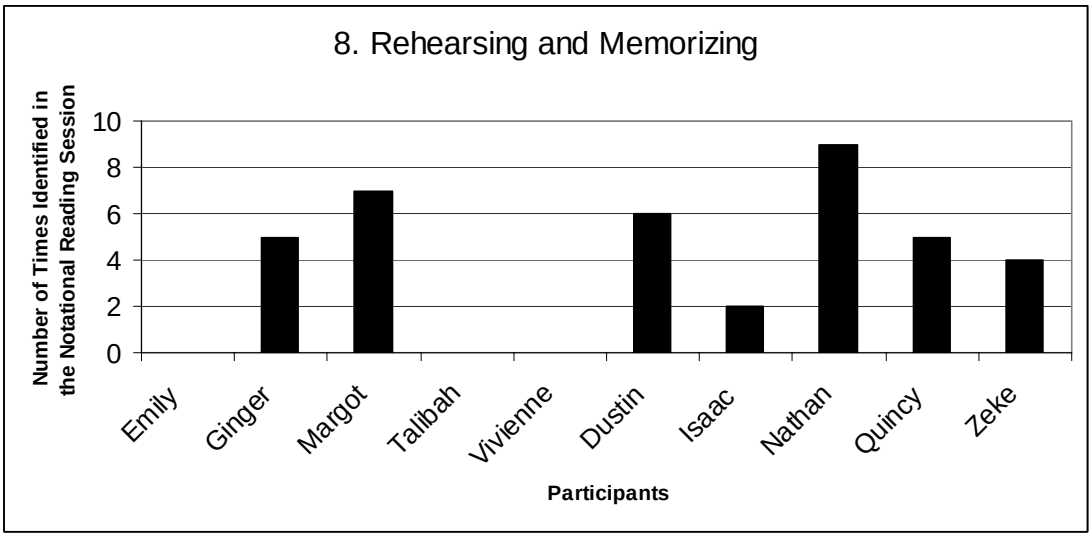

Figure 7. Frequency of student usage of rehearsing and memorizing as a metacognitive strategy of self-regulation.

Nathan, like many of the choristers, seems to put great importance on rehearsing and memorizing. He believes, "if you keep on repeating it, eventually you'll get it into your head and you'll be able to perform it." When describing his activities in the video of the notational reading session he often said, "That was the part where I was trying to memorize it." When asked what he could do to continue improving this piece he replied, "I'd memorize the place where I messed up so I could really focus on that, so I could get it drilled into my head."

Quincy commented on his use of whole song repetitions as a way to rehearse and memorize music by identifying the form of the music. He reported how whole piece repetition is useful and helpful. He believes whole piece repetition prevents you from repeating any one section to the detriment of another. By singing from beginning to end of the piece Quincy "learned the order that the stuff came in." He continued:

> So I knew what to expect ‘cause often around page flips and stuff you often make a mistake. I did during the performance; I turned the page during, and in some rhythmic part, a couple of times, because I missed the page turn, I came in late. I sang it a couple of times by accident.

When I asked Zeke about the reasons for his use of whole-piece repetitions he told me, “I wanted to get the entire piece into my head, … to kind of memorize it almost. Even using the music, just to get, so I could get the entire feel for the song.” This helped him to learn “where the verses [are] and where the tune changes and goes back.” Like Quincy and Nathan, Zeke wanted a gestalt perspective, an overview/understanding of the music that he was learning and, for him, whole-piece repetition was a valuable strategy.

9. Seeking Social Assistance

Zimmerman and Pons (1986) indicate this strategy is evident when a student solicites help from peers, teachers, and/or adults. In the music context related to this study, students ask for help or leave the room to get help. In an ordinary choir rehearsal, this could be asking section members about a specific part or asking the conductor to clarify information. Only one person used this strategy. Emily was the sole person to ask for help from someone in learning her piece (see Figure 8).

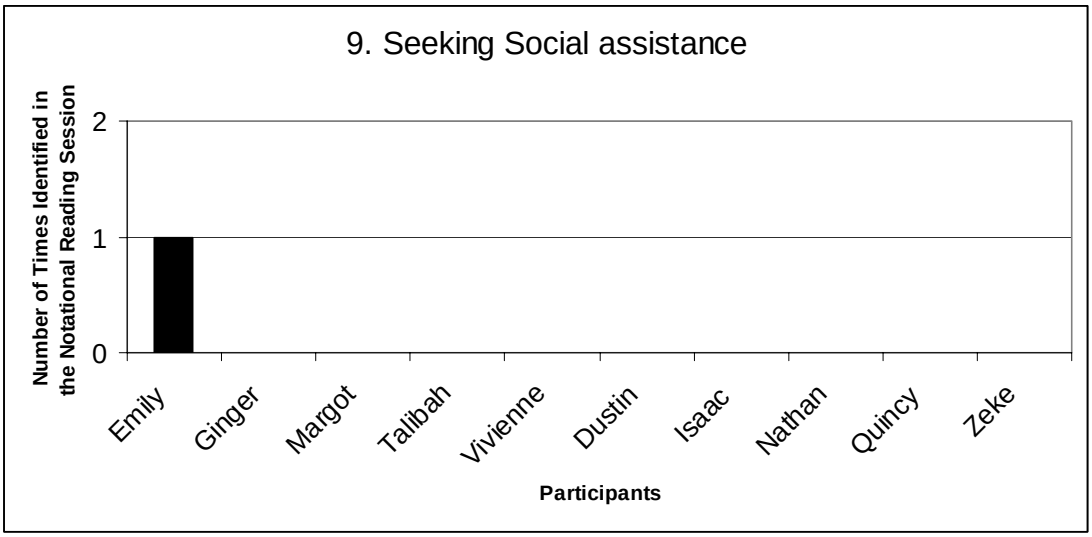

Figure 8. Frequency of student usage of seeking social assistance as a metacognitive strategy of self-regulation.

When I asked Emily why she came to ask me for assistance at the beginning of the notational reading session, she looked a little bit flustered. Then she quickly went on to explain, "I mentioned I never learned how to play the piano, so I really had no clue in my opening chord. I wanted to hear it again." As an aside, there was a significant amount of sound spilling into the research room from the rehearsal going on next door. Even with very strong internal pitch, coping with that constant level of sound would have been a challenge. She continued:

> In a choir and stuff, I can usually just listen to what everyone else is doing, but if I am learning it by myself, then I can ask someone to play the note from the piano, or if I am really by myself, I can play it on my flute.

Emily clearly uses social sources of assistance to fill in the gaps in her own learning.

10. Reviewing Records

Zimmerman and Pons (1986) indicate this is a student initiated strategy including rereading tests, notes, or textbooks to prepare for learning. In a music context, it is possible that students bring support materials/texts into the rehearsal room with them. None of my participants used this strategy.

Summary

Through detailed analysis of video recordings, frequency observation charts and interview transcripts, it would appear all 10 participants made deliberate use of music-specific and global metacognitive self-regulatory strategies. Although some strategies were used more frequently and more successfully than others, most strategies were employed in some way or other. The only music-specific strategy not in evidence was the use of hand signs. This is curious as many students reported being taught in this method. The global metacognitive self-regulatory strategies not employed include keeping records, and monitoring and reviewing records. The reasons for the absence of these strategies may be due to the nature of the notational reading task. Students may not have thought to bring in materials they may have ordinarily used in their home practice.

Many students discussed their music-learning goals and described strategies that they did not put into practice. Some students acknowledged they did not use the strategies they described, while others appeared to be unaware they did not use their self-reported strategies. This may have been due to time constraints, or to participant lack of comfort with the learning situation. It is also possible that student's internal life is richer than we thought and students perceive themselves to be taking part in in-

head strategies researchers are unable to view. Discrepancy between student self-report and researcher observation may also be due to the fact that students often seek to please. Perhaps students thought they would please me to discuss strategies they knew how to use, but forgot to use at the time.

The next chapter explores students' learning as expressed through performance of the notational reading task. Student performance will be described in terms of text, rhythmic, and melodic accuracy. The connection between strategy usage and performance results will be discussed. Common challenges discovered in each piece will be noted.

CHAPTER SIX

A Discussion of Student Performance: What they Learned, and What we can Learn

Overview

This chapter is a discussion of student performance of the 15 minute notational reading task. This includes discourse on student accuracy based on four measures: 1) text accuracy, 2) rhythmic accuracy, 3) melodic accuracy, and 4) total or overall accuracy.

To determine accuracy,[35] each performance was played three times by the researcher. The first listening was to determine text accuracy, the second listening was to determine rhythmic accuracy, and the third listening was to determine melodic accuracy. Overall accuracy is a composite of the former three scores. Every time a student made an error, it was noted on the score and later tabulated. Repetitions without self-correction and omissions were considered errors for the purposes of this study. When repetitions occurred and a student self-corrected, that was not considered an error. To this end, each bar was considered a unit. Total errors were divided by the total number of bars to obtain an error percentage. That percentage was then subtracted from 100% to obtain accuracy scores.

The musical pieces performed were chosen by the conductor of each honour choir to ensure that student absence from rehearsal would be re-invested into the

[35] The procedures to determine accuracy were influenced by literature on sight reading, and were developed in consultation with Dr. Kennedy, my supervisor, and Dr. Guerrini, her research partner.

performance of the group, and to ensure the music chosen was within the performance abilities of each group. The Youth Honour Choir sang "The Blades of Strawblane," a folk song collected in New Brunswick by Dr. Helen Creighton arranged by Gary Ewer (see Appendix E- Compositions Learned By the Honour Choirs). The Boys' Honour Choir sang "Inventions and Machines" by D. Geoffrey Bell (see Appendix E- Compositions Learned By the Honour Choirs).

Throughout this assessment of student performance, notes were made on the nature of each student's mistakes, commenting on what was learned and where further guidance was necessary. General musicianship, demonstrated strategies in action, and specific musical learning were also noted. For some students, the significance of their learning was not reflected in a high accuracy score. This justifies a qualitative description so that words can express what numbers would not.

Youth Honour Choir

Figure 9 is provided to assist the reader in obtaining a global understanding of the four measures of Youth Choir Accuracy rates for the four participants.[36]

[36] Only four of the five Youth Honour Choir participants' performances were assessed for accuracy as Talibah did not complete the performance as directed. See the description of Talibah's performance for more information.

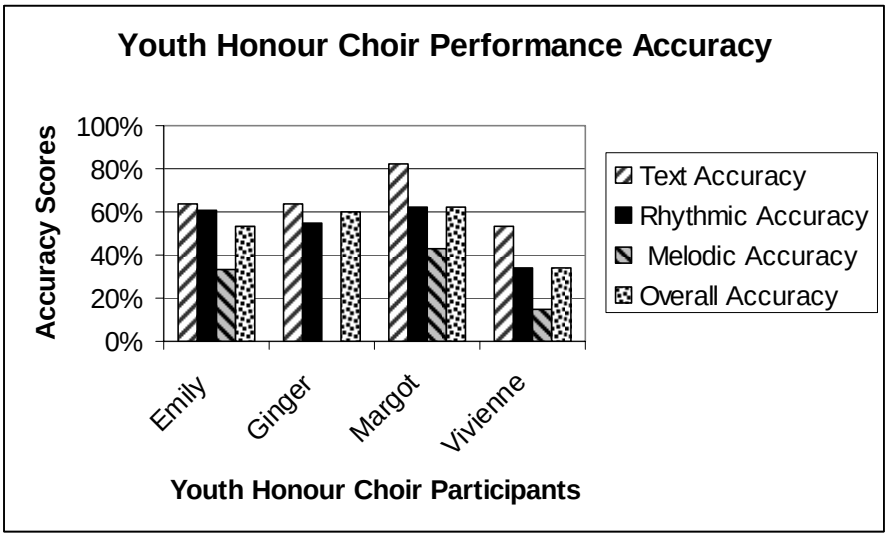

Figure 9. Youth Honour Choir Performance Accuracy Chart

Emily

Overall, Emily demonstrated 53% accuracy in her performance. Her text accuracy was 64%, while her rhythmic accuracy was 61%. Emily had the greatest difficulty with melody: she obtained a 34% melodic accuracy score (see Figure 9). Emily sang with confidence, demonstrating a lovely alto tone.

Emily's challenges with text involved the archaic and regional language of folk songs and the text setting, which required choristers to understand how to extend one-syllable sounds over more than one note, in a way that is somewhat stylized and melismatic. The vocabulary of the lyrics was not the largest problem; it appeared to be the question for Emily of how to place the word with the notes on the page.

Emily's rhythmic accuracy challenge was linked most closely to a misunderstanding of the dotted quarter note rhythm and what I believe were her attempts to line up the words with the rhythms, as discussed earlier. This was

compounded by the 3/4 time signature that is not commonly used in popular music today.

As already indicated, the most significant challenge for Emily was the melody. She did not appear to retain formal information about repeating patterns; therefore, even when she had already puzzled her way through the first two lines, repeated sections appeared to be brand new to her, requiring the same type of learning. Within the melody, featuring frequent repetition of the C major arpeggio, the flat 7 (Bb) seemed to cause Emily consistent misunderstanding. Emily never perceived her version of this note to be incorrect (B natural); therefore she was not able to identify it as wrong, and correct it.

Emily's mistakes in this performance were made consistently. She demonstrated a methodical way to learn using 5 major metacognitive strategies (see Appendix E to view her percentage of strategy usage). She used most of Killian and Henry's (2005**)** music-specific strategies. Unfortunately she did not seem to have a way to check for accuracy, if she did not already have a conception of the correct melody or rhythm.

Emily made a valiant attempt at learning this piece, made strong headway, and used social sources of learning. By the ending of the performance, it was evident that she had internalized the C major arpeggio after much persistence.

Ginger

Ginger was not able to be assessed in the same way as her colleagues: she used the keyboard in the room during her performance, though she was advised that she would be given her tonic triad and required to sing *a cappella*. For that reason,

though she has been assessed for text and rhythm accuracy, it would be unethical to assess her for melodic accuracy. I will offer an overall accuracy score. Bear in mind it is the composite of the text and rhythmic accuracy score and is not influenced by Ginger's melodic achievement.

Confident and bold, Ginger demonstrated 64% text accuracy and 55% rhythmic accuracy. Overall, she achieved 60% accuracy (see Figure 9). Ginger's largest problem seemed to be related to her lack of understanding of the sections marked for rhythmic speech. In the five times rhythmic speech appeared in this piece, she omitted each of those sections. Repetitions of melismatic notes were also a problem for Ginger, as they were for Emily. Rhythmically, Ginger had difficulty with the dotted quarter note and with tied notes. Melodically it would be unjust to assess Ginger's challenges as she was assisted by reference to a keyboard throughout her performance.

Ginger deliberately used a variety of metacognitive strategies (see Appendix E to view her percentage of strategy usage). Her notational reading session did not appear to assist her to understand the larger formal patterns, although she certainly learned enough to proceed on her own.

Margot

Overall, Margot achieved a score of 62% accuracy. Within the Youth Honour Choir, she demonstrated the highest level of text accuracy, 82%, and one of the highest degrees of rhythmic accuracy, 62%. Her melodic accuracy was a real challenge to her. She achieved 43% (see Figure 9).

Most of Margot's text errors were accounted for in her omissions of the five rhythmic speech/spoken dramatic effect sections. Her other text errors are noted when she appeared to try and line-up tricky melismatic sections of melody with one-syllable sounds.

Margot's rhythm errors occured consistently. She sometimes turned eighth note rhythms into quarter notes, especially mid-phrase, and seemed to have difficulty with the dotted quarter followed by an eighth note.

Interestingly, Margot's melodic challenges seemed related to her ability to move around in the tonic triad. Intermittently, she accurately sang these pitches; however, moving to and from them (knowledge of step and skip motion) was more difficult. Unlike her fellow choristers, she occasionally achieved the flat seventh note (Bb), and seemed to be able to hook into a dissonant interval to regain her place in the music, possibly demonstrating early understanding of the harmonic structure of the music.

Margot deliberately used many strategies (see Appendix E to view her percentage of strategy usage) to achieve her goals. Though she was not entirely on track, she made headway toward achieving her goals. Margot used self-evaluation to measure her success: when she thought she was accurate, she used repetition to memorize her work. In addition, she used self-consequences as a motivator. Sometimes Margot's high standards for herself were an impediment to her progress, while at other times, they seemed to spur her into more focussed work. It would be interesting to see how Margot would fare if she were able to discuss her strategies with her friends, teachers, etc. Margot appears to be very musical and demonstrates

understanding of musical syntax and structure. I am certain that with more direction, this young and in-experienced chorister would make spectacular growth.

Talibah

Due to Talibah's lack of understanding of the requirements of the performance, it is not possible to calculate her accuracy with certainty. When it was Talibah's time to perform, she perceived the performance as an extended version of the notational reading session. During her performance time she re-started her piece three times. I do not believe she ever finished, and she so frequently re-started phrases within the piece that it was very difficult to follow her progress.

From my observations of the notational reading session and her attempted performance, it would appear that Talibah had low accuracy. However, during the notational reading session she appeared to be deliberately using strategies (See Appendix E to view her percentage of strategy usage). During the interview that followed, Talibah detailed strategies that she felt she was using, that though not visible to me, demonstrate a rich understanding for potential strategy usage. Like the majority of her fellow choristers, Talibah had a tendency to focus on the small details of a piece, without seeming to notice how those details repeat in larger musical patterns. It sounded much like note-by-note practice as opposed to the singing of a musical line. Although Talibah did seem to utilize the self-regulatory aspects of metacognitive strategy usage — she appeared to self-evaluate her work, engage in goal-setting, and seek information through detailed reading of the score — she did not engage in many of the music-specific strategies indicated by Killian and Henry (2005). The only one she used was singing out loud in practice.

Talibah is a delightful girl with a passion for music. I would love to see her empowered with conscious knowledge of music-specific strategies that might assist her along her path to musical independence.

Vivienne

Although Vivienne achieved the lowest overall accuracy, 34% in the Youth Honour choir, I believe I learned the most from her. Vivienne's text accuracy was 53%. Her rhythmic accuracy was 34% and her melodic accuracy was 15% (see Figure 9). Like her peers, omission of the five rhythmic speech/free speech for dramatic effect took a toll on her overall score. In addition, Vivienne did not demonstrate the same fluency as her chorister friends. She was very determined and confident; however, she frequently repeated herself, not to correct errors, but to spring off of her mistakes in her attempts to sing the phrases. It is unclear whether her rhythmic errors are due to the text or if her text errors are due to the rhythm. One thing is certain, Vivienne improved as the piece progressed. Her understanding of the tonic triad is sound and served as an anchor. Vivienne's lack of understanding of the harmonic structure, demonstrated by her faulty singing of pitch relationships, was evident in her efforts to sing F sharp and B natural consistently. Even after her segues into invented keys, she was able to find her way back with the strong tonic-dominant relationship.

Vivienne demonstrated a few deliberate metacognitive strategies (see Appendix E to view her percentage of strategy usage). Vivienne consistently self-evaluated her learning. Unfortunately, she often practiced the wrong patterns, as she did not identify discrepancies between the notation on the page and in her singing.

She controlled her environment by handling her music to make it more comfortable for learning to take place. She motivated herself with verbal self-consequences. In a music-specific context, she used two strategies: 1) singing out loud during practice and 2) using tonicization to establish her key. It is not surprising then that she could return to her home key when necessary.

Vivienne's discussion of her learning was very rich. She demonstrated some awareness of strategy usage, beyond what she demonstrated in the notational reading session. It would seem that Vivienne, though knowledgeable about these processes, has not had the opportunity to evaluate whether her strategy choices are helpful. She seems to cling to whatever strategy comes to mind first, and that comes from only one or two successful occurrences. If students like Vivienne had the opportunity to evaluate the success of their strategy usage, they might be able to make better choices.

Boys' Honour Choir

Figure 10 is provided to assist the reader in obtaining a global understanding of the four measures of Boys' Honour Choir Accuracy rates for the five participants.

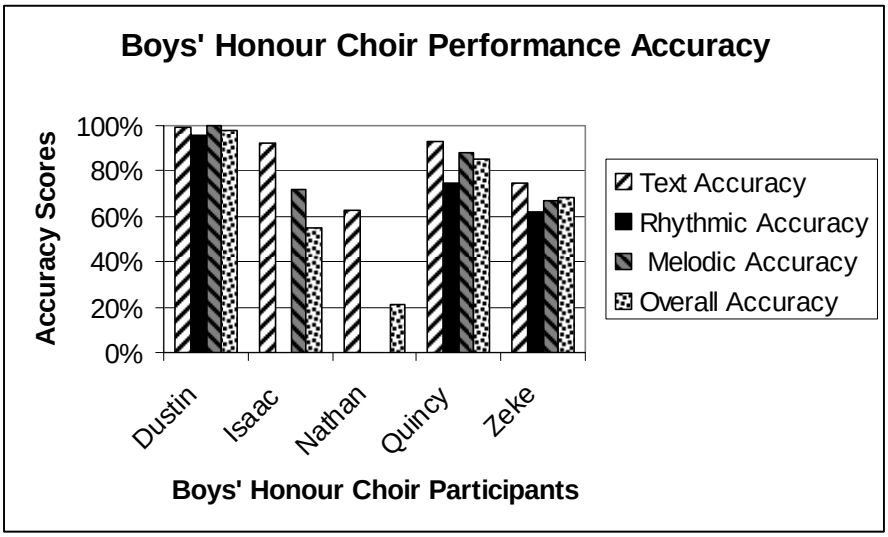

Figure 10. Boys' Honour Choir Performance Accuracy Chart.

Dustin

Confident and self-assured, Dustin achieved the highest overall accuracy of all youth honour choir and boys honour choir participants, a score of 98%. He demonstrated text accuracy of 99%, rhythm accuracy of 96%, and 100% melodic accuracy (see Figure 10).

Overall Dustin had very few errors. Those errors he did make were logical. Dustin's text error was a substitution of a word that made sense in the context of the piece and was a different sound effect than what was written in the score. Dustin's rhythm errors were related to quarter rests. In one instance, he held his quarter note through the following quarter rest, and two further occasions, he missed the quarter note rest when it occurred on a strong beat.

Dustin demonstrated well-developed musicianship as well as a strong understanding of how to employ both music-specific learning strategies and metacognitive strategies (see Appendix E to view his percentage of strategy usage).

Through his interview, it would seem that Dustin has had greater opportunities than his chorister friends to assess the accuracy of his learning, through piano and other theatre engagements. Even with such experiences, Dustin would benefit from still more direction on how to choose appropriate strategies. He indicated he had never really thought about how he learned music but now, "by knowing this and knowing what I do to learn it, I can put these [strategies] to use so I can learn pieces faster. I can learn more of the piece in however much time is allotted."

Musically independent, Dustin explained that the next step to polishing this piece would be to add the dynamics to make it more interesting. He indicated that he ran out of time to do this in the notational reading session, but if he had another opportunity to work on this piece that is what he would do.

Isaac

Although Isaac's overall accuracy is one of the lowest scores in the boys' honour choir, 55%, his text accuracy, 92%, is one of the highest boys' scores, and his melodic accuracy, 72%, is well over the boys' average melodic accuracy of 65%. Isaac had significant problems with rhythm, demonstrating an accuracy rate of 0% (see Figure 10). In light of his other achievements, this is unexpected. It appears that Isaac shifted the meter of the piece from common time to 3/4 time, and, as a result, he changed the values of all rhythms he performed. Isaac's complete misunderstanding of this had huge consequences for his overall accuracy rate. However, Isaac was very successful in the text and melody components of this task.

In order to learn from Isaac's scores, it is important to examine his errors and successes. It would appear that Isaac's text errors were related to his attempts to shift

the meter from common time to ¾ time. He demonstrated fluent understanding of the words and vocabulary. Isaac's challenges with the melody occurred in a couple of places and usually involved problems moving to the dominant. This pattern and challenge was repeated in all verses. The other significant melodic challenge for Isaac was related to the use of sequence within each verse, and particularly, leading up to the last verse of the piece. This may reveal a lack of inner hearing of the harmonic structure of the piece and difficulty understanding scalar relationships. Although the tonic-dominant relationship appeared to be difficult for Isaac, he unerringly returned to his tonic pitches throughout and seemed able to navigate the piece based on the tonal centre.

Isaac has a good understanding of music-specific learning strategies. Although his understanding of meter was inaccurate, he kept the beat in his body throughout the performance and notational reading session. Isaac also demonstrated exceptional use and understanding of self-regulatory metacognitive strategy as well (see Appendix E to view his percentage of strategy usage).

Although his overall score might be perceived to demonstrate weak musical understanding, it may not give credit to the many musical concepts Isaac was able to achieve on his own. Although not entirely musically independent, Isaac is most capable of directing his own learning. Like many other students, Isaac may need more opportunities to evaluate the effectiveness of his strategy choices. Also, it would be interesting to see how Isaac might have solved these challenges with the opportunity to scaffold with peers and to seek information from more knowledgeable sources.

Nathan

Clearly the least experienced of all choristers in this study, Nathan has the lowest overall accuracy. Nathan achieved a score of 63% in text accuracy, 0% in rhythmic accuracy, and 0% in melodic accuracy. Nathan's overall score was 21% (see Figure 10). It is possible that Nathan's text accuracy score could have been higher, had he followed all repeat signs. As a result of this difficulty, his omissions were counted as errors against his total score. Nathan appeared to invent both the rhythm and the melody based on what he believed to be the implied rhythm of the text.

At 21% overall accuracy, we can hardly say that Nathan is musically independent. However, Nathan used 5 self-regulatory metacognitive strategies and 2 music-specific strategies (see Appendix E to view his percentage of strategy usage). His discussion of his learning showed high awareness of strategy usage, if perhaps the inability to discern the appropriateness of the strategies chosen. It would seem that Nathan's ability to self-regulate his learning using metacognitive strategies was not successful because he lacked understanding of sufficient music-specific strategies to be able to achieve his goal.

This is not to say that Nathan learned nothing while he was using both sets of strategies. Nathan, perhaps, learned the greatest amount of music-specific knowledge. During the notational reading session, as demonstrated through his performance, Nathan achieved an awareness of a significant concept of print music—that a soprano line is the top line of the system, throughout a piece. He learned which part to follow when a piece changes from unison to two-part singing, back to unison, and again, into two-part singing. He also learned about repeat signs: how two sets of lyrics exist for

one written set of notation and how the little notes go with the second verse (only when repeated). Although in the performance Nathan missed some of the repeated sections, particularly the rhythmic speech section at the beginning of the piece, he never forgot which line to sing.

Nathan made exceptional progress during the notational reading session. It seems, with regular guidance and direction, particularly related to musical skill development and notational literacy practices, Nathan could indeed take larger steps toward musical independence.

Quincy

Overall, Quincy's accuracy was rated at 85%, the second-highest overall score in the boys' honour choir. Quincy had one of the strongest text accuracy scores, 93%, one of the highest rhythmic accuracy scores, 75%, and one of the highest melodic accuracy scores, 88% (see Figure 10).

To better understand Quincy's learning, the nature of his errors and successes will be examined. Quincy seems to have a strong understanding of the vocabulary in this piece. When he made text errors, it seemed that he employed substitutions that made sense, from an earlier verse, rather than the word written. He omitted the first rhythmic speech section, perhaps because he was not familiar with all forms of the repeat sign. In terms of rhythmic challenges, Quincy consistently turned a two quarter note rhythm into a swung dotted quarter followed by an eighth note pattern, which sounds like a reasonable substitution. This had the effect of making the piece a little bit jazzy, although it was not what was indicated on the score. In other ways, Quincy was incredibly precise. His tempo and beat never faltered. Melodically, Quincy was

very adept and quite conscious of issues relating to tuning. When he had challenges, it was with the ascending pattern *r, m, f*… possibly showing problems with inner-hearing of the harmonic framework.

Quincy demonstrated use of 5 music-specific strategies and 6 self-regulatory metacognitive strategies (see Appendix E to view his percentage of strategy usage). He is well-able to direct his own learning and understands how to plan and carry out the next steps in learning a musical composition. In his interview, he commented that with more time he would play with his piece by inserting rhythmic sounds, instead of just the rhythmic speech. It became obvious to me following his interview that Quincy was unaware that he was making the mistakes noted in the paragraph above; therefore, he was unable to detect errors and self-correct. There is no doubt that Quincy would benefit from more opportunities to scaffold with peers and teachers. However, based on his overall accuracy, it would seem he has arrived at an early form of musical independence.

Zeke

The picture of Zeke from his performance scores is not the picture of Zeke that I witnessed in rehearsal, notational reading session, or interview. With an overall accuracy of 68%, Zeke achieved a text accuracy score of 75%, a rhythmic accuracy score of 62% and a melodic accuracy score of 67% (see Figure 10).

To understand this, I examined both his successes and errors in performance and his performance in the notational reading session, all observable through video. Zeke entirely omitted the second verse, which had a drastic effect on his overall score. For the sake of discussion, I have re-assessed his accuracy without the

omissions in the second verse (which is a slightly altered version of the first verse) to demonstrate his learning. Without the omissions from the second verse, Zeke's overall accuracy is 88%, made up from a text accuracy score of 96%, a rhythmic accuracy score of 83% and a melodic accuracy score of 88%. With those scores as a guidepost, Zeke's text error was a logical substitution of a rhythmic sound from an earlier repeated section of the piece. His rhythmic challenges were related to "jazzifying" the last line of each verse (adding dotted rhythms), changing the tempo for held notes, and ignoring quarter note rests on downbeats. Melodically, Zeke had difficulties outlining the dominant triad, and, like Quincy, with the scalar passage *r, m, f.*

Confident and self-directed, Zeke used 6 of the 7 music-specific learning strategies, but only 4 of the 10 self-regulatory metacognitive strategies (see Appendix E to view his percentage of strategy usage). He could benefit from instruction in a variety of metacognitive self-regulatory strategies and from opportunities to assess the appropriateness of his music-specific strategy choices. Zeke has many strategies to employ on the road to musical independence.

Discussion

Strategy Usage and Performance

By examining the performance of 10 honour choir participants, it would seem that strategy usage is in some ways related to overall accuracy. It appears that music-specific strategy usage has a stronger connection to accuracy, than self-regulatory metacognitive strategy usage. However, it appears that self-regulatory metacognitive strategy usage is a strong indicator of effective use of rehearsal time, which is a factor

in music-specific strategy use. More study into the relationship of music-specific and self-regulatory metacognitive strategy use is necessary. As demonstrated by Dustin and Quincy, it would appear that students who used the greatest numbers of strategies achieved the highest accuracy scores, thereby demonstrating higher musical independence as it relates to notational reading tasks.

Nathan demonstrated that a student's performance, regardless of strategy usage, does not necessarily indicate the significant amount of musical learning that has taken place. The process of engaging in the notational reading session allowed Nathan to discover many important concepts relating to music. This activity effectively allows students to learn within their own zone of proximal development.

By evaluating the performance in four ways, 1) text accuracy, 2) rhythmic accuracy, 3) melodic accuracy, and 4) total or overall accuracy, it was possible to determine student strengths and weaknesses. As evidenced in the case of Ginger and Isaac, a student could well be strong in two of the three areas of assessment, but weak in another, a circumstance that affected the overall quality of performance. By identifying these strengths and weaknesses, teachers can effectively begin a program of support for student growth.

Affective qualities pertaining to student confidence, preparation, and experience must be taken into consideration. In Zeke's case, nerves may have caused him to omit the second verse, which greatly affected his accuracy score. In Margot's case, confidence was indeed a larger issue than musical knowledge. In the cases of Emily, Talibah, and Vivienne, lack of preparation and experiences in notational

reading tasks were definitely factors affecting their overall performance. More research into this area would assist understanding of this aspect of performance.

Common Notational Literacy Issues

Common notational literacy issues resulting from student performance as evidenced in this study include certain concepts of score reading, textual aspects, rhythmic aspects and melodic aspects. Challenges involving concepts of score reading were widespread.

All of the participants of the Youth Honour Choir and two participants in the Boys' Honour Choir had significant difficulties understanding repeated sections. Nathan in particular had difficulties following his assigned vocal line. In the notational reading session it appeared many students had difficulty physically manipulating their score so that they could read ahead and maintain their place in the music.

Many students — all of the Youth Honour Choir participants and three members of the Boys' Honour Choir — did not perform rhythmic speech sections of the music, causing me to question whether it was forgotten or not perceived as part of the music. From a textual standpoint, archaic language, regional dialect, and melismatic singing were challenges to the Youth Honour choir. These challenges also affected Youth Honour Choir members in their understanding of the rhythmic aspects of the piece. Common rhythmic challenges include the dotted quarter note followed by an eighth note, as evidenced by the Youth Honour Choir, insertion of dotted rhythms to created jazzy effect, as evidenced by the Boys' Honour Choir, and, as

demonstrated by members of both choirs, lack of consistency in the performance of rests and held notes.

Melodic challenges resulted from a lack of understanding of the underlying harmonic framework. Difficulty singing the outlining notes in the dominant triad, the Youth Honour choir's inability to sing the flat seventh note (Bb), and two Boys' Honour Choir participants' difficulty singing the ascending *r, m, f* scalar passage during modulations, were all influenced by a lack of larger harmonic understanding.

Summary

This chapter has discussed the performances of 10 honour choir students in terms of their 1) text accuracy, 2) rhythmic accuracy, 3) melodic accuracy, and 4) overall accuracy. The relationship between strategy usage and performance was examined as was the nature of each student's mistakes. In some cases, music-specific learning was discussed and suggestions for further support provided. Themes arising from the data include the relationship between strategy usage and performance. Common challenges to notational literacy, as demonstrated through the 10 participants performances, were offered.

The following chapter will summarize the thesis, present my findings and their implications, and share my recommendations for further investigation.

CHAPTER SEVEN

Recapitulation: Recurring Themes in a New Key

Closing Vignettes:

Late one evening, after conducting session one with all five participants of the boys' honour choir, I sat staring at my computer monitor with tired eyes. I had just finished watching the boys' notational reading session videos and had just finished listening to their performances of the notational reading task. Part of me was thrilled to see and hear the boys' notational literacy in action. It seemed that most of the boys had begun their journey to musical independence and that was reflected in their practice session as well as in their performance.

There was another part of me, however, that was deeply concerned. One boy in particular, had me somewhat perplexed. Nathan, a cheerful and exuberant singer, did not demonstrate many music-specific or metacognitive self-regulatory strategies. His performance was far from accurate; it appeared he had entirely invented his own rhythm and melody. From watching the video of his practice session, I could see he was making progress, though that progress was not related to pitch or duration. With further viewing and listening, I came to discover he actually learned how to follow repeat signs and his own part-specific vocal line.

(The following week)

On the drive home following the boys' interview session, my mind was full. The boys had told me so much about how they learned. Once again, Nathan came to mind. Through his interview I learned about his early level of musical experiences,

and he explained he was new to part singing and that this was his first year using the music to read from in choir. He went on to describe what he learned in the notational reading session, how he learned it, and what he would try next, if given more time to learn the music. In short, Nathan joyfully described his path to musical learning, his self-perceived route towards musical independence.

Although Nathan requires more music-specific learning and opportunities to evaluate the strategies he uses, he was clearly able to set goals and devise a plan to achieve them based on his prior knowledge. Without this interview, and based solely on his performance, I would never have understood Nathan's self-regulatory metacognitive capabilities. That he did not employ the strategies he conceived of and described in the interview, was not due to self-regulation or metacognitive weakness, but rather to a lack of procedural knowledge of how to carry out the next steps. What this means is that Nathan possesses some of the global tools to proceed toward musical independence; however, he requires guidance in the music-specific skills that music educators long to provide for their students. Nathan's lack of accuracy in performance was no longer so disturbing. His performance did not indicate the significance of the concepts of print he learned in practice, nor did it articulate his metacognitive awareness.

By the time I reached home, Nathan's learning filled me with pride. This inspiring young boy had just shown me the use and significance of one on one discussions of student learning to prepare the path for musical independence.

Thesis Summary

Metacognition, or "knowledge of our own thinking processes" (Woolfolk, Winne, & Perry, 2006, p. 540), is a commonly used process-thinking strategy encouraged by contemporary constructivist philosophy. By teaching metacognitive learning strategies in conjunction with sufficient music literacy skills, it is my hope to foster musical independence, what I believe to be the highest goal in music education. My students' current experiences with deliberate strategy instruction in language arts, math, and science, combined with my personal experiences with metacognition and conscious strategy usage as a young pianist, in high school band, and later in a university music program, caused me to ask which larger process skills transfer into the music room. The document that has evolved is a result of much reflection and musing in the effort to determine such a path toward musical independence.

This thesis was an investigation into the metacognitive strategy usage of 10 extra-curricular honour choir participants engaged in notational reading tasks. Each participant individually completed a musical background questionnaire and took part in a 15 minute notational reading session of a pre-determined piece they had not sung or heard previously. Following the notational reading session, they individually performed their pieces. A week later, they took part in a 30 minute interview with the researcher, describing their musical background, the specific strategies they employed in the notational reading session, and the general strategies they employ in notational reading. Through this process, the nature of conscious and unconscious student strategy use was explored, as was the relationship between accuracy and strategy in notational reading.

Conclusions

My findings are supported by the multiple forms of analysis that took place, including direct interpretation, case aggregation, and triangulation. Frequency of strategy usage (as observed in video footage and in the formal strategy observation chart), performance accuracy (as observed by listening to the audiotape and notating on formal performance accuracy score sheets), student comments on musical background (in both the musical background questionnaire and in the transcribed interview notes), and determined searches for correspondence in larger patterns, were coded. These analyses revealed themes in three distinct categories: 1) individual learning, 2) strategy usage, and 3) performance findings.

Individual Learning

Regardless of the attempt to learn about larger patterns of strategy usage, learning and motivation for learning remains an individual process. There was no right or wrong way to learn a piece of music. Each participant achieved varying levels of success using an array of different strategies. In this study, all choristers were motivated to belong to an extra-curricular, auditioned, honour choir, and most had a high level of commitment to this study. Participation in music seemed to be intrinsically motivating. In particular, members of the boys' honour choir seemed to demonstrate high levels of confidence, leading me to believe they may have had high self-efficacy. Confidence levels, which appeared to be a factor in this study, are worthy of greater study at another time.

Strategy Usage

Student discussion of learning revealed that strategy use in notational reading tasks was deliberate. Both music-specific and metacognitive self-regulatory strategies were consciously used in a goal-oriented way to learn the predetermined piece of music within the 15 minute time slot. Coded interviews revealed that students were not aware of all of the strategies identified by Killian and Henry (2005) or Zimmerman and Pons (1986), nor did students consciously assess the appropriateness or effectiveness of the strategies they chose to employ. Students deliberately used a strategy to learn the music, but they did not always have a reason for their decision to employ a given strategy, other than a superficial prior experience using that strategy. All students made connections between their prior learning, and the strategies they employed.

Most students enjoyed discussing their learning, and many felt they learned from that discussion. Students were able to think in ways that were more metacognitive when prompted. This appeared to be a very satisfying experience, allowing some students to deepen their understanding of strategies used and reasons for those decisions.

Performance Findings

There appears to be an important relationship between strategy usage and performance. It seems that the more strategies a student uses in the notational reading task, the more accurate his or her performance appears to be. Metacognitive strategy usage alone does not equal an accurate performance. It appears that music-specific strategy usage has greater bearing on accuracy. When students employed five or six

of the music-specific strategies, they achieved a high degree of overall accuracy. Those same students who employed most music-specific strategies also demonstrated use of five to eight self-regulatory metacognitive strategies. More research in this area would be beneficial.

Implications of the Findings

This research seems to confirm that many approaches to learning a piece of music are valid. At this point, no one strategy seems more successful than another, though music-specific strategies are very important and their relationship to self-regulatory metacognitive strategies is unknown.

The personal benefit that participants reported would indicate that one-on-one interviews and discussions on specific learning strategies would be both enjoyable and beneficial to most learners. Care must of course be taken to ensure a confidential and safe learning environment. One-on-one interviews would facilitate student growth at individual rates and help students and teachers develop rapport. These interviews would assist teachers to assess each student's progress and assist them in planning for each student's success. Teachers or other experts could assist the student in evaluating the effectiveness of strategy choices. Constructivist theory supports the notion that small group discussions may be beneficial, encouraging scaffolding to occur among peers. Choral settings typically feature group learning experiences, making small group discussion a practical and interesting extension of the interview process.

Constructivist principles of education, particularly schema theory, is of great significance to student learning. Participants appeared to have "created" their

knowledge of learning strategy by connecting their learning to prior experience. The next step would have been for them to learn different ways to "apply" that learning. Through understanding of cognitive dissonance theory, and Piaget's concepts of accommodation and assimilation, group discussion, self-evaluation, and self-reflection in all forms of learning situations should be encouraged.

Once examination of strategy use based on prior knowledge has occurred, there is a place for direct and deliberate strategy instruction. This could occur in a mini-lesson format, or be revealed by making explicit the processes used in rehearsal situations.

The data suggests that students require more opportunities for individual and group testing in order that they may have opportunities to assess their accuracy and the effectiveness and appropriateness of the strategies that they employ. These tests are necessary to encourage individual accountability and to simulate learning in musically independent situations, thereby offering students a realistic view of their achievement.

Recommendations for Future Research

The area of musical independence, metacognition, and strategy use is ripe for further investigation. Research into constructivist principles and the social nature of learning in the choral rehearsal might elucidate how students would have performed in this task had they the opportunity to work in small groups or sections. Quantitative studies of metacognition and strategy usage within a real-life learning context could provide the generalizability that this study lacks. One might ask how general music students achieve at this same task.

Areas of particular interest resulting from this study include the relationship between music-specific strategy use and metacognitive self-regulatory strategy use. This study highlights the need for the development of a possible sequence of music-specific strategy skills. Through the course of this research, it became clear that further investigation is still required in understanding the role of confidence in musical performance and accuracy, as that was a factor in this work

Final Thoughts

This study has confirmed my earlier suspicions of the significance of metacognition and strategy usage in notational reading tasks. A complete surprise to me, however, was the benefit of one-on-one interviews, and how this process of student self-reporting and self-observation could deepen student learning. By examining these processes as well as the accuracy of performance, I was able to determine what students knew, at their level. As an educator, this type of knowledge is invaluable, facilitating appropriate development of curriculum to meet each student's needs.

As a result of this research, I will be able to enrich my students' enjoyment of and future participation in music and encourage them on their path toward musical independence. It is my wish that this study will benefit the musical community in their endeavours to assist more participants to become desirous, willing, and able to share their music in the future.

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APPENDIX A – CERTIFICATE OF ETHICS APPROVAL

University of Victoria

Human Research Ethics Board
Office of Research Services
University of Victoria
Technology Enterprise Facility, Room 218
Tel (250) 472-4545 Fax (250) 721-7836
Email ethics@uvic.ca Web www.research.uvic.ca

Human Research Ethics Board
Certificate of Approval

Principal Investigator	Department/School	Supervisor
Marlene Nolet **Master's Student**	**EDCI**	**Dr. Mary Kennedy**
Co-Investigator(s):		

Project Title: **Toward Music Independence: Metacognitive Strategies Employed by Young Choristers Engaged in Notational Reading Tasks**

Protocol No.	Approval Date	Start Date	End Date
06-428	**06-Feb-07**	**06-Feb-07**	**05-Feb-10**

Certification

This certifies that the UVic Human Research Ethics Board has examined this research protocol and concludes that, in all respects, the proposed research meets appropriate standards of ethics as outlined by the University of Victoria Research Regulations Involving Human Subjects.

Dr. Richard Keeler
Associate Vice-President, Research

This Certificate of Approval is valid for the above term provided there is no change in the procedures. Extensions or minor amendments may be granted upon receipt of a "Research Status" form.

APPENDIX B – CONSENT FORMS

Conductor Letter of Consent

Toward Musical Independence:
Metacognitive Strategies Employed By Young Choristers
Engaged in Notational Reading Tasks

Your choristers are being invited to participate in a study entitled **Toward Musical Independence: Metacognitive Strategies Employed By Young Choristers Engaged in Notational Reading Tasks** that is being conducted by Marlene Nolet.

Marlene Nolet is a graduate student in the Department of Curriculum and Instruction at the University of Victoria and you may contact her if you have further questions by calling 889-2022 or emailing mnolet@staff.ednet.ns.ca.

As a graduate student, I am required to conduct research as part of the requirements for a Master of Arts degree in elementary music education. It is being conducted under the supervision of Dr. Mary Kennedy. You may contact my supervisor by phoning **(250) 721-7835 or emailing makenn@uvic.ca**.

Why I want to study this area and why it is important:
I would like to study this area because I want to learn the ways in which choristers learn to read music. I think that learning about this will help music teachers know good ways to teach their choir students to learn music independently. This is important because reading music is a significant part of singing in a choir and is a way to help students feel successful and become musically independent.

Why your choristers are being asked to participate:
Your choristers are being asked to participate in this study because they are an auditioned extra-curricular choir that requires parental support for student attendance.

What is involved:
If you agree to allow your choristers to voluntarily participate in this research, your participation would involve giving approximately an hour of your rehearsal time per student in the course of two-three rehearsals.
Your students will be asked to do three things:
1) to answer a questionnaire.
2) to spend 15 minutes learning a piece of music and to perform that piece of music (THEY WILL BE VIDEOTAPED AT THIS TIME).
3) to be interviewed about learning the piece of music (THE INTERVIEW WILL BE AUDIOTAPED).
FOR THE PURPOSES OF THIS STUDY I WILL VIEW AND LISTEN TO YOUR CHORISTERS' AUDIO AND VIDEOTAPE, AND CHORISTERS WILL VIEW PORTIONS OF THEIR VIDEOTAPE AS PART OF THE INTERVIEW PROCESS.

Inconvenience:
The only inconvenience that participation in this study may cause is the necessity of giving of your rehearsal time to answer the questionnaire, to learn and perform the piece of music, and to be interviewed.

Risks:
There are no known or anticipated risks to you by participating in this research.

Benefits:
The potential benefit of your participation includes the opportunity for your students to learn a new piece of music that they will study later in the term, to think about reading musical notation and to develop a stronger understanding of their learning process.

Compensation:
As a way to thank your students for any inconvenience related to their participation, they will be invited to take part in a pizza party with time for socializing following the data collection (date tba). To thank you for your participation, you will receive a copy of the final documentation (thesis) of this research.

Voluntary Participation:
Your choristers' participation in this research must be completely voluntary. If they decide to participate, they may withdraw at any time without any consequence or explanation. If they do withdraw after the first session, their data will still form part of the larger information I am gathering on learning strategies.

On-going Consent:
To ensure your choristers continue to consent to participate in this research, I will give them a second letter to sign at the time of the scheduled interview.

Anonymity:
Choristers' names will be changed in the final report to protect their confidentiality. A WRITTEN PERMISSION WILL BE REQUESTED TO USE AUDIO AND VISUAL IMAGES IN FUTURE PRESENTATIONS, WORKSHOPS AND/OR CONFERENCES.

Confidentiality:
All information gathered will be kept safe in a locked filing cabinet at my home.

Dissemination of Results:
When the research is complete, I anticipate it being shared with other music teachers and researchers through my thesis, at workshops and conferences, and in music education journals.

Disposal of the Data:
Data from this study will be kept for the foreseeable future so that it can be used for future music education research by myself and other interested music education researchers. If this information is used beyond this study, it will be for educational purposes only. Confidentiality with be protected by changed names.

Contacts:
You may contact myself or my supervisor, Dr. Mary Kennedy about any concerns you may have about this research by phone **(250) 721-7835 or email makenn@uvic.ca**. You may contact the Associate Vice President of Research at the University of Victoria to verify the ethical approval of this study by calling (250) 472-4545.

Your signature below indicates that you understand the above conditions of your choristers' participation in this study and that you have had the opportunity to have your questions answered by the researcher.

_____

Name of Conductor Name of Choir Date

Participant Recruitment Script and Letter of Consent

Toward Musical Independence:
Metacognitive Strategies Employed By Young Choristers
Engaged in Notational Reading Tasks

Good afternoon. My name is Marlene Nolet and I am a graduate student in music education from the University of Victoria. I am here to invite you to take part in a study called **Toward Musical Independence: Metacognitive Strategies Employed By Young Choristers Engaged in Notational Reading Tasks.**

I am a graduate student in the Department of Curriculum and Instruction at the University of Victoria and you may contact me if you have further questions by calling 889-2022 or emailing mnolet@staff.ednet.ns.ca. As a graduate student, I am required to conduct research as part of the requirements for a Master of Arts degree in elementary music education. It is being conducted under the supervision of Dr. Mary Kennedy. You may contact my supervisor by phoning **(250) 721-7835 or emailing makenn@uvic.ca**.

Why I want to study this area and why it is important:
I would like to study this area because I want to learn the ways in which choristers like you learn to read music. I think that learning about this will help music teachers know good ways to teach their choir students to learn music independently. This is important because reading music is a significant part of singing in a choir and is a way to help students feel successful and become musically independent.

Why you are being asked to participate:
You are being asked to participate in this study because you are a member of the Boys' Honour Choir or the Youth Honour Choir.

What is involved:
If you agree to voluntarily participate in this research, your participation would involve giving approximately an hour of your time. You will be asked to do three things:
1) to answer a questionnaire.
2) to spend 15 minutes learning a piece of music and to perform that piece of music (YOU WILL BE VIDEOTAPED AT THIS TIME).
3) to be interviewed about learning the piece of music (THE INTERVIEW WILL BE AUDIOTAPED). FOR THE PURPOSES OF THIS STUDY I WILL VIEW AND LISTEN TO YOUR AUDIO AND VIDEOTAPE, AND YOU WILL VIEW PORTIONS OF YOUR VIDEOTAPE AS PART OF THE INTERVIEW PROCESS.

Inconvenience:
The only inconvenience that participation in this study may cause is the necessity of giving an hour of your time to answer the questionnaire, to learn and perform the piece of music, and to be interviewed.

Risks:
There are no known or anticipated risks to you by participating in this research.

Benefits:
The potential benefit of your participation includes the opportunity to learn a new piece of music, to think about reading musical notation and to develop a stronger understanding of your learning process.

Compensation:
As a way to thank you for any inconvenience related to your participation, you will be invited to take part in a pizza party with time for socializing following the data collection.

Voluntary Participation:
Your participation in this research must be completely voluntary. If you decide to participate, you may withdraw at any time without any consequence or explanation. If you do withdraw after your first session, your data will still form part of the larger information I am gathering on learning strategies.

On-going Consent:
To ensure you continue to consent to participate in this research, I will give you a second letter to sign at the time of the scheduled interview.

Anonymity:
ALL EFFORTS WILL BE MADE TO PROTECT YOUR CONFIDENTIALITY. ALTHOUGH VISUAL AND AUDIO MATERIALS CANNOT BE ENTIRELY ANONYMOUS, your names will be changed in the final report to protect your confidentiality. YOUR AUDIO AND VIDEO TAPES WILL NOT BE USED AT CONFERENCES, WORKSHOPS OR PRESENTATIONS WITHOUT YOUR CONSENT AS REQUESTED AT THE BOTTOM OF THIS FORM.

Confidentiality:
All information gathered will be kept safe in a locked filing cabinet at my home.

Dissemination of Results:
When the research is complete, I anticipate it being shared with other music teachers and researchers through my thesis, at workshops and conferences, and in music education journals.

Disposal of the Data:
Data from this study will be kept for the foreseeable future so that it can be used for future music education research by myself and other interested music education researchers. If this information is used beyond this study, it will be for educational purposes only. Your confidentiality with be protected by changed names.

Contacts:
You may contact myself or my supervisor, Dr. Mary Kennedy about any concerns you may have about this research by phone **(250) 721-7835 or email makenn@uvic.ca**. You may contact the Associate Vice President of Research at the University of Victoria to verify the ethical approval of this study by calling (250) 472-4545.

YOUR SIGNATURE BELOW INDICATES THAT YOU UNDERSTAND THE ABOVE CONDITIONS OF PARTICIPATION IN THIS STUDY AND THAT YOU HAVE HAD THE OPPORTUNITY TO HAVE YOUR QUESTIONS ANSWERED BY THE RESEARCHER**.**

_____

Name of Participant Participant Signature Date

_____

Name of Parent/Guardian Parent/Guardian Signature Date

A CHECK IN THE BOX BELOW INDICATES YOU GIVE PERMISSION TO USE YOUR AUDIO AND VIDEO TAPE IMAGES IN FUTURE MUSIC EDUCATION WORKSHOPS, PRESENTATIONS AND/OR CONFERENCES.

□ I GIVE MY CONSENT FOR VIDEO AND AUDIO MATERIALS TO BE USED FOR THE PURPOSES OF SHARING THE INFORMATION GATHERED AS PART OF THESIS, WORKSHOP, AND/OR CONFERENCE PRESENTATIONS FOR MUSIC EDUCATION PURPOSES.

APPENDIX C – MUSICAL BACKGROUND QUESTIONNAIRE

Toward Musical Independence:
Metacognitive Strategies Employed By Young Choristers
Engaged in Notational Reading Tasks

Name:_____

1. Please circle the name of the choir in which you sing

Boys' Honour Choir Youth Honour Choir

2. Please name other choirs in which you have sung and name choir directors with which you have sung (include school and church choirs), and indicate the number of years you were a part of the ensemble.

Choir Name	Conductor's Name	Number of Year(s)

3. What voice part do you typically sing? (circle your answer)

Soprano 1 Soprano 2 Alto Mezzo

4. Do you take voice lessons? (circle your answer)
Yes or No

If yes, indicate the name of your teacher(s) and the number of years.

Voice Teacher's Name	# of Years

5. Have you ever done any solo singing? (circle your answer)
Yes or No

If yes, name the piece(s) in which you have recently sung solo.

_____

6. Have you attended any of the following programs?

Yes or No (circle your answer)	Camp Program	# of Years
Yes or No	Junior Choir Camp	
Yes or No	Youth Choir Camp	
Yes or No	Other Choir Program	

7. Do you play any musical instruments? (circle your answer)
Yes or No.

If YES, fill out the chart below. If your instrument is not listed, name it at the bottom of the chart.

Instrument Name	Teacher's Name (or self-taught)	# of Years
Piano/Keyboard		
Guitar		
Fiddle/Violin		
Recorder		
Other Instrument:		

8. Finish the following sentences by circling all the possible answers for your situation.
My music teacher taught me by….

Using Hand Signs (do, re, mi) Note Naming Using movement activities

Repeating after the teacher (rote) Questioning Composition/writing music

When learning music on my own (without my teacher), I prefer to…

Learn by ear (listen, then play) Read from the music (notation)

A combination or learning by ear and reading the music

9. Please circle all places where you and your family listen to music.

Church At Home At school At social events

10. Please circle all places where you and your family make or create music.

Church At Home At school At social events

THANK YOU FOR TAKING THE TIME TO ANSWER THIS QUESTIONNAIRE!

APPENDIX D – SAMPLE SEMI-STRUCTURED INTERVIEW QUESTIONS

Musical Background Questions

1. Please tell me a little about your musical background.
2. With which choirs have you sung in the past?
3. Which vocal part are you most used to singing?
4. You said on your musical background questionnaire, that your music teacher taught you with _____ (hand signs, rote teaching, note-naming, composition, or movement activities). Tell me about this.
5. When learning on your own, you mention you prefer _____ (learning by ear, learning by reading the music or a combination of learning by ear and reading the music). Explain your thoughts about this.
6. Describe the music you make at home.
7. Describe the music you listen to at home.

Specific Notational Reading Session Questions

8. When you began this session, you were humming the music. A couple minutes later you were singing the music. Why did you hum first? Did this help you?
9. How did you know you found the musical solution you were looking for?
10. Why did you repeat yourself? How did you know you had made a mistake?
11. If you were to work on this piece, what might you do differently? How would you improve this piece for another performance another time?
12. Which strategies do you use when learning music on your own?

APPENDIX E – COMPOSITIONS LEARNED BY THE HONOUR CHOIRS

Youth Honour Choir Selection

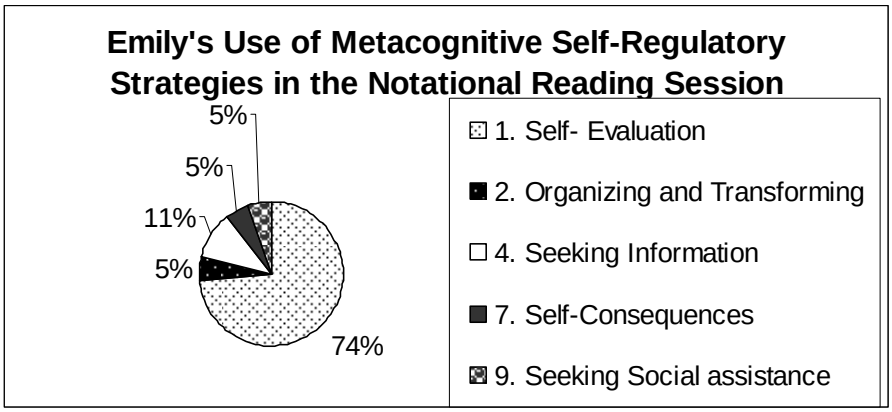
The Youth Honour Choir learned the soprano one line of the SSA version of "The Blades of Strawblane" (PMP 1261134), a New Brunswick folk song collected by Dr. Helen Creighton, arranged by Gary Ewer (2004). This score is available through Pantomime Music Productions. For information see www.PantomimeMusic.com.

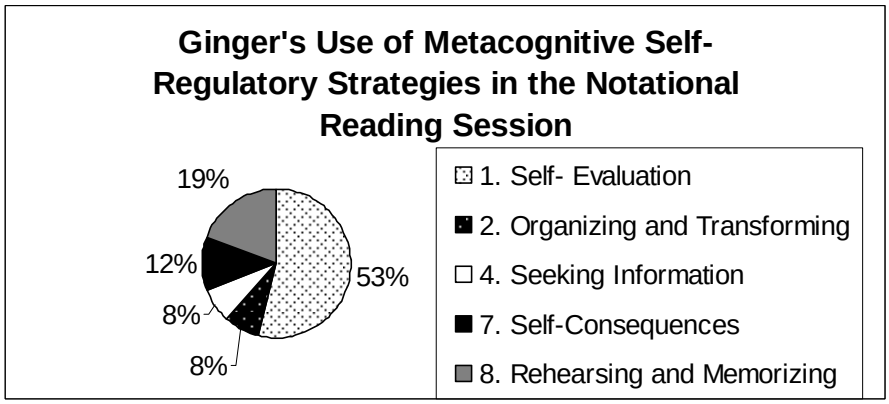
Boys' Honour Choir Selection

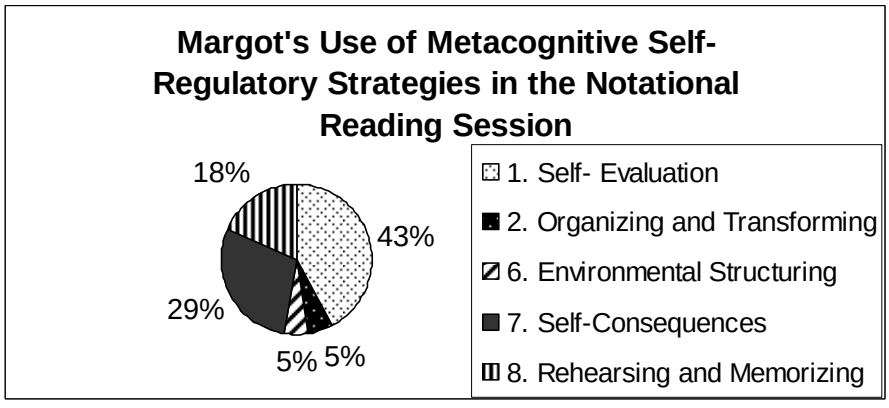
The Boys' Honour Choir learned the soprano line of an SA version of "Inventions and Machines" (AMP 0153) by D. Geoffrey Bell (1996). This score is available through Alliant Music Publications, Inc.

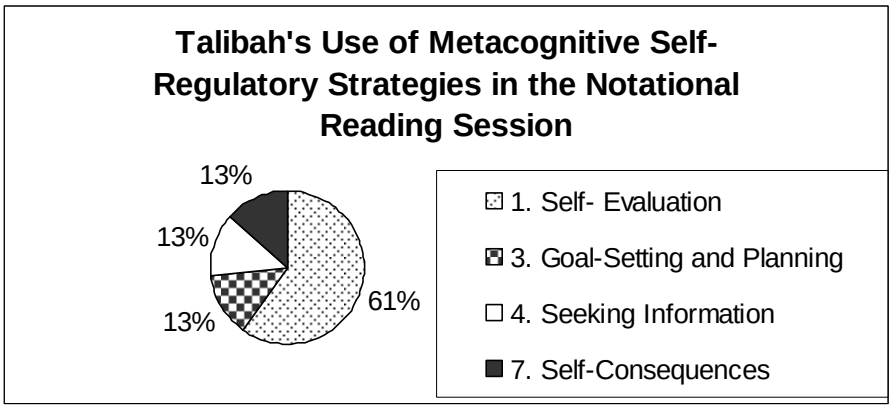
APPENDIX F – PERCENTAGE OF CHORISTER'S METACOGNITIVE SELF-REGULATORY STRATEGY USE IN THE 15 MINUTE NOTATIONAL READING SESSION

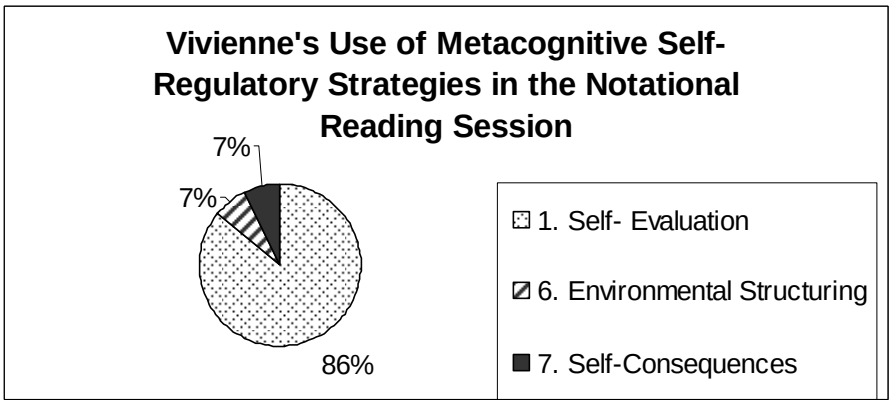
Youth Honour Choir Participants



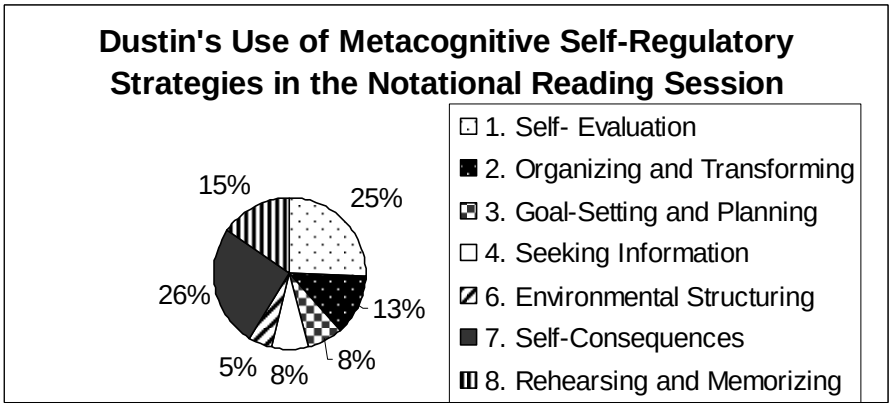


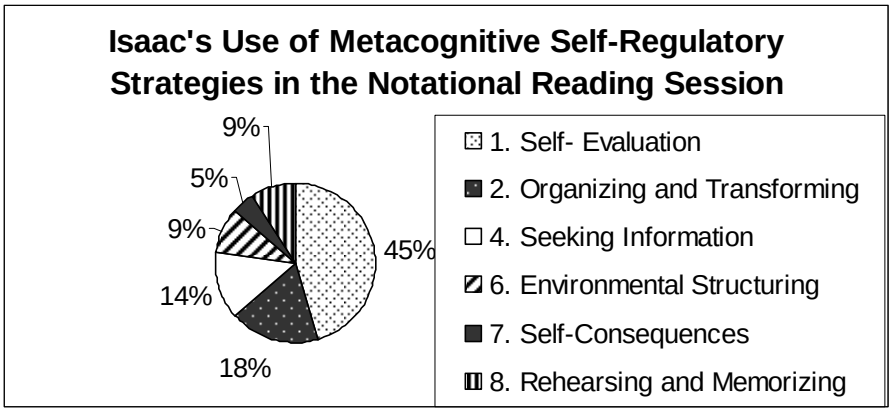


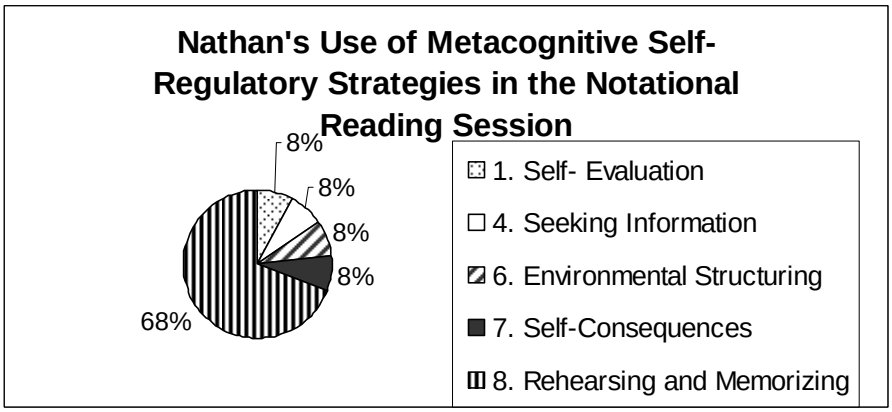


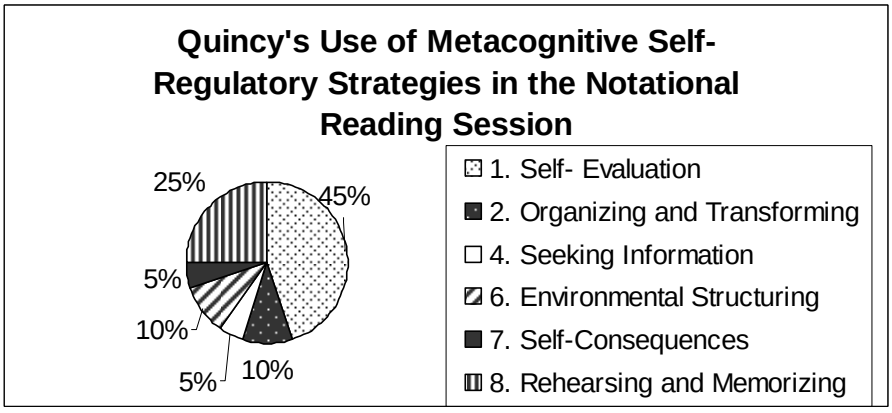


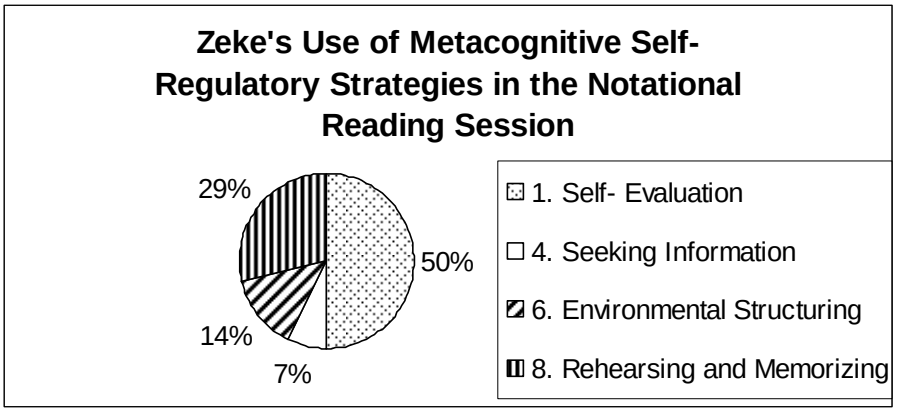
Boys' Honour Choir Participants




Isaac's Use of Metacognitive Self-Regulatory Strategies in the Notational Reading Session
9%
5%
9%
45%
14%
18%
1. Self- Evaluation
2. Organizing and Transforming
4. Seeking Information
6. Environmental Structuring
7. Self-Consequences
8. Rehearsing and Memorizing


Nathan's Use of Metacognitive Self-Regulatory Strategies in the Notational Reading Session
8%
8%
8%
8%
68%
1. Self- Evaluation
4. Seeking Information
6. Environmental Structuring
7. Self-Consequences
8. Rehearsing and Memorizing


Quincy's Use of Metacognitive Self-Regulatory Strategies in the Notational Reading Session
25%
45%
5%
10%
5%
10%
1. Self- Evaluation
2. Organizing and Transforming
4. Seeking Information
6. Environmental Structuring
7. Self-Consequences
8. Rehearsing and Memorizing


Zeke's Use of Metacognitive Self-Regulatory Strategies in the Notational Reading Session
29%
50%
14%
7%
1. Self- Evaluation
4. Seeking Information
6. Environmental Structuring
8. Rehearsing and Memorizing