STEPS TO PARNASSUS: The Effects of Guided Practice On Junior and Intermediate School Musicians

by

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Abstract

Practicing is an ineluctable component in the pursuit of achieving musical goals. This is particularly true in the Western model of music education that is, for the most part, characterized by private lessons or ensemble rehearsals that typically occur only once each week. How dependent is the motivation to learn music on effective practicing? Novices often abandon music education simply because “it’s too hard.” Is the frustration the result of a lack of success due to ineffective practicing? Effective practicing evolves naturally with increased musical knowledge and expertise. Overall, a musician’s development towards effective practicing may be described as the acquisition of a metacognitive awareness of one’s own learning and hence a more active participation in that learning that is characterized by self-regulatory behaviours. This research asks if guided practice at an early age might prove a catalyst in the development of effective practicing which naturally occurs with musical expertise. Over the course of an academic school year, 13 novice musicians engaged in guided practice sessions with the researcher. The participants were private piano students and young band members. Data gathered through interviews, questionnaires and video recordings of lessons and practice sessions at the musicians’ homes were analyzed within the theoretical framework of self-regulation. Data were also analyzed according to a self-system theoretical framework of expectancy-value theory, self-determination theory, attribution theory, and goal orientation. Evidence from the data suggests an increase in cognitive and metacognitive processes that characterize self-regulated learning. Musicians also indicate an increase in motivation to engage in practicing as well as greater self-efficacy in addressing musical challenges. Effective pedagogical approaches for guided practice are discussed as are implications for music education. Suggestions are made for further research.
Dedication

To my mom and dad.

You have been a staff of inspiration and strength whereupon - in spite of its many ups and downs – my life’s melody was always embraced with love.

For the gift of piano lessons so long ago, and for your enduring support in all my musical endeavours, may what I’ve achieved here at least begin to say thank you.

To my children. Christina, John Michael, Vincent and Patrick.

If there is a foundation of love on which this is built, it is you.
Four-part harmony never graced a father’s heart with such beauty as yours does mine.

To my sister, Gail, my brother, Greg and my sister-in-law, Alisa.

You have been a chorus of love and understanding when I most needed it.

And to Binkley, who never left my side. I shall miss you.

When the time of our particular sunset comes,
Our thing, our accomplishment
Won't really matter
A great deal.
But the clarity and care
With which we have
Loved others
Will speak with vitality
Of the great gift of life
We have been for each other.

Gregory Norbert, O.S.B.
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And, finally, to young Aidan. You’re a very fine musician. Being your teacher, your conductor and your student has been more fun than you may ever fully realize. You taught me much! Thank you.
Foreword

These sure as hell aren’t the piano lessons that I remember - and that’s a compliment, not a criticism. Most people I know stop learning new things when they turn thirty. I’m happy to see that my dad has continued to become a better teacher because he’s decided to remain a student.

John Michael Picone B.A. (Hons), J.D., LL.M
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Chapter 1

Introduction

The Big Climb of ’79

Climbing Devil’s Tower was perhaps the most terrifying experience of my life; standing on its summit, the most thrilling. But for my time with Hobo in The Needles, I am now certain that it would never have been possible.

Like making music, climbing seems to be an instinctive human desire:

As soon as crawling is an accomplishment, the climbing of stairs is attempted. Remain on a level and crawl about rooms the child will not; it must make for the nearest stairs to climb with loud crows of delight. Tumbles and consequent bruises have no effect on the child’s climbing instinct, and really it regards them far less than the prohibition of its climbing feats by a too fond and foolish mother. It is better to let the child climb.¹

But to advance, as it were, from crawling up stairs to climbing up mountains requires practice. So, too, does the progression from humming a nursery rhyme to playing trumpet in the high school concert band.

Fr. Bob “Hobo” Holmes had decided that I would not be ready to tackle Devil’s Tower in Wyoming without considerable practicing on the smaller climbs of The Needles in the Black Hills of western South Dakota. Even then, he suggested that this gumby start off “bouldering,” small climbs on big rocks with specific challenges to develop specific skills. Other than point the way to the top, there was little that Hobo could actually teach me to do. He did, of course, show me how to knot the belay rope securely to the carabiner of my harness, and pointed out strategies such as moving feet first, hands second, or the use of jamming in a fissure. Even volitional strategies I probably would not have thought of: “Keep your arms below your heart whenever you can or they’ll get tired.” Hobo always reminded me it was a good idea to look over the

whole climb first, which one could certainly do with the relatively short routes in The Needles: “It’s good if you know what’s coming; you don’t want to get any nasty surprises.”

As my belay, however, Hobo watched me carefully and, when we were both resting at the top before the rappel down, he would ask me questions about what worked and what did not, what I found frustrating or why I chose a particular route. His most important question was always where I thought the crux was - the most challenging section of the climb - and how I handled it. Helping me to reflect on my choices helped me to make better ones. After such chats, I was always anxious to descend, find another spire, and try again.

Looking back on the climbing I did during that summer of 1979, it occurred to me that Hobo could not, in fact, have taught me how to climb Devil’s Tower. What he could – and did – do was teach me how to learn for myself. Practicing under his guidance in The Needles, I learned that not only were the choices mine, but that I was making them alone on the face of the granite outcropping. As my successes in The Needles grew, so did my confidence. Climbing the Tower was as exhilarating as it was exhausting.

More than two decades later, my high school principal asked me to teach an instrumental music class and conduct the extra-curricular concert band. I was a pianist and knew nothing about wind instruments. And so I began another climb. Only this time, there were young people coming along with me. This was not the same as teaching English, as I had done to that point in my career. In the English classroom I was not part of the students’ performance of an essay that they submitted for a grade. But on the podium, holding the instrument that is my baton, at concerts and rehearsals, I was very much part of the performance.

In the course of learning how to teach at least the fundamentals of playing everything from bassoon to xylophone, I came to a deep appreciation for the importance of making music in the overall development of young people and became wholly committed to augmenting opportunities for quality music education. I wanted young people engaged in music education for as long as possible. As an educator, I came to believe that, even though it was important to learn to read and write, learning to play a musical instrument and being part of the band experience was even more important to the intellectual, spiritual, emotional, psychological and social growth of a young person. It was also a whole lot of fun!
I had been teaching private piano lessons until this time. That students would cease lessons at some point seemed to me to be just part of growing up and losing interest in some activities. I blamed disinterested parents, television and distractions of a romantic nature. Disappointed as I may have been, I never gave it a second thought. It always came down to not practicing. So, it was only logical that they would opt for activities such as soccer or hockey or baseball where they were not required to practice alone at home without the coach. Parents were quite content to no longer engage in the battle of reminders every day. A musical experience early in my retirement from teaching high school would dramatically change my perspective on practicing.

Since retiring from teaching high school music, I have volunteered my time to begin an extra-curricular concert band program at an elementary school. What I had witnessed at the high school level was that the majority of grade 9 students beginning band chose not to continue into a second year credit course. I was determined that this would not happen with the young people who decided to join the band at the elementary school. I brought to this opportunity not only my secondary school experience, but everything that I had come to understand about the hidden curriculum and motivation: I worked hard to make the band experience irresistible!

Before the end of the first year of this program, the number of musicians dropped from 35 to 20; and only 15 of the remaining 20 musicians decided to continue into the second year of the program. While there were certainly many possible reasons for 20 of the musicians to leave the band – parents unwilling to pay for instrument rental, students unwilling to give up one lunch period each week, competing interests with other activities – my personal observation was that many students were becoming frustrated at not being prepared for rehearsal. It would seem that the six days between rehearsals were not fruitful, not characterized by accomplishment. It was quite apparent that many of the musicians were “practicing” at rehearsal. And while there were musicians who were, indeed, “going over” the assigned pieces between rehearsals, satisfactory progress and a sense of accomplishment eluded them. I began to reconsider almost 25 years of teaching private piano lessons: too many students quit because learning music was “too hard.” I asked myself the question, “Is learning music really too difficult? Or are we trying to climb the mountain in the dark?”

Katzenmoyer (2007) asked over 500 high school music students to rate the factors that influenced their decisions to quit band or orchestra. The strongest reason students gave was that
they did not like practicing at home. Johnston (2002a) observes that, as music teachers, perhaps our students’ practicing is something we take for granted:

> It’s as though we assume that the instruction “please practice” is magically imbued with explanations as to what’s involved. Perhaps it’s because we have practiced so many times ourselves that the whole process feels self-evident. No explanations necessary. So get on with it already; our students know what to do” (p. 13).

All music educators realize the causal relationship between practicing and achievement in music. I was certainly not a piano teacher who simply advised my students to “get on with it already.” I verbalized strategies: try practicing hands separately, slow the tempo. When I assumed the position in high school of music teacher, my pedagogy of practicing consisted largely of distributing copies of carefully thought out steps in a practice routine that students were to put up in their room. I designed practice planning charts to be filled in and kept a stack of hundreds by the music room door where students could pick them up as they left class or rehearsal. The charts were photocopied on mauve paper and I referred to them as the “Triple P!” The Purple Practice Planner! I was so certain these would make a difference, even though they met with enormous disdain from the students. At one point the planning charts – proof undeniable that you had practiced – became admission tickets to rehearsal after school: no charts, no rehearsal! “Go home and practice!”

Parents received carefully crafted letters – essays, really – about practicing, with practical suggestions about ways they could assist. Actually, there was only one practical way that I suggested: make certain the practicing environment at home is free of a television set and a phone. Nothing really changed. The dreaded “Triple P” was hastily filled out like last-minute homework by students when they thought I was not looking during rehearsal warm-up, or, if they were better organized, at lunch in the cafeteria where I would catch them if I had monitoring duty.

The summer after I retired from teaching high school, I embarked on learning to play the trombone with the intention getting together with other retirees in a community band. In January I decided that I was ready and joined a swing band. The music was quite challenging; I was really “out of my league.” But I practiced hard. I was convinced that, with enough practicing, I
could manage 3rd trombone. My rehearsals – and my practicing in earnest - began at about the same time that students in the elementary school band started to quit.

At some point I must have had an epiphany as to what was going on during my practicing from a cognitive psychological perspective, rather than a behavioral one. It was similar to an awakening I had many years ago as a teacher of writing in a high school English classroom. And, just as my understanding about teaching writing was born out of a reflective consideration of my own writing practices, this heuristic moment in practicing music was the consequence of thinking about and reflecting on my own personal practicing. Essentially, as a writer, it was the way I thought about writing that informed my writing behaviours: the repertoire of writing strategies upon which I drew to prepare a piece for publication, the way I organized my time, strategies for evaluating my drafts and revising them, the use of resources. I recalled the inextricable connection between taking charge of these writing processes and my motivation to write. Because I felt in control, I also felt confident in my ability. The result was nothing less than an enthusiastic intrinsic motivation that fuelled my pen and nurtured my identity as a writer.

I came to an appreciation of the idiosyncratic nature of writing and that students would never really learn to write if I prescribed a formula – the age-old “five-paragraph theme” - which rather arrogantly assumes that “one size fits all.” What I could do was to guide young writers into making intelligent and effective decisions on their own, and to help students understand their own learning processes as writers and take control of them. This would require a great deal of one-to-one time with my writing students. As I undertook this pedagogical approach, the results were quite remarkable! I still have memories of deeply felt emotions as I would read some of my students’ work only to insult their efforts with the required grade. In juxtaposing this with my music practicing, I realized that there were many exciting parallels between teaching writing and teaching music!

I came to realize that it was not how long I practiced that was making the difference; it was how I practiced. I began to pay attention to the cognitive dimension to my practicing. I realized that all of my efforts with the students at school and those in my private studio had been directed towards modifying only their practicing behaviours. Not the way they thought about practicing, nor the way they thought while practicing. How a musician practiced was much more than what
they did – their behaviours. It was how they thought – their learning processes. It was also about how they thought about their learning processes.

Could helping young musicians to develop better learning processes help them practice more effectively? Could young musicians learn to control their own learning processes? Could doing so improve their success and thereby their motivation? If so, then what pedagogical approaches might prove operative in achieving this? If young musicians were in the dark, how could a music teacher illuminate their climb to effective practicing?

These questions marked the beginning of this research study.

**A New Mountain to Climb**

A survey of the landscape of literature on musical practicing makes clear several pertinent ideas. The first is that there is a great deal of research that examines practicing from a number of different perspectives. Miksza (2012b, p. 52) groups 119 studies according to the following four questions:

(a) What do individuals do when they practice music?

(b) How have researchers intervened with individuals’ practice?

(c) What individual difference variables interact with why and how musicians practice?

(d) How is self-regulated learning relevant to practicing?

Hallam (1997b) has synthesized the research on practicing into a “Presage-Process-Product” model (p. 183).

A second feature of this landscape is a common theme that one finds in the conclusions of many of the studies. In the words of Bartolome (2009) the research presents “several implications for music educators attempting to increase practice efficiency among their own students” (p. 48). The following are representative “implications” from the research. Teachers need to:

Tailor their teaching… in relation to practice to the individual needs of the child (Hallam, 1995);
Expose students to the variety of practice techniques (Rohwer, 2002);

Consider how students could receive more training in analytic practice procedures (Rohwer & Polk, 2006);

Explicitly teach students how to engage in strategic practice as well as how to use a greater variety of practice strategies (Austin & Berg, 2006);

Spend time during their lessons demonstrating and modeling specific strategies that their students can try when practicing (McPherson & Renwick, 2001);

Develop in young musicians effective approaches to correcting errors (Duke, Simmons & Cash, 2009);

Give their students some tools with which to practice more effectively and successfully (Kostka, 2004).

This advice to *Teach Them How to Practice*, as the title of Kostka’s (2004) article suggests, may be summed up thus: “Practice strategies… need to be systematically taught by example and by explanation, with the child given responsibility for identifying problem sections, and the teacher providing a variety of methods for tackling them” (Pitts, Davidson & McPherson, 2000b, p. 54).

For the most part, this advice to teachers is behavioural in nature, with an emphasis on practice strategies. Another dimension to what teachers should do is to encourage students to become independent learners (Hallam, 2001b).

As though in response to the exhortations of the research just described, a third feature of this landscape is the copiousness of *non-research* based articles and resources, offering “solutions” to what is clearly the ongoing dilemma of “getting kids to practice.”

A final feature of the landscape is the lack of research that, in fact, responds to this urging to teach young people to practice effectively. Research exploring the pedagogy of practicing is conspicuously absent.

This absence of a pedagogy of practicing is evident in other significant areas of music education. I found no reference to teaching practicing in the 2010 Ontario Arts Curriculum for Grades 9 and 10.\(^2\) Neither was developing effective practicing an expectation noted in the Ontario College of

Teachers Additional Qualifications courses in Instrumental Music.\(^3\) Developing the ability to practice music effectively is not one of the NAfME National Standards for Music Education.\(^4\)

My research addresses this gap in the literature on musical practicing. In so doing, this study asks the following question:

Can the intervention of teacher-guided practice sessions develop effective practicing in young musicians?

The study seeks to answer this question by addressing the following sub-questions:

a. What characterizes effective musical practicing?

b. What observable practice behaviours will characterize growth toward effective musical practicing?

c. What musician attitudes with respect to affect and motivation will indicate growth toward effective practicing?

d. What pedagogical approaches used by the music educator during guided practice intervention will prove operative in developing effective practicing behaviours and attitudes in the young musician?

**Constructs of Climbing: Definitions**

The focus of this research is the effect of *guided practice* on practicing. It is crucial, therefore, to make clear distinctions in defining these two constructs.

Typical dictionary definitions of practicing, as it pertains to instrumental music, emphasize an activity or exercise that is repetitious in nature with the desired outcome of acquiring, polishing or maintaining a specific musical skill. This most commonly translates into a focus on the technical or kinesthetic aspects of playing a musical instrument such as reading notation and accurately replicating the music in sound. While reflecting a part of musical practicing, this

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\(^3\) [http://www.oct.ca/additional_qualifications/schedule_a/pdf/music_instrumental_intermediate_e.pdf](http://www.oct.ca/additional_qualifications/schedule_a/pdf/music_instrumental_intermediate_e.pdf)

definition is a narrow one; musical practice is multi-faceted and complex involving not only technical ability but also skills associated with cognition and performance. Further, the musician may be practicing as a solo artist or as a member of an ensemble, each with its own demands on the nature of practicing.

In the context of this research study, “practicing” is defined as any activity undertaken for the purpose of achieving a musical goal with a notated piece of music by playing a musical instrument. Further, since this paper will explore practicing music as “learning” music, the notion of practicing as problem solving is also part of the definition. One can practice music in the context of composing, improvising, jamming and “noodling”; but an exploration of these is not within the purview of this research. Not all activities done in the name of practicing do, in fact, move the musician closer to achieving a musical goal; perfunctory repetition does, from time to time, take on the guise of “practicing.”

This view of practicing invites two further definitions since, within the usual connotations of practicing, these terms may be unfairly limited: “activity” and “musical goal.” While repetitive playing on a musical instrument constitutes most observable practicing activities, this paper embraces a consideration of such activities as humming, singing, altering or varying the way one plays the notation as it is written, listening critically or passively to a recording of the music, and simply looking over the notation and thinking about it as legitimate practicing activities.

That one practices a piece of notated music to become technically proficient at its replication is, perhaps, the most common goal and aspiration of musicians, especially young or novice musicians. This is fundamentally a kinesthetic musical goal and certainly foundational in pursuing other musical goals. Among these other musical goals, this research acknowledges personal interpretation of the music, intrapersonal goals such as playing for fun or solace, and interpersonal goals that would consider the relationship the performing musician seeks to create between the music and an audience. The term “performance” must also be qualified. As a musical goal, a performance most commonly refers to the rendering of an entire piece of music for an audience. Within the context of this research, however, this term may refer to any playing of a section or passage of a piece of music either for the musician practicing alone or for the teacher in the context of a lesson or rehearsal. The playing of two or three measures of a piece of
music within the context of practicing or a lesson, for example, will be referred to in this study as a “performance outcome.” It does not imply necessarily a polished playing of the entire piece.

Throughout this study, various adjectives will be used by researchers to describe practice: deliberate practice (Ericsson, 1997; Ericsson, Krampe & Tesch-Romer, 1993); formal practice and informal practice (Sloboda, Davidson, Howe, & Moore, 1996). These will be defined in the context of their application to this research. The most significant adjective to precede the word “practice” for the purposes of this research, is “effective.” I shall elaborate on what is meant by effective practice within the definition of guided practice.

“Why Climb This Way?” - A Definition of Guided Practice

Guided practice is a pedagogical relationship between the music educator and the musician for the purpose of developing effective practicing. Before elaborating on what is meant by effective practicing, it is important to note that implicit in the Western model of music education – typified by once a week private lessons or ensemble rehearsals – is the concept of the learner as self-teacher. That is, unlike the practice experiences of young people involved in athletic pursuits, for example, or even artistic pursuits at a young age such as dance, the teacher-coach is not present when the young musician practices. The expectation is that students sustain independent learning between lessons and rehearsals – a considerable demand, especially for the beginning musician. This reality is at the heart of the motivation for guided practice: to develop an independent learner.

Turning to the expert musician as a model, Susan Hallam (1997a) notes that “experts know how to do the right thing at the right time” (p. 91). She goes on: “Within this framework, effective musical practice might be defined as that which achieves the desired end-product, in as short a time as possible, without interfering negatively with longer-term goals” (p. 91). Hallam (2001b) states that successful musicians, in practicing effectively, must be able:

To recognize the nature and requirements of a particular task; to identify particular difficulties; to have knowledge of a range of strategies for dealing with these problems; to know which strategy is appropriate for tackling each task, to monitor progress towards the goal and, if progress is unsatisfactory, acknowledge this and draw on alternative strategies; to evaluate learning outcomes in performance contexts and take action to improve as necessary in the future (p. 28).
The important consideration of effective practicing is to see it as learning, as problem-solving. Indeed, since the challenges of learning to make music are always increasing for the young musician and goals are constantly changing as pieces become more difficult, effective practicing involves *progressive* problem solving. This is one of the key components of the concept of expertise (Bereiter & Scardamalia, 1993).

In this light, effective practicing should be characterized by two phenomena: first, the musician is an active participant in their own practicing/learning and, second, the musician demonstrates a conspicuous level of independence – they have learned how to learn. Harald Jørgensen suggests that “practice should be seen as a self-teaching activity” (cited in Hallam, 1997a, p. 91).

Another concept that is foundational to guided practice is that of learning itself. Genuine learning is, essentially, an heuristic activity. Gopnik (2011) notes that “children learn by exploring – by experimenting, playing, drawing inferences” and that this kind of “exploratory learning isn’t just the purview of scientists but seems to be very, very basic” (p. 22). She goes on to describe science as “a process where you don’t know how it’s going to come out beforehand, where you’re always adjusting and figuring things out” (p. 23). The teacher engaged in guided practice with a young musician views learning as occurring as a result of the scientific method: trial and error. This, too, is an essential element of expertise:

> If expertise involves progressive problem solving and progressive problem solving entails working at the edge of one’s competence, then at least a bit of daring is inevitably required. It is always tempting to stay with tasks that fall comfortably within one’s competence. Working at the edge risks failure… (Bereiter & Scardamalia, 1993, p. 109).

Essential to guided practice is giving the student permission to fail, to be wrong. And, of course, to modify and try again.

A third element of expertise that is germane to guided practice is the notion that mental resources are reinvested. If this were not the case, progressive problem solving could not occur. Essentially, mental resources used, for example, to cross the thumb under in an ascending scale on the piano, can be reinvested once this kinesthetic skill has become automatized. Such freeing up of cognitive resources allows these resources to be reinvested to address greater challenges. The same holds true for decisions and judgements made in the course of effective practicing:
certain behaviours, such as slowing the tempo, become automatized over time making room for mental resources to be engaged in more complex behaviours relevant to the demands of the task at hand.

Hallam’s (2001b) definition of effective practicing involves effective decision making. Becoming more effective at practicing entails exercising better judgements. Essential to this is metacognition, an awareness of several interconnected components of the dynamic of practicing. It is important, however, to distinguish between self-knowledge and domain knowledge. The latter concerns knowledge about the notated music, about a repertoire of practice strategies, and possibly about various support strategies or resources. Such knowledge could be passed on to another musician. But the best way to learn a piece of music for a particular individual is just that: individual. This meta-self-knowledge is highly idiosyncratic and pertains to an awareness of such things as the musician’s personal strengths and weaknesses: “I read pitch well, but complicated rhythms need extra care.” The way that person deals with stress or distractions: “I need to take frequent breaks when I practice.” Even the way that a musician best learns: “I can’t always tell which parts of the piece are difficult by looking at it; I need to play it through.” The notion that there is a best way to practice effectively for everyone is, at best, naïve. Yet, as we will observe in the literature, this is precisely the pedagogical view of those with “dangling carrots” and “silver bullets” who prescribe recipe routines, tracking charts and motivational contracts.

A final foundational concept, before describing a typical guided practice session, is production deficiency: the gap between knowledge and meaningful application; the failure to intelligently use strategies of which the musician is aware. As will be noted in the literature, there is much research demonstrating this (Barry & Hallam, 2002; Hallam, 1998; Rohwer & Polk, 2006; Kostka, 2002). Closely linked to this is the concept of optimal strategy use (Byo & Cassisy, 2008). While two musicians may use the same strategy, the contexts may be dramatically different. A student may draw randomly on a practice strategy simply because it is there or the teacher may have made an all encompassing suggestion at a lesson such as, “Try clapping the rhythms of your pieces this week.” Essentially, the selection of the strategy is perfunctory; it is not being used strategically. This may well be the case with the non-research based resources that I will examine in the literature review section titled “Silver Bullets and Dangling Carrots.” On the other hand, a musician may more meaningfully draw upon a practice strategy based on a
genuine metacognition of either the demands of the task or that musician’s personal self-knowledge or both. This is the essence of self-regulatory learning, which is at the heart of what it is that guided practice seeks to accomplish.

The best way to describe an actual guided practice session, as implemented in the current study, is to present a picture of a musician practicing their instrument in their usual home environment and making all the decisions they would normally make. The only difference is that the music teacher is with them. The act of “guiding” takes on four facets: first, asking the musician to describe what it is that she is doing and explain the reasons for the choice; second, providing the student the opportunity to assess and evaluate a performance outcome; third, inviting the student to suggest remedial courses of action; and, finally, suggesting or demonstrating new or alternate strategies to address the challenge. Essentially, the young musician, guided by the teacher, is practicing learning how to practice.

The intention of this dynamic is to make explicit the cognitive and metacognitive mental processes – the learning processes – of the practicing musician in order that the student may become more aware of them and, therefore, better able to manipulate them. “We realized that it was much easier for the students to talk about ways of practicing rather than ways of thinking” (Dos Santos & Gerling, 2011, p. 436). The guide must exercise great patience in this undertaking! A sensitivity to the affective-motivational disposition of the musician pervades the agenda of the music teacher during guided practice: the goal here is to nurture self-efficacy in the student as they face the challenges of practicing a piece of music.

To sum up, guided practice acknowledges the learner as an individual, views genuine learning as discovery, and recognizes that learning music is progressive problem solving that involves a reinvestment of mental resources by working at the edge of one’s competence.

Overall, a musician’s development towards effective practicing may be described as the acquisition of a metacognitive awareness of one’s own learning and hence a more active participation in that learning which is characterized by self-regulatory behaviours. The ultimate goal, then, of guided practice is to develop a musician who is an independent learner, aware of and able to both monitor and regulate their own learning processes.
This research was conducted within the theoretical framework of self-regulated learning. Data were assessed and evaluated according to six psychological dimensions of self-regulation: motive, method, time, behaviour/performance outcomes, physical environment and social factors (McPherson & Zimmerman, 2011, 2002). The motive component of this self-regulation framework was expanded to include four theories that inform the affective-motivational processes of the learner: expectancy-value theory (Eccles & Wigfield, 1995), self-determination theory (Ryan & Deci, 2000), attribution theory (Weiner, 1986) and goal orientation (Dweck, 1986). Intelligence theory (Dweck, 2007) was also considered within the rubrics of attribution theory and goal orientation. The overall theoretical framework of this study is characterized by a consideration of the affective-motivational processes, together with the cognitive and metacognitive processes that constitute self-regulated learning.

**Limitations of the Study**

The musicians who participated in this study were privileged: they enjoyed a great deal of parental support in so far as parents were able to pay for private tuition and / or instrument rental. From this, one can infer that the parents of the participants value music education and were more than likely to be conspicuous in their support of their children’s practicing at home. Almost half of the participants had at least one parent whose experience included formal music training. These parents were able to assist their children with practicing at home in potentially direct ways such as dealing with the notation.

The sample of musicians and parents who participated in this study are not, therefore, representative of the general population of young people in music education. This being said, it is hoped by the researcher that the findings of this research will inform music educators in their search to meet the needs of musicians in their specific contexts. The researcher recognizes that all music educators must exercise an important degree of autonomy and, sensitive to the idiosyncrasies of unique situations, be creators of their own praxis.

**Chapter Outline of the Study**

Chapter 2 of this study reviews several bodies of literature that are related to and inform the research on musical practicing. These categories include non-research-based articles and resources of which classroom music teachers would avail themselves. I will also consider non-
music related literature that deals with motivation and the self-system as well as research examining metacognition and self-regulation. Following each of these, I will review literature that explores the application of these constructs to music education, specifically practicing. Other important aspects of the literature review will consider how musical expertise in practicing develops as well as production deficiency: the apparent gap between knowing what to do and doing it. The literature review will conclude with an examination of the roles played by teachers and parents in the development of their students’ and children’s practicing.

The methodology outlined in Chapter 3 of this study is multi-faceted. It will describe assessments procedures of the practicing done by the musicians who participated in the study. These assessments were made at four different points over the course of approximately 18 months. Methodology in this study also included extensive use of video recordings. These were made of the researcher working with students in guided practice sessions, of students practicing at home and of guided practice between two students at a summer music camp.

The first of two data chapters, Chapter 4, presents portraits of the musicians involved in the guided practice interventions and their development over the course of 18 months. The gallery in this chapter includes an interesting picture of the effects of guided practice on a musician who, in the context of a summer music camp, guides the practice of one of the students attending the camp. Another portrait is of the youngest participant in the study who, with my guidance, evaluates a video recording of his own practicing at home. This chapter concludes with pictures of four mothers who are actively involved in their children’s music education. These parents, by their very attendance at piano lessons, participated in the guided practicing that they witnessed. This part of the chapter profiles the ways in which such participation influenced how they assisted their children with practicing at home.

Which pedagogical approaches were operative in the execution of guided practice is the focus of Chapter 5 of the study. These teaching strategies were video recorded as the researcher conducted guided practice with the musicians in the study.

In concluding this research, Chapter 6 offers an analysis of the data presented in Chapters 4 and 5. This chapter ends with a consideration of the implications of this research for music education as well as suggestions for further research in the area of musical practice pedagogy.
Chapter 2
Review of the Literature

Practicing music is learning music. It is problem-solving. The topic of learning is a broad one; it encompasses motivation and skill: how these are shaped, how they develop, and how they relate to achievement outcomes. A review of the literature on practicing music – on learning, on problem-solving – is necessarily – and appropriately – extensive and detailed.

The literature reflects the complexity of musical practice, its multi-faceted and interconnected nature. There are several perspectives the literature takes on the nature of practicing. Most broadly speaking, the literature examines practicing through the lenses of behavioural psychology and cognitive psychology. The behaviourist perspective offers, through non-research-based articles, what musicians should do to become effective in their practicing behaviours. Other descriptive research studies examine what musicians actually do when they practice. This latter category of the literature considers both novices and experts and further explores behaviours that are predictors of continuing in music education.

In this review I will examine literature that looks at constructs significantly related to musical practicing such as expertise in problem solving, various theories related to the self-system, and learning behaviours that characterize self-regulation. Much of the literature reviewed addresses these constructs and theories as they directly apply to music education.

I will consider significant research that examines the evolution of effective practicing, and roles played by parents and music teachers in the development of effective practicing.

Silver Bullets and Dangling Carrots

In the face of frustration at their students or band musicians coming to private lessons or ensemble rehearsals ill prepared, it is only natural for music teachers to look for ways to get their pupils to practice better. “Better” is perceived to mean more effective habits and routines. The literature that offers solutions, as it were, to poor practice habits, seeks to do so through formulaic recipes for success and external motivators. Wolfe (1984) writes,

After the initial excitement and novelty of playing wanes and as the pieces become increasingly difficult, requiring concentrated effort to perform musically, the daily
practice routine quickly becomes a chore... In order for practicing to be productive, the teacher must assume responsibility for assisting the student in structuring the practice routine (music environment) so that the student will learn behaviours necessary for achievement... he needs to learn behaviours that will give him the important skills necessary to make continual progress (p. 34).

Hammel (2003) says it is “my belief that one of our most important tasks as teachers is to “teach” our students how to practice effectively...If we expect them to accomplish the goals we set and, moreover, enjoy the time they spend working toward these goals, we need to show them, in great detail, how to structure practice time productively” (p. 39).

This “resource” category of the literature on practicing merits careful scrutiny and I have chosen to examine it in considerable detail. This is the non-research based literature that the classroom teacher will often seek, consider, and employ in getting students to practice better. In this era of information technology, this is particularly true of resources that are easily accessible through the internet. It is important to note that, in its emphasis on practicing behaviours, this body of literature lacks a careful consideration of the cognitive processes involved in learning to practice effectively.

In 1945, Von Ende observed, “The young musician knows little about his learning processes, and rarely knows how to practice efficiently” (p. 31). He then offers 18 suggestions, “simple statements, understandable by the young musician, which, if followed, will help establish good and efficient music practice habits, and will assist the novice in avoiding some common pitfalls” (Von Ende, 1945, p. 31). Although penned more than half a century later, Marsalis (1996) offers a similar recipe to the young student. In their Musician’s Guide to Practicing, The College of Liberal Arts at Wright State University serves up a “30 minutes every day” formula in recipe format inviting the practicing musician to “Prepare beforehand a quiet room... Add 1 minute of long tones ...5 minutes of sight reading ... Stir in good posture ... Bake at 365 days a year... Serves enjoyment and self-esteem for a lifetime!” (Jagow, 2004).

Similarly, both Minahan (1986) and Pedrick (1998) offer practice routines involving five stages characterized by such activities as removing distractions, warming-up, maintaining technical skills, playing through new material slowly, and so forth. In none of the “recipe” literature is there an “ingredient” of self-evaluation possibly involving the use of recording technology. Also of note is the emphasis on a minimum amount of time to practice each day (Jagow, 2004;
Pedrick, 1998; Von Ende, 1945) and scheduling the same time each day to practice (Jagow, 2004; Marsalis, 1996).

As one of her “Three Ways to Practice More Creatively,” Peterson (2001) strongly suggests the creation of a practice plan. Referring to Pedrick’s (1998) 5 practice components as an “excellent guide for all teachers and students” (p. 47), she urges that these “be followed for maximum results. (All five steps can be completed over two sessions)” (p. 47). “A written practice plan will ensure that parents and children know what to practice, how long to practice, and what results can be expected” (p. 48). Peterson suggests that the best way for a student to know what and how to practice following a lesson is to have the teacher write the objective and the exercises to achieve it in a notebook in considerable detail: “The student would then know, for example, that he or she is supposed to spend ten minutes each day playing long tones and thinking about breath support” (p. 48). Her suggestion for addressing difficult passages is, “Teach the student to practice a challenging passage slowly by taking out any difficult articulations… the students must be able to play the difficult passage three times in a row perfectly or they must go back to the beginning of the passage” (p. 48).

Another common theme in the “how to” literature on practicing is the use of various kinds of charts or diary formats for planning and reflecting on a practice session. Johnson (2009) presents a highly detailed practice chart complete with a 10-point scoring system: “1 point for each day of focused practice of 20 minutes or more (up to 5 points)” with the remaining 5 points for “a complete, detailed account of your practice session” (p. 69). In outlining systems of grading in music programs, Colwell and Goolsby (2002) note the use of practice charts where “Students are required to practice a specified amount each day. Those who exceed the minimum get higher grades.” They note, however, that “the drawback to this approach is that it rewards effort rather than results. Also, it is difficult to be certain that practice reports are accurate” (pp. 51 – 52). They also describe progress charts and point systems where “students are graded for completing specified objectives” (p. 52).5

5 Other than advice to teachers on keeping parents informed regarding practice requirements which immediately precedes the descriptions of charts, this is the only reference to practicing made in this book on teaching instrumental music.
Philip Johnston’s *The Practice Planner* (2002b) is only one of several “diary” type books available to assist students in planning and reflecting on their practicing. Hal Leonard also publishes *A Musician’s Practice Planner*, a spiral bound book to be used in conjunction with weekly lessons or rehearsals.

A commonly used video on the topic of practicing is from a series called *Marsalis on Music*. This video is titled: “Tackling the monster - Marsalis On Practice” (Gelb, Jaffe, Anker, Mitgang, & Lindsay-Hogg, 1995). Addressing an audience of young people, Marsalis speaks about pursuing goals in music, but “always the large monster of practicing comes to trample on our dreams.” Other quotes include, “We’re trying to do something that we can’t do and that makes us feel bad.” Yo-Yo Ma assists Marsalis in the video and when asked about practicing says, “I hate practicing!” Marsalis introduces *Wynton’s Ways to Practice*, a list of twelve things to keep in mind “to make sure you’re practicing the right way.” Other than advising the young people to seek private instruction, there are only three practical suggestions such as setting goals to chart development. The rest are attitudinal in nature: “Don’t show off!” “Don’t be too hard on yourself; learn from your mistakes.” “Concentrate.” “Be optimistic… How you feel about the world is who you are… Music washes away the dust of everyday life from your feet.”

On-line resources are legion including free downloads of planning sheets, most with six boxes somewhere on the page, one for each practice day of the week. At his web site, Philip Johnston (2002b), the author of *The Practice Planner* noted above, offers advice on managing one’s practicing through ‘Gardens and Timetables,’ a story about Sally Smart and Isabelle Inefficient who, if they manage to “tidy and weed the garden before sunset… will be given free tickets to Wally's Wonderworld (It's a theme park just out of town - great fun, but tickets are very expensive!).” Essentially, through the story, Johnston helps the young musician take 5 big jobs for the practice week, assigned by the teacher, and break them down into 18 smaller – thus, one assumes, more manageable – jobs. His imaginary planned week is depicted in Table 1.

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Table 1

**Practice Jobs to be Done**

<table>
<thead>
<tr>
<th>DAY</th>
<th>Jobs to be done</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tuesday</strong></td>
<td>* Prepare D Major (job g)</td>
</tr>
<tr>
<td><strong>tomorrow</strong></td>
<td>* Learn Bars 1-4 of Kuhlau (job a)</td>
</tr>
<tr>
<td></td>
<td>* Memorise LH of Czerny (job l)</td>
</tr>
<tr>
<td></td>
<td>* Learn Bars 9-12 of Kuhlau (job c)</td>
</tr>
<tr>
<td><strong>Wednesday</strong></td>
<td>* Check &amp; Circle Accidentals in Kabalevsky (job n)</td>
</tr>
<tr>
<td></td>
<td>* Complete questions 1-3 of theory (job p)</td>
</tr>
<tr>
<td><strong>Thursday</strong></td>
<td>* Prepare A Major (job h)</td>
</tr>
<tr>
<td></td>
<td>* Prepare E Major (job i)</td>
</tr>
<tr>
<td></td>
<td>* Learn Bars 21-24 of Kuhlau (job f)</td>
</tr>
<tr>
<td><strong>Friday</strong></td>
<td>* Memorise RH of Czerny (job k)</td>
</tr>
<tr>
<td></td>
<td>* Complete questions 4-7 of theory (job q)</td>
</tr>
<tr>
<td></td>
<td>* Memorise proper accidentals in Kabalevsky (job o)</td>
</tr>
<tr>
<td><strong>Saturday</strong></td>
<td>* Learn Bars 5-8 of Kuhlau (job b)</td>
</tr>
<tr>
<td></td>
<td>* Learn Bars 17-20 of Kuhlau (job e)</td>
</tr>
<tr>
<td></td>
<td>* Prepare B Major (job j)</td>
</tr>
<tr>
<td><strong>Sunday</strong></td>
<td>* Memorise Czerny together (job m)</td>
</tr>
<tr>
<td></td>
<td>* Learn Bars 13-16 of Kuhlau (job d)</td>
</tr>
<tr>
<td></td>
<td>* Check answers to theory (job r)</td>
</tr>
<tr>
<td><strong>Monday</strong></td>
<td>Review the trickiest jobs</td>
</tr>
<tr>
<td><strong>(Your next</strong></td>
<td></td>
</tr>
<tr>
<td><strong>lesson!)</strong></td>
<td></td>
</tr>
</tbody>
</table>

Another website, howtopractice.com, offers three publications to assist the young musician: Complete Beginners Guide to Practice, Music Practice Diary and Music Practice Journal. Essential-Music-Practice.com offers free downloads of planning charts and much more:
“Practice planning charts help you plan practice effectively. Planning practice is almost as important as doing the practice. If you haven't read the pages on how to plan your practice effectively click on the links below then come back here to download the practice charts.

Click here for advice on planning practice and Click here for advice on achieving your practice targets and reducing your practice time.

There are three practice planning charts to download. Questions to help you set your musical goals, a table to help you plan practice around the events in your life, rather than at set time and a practice chart to help you set your overall practice targets for the week and break them down into manageable session targets.”

Organizations such as NAfME\(^8\) – The National Association for Music Education – likewise offer resources on practicing.\(^9\) Searching “practicing” yielded articles on the subject as well as practical suggestions. A link to “Teach Your Students How to Practice, Part 1” notes:

When we ask string students to practice, we often assume they already know how. Some good strategies for practice, no matter what level the technical challenge, include:

**Slow motion:** Practice small sections of difficult passages slowly until everything is correct.

**Separate hands:** Make a challenging part simple by playing only the rhythm with the bow on open strings or only fingering the left hand without the bow.\(^10\)

Several other suggestions in a similar vein are offered. Part 2 of the same title gives, for example, the following advice:

Both private and school orchestra teachers need to use instructional time to educate students how to practice every week. Practice that is focused, structured, and includes specific strategies will improve performance and motivate students to


\(^8\) Formerly MENC – Music Educators National Conference

\(^9\) [http://www.menc.org/resources](http://www.menc.org/resources)

\(^10\) [http://www.nafme.org/v/orchestra/teach-your-students-how-to-practice-part-1/](http://www.nafme.org/v/orchestra/teach-your-students-how-to-practice-part-1/)
continue their music studies. They can truly learn to enjoy practicing if they
discover that success is a result of their efforts.\(^\text{11}\)

Extrinsic motivators figure into many of these behaviourist perspectives. Pedrick (1998)
emphasizes that performance must be the goal that will motivate students to commit to a practice
routine. Wolfe (1984) suggests that the antidote to the practice routine becoming a chore is
motivational contracts. He encourages “parents to use charts, rewards, and privileges to assist in
motivating the student to practice” (p. 36) and even that students assist in compiling a list of
possible rewards such as a “meal at McDonald’s” or a “token for playing a video game” (p. 36).

Another link on the NAfME web site connects to “What’s My Reward” where a teacher shares
the following idea about practice motivation:

MENC band mentor Anthony Amitrano has some students who practice because
they love playing. For others though, an extrinsic reward to encourage practicing at
home works well. He maintains a “Practice Stars” chart. When students practice 5
or more times in one week, they receive a sticker to put on the chart. When they
have accumulated 5 stickers, they get a pencil, and when they accumulate 10 more,
they get to draw from his "Incredibly Lame Prize Box" - a box filled with
inexpensive items. The students not only grow in ability from practicing more, but
they're able to visually see their success on the chart.\(^\text{12}\)

A practice resource of special note is Philip Johnston’s \textit{The Practice Revolution} (2002a).
Intended for teachers, it is quite comprehensive in addressing aspects of practicing. One section
describes “Common Practice Flaws” (pp. 35 – 92). This section gives clever and memorable
names to behaviours that are not effective: the “shiny object polisher” keeps going over what
they can do well; the “speed demon” believes faster is always better; “bad brick layers” do not
practice transitions such as going from \textit{D.S. al Coda} to the \textit{segno} and then to the \textit{coda}.

\(^{11}\) http://www.menc.org/v/orchestra/teach-your-students-how-to-practice-part-2/

Both these parts were Adapted from Patti Fleer’s “You must teach your students how to practice” in the Fall 2011
issue of the \textit{Missouri School Music Magazine}. The researcher was unable to gain access to the original article.

\(^{12}\) http://www.nafme.org/v/band/what-s-my-reward/
In a section titled, “Why Students Don’t Practice” (pp. 93 – 116) Johnston focuses on external factors such as competing interests, lack of parental involvement, parental interference, poor time management or reading problems. Perhaps the most salient observation in this section is that a powerful de-motivating factor when it comes to practicing is discovering that it does not work. That is, the child has indeed put in time and effort only to meet with the chastisement of a teacher about their poor practicing in response to unacceptable performance at a lesson or rehearsal. Johnston makes the point that “how they worked didn’t work” (Johnston, 2002a, p. 114).

The “revolutionary” aspect of Johnston’s book is “to allow human nature to work for you, instead of constantly fighting against it” (p. 19). By human nature, Johnston means, “Your students are interested in doing less practice, if at all possible” (p. 19). For Johnston, the teacher’s job is “helping your students get more done in less time... In other words, you’re on their side. They want to do less practice, and you’re going to help show them how to do exactly that” (p. 19). He closes his book with the same reminder: “And remember, “least practice time” to get the job done well is why the Practice Revolution is so attractive to students in the first place” (p. 309).

There are a number of significant commonalities in reviewing this body of literature on practicing. As already noted, this literature, for the most part, assumes a behaviourist perspective as distinct from viewing practicing through the lens of cognitive psychology. This is to say that the effective practice habits and routines that the literature suggests the student develop are behavioural in nature rather than cognitive. Although the literature strongly encourages young musicians to structure their practice effectively, such structures are, in fact, imposed by the teacher through the use of recipe-type formulae and planning charts. Self-evaluation and the tracking of progress are through the use of commercially designed templates in the forms of checklists, diaries and journals easily and readily available through electronic media. Along with “assigning” the use of recipe routines, practice planning charts and self-evaluation checklists, the role of the teacher, in teaching students how to practice, is to provide lists of strategies which are described, modeled and assigned. Consider Hammel’s (2003) statements noted above: “If we expect them to accomplish the goals we set... we need to show them” (p. 39). While Johnston (2002a) may advocate the lure of effective practicing as taking up less time, it seems quite possible that the young musician would spend more time filling out charts, plans and checklists,
and writing reflections in journals and diaries than they would actually drawing a bow or pushing a piano key!

Overall, this resource category of the practice literature sees the student as passive and the teacher in control as one who \textit{prescribes} practice behaviours: this is what students ought to do to practice effectively. Decisions about which practice behaviours are desired are informed by what teachers deem as common sense. For example, meals and school occur at the same time each day; so should musical practice. Practice is largely motivated externally, often with the reward acknowledging not so much the actual practicing or a performance achievement as it does the charts and plans and diaries that are dutifully kept.

In sum, this literature concerns itself with domain knowledge: practice behaviours, habits and routines that can be divorced from the individual student and, as it were, prescribed by a teacher for use by any musician.

I was able to find no research supporting the use of behavioural practice strategies such as planning charts, set routines or the use of reflective diaries or journals. Wagner (1975) assigned charts on which to record practice time to three groups of students with different schedules; a fourth group received no chart. In pre- and post-test analysis, there was no significant difference among the groups “suggesting that a practice report may not be useful” (p. 30). Perhaps more significant is that the “data indicated an inverse correlation between the using of a practice report and the amount of time practiced” (p. 30). More recently, Stambaugh and Demorest (2010) examined the effects of contextual interference (cognitive disruption or interference, present during a practice session) (p. 21) in three different practice schedules: “blocked practice (completing all practice on one task before moving to the next), random practice (practicing each task an equal number of times in a constantly switching order), and serial practice (using a defined order whereby no successive trials are of the same task)” (pp. 20 – 21). The researchers found “no significant differences in seventh grade students’ technical accuracy or musicality scores based on the practice schedule used” (p. 25).

In a study of brass and woodwind students between the 7\textsuperscript{th} and 10\textsuperscript{th} grade, Barry (2002) compared the results of students who practiced in a highly structured and supervised condition with those in a free practice, unsupervised condition. The structured groups were provided with written step-by-step instructions: analysis of key and meter signatures; mental practice such as
silent fingering; and drill, slow repetition of trouble spots. They were required to practice slowly at first, then increase the tempo; use of the provided metronome was prescribed as was tapping the rhythm of the entire etude before playing it; structured practice subjects were required to mark the music’s key and meter signatures, as well as accidentals, terms and definitions, and any places errors occurred. The adult supervisor ensured the steps were rigorously followed. Before taking the post-test, all students in the study practiced four times: a 10-minute session, two 15-minute sessions and a 5-minute session immediately prior to the test.

As one might anticipate, those in the structured group showed greater improvement in musical performance. While one might conclude that this study demonstrates “that a highly organized and systematic regiment of supervised practice is an effective means of improving musical performance” (Barry, 2002, abstract p. 112), the question may well be asked as to, “What is the long-term goal of helping young musicians to learn to practice effectively?” Is it to develop dependence on step-by-step instructions imposed by a teacher? Can one fairly assume that such a structure has universal application? Will effective practicing require the continuous presence of a supervising parent? Further, while Barry, through a questionnaire, sought to determine “the way you usually practice a new piece of music” (Barry, 2002, p. 114), the results indicate that some of the participants in the study mentioned all the strategies used in the structured practice group and only 18 of the 55 participants “stated that they simply play the piece over and over again” (p. 119). With respect to the behaviours prescribed in the structured practice group, Barry’s results indicate that some students in the free-practice group employed all of these strategies with the exception of tapping the rhythm (pp. 119 – 120). Finally, there was no determination of the affective response of the participants to the conditions under which each group practiced. The validity of this study is questionable as it seems to rest on an artificial practicing condition akin to painting by numbers or formulaic writing. While the results may be better, the responsibility for, and ownership of, learning have been wrested from the musician.

Structure is also investigated in a markedly different way in a study by da Costa (1999) where one group of students had a choice of two different structuring scaffolds. The first method had the participants mark the music with icons, isolating parts to perfect. This method is a response to the tendency of young musicians to play through an entire piece without isolating problem areas to work on. The second method offered a range of strategies from which the student made selections. A questionnaire was also distributed to evaluate the participants’ attitudes to the
practice methods in which they engaged. Results indicate that most of the students preferred the second method where they were able to choose strategies for repeating passages. Other significant results came from the questionnaire: “Well over half of the pupils had never thought of choosing their own strategies for practice… almost half had never consciously varied their practice” (p. 71). da Costa observes that “it may well be assumed from pupils’ responses that they are more than willing and eager to take a pro-active role in the practicing process if they are given choices and the necessary tools and structure to do so” (p. 74). In contrast to the study of practice structure by Barry (1992), da Costa’s results indicate not only the young musicians’ desire to be active participants in their own learning, but also their capacity to do so.

**Practicing: What works? What doesn’t?**

Though also behavioural in its perspective, another body of the literature on practicing considers not what young musicians ought to do when they practice but what it is, in fact, that they do. Miksza (2007) states that “behavioral analyses of music practicing have become increasingly common” (p. 360). Several studies (Hallam, 2001a; McPherson, 2005; Miksza, 2007; Pitts et al., 2000a; Pitts et al., 2000b; Rohwer & Polk, 2006) observe young musicians practicing not only to describe what they actually do when they practice, but to determine what distinguishes the more successful musicians from those who struggle.

Wiggins (2002) points to “the overwhelmingly holistic nature of children’s conception of music” (p. 80). Recalling her methods as a teacher, she notes that even when she drew the attention of a student to a particular part of the music to correct, the child invariably started at the beginning of the piece, playing the music in its entirety (p. 81). The literature on practicing clearly notes that, from a purely cognitive perspective, that is, the way a musician thinks about a piece of music, this is, perhaps, the most significant distinguishing characteristic between the novice and the expert. The novice orientation to practicing a piece of music is holistic (Gruson, 1988). Playing a piece through repeatedly in its entirety is, by and large, the only “strategy” used in practicing (Hallam, 1997a; Hallam, 1998b). McPherson and Renwick’s (2001) analysis of the home practice of beginning band students reveals that “almost all of the children’s practice consisted of simply playing the piece through without any other strategy being used” (p. 172) and that “the vast majority of their playing time was spent playing through a piece or exercise only once” (p. 174). Importantly, even when a novice student stops to correct an error, that musician simply
fixes it once and keeps on playing (Rohwer & Polk, 2006) and when they do finally reach the end of the piece, “they seemed content to move on to another task” (McPherson & Renwick, 2001, p. 174). “In the early stages of learning, novices have problems identifying difficult sections and tend to practice by simply playing through the music” (Barry & Hallam, 2002, p. 154).

In a longitudinal case study of three young band musicians, aged 9 and 10, Pitts et al. (2000b) concluded that practicing strategies were negligible (Hallam, 1997a; Gruson, 1988). “The majority of children will play pieces through without any attempt at self-correction, rather than identifying difficult sections and working on those…[they] ignore the auditory feedback from their playing, persisting despite unrewarding results” (Pitts et al., 2001b, pp. 53 – 54). Also, “in musical and cognitive terms, the children studied displayed few significant changes over time” (p. 53).

Rohwer (2005) looked at three adult beginning piano students and found many of the same behaviours and shortcomings as in young beginners. The exceptions, as one might surmise, are more in the areas of planning and motivation, aspects of practicing the researchers attribute to maturity. “But while the adults did reflect on their practice and did attempt to rectify mistakes, their ability to make substantive improvements was sometimes lacking” (p. 54). Consistent with the research cited above exploring young musicians’ practice, these adults were lacking in domain specific knowledge of effective strategies to use in addressing the correction of errors.

In looking at band musicians who are slightly older, in the eighth grade, Rohwer and Polk (2006) had similar findings. In considering this age and level of expertise, the researchers were able to distinguish musicians who demonstrated more successful practice behaviours. They categorized the practicers into four groups according to trends in their practicing: holistic, non-corrective musicians who did not stop for errors in their run-through; holistic corrective who stopped for errors, corrected them and played on; analytic reactive practicers who stopped to remediate sections; and analytic proactive musicians who jumped around in the music to fix errors, targeting what they deemed the most difficult passage as the place to begin (pp. 354 - 356). In the performance of the designated piece of music, the analytic proactive group was most successful. At the same time, the study found that, considering all the participants, only a small number of strategies could be described – an average of 2.57 – “with repetition being the only
strategy that some participants could describe” (p. 357). This positive correlation between the number of practice strategies that could be articulated by a musician and the efficacy of their practicing and subsequent performance is also evident in previous research (da Costa, 1999; Hallam, 1998b; Nielson, 1999).

Miksza (2007) sets out “to examine relationships among observed practice behaviours, self-reported practice habits, and performance achievement of high school wind players” (p. 359). Behaviours such as repeating a section of particular difficulty, changing practicing focus from the whole piece to part of the piece and back to the whole piece, as well as slowing the tempo seem to be practice strategies that lead to higher performance achievement and greater musical competence (Gruson, 1988; Miksza, 2006).

Rohwer (2002) undertakes a similar investigation of self-reported practice behaviours of 276 secondary school instrumental music students auditioning for All State Band. The study’s results indicate preferred strategies – such as slowing the tempo, then speeding up; marking the music with a pencil - as well as those least desirable – recording oneself and writing out goals. The study also revealed which strategies are preferred by the high-ranked auditionees as opposed to the middle and low ones. The most successful musicians practiced with a metronome, changed rhythm for technical practice, and alternated tempo between slow and that which is indicated on the music. Nowhere in the list of strategies identified by the participants in the study is a reference to identifying the difficult sections of the piece and focusing one’s attention there. Overall, in examining the practicing behaviours of participants, the findings in these studies conclude that some musicians approach practicing more strategically than others. Hallam (2001a) found that “knowledge of appropriate strategies and their implementation is not useful in increasing the effectiveness of practice unless appropriate aural schemata have been developed to enable the monitoring of errors” (p. 20). Hallam (2004) examined 163 music students aged 7 to 17 ranging in ability from preliminary studies to grade 8. Her findings suggested that “quite a high proportion frequently adopted relatively low-level strategies, for instance, playing through the piece in its entirely, correcting a single wrong note. Very few listened to a recording of the work they were to learn, although this is one of the most powerful learning strategies. Few made recordings of themselves playing as a means of listening and critiquing their own playing” (p. 166).
The significance of the strategic dimension of practicing is highlighted by McPherson (2005) in a three-year longitudinal study of 157 children aged between 7 and 9 years. Along with assessing a range of musical abilities at various stages of the study, the researcher also calculated how much practice time was accumulated. Data were also obtained to help clarify the quality of mental strategies the children adopted when performing. Of note here is the distinction McPherson makes between the skill of performing rehearsed music, which typifies private lessons and ensemble rehearsals, and other musical abilities such as sight-reading, playing for memory and playing by ear. He concludes that it is the mental strategies employed in these areas that are significant predictors of success:

Watching the children develop across the three years and analyzing their responses provided ample evidence that better players possessed more sophisticated strategies for playing their instrument very early in their development and that these players were the ones who went on to achieve at the highest level. Importantly, these were the players who knew when and how to apply their strategies (especially when asked to complete the more challenging musical tasks), possessed the general understanding that their performance was tied to the quality of their effort (particularly effort expended in employing appropriate strategies to complete individual tasks), and were able to coordinate these actions to control their own playing (p. 27).

The literature on practicing in this section of the review has focused on and described the practice behaviours of school age students, high school musicians and adult learners. Generally, the literature concludes that greater success in achieving musical goals is directly correlated with practice that is characterized by the discriminate application of various practice strategies. The next section of the literature to be reviewed examines studies that focus on the musician as an active participant in their own learning processes.

“Putting Brains in Your Muscles!” - Deliberate Practice

Foundational to studies dealing with the cognitive dimensions of practicing is the construct of deliberate practice. Perhaps the most significant and, indeed seminal, study in this light is by Ericsson, Krampe and Tesch-Römer (1993) in which they coin the term “deliberate practice.” In this study, the researchers assess current and past levels of deliberate practice first, in three groups of elite, adult violinists and then, seeking to replicate the results of the first part of their research, in a comparison of expert and amateur pianists.
The characteristics of deliberate practice emphasize the role of cognition – not merely behaviour – in instrumental practicing. “Deliberate practice differs from the mere experience of doing the task in…the mental attitude of the individual” (Ericsson, 2009, p. 13). “Genuine experts not only practice deliberately but also think deliberately” (Ericsson, Prietula & Cokely, 2007, p. 3). The famous violinist, Nathan Milstein, once asked his mentor, Professor Auer, how long he should practice. The professor answered, “If you practice with your fingers, no amount is enough. If you practice with your head, two hours is plenty” (Ericsson et al., 2007, p. 3). For expertise to continue, however, the student must keep practicing with her head:

The theoretical framework of deliberate practice asserts that improvement in performance of aspiring experts does not result from automation due to further experience. By increasing the challenge of training, individuals can remain in the cognitive phase and keep engaging in deliberate practice to acquire and refine complex cognitive mechanisms that mediate how the brain and nervous system control performance (Ericsson 2009, p. 19).

This is an important consideration for mindless repetition that often passes for practicing as well as the fact that the very nature of learning to play a musical instrument entails increasing challenges.

The construct of deliberate practice is best understood when juxtaposed with occasions when learning may be an indirect result or an incidental byproduct of another activity. Ericsson et al. (1993) assert that the conditions for optimal learning and improvement of performance to occur are motivation to attend to the task and exert effort to improve, the incorporation of preexisting knowledge, meaningful feedback to inform adjustments and revisions, and the opportunity for repetition (Ericsson et al., 1993, p. 367). Ericsson (2009) notes that the identification of aspects of performance that should be the focus of deliberate practice is typically done by a coach or teacher who will also design activities to address areas of performance that need improvement (p. 14). This dimension of deliberate practice is significant in that the Western model of music education – usually one lesson or rehearsal each week – leaves the student on their own to do these tasks. A key component to deliberate practice is a “well-informed coach not only to guide you through deliberate practice but also to help you learn how to coach yourself” (Ericsson, 2007, p. 1). I shall examine this further in the literature that considers the role of teachers in practicing.
Another key component in performance improvement is a person’s active search for new or different methods in accomplishing a task; their trials and refinements of methods are “in response to errors and violated expectations” (Ericsson et al., 1993, p. 367). Along with being effortful, deliberate practice is goal oriented and involves self-monitoring. The motivation to practice is derived from the experience that practicing does, indeed, improve performance.

The basic assumption of the framework put forth by Ericsson et al. (1993) is that “the amount of time an individual is engaged in deliberate practice is monotonically related to that individual’s acquired performance… Individuals should attempt to maximize the amount of time they spend on deliberate practice to reach expert performance” (Ericsson et al., 1993, p. 368). The researchers also note that there are several constraints involved: the resource constraint which considers available time, energy and resources; the motivational constraint in that deliberate practice is not inherently motivating; and the effort constraint which acknowledges that deliberate practice is an effortful activity and can be sustained for only a limited time (Ericsson et al., 1993, pp. 368 - 369). An important conclusion of this study deals with innate talent. The researchers acknowledge that many people attribute the qualitative difference in the performance of the expert to endowed qualitative characteristics and abilities. “However, we deny that these differences are immutable, that is, due to innate talent… The commitment to deliberate practice distinguishes the expert performer from the vast majority of children and adults who seem to have remarkable difficulty meeting the much lower demands on practice” (Ericsson et al., 1993, pp. 399 - 400). I will explore the issues about innate talent and giftedness when I consider the literature dealing with attribution theory as part of the self-system.

Sloboda, Davidson, Howe, and Moore (1996) distinguish between what they term “formal” practice and “informal” practice. The former construct is not clearly defined other than to describe it as playing technical exercises and preparing repertoire pieces, and to distinguish it from “informal” practice activities such as “messing about,” playing favourite songs and improvising (Sloboda et al. 1996, p. 301). Formal practice seems to involve the cognitive decision of “breaking down” pieces into difficult passages (Sloboda et al. 1996, p. 286). In setting out to establish a strong relationship between musical achievement and formal or deliberate practice, the researchers engage 257 young musicians between the ages of eight and 18 years who had received tuition on at least one musical instrument. Like Ericsson et al. (1993) they set up a target group “containing a representative sample of the highest achieving young
musicians in the population” (Sloboda et al. 1996, p. 291). There are four comparison groups ranging in ability, the fifth group consisting of children who had been unsuccessful in their study, all of whom eventually stopped playing. An important focus of the study is on the distinction between formal and informal practice activities. When compared to the study by Ericsson et al. (1993), a significant difference is that participants were asked to keep a diary account of their practice time on each of six different activities (repertoire, technical, ensemble rehearsals, playing for fun, lessons, concerts) over a period of 42 weeks, as compared to the 1 week period of the Ericsson et al. (1993) study. Interviews with parents of all the participants leant validity to reported practice times and activities.

As with studies already reviewed, Sloboda et al. (1996) confirm “the existence of a strong positive relationship between practice and achievement in musical performance” (p. 306). They found a direct correlation between amount of practice and levels of achievement by the participants as they were grouped, the relationship being “strongest for formal task-oriented practice” (p. 306). It is also the case that, for successful musicians, practice time increases over time leading to large cumulative differences when compared to musicians of lower achievement: “Increases in achievement are a direct function of the amount of formal practice accumulated to that point… It takes an average of 3300 hours of practice to achieve the highest grade level (8)” (Sloboda et al., 1996, p. 306). There are three other interesting findings from the study by Sloboda et al. (1996): first, that “differences in practicing habits begin very early, both in terms of chronological age, and also as measured from the time of starting to learn an instrument. Substantial group differences are apparent by the age of six, and by the second year of taking up an instrument” (p. 306). Second, that considering the individual differences among the participants in the research, some students with “sub-optimal practice strategies may be able to compensate for their qualitative deficiencies by engaging in very large quantities of practice in order to sustain high levels of achievement” (p. 307); and, finally, that “high achieving musicians tend to concentrate practice in the morning to a greater extent than other groups” (p. 307). This last result is also evident in Ericsson et al. (1993).

A final behaviourist perspective on practicing examines, through data mining, which behaviours are early predictors of students’ short- and long-term commitment to music education. In their study of 157 young people in Australia from the beginning of their instrumental tuition in primary school and for the next 12 years, Faulkner, Davidson and McPherson (2010) present the
findings of five decision trees. The results of the first three trees relate to children continuing into their second year of music education, this being a critical turning point when many young musicians cease their study (McPherson & Davidson, 2002). The final two trees consider the musicians ten years later. The findings of the study indicate the following behaviours to be valid predictors of continuing instrumental music study beyond the first year: 1) practicing on Sundays; 2) practicing at different times during the day; 3) being reminded by parents. Long-term commitment was accurately predicted by examining the use of extrinsic rewards which was an accurate predictor of not continuing music study. The final predictor of long-term commitment to learning music was a self-assessment at the nine month point in the study. Those musicians who rated their ability high, especially when taken together with a high sight-reading score, were more likely to be still playing music as young adults. This is similar to findings by Hallam (2004) that self-esteem and self-efficacy were strong predictors of long-term commitment to music learning. Several of these findings have implications for self-regulation and self-determination theory which will be considered as they are evident in the literature later in this review.

“Will This Take Long?” – Practice Duration

While some research studies examine the relationship between practicing behaviours and achievement and suggest that the quality of one’s practicing may be more important than the quantity of time spent practicing (Gruson, 1988; Hallam, 2001; Hallam, 1997a; McPherson, 2005; Miksza, 2007; Pitts et al., 2000a; Pitts et al., 2000b; Rohwer & Polk, 2006), there is still much research that examines the relationship between the “behaviours” of practice duration and frequency and musical achievement (Ericsson et al., 1993; Jørgensen, 2002; O’Neill, 1997; Sloboda et al., 1996; Williamon & Valentine, 2000). These studies conclude that there exists a positive relationship between the amount of practice time and instrumental achievement. It should be made clear at this point that “amount of practice time” in these studies refers specifically to the time spent on practice of particular quality: such practice is usually referred to in the literature as “deliberate practice” (Ericsson et al., 1993) or “formal practice” (Sloboda et al., 1996). The exception to this is O’Neill (1997) who simply asks the 44 children in her study to record their practice time in a diary over a two week period. Parents verified the validity of the practice records. It is worth noting in this study that the mean number of days practiced by the medium achievement group - 9.83 days - was a full day higher than the highest achieving group -
8.83 days (O’Neill, 1997, p. 60). This suggests that quality of practice must account for the difference between amount of time practicing and musical achievement.

Not all activities done in the name of practicing do, in fact, move the musician closer to achieving a musical goal; perfunctory repetition does, from time to time, take on the guise of “practicing.” As already noted, Ericsson et al. (1993) assert that “the amount of time an individual is engaged in deliberate practice activities is monotonically related to that individual’s acquired performance” (p. 368). Along with considering the influences of social and institutional contexts on the amount of time invested by musicians in practicing, Jørgensen (1997) concluded that different instruments demand more time: keyboard and string instrumentalists would appear to need to spend more time practicing than wind players or percussionists (p. 135). “Each instrument has its own norm for practice time, mainly based on physiological opportunities and restrictions posed by the instrument’s physical and technical demands on the student. And this norm is a strong influence on students’ ability to invest time in practice” (p. 135).

In light of these findings relating practice time and achievement, it is important to note that there are studies that, while not contradicting previous results, importantly qualify the “monotonic benefits assumption” (Ericsson et al., 1993, p. 368). Wagner (1975), for example, sought to increase the amount of practice time with the participants in his study with the use of practice reports. While the musicians in the study did indeed increase the amount of time they spent practicing, there was no improvement in performance over the eight-week period of the study. Zurcher (1975) had similar findings. In considering the practice behaviours and related performance achievement of 22 pianists, Williamon and Valentine (2000) concluded that the content of deliberate practice by musicians at high skill levels can vary significantly. An important variable in this study was that the musicians were to learn and memorize a composition by J.S. Bach specifically for a recital performance. A suitable composition was assigned according to the skill level of the participants. The researchers determined that the findings in their study “do not confirm the prediction that quantity of deliberate practice is significantly correlated to quality of performance and, hence, go against the monotonic benefits assumption” (Williamon & Valentine, 2000, p. 370). While the researchers certainly do not deny the importance of deliberate practice, their results demonstrate that “the relationship between quantity and quality is not as robust for situations in which performers are preparing for a specific performance” (p. 370). Williamon and Valentine (2000) suggest that “Ericsson et al.’s
definition of deliberate practice appears to be too global. It simply does not account for possible differences in the content and quality of each performer’s deliberate practice” (p. 371).

A Deliberate Look at the Experts

The literature on practicing reviewed thus far has described the behaviours of young and beginning musicians, examined the construct of deliberate or formal practice, and considered the relationship between the amount of time one engages in practicing and musical achievement. At this point I will examine the literature that studies the musical experts, those who, indeed, would appear to be successful as a result of the way they practice.

The literature here is diverse in intention, method and participants. Some studies examine expert musicians describing their practice behaviours in the larger framework of expertise and problem solving (Chaffin, Imreh, Lemieux & Chen, 2003; Ericsson, 1997), while others focus on a specific aspect of expert behaviour: deliberate practice (Ericsson, 2009; Ericsson, 1997; Ericsson et al., 1993; Lehmann, 1997; Sloboda et al., 1996). Yet another purpose evident in the research dealing with expert musicians is to compare their practice with their performance (Duke et al., 2009). Hallam (1997a) compares the approaches to instrumental music practice of experts and novices. There is literature that gathers qualitative data through interviews and questionnaires (Hallam, 1997a; Hallam, 1995) as well as research that examines practice behaviours through video-recorded sessions and talk-aloud protocols (Chaffin et al., 2003; Nielsen, 1999 Nielsen, 1997). Participants are freelance ensemble professional musicians (Hallam, 1997a; Hallam, 1995), professional soloists (Chaffin et al., 2003), as well as soloists studying music at graduate and advanced under-graduate levels (Duke et al., 2009). Nielsen (1999, 1997) considers church organ students preparing for performance.

Studies looking at the practicing of expert musicians describe two characteristics in particular: a high level of metacognitive awareness and an extensive repertoire of practice strategies from which to draw (Hallam, 1995; Hallam, 1997a; Nielsen, 1997; Nielsen, 1999). I shall examine the literature on practicing and metacognition later in this review.

Of the strategies used by the experts, the most salient are identifying difficult parts (Duke et al., 2009; Hallam, 1997a; Nielsen, 1997), and, “chunking” the music into smaller parts (Hallam, 1997a; Hallam, 1995; Nielsen, 1997). Studies also indicate that experts begin learning a new
piece of music with an analytic overview (Chaffin et al., 2003; Hallam, 1997a; Hallam, 1995). Hallam (2001b) notes that all but one of the 22 expert musicians in her study acquired an overview of the new piece, “either by playing it through or by careful examination of the score” (p. 30). Likening the sole participant to experts in other fields, Chaffin et al. (2003) note that the concert pianist in their study began not only with analyzing the piece to be learned before practicing it, but “approached the task of learning the Presto with an artistic image of the piece already in mind” (p. 486). “Expert musicians appear to approach the learning of a new piece in much the same way the experts in other domains approach new problems, by starting with the big picture” (p. 467). Miklaszewski (1989), in analyzing the utterances of the subject, similarly concluded that “the goal of his activity was to construct a precise internal image of the sound of the composition” (p. 107). The researcher goes on to note that goals changed frequently during the practice of the piece as the subject sought to reconcile the trials with the internal image. “Such a strategy is sometimes called a means-end analysis and is referred to as one of the most effective in complex problem solving” (Lindsay & Norman, 1972, cited in Miklaszewski, 1989, p. 107).

Results from observation of the practicing of experts also reveal their use of two kinds of strategies (Nielsen, 1999). Primary strategies are those concerned with learning the music itself: selection of problem areas in the piece, for example, repeating sections at a slower tempo, playing hands separately, chaining rehearsed sections and so forth. These are distinct from secondary strategies that may include maintaining attention and concentration, securing sufficient time or a suitable environment. Both Nielsen (1999, 1997) and Chaffin et al. (2003) describe the practicing of experts in their studies as cognitive problem solving.

Duke et al. (2009) note that “the most notable difference between the practice sessions of the top-ranked pianists and the remaining participants are related to their handling of errors” (p. 318). These subjects accurately identified the precise location and source of each error, rehearsed and corrected it; the tempo of performance trials was systematically varied; and target passages were repeated until the error was corrected and the passage stabilized. Importantly, “it was not the case that the top-ranked pianists made fewer errors at the beginning of their practice sessions than did the other pianists. But, when errors occurred, the top-ranked pianists seemed much better able to correct them in ways that precluded their recurrence” (p. 107). Similarly, the recorded commentary by the subject in Miklaszewski’s (1989) study “reflects a trial-and-error
method of work” (p. 107). The pianist in this study attempts to play a passage at sight, diagnoses his ability to do so, spends time in remedial practice, and again attempts to play the passage at the desired tempo. If the trial is unsatisfactory, the corrective actions are reintroduced.

Turning to the expert musician as a model, Hallam (1997a) notes that “experts know how to do the right thing at the right time” (p. 91). She goes on: “Within this framework, effective musical practice might be defined as that which achieves the desired end-product, in as short a time as possible, without interfering negatively with longer-term goals” (p. 91). Hallam (2001b) states that successful musicians must be able:

To recognize the nature and requirements of a particular task; to identify particular difficulties; to have knowledge of a range of strategies for dealing with these problems; to know which strategy is appropriate for tackling each task, to monitor progress towards the goal and, if progress is unsatisfactory, acknowledge this and draw on alternative strategies; to evaluate learning outcomes in performance contexts and take action to improve as necessary in the future (p. 28).

Implicit in this description is that a successful musician “requires considerable metacognitive skills in order to be able to recognize the nature and requirements of a particular task” (Hallam, 2001b, p. 28).

Metacognition in instrumental music practicing is effective only in so far as it serves the student’s capacity for self-regulated learning. “Metacognitive efforts to monitor and control concentration and affect, in conjunction with the application of effective cognitive strategies serve learning efficiency as well as effectiveness…and gives them special status in maintaining the system’s efficiency” (Corno, 1986, p. 334).

Metacognition figures prominently in the larger scheme of self-regulated learning. Before considering the important role of metacognition in more detail, as well as other cognitive dimensions of self-regulated learning, I would like to examine the literature that explores the “concentration and affect” that, as Corno (1986) notes above, metacognition monitors and controls. The affective-motivational processes that are – for better or worse – part of all learning are an integral consideration in so far as they develop and maintain self-regulated learning.
“The Will Behind the Skill!” - The Self-System and Motivation

This literature review has considered the behavioural aspect of practicing that figures into self-regulation as well as the place of metacognition. I would now like to examine the motivational component. At the heart of motivation is the self-system which is complex in its many interrelated facets. Austin, Renwick and McPherson (2006) represent the place of the self-system in the larger scheme of motivation in the process model in Figure 1 as adapted from Connell (1990):

Figure 1. Self-System in Motivation Process Model

“Self-regulation develops with the development of the self” (Connell & Ryan, 1984 cited in McCombs, 1986, p. 323). “Especially critical from a developmental framework is that until a child’s sense of self and personal identity develops into a uniform and well-structured concept, he or she does not have the ability to make use of a positive self-reference and focus in information processing during learning” (McCombs, 1986, p. 317). McCombs (1986) describes
the self-system as “the base set of ‘filters’ through which all information is processed, transformed, and encoded” (pp. 314 – 315).

Self-efficacy, task value and goal orientation promote, sustain and facilitate self-regulation as they bear directly on motivational beliefs (Pintrich, 1999). Significant to the development of self-efficacy are agency, attribution, and the psychological needs as set out in self-determination theory. Expectancy-value theory is likewise a significant influence on self-motivation. After a consideration of the literature that addresses these constructs and their place in the development of the self-system, I will examine research that explores these same constructs as they figure in music education.

**Self-Efficacy.** Bandura (1982) notes the following about self-efficacy:

Efficacy in dealing with one's environment is not a fixed act or simply a matter of knowing what to do. Rather, it involves a generative capability in which component cognitive, social, and behavioral skills must be organized into integrated courses of action to serve innumerable purposes. A capability is only as good as its execution. Operative competence requires orchestration and continuous improvisation of multiple subskills to manage ever-changing circumstances. Initiation and regulation of transactions with the environment are therefore partly governed by judgments of operative capabilities. Perceived self-efficacy is concerned with judgments of how well one can execute courses of action required to deal with prospective situations. … Judgments of self-efficacy also determine how much effort people will expend and how long they will persist in the face of obstacles or aversive experiences. When beset with difficulties people who entertain serious doubts about their capabilities slacken their efforts or give up altogether, whereas those who have a strong sense of efficacy exert greater effort to master the challenges (pp. 122 – 123).

Self-efficacy can be better understood when juxtaposed with self-concept. The latter is global and all-encompassing, not anchored to a specific situation or context. “I am a good musician,” for example. By contrast, it is important to note that self-efficacy focuses exclusively on task-specific performance expectations. In this light, “self-efficacy is inextricably linked to a musician’s competence… Thus strong self-efficacy entails not only recognizing oneself as a good musician but also judging oneself as knowledgeable about the necessary subskills and strategies responsible for performance success” (Lehmann, Sloboda & Woody, 2007, p. 54). As
such, self-efficacy is a powerful predictor of students’ motivation and learning achievement (Zimmerman, 2000).

Zimmerman (1989) views self-efficacy as essential to self-regulated learning. Not only must there be a high degree of learner agency, that is, the student must view themselves as the initiators of self-regulatory behaviours, but there must also be the perception on the part of the learner that he or she in indeed capable or organizing and implementing the actions necessary to achieve the desired goal.

In a correlational study of 173 seventh grade students that examined relationships between motivational orientation, self-regulation and academic performance, Pintrich and De Groot (1990) found that self-efficacy was positively related to student cognitive engagement and performance. “Students who believed they were capable were more likely to report use of cognitive strategies, to be more self-regulating in terms of reporting more use of metacognitive strategies, and to persist more often at difficult or uninteresting academic tasks” (p. 37). Situating self-efficacy in the context of learning and achievement, the researchers suggest that “self-efficacy plays a facilitative role in relation to cognitive engagement… Teaching students about different cognitive and self-regulatory strategies may be more important for improving actual performance…but improving students’ self-efficacy beliefs may lead to more use of these cognitive strategies” (p. 37).

Citing numerous studies and situating self-efficacy as central to both agency and self-regulated learning, Zimmerman (2000) notes the mediating influence of self-efficacy on students setting more challenging goals, being more effective at self-monitoring and self-evaluation, motivating students’ use of learning strategies and producing higher academic achievement. In reviewing research into self-efficacy, Zimmerman (2000) concludes that: when studied as a mediating variable in training studies, self-efficacy has proven to be responsive to improvements in students’ methods of learning (especially those involving greater self-regulation) and predictive of achievement outcomes. “This empirical evidence of its role as a potent mediator of students’ learning and motivation confirms the historic wisdom of educators that students’ self-beliefs about academic capabilities do play an essential role in their motivation to achieve” (p. 89).

Three recent studies consider the role of self-efficacy in learning music. Ritchie and Williamson (2011) tested 404 primary school children with both a Self-Efficacy for Musical Learning
Questionnaire and a Strengths and Difficulties Questionnaire. Their intention was to assess the musical self-efficacy of the participants and to explore possible correlations of this self-efficacy with other aspects of their lives. The researchers found that time spent listening to music, participating in individual sports, dancing, doing homework, and reading for pleasure positively correlated with self-efficacy for music learning scores. The daily activities that correlated with self-efficacy all require some sort of strategic thinking and have definite goals or tasks requiring completion. Further findings revealed that self-efficacy also related positively with well-being, yet negatively with hyperactivity, emotional symptoms, and problems with conduct (pp. 153-154). Overall results revealed that “The children in this study, both boys and girls, who undertook regular specialist music tuition had higher self-efficacy for music learning than those who did not. In itself, this was an expected finding, as mastery experiences have been shown to be the strongest influence on self-efficacy beliefs... The correlations to extra-musical activities found in the present study demonstrate the wider relevance of self-efficacy in children’s lives” (pp. 155-56).

In their study of 332 instrumentalists completing performance examinations, McCormick and McPherson (2003) found a “strong association between self-efficacy and actual performance and the former’s clear superiority as a predictor of actual performance in a graded external music examination” (p. 48). Consistent with other literature on the subject (Zimmerman, 2000) they also posit “self-efficacy both as a mediating variable between other cognitive variables and performance, and as a variable which directly affects other cognitive and behavioural variables” (p. 47). In a similar study, McPherson and McCormick (2006) considered 446 music students’ self-efficacy beliefs as they relate to performance results on examinations. Again, they found self-efficacy to be the strongest predictor of performance achievement (p. 331). “The results of this study suggest that meaningful improvements can be achieved by improving young instrumentalists’ self-efficacy judgements” (McPherson & McCormick, 2006, p. 332).

Consistent with previous studies (Pintrich, 1999; Pintrich and De Groot, 1990) musicians with high self-efficacy are more likely to be engaged cognitively and metacognitively while learning a piece of music than students who doubt their capabilities to achieve a goal (Nielsen, 2004). Research also indicates that musicians with high self-efficacy are more likely to continue to advance in musical ability and continue to pursue music education (Faulkner, Davidson & McPherson, 2010; Hallam, 2004).
**Self-Determination Theory and Personal Agency.** Self-determination theory (Ryan & Deci, 2000) is an important consideration as it relates to the development of intrinsic motivation which is necessary for self-regulation. There are also aspects of this theory that reinforce expectancy-value theory and self-efficacy, two constructs integral to the development of self-regulatory learning.

Self-determination theory is founded on three basic psychological needs for competence, autonomy and relatedness (Ryan & Deci, 2000). Competence refers to one’s need to feel effective in interactions with the environment and with achieving self-determined goals. Relatedness speaks to the need to belong or to experience close interpersonal relationships with others. The need for autonomy is, perhaps, the most significant with respect to self-regulated learning in music. This aspect of self-determination theory addresses the need to feel in control, to be the initiator of one’s behaviours. The literature refers to this as agency (Bandura, 2006). It echoes the need for self-efficacy. Autonomy also refers to the need to make choices. This not only relates to task-value motivational belief (Pintrich, 1999), but also to one of the observable behaviours of motivation: choice and preference (Maehr, Pintrich & Linnenbrink, 2002, p. 349).

Within the framework of self-determination theory, and integral to an understanding of the motivational growth toward self-regulation, is a subtheory called organismic integration theory. Quite simply, this is a self-determination continuum setting out the evolution from amotivation, through extrinsic motivation to intrinsic motivation (Ryan and Deci, 2000 p. 72).

“Exercise of influence over one's own behavior is not achieved by a feat of willpower. Self-regulatory capabilities require tools of personal agency and the self-assurance to use them effectively” (Bandura, 1982, p. 129). Bandura (2006) notes the following about the function of agency in learning:

There are four core properties of human agency. One is *intentionality*. People form intentions that include action plans and strategies for realizing them. The second property of human agency is *forethought*, which involves the temporal extension of agency. Forethought includes more than future-directed plans. People set themselves goals and anticipate likely outcomes of prospective actions to guide and motivate their efforts. The third agentic property is *self-reactiveness*. Agents are not only planners and forethinkers. They are also self-regulators. The fourth agentic property is *self-reflectiveness*. People are not only agents of action. They are also self-examiners of their own functioning. Through functional self-awareness, they
reflect on their personal efficacy, the soundness of their thoughts and actions, and the meaning of their pursuits, and they make corrective adjustments if necessary. The metacognitive capability to reflect upon oneself and the adequacy of one’s thoughts and actions is the most distinctly human core property of agency (pp. 164 – 165).

Of note here is the parallel between these four core elements of human agency and important aspects of self-regulation (McPherson & Zimmerman, 2011, 2002). Bandura (2006) emphasizes the inextricable link between agency and self-efficacy:

Among the mechanisms of human agency, none is more central or pervasive than belief of personal efficacy. This core belief is the foundation of human agency. Unless people believe they can produce desired effects by their actions, they have little incentive to act, or to persevere in the face of difficulties. Whatever other factors serve as guides and motivators, they are rooted in the core belief that one has the power to effect changes by one’s actions (p. 170).

Reeve and Tseng (2011) proposed adding agentic engagement to the construct of student engagement during learning activities. They note the general consensus is to characterize student engagement as having three components: behavioural, emotional and cognitive (p. 257). They define agentic engagement as:

students’ constructive contribution into the flow of the instruction they receive… the process in which students intentionally and somewhat proactively try to personalize and otherwise enrich both what is to be learned and the conditions and circumstances under which it is to be learned… To the extent that students act agentically, they initiate a process in which they generate for themselves a wider array of options that expand their freedom of action and increase their chances of experiencing both strong motivation (e.g., autonomy, self-efficacy) and meaningful learning (e.g., internalization, conceptual understanding) (p. 258).

The researchers presented a questionnaire to 365 high school students assessing four aspects of engagement: agentic, behavioural, emotional and cognitive. Psychological need satisfaction was also assessed according to the components of self-determination theory: autonomy, competence and relatedness (Ryan and Deci, 2000). Academic achievement was assessed using each student’s overall grade at the end of the semester. Results indicate that agentic engagement “covaried with students’ motivation, with other indices of engagement, and with achievement” (p. 263). As a discrete component, Reeve and Tseng (2011) posit that agentic engagement
“contributes uniquely to achievement… because it is through intentional, proactive, and constructive acts that students find ways to improve their opportunity to learn by enriching the learning experience and by enhancing the conditions under which they learn” (p. 263). Further, “adding agency as a new aspect of engagement… allows for a fuller portrayal of how students engage themselves in learning activities [and] clarifies the picture of how students learn and profit from potential learning opportunities” (p. 263).

Referring to the impact of the internet on education, Bandura (2006) likewise emphasizes the significance of agentic engagement noting the facility with which students can exercise much greater personal control over their own learning. “This shift in the locus of initiative requires a major reorientation in students’ conception of education. They are agents of their own learning, not just recipients of information” (p. 176).

In the realm of music education, this sense of agency is manifest in the student’s musical identity and the consequent engagement with music making: motivation, skill development, confidence and achievement. Reviewing some preliminary findings from two of their own research projects on pupils’ attitudes to music in and out of school (conducted as part of the work of the Music Development Task Group of the Qualifications and Curriculum Authority), Hargreaves and Marshall (2003) found that:

[students’] engagement, and level of motivation, depends on the level of ownership of their music making: on their autonomy within it, and the extent to which they can exert control… Our analysis suggests that this it is best accomplished by encouraging them to think of music as something within the reach of all, rather than as a specialized activity: that everyone can be a ‘musician’ at some level. Self-identity is an inextricable part of the process of development itself: thinking of oneself as a musician can be an important step on the road to becoming one (p. 272).

While this last assertion by Hargreaves and Marshall seems a logical aspiration, one cannot overlook the constraints on developing a musical self-identity. In an unstructured interview of four female adolescent female musicians, O’Neill (2002a) employed a social constructivist framework to examine their self-identity as musicians. “Despite the fact that significant people in the girls’ lives reassured them of their talent, for three of the girls, their discourses denoted a constraining influence on their self-identity as musicians” (p. 87). Some of these constraints were tensions between the private and the social self, expectations of peers, public perceptions of what
it means to be a musician. For one of the participants, a significant constraint was the results of an interview where “members of the audition panel advised her to make a career change” (p. 88). O’Neill observes that, for musicians, there is a ‘self’ that is constantly changing in social and cultural contexts. “Young musicians’ constructions of who they are and therefore what is possible or appropriate, and wrong or inappropriate forms of musical engagement, all derive from the ideology of lived experience” (O’Neill, 2002a, p. 94).

In a qualitative study of fifth grade musicians, with regard to the importance of agency as it relates to motivation and self-efficacy (Reeve and Tseng, 2011; Bandura, 2006), Blair (2009) found two fundamental, interdependent qualities of student agency to emerge:

One was students’ desire to enable and further their own understanding, or more simply, to grow as learners and to accomplish that learning by discovering things for themselves. This ‘understanding’ implies ownership or control within the learning process… The second fundamental area of student agency that emerged was the students’ desire to be respected and valued as members of the learning community (p. 180).

Two other aspects of the self-system that are closely aligned with agency and musical identity are attribution theory and the question of whether or not musical ability is innate.

**Attribution Theory.** Self-efficacy – a learner’s perception of their capacity to achieve a specific task – is strongly linked to that learner’s attributions to success or failure in achieving the task. Weiner (1985) suggests three dimensions to attribution theory: *locus* refers to whether the cause is internal (effort or ability) or external (environment, teacher); *stability* refers to whether or not the cause is stable and therefore could be predicted for future tasks (perceived talent or skill); and *controllability*, whether the perceived cause can be controlled (more practice). Several studies have examined the impact of attribution theory on musicians’ beliefs about success and attitudes towards practicing.

Figure 2 illustrates the basic types of attribution (Austin et al., 2006, p. 228).
Schatt (2011) explored 218 high school band students’ perspectives of instrumental music practice from within the attribution theory paradigm to elucidate their attitudes toward practicing. Results indicated that internal attributions of ability and effort were rated the highest of all belief areas, whereas external attributions of task difficulty and luck were rated lowest. Findings suggest that students may feel that they are capable of exceptional musical achievement if they expend more effort through personal practice.

A study by Rosevear (2010) reports on high school students’ beliefs about the reasons for their success or otherwise in school subjects and other activities. The highest ranking attribution was enjoyment followed by ability and then effort. Results also indicate that students attribute effort significantly higher in pursuits outside of school. The researcher suggests that this is likely due to the element of choice being factored in. Findings also indicate that music students ranked both effort and ability higher in attributions than non-music students. A possible limitation to this research is a lack of definition of the construct of “ability.” How, in fact, was this construed by the participants? As something innate and therefore immutable, or an ability they had developed over time?
Driscoll (2009) gathered data from 820 young people aged 13-14 who were surveyed by means of questionnaires. The participants were a mixture of students still taking lessons, ones who had stopped lessons, as well as students who had never had lessons. This study considered opportunity and motivation for young people taking up music tuition, and the most influential factors in their decisions to discontinue. Analysis confirms a sharp increase in discontinuation rates upon transition to secondary school. Boring lessons, not making much progress, and disliking practice were the three highest ranked reasons given for ceasing tuition (p. 48). In so far as attribution theory is considered, it is significant in this study that nowhere is there mention of either ability or effort. For example, students did not suggest that they stopped learning music because it was too difficult or because they were not musical. Results from this study suggest that internal affective attributions figure significantly in young musicians’ decision to discontinue their music education.

Musical success and failure exist in many different contexts: not doing well at a private lesson is not the same as a poor performance at a recital. The music examination offers yet another context in which to consider musical outcomes. McPherson and McCormick (2000) examined the relationship between internal and external attributions and examination results. A second purpose of their study was to investigate self-regulatory and motivational influences that would theoretically predict results in a performance examination. Participants were instrumentalists between the ages of 9 and 18. Questionnaires addressing areas of attribution, motivation and self-regulation were given to the musicians just prior to their taking the examination, asking them to make connections between these factors and anticipated results.

Most students cited internal reasons to explain examination results; how hard they practiced was the highest ranking attribution. Nervousness and trying hard during the examination were the next highest ranking reasons given. Of little significance to the students was overall musical ability and giftedness (p. 35). The researchers conclude that the majority of the musicians had healthy – internal, unstable – attributions as they prepared for their examination. Such students “tend to display greater persistence and stronger affective reactions, such as a feeling of pride for a high result, or a feeling of shame following failure” (p. 37). In addressing the second purpose of the study – the relationship between motivational processes and performance – the researchers focused on self-efficacy and found that those musicians entering the examination with a high degree of confidence in their ability to do well were more successful in their results (p. 37). It is
important to note that, in gathering data, the questionnaires distinguished between General Self-Efficacy and Performance Self-Efficacy as it pertained to the examination specifically. Self-regulation in practicing did not appear to be a factor. Unfortunately, the researchers do not elaborate on the results of the role of self-regulation and its apparent insignificant relationship to examination results. It may well be the case that in the context of a musical examination, self-regulation in practicing may be eclipsed by attributions.

The transition from elementary to secondary school is momentous in many ways, not the least of which has to do with changing attributions among emerging adolescents. Austin and Visopel (1998) considered the conspicuous diminishing of motivation to learn music at the juncture of elementary and secondary school and examined whether students’ interpretations of past achievement outcomes may influence attitudes about their future in high school. The purpose of this study was to explore 7th grade students’ beliefs about the causes of success and failure in the music classroom. Importantly, the researchers sought to determine whether students’ attributions to success differed from their attributions to failure, and whether certain attributions in each case were more frequent. Secondly, the research sought to determine significant relationships between attributional beliefs, music self-concept and achievement (p. 32). External attributions of teacher, peer and family influence were most highly ranked as causes for success; failure was most often attributed to family influence, ability and luck. The researchers found a “general denial of effort-and strategy-related attributions” (p. 40). The most significant relationship between music self-concept and achievement is that high achievers cited ability as the attribution for success but denied that lack of ability as a reason for failure (p. 40). Low achieving students cited lack of ability and negative family influence as attributions for their failure and low music self-concept (p. 41). As students mature, they tend to place more emphasis on ability attributions and less emphasis on effort attributions.

Three studies by Miksza (2011, 2009, 2006) explore locus of control as one element of attribution theory, its relationship to impulsivity, and the role these traits play in effective practicing and musical achievement. Considering achievement through pre- and post-test scores, determining locus of control and impulsivity through questionnaires, and observing the practice behaviours of 40 college brass players, Miksza (2006) determined that there was a direct correlation between low impulsivity and high achievement: “the fact that the low impulsive group outperformed the high impulsive group in this study suggests that those who are less
impulsive may use their time more efficiently and/or be able to implement strategies more effectively while practicing” (p. 320). While there was no direct correlation between locus of control and performance, there was between locus of control and impulsivity: those with an internal attribution were less impulsive (p. 320). Miksza (2011) found that musicians who are less impulsive “spend less time off task during practice, remain focused, and use their time more efficiently as they become more self-regulated. It is likely that those who are less impulsive are better able to maintain concentration and regulate their effort expenditure over time” (p. 63).

**Nature versus Nurture.** McPherson (2007) makes the following observation:

The general public view of musical achievement as innate rather than environmentally determined demonstrates a serious lack of understanding about the nature of musical potential. This view is in stark contrast to research in music and psychology, which places a much greater emphasis on environmental factors in developing children’s talent. … Great musicians consistently put a great deal of effort and practice into developing their craft (pp. 21 - 22).

McPherson cites a survey by Davis (1994) who asked educational psychologists, secondary teachers, primary teachers and members of the general public to identify activities that they believe require a ‘natural talent’ or ‘gift’. Davis reports that most of the respondents viewed musical skills as essentially innate. 75% of the educational professionals reported that playing instruments, singing and composing were the result of a special innate gift or natural talent. Reasons why the respondents suggested that musical ability was innate included the very young age when the ‘talent’ emerges and can be demonstrated (such as the unexplainable talent of child prodigies) and the fact that many youngsters try hard but often fail to develop their ability in music (McPherson, 2007, p. 21).

Walker and Plomin (2005) surveyed 667 UK primary school teachers, and 1,340 parents about their perceptions of genetic and environmental influence on personality, intelligence, behaviour problems, learning difficulties, and mental illness. Results indicate that both teachers and parents, on average, attribute genetics and environment almost equally with respect to influencing these domains. What the researchers found surprising, however, was that the teachers’ weighty response favouring genetic influence – nature – is largely uninformed. Their results indicate that 80% of the teachers surveyed reported no study of genetics in their teacher training (p. 512). The researchers add, ‘Teachers’ perceived importance of genetics is intriguing
in light of the predominant environmental focus within educational psychology research” (p. 513).

“Americans generally accept the premise that the most common way, if not the only way, to acquire artistic talent is to have it bestowed upon you at birth, rather than through the successive influence of nurturing individuals and environments over time” (Austin, 1997, p. 168 cited in Smith, 2005, p. 51).

Gagné (1985) makes a clear distinction between giftedness and talent. Giftedness he defines as exceptional competence in a given domain: artistic, intellectual, social (p. 106). Talent is exceptional performance as it is – or is not – informed by giftedness (p. 108). The development process whereby giftedness may translate into performance is characterized by training, practice, and learning. Importantly, this process is influenced by intrapersonal factors such as motivation, personality and physical limitations, as well as by environmental factors such as people (parents, teachers), the learning milieu and significant events (p. 109).

Common perceptions of giftedness are based on manifestations of talent. There is a failure to appreciate the fact that giftedness is only potential. Achievement in music, whatever the potential, is still the result of a great deal of effective, deliberate practice (Ericsson et al., 1993; Hallam, 1997a, 2004; O’Neill, 1997; Sloboda et al., 1996). “No amount of natural aptitude will guarantee success without opportunities for intense, systematic learning and practice. In music, this is convincingly shown by a great deal of evidence for the close connection between accumulated practice and overall achievement for young and older musicians” (McPherson & Williamson, 2006, p. 244).

Mozart is often cited as an example of the kind of giftedness – albeit conspicuous given his youthful notoriety – that characterizes the kind of inborn ability that successful musicians must surely have. Yet, “there are many historical indications that Mozart’s musical practice from a very early age was goal-oriented, structured, and effortful as described in the literature on deliberate practice (e.g., Ericsson, 1996)” (McPherson & Williamson, 2006, p. 245). Accounts of Mozart’s life as a developing musician indicate that, not only did he demonstrate expert-like practicing, but his potential was nurtured to a significant degree by both intrapersonal and environmental factors (Gagné, 1985). Mozart “was motivated to a level akin to passion”
(McPherson & Williamon, 2006, p. 245) and he enjoyed a live-in teacher in the person of his father, himself an eminent musician.

Related to perceptions of giftedness are perceptions of intelligence. Dweck (1986) distinguishes between two theories of intelligence. Entity theory sees intelligence as fixed where the goal of the student is to gain positive judgements and avoid negative judgements of competence. Incremental theory sees intelligence as malleable; the goal is, in fact, to increase competence. I will return to this distinction in considering the literature on motivation and goal-orientation.

But just what are the perceptions of natural ability by young musicians? And what are the consequences of these perceptions? Consistent with McPherson’s (2007) observation that musical achievement is most often attributed to innate qualities, Austin and Visopel (1998) found that ability was a significant attribution cited by students particularly as it pertains to failure. Schatt (2011) in surveying the attitudes of high school instrumental music students also found high attributions of ability.

Prefacing his own research, Evans (2000) refers to Sosniak's (1985) retrospective study of 21 unusually accomplished pianists. “Sosniak concluded that these pianists' accomplishments could not have been predicted based on early identification of talent… Her research makes clear, however, that objective accounts of students' early performance and reports of extraordinary musical instruction and experience did not point to inborn giftedness” (Evans, 2000, pp. 81-82). In his own study, Evans (2000) was interested in the ability perceptions of 260 musicians identified at a summer fine arts music camp as exceptionally gifted. His research also compares the perceptions of the musicians to those of their parents and teachers. “Clearly, students are convinced that they have innate musical talent. Moreover, they view their teachers and friends as emphatically sharing this judgment. Students' talent and the shared belief as to its existence and value are credited by students with fostering their musical development” (p. 85). Parents, by contrast, attributed success to the encouragement of family and friends and, in fact, regarded a lack of musical ability as an impediment to achievement. Teachers were similar to the students in their attributions although they did acknowledge effort as part of the path to successful performance (pp. 85 – 87).

Ho and Chong (2008) conducted a case study with a 14-year old pianist considered one of the most promising in the Singapore region. Considering her growth from the time she started piano
lessons at the age of four, the researchers investigated those factors that influenced her talent development over a span of ten years. They conducted their study using Gagné’s *Differentiated Model of Giftedness and Talent* (DMGT, 2003). In this model, Gagné allows for some natural ability to be credited towards genetics. None of the participant’s younger siblings demonstrated the same kind of natural ability at an early age. Indeed, the student’s twin was given the same opportunities yet did not achieve the same success. The participant was also gifted in academics. In interviews with both the participant and her parents, the researchers concluded that the pianist’s talent development was, according to the DMGT (Gagné, 2004) the result of a complex and interconnected set of influences, both environmental and intrapersonal. An interesting finding from this study concerning the environmental factors was the role of cultural values in the participant’s growth. Many of the Chinese culture’s beliefs and values of human development have their roots in Confucianism. Several cultural beliefs figured significantly in this study. Among them are the Chinese value of hard work and persistence, respect and obedience to parents, the priority of educational achievement and the belief that “every child has gifted potential” (Ho & Chong, 2008, pp. 13 – 15).

In a similar study, Tomlinson (2010) investigates the musical giftedness of an adolescent in Australia. While there are similarities in the intrapersonal qualities that mediate the student’s success, such as motivation and commitment, several of the environmental factors are quite different.

In spite of limitations on her in terms of the music curriculum and school administration, Cassie achieved success in her study owing to the resilience of her character in enacting agency by collaboration with her peers and mentors… Cassie enacted agency by working with the complexity of her situation, initiating musical experiences that enriched her life by organizing performances and ensembles, supporting all musicians in her peer group. This is the most significant finding of the study: the overriding influence of Cassie’s learning style, her determination to pursue all opportunities to continuously transform her disposition through higher thinking, adjusting to limitations in her environment and developing her musical ability (pp. 97 - 98).

The findings of these studies highlight the importance of differentiating the curricula according to the needs of the student, having the musician as well as her parents recognize the significance
of intrapersonal and environmental factors in developing potential, and nurturing in the student a sense of personal agency in learning. Dweck (2007) sums this up with the following:

For over 30 years, I have studied students' motivation in order to find out what makes motivated students tick. Here is the most important thing I have learned: The most motivated and resilient students are not the ones who think they have a lot of fixed or innate intelligence. Instead, the most motivated and resilient students are the ones who believe that their abilities can be developed through their effort and learning (p. 6).

**Goal Orientation, Intelligence Theory and Motivation.** A significant influence on motivation is goal orientation. For Zimmerman (1989), a commitment to achieving a goal is an essential component of self-regulatory learning: it is with such a goal that the self-regulated learner is constantly comparing their progress through self-monitoring and making adjustments. Dweck (1986), emphasizes the role of “cognitive mediators, that is, how children construe the situation, interpret events in the situation, and process information about the situation” (p. 1040). This perspective on the role of motivation as it moves the learner from competence to achievement is an elaboration of Gagné’s (2004) intrapersonal dimension as outlined in the DMGT.

Dweck (1986) posits that the study of motivation is the study of goal-oriented activity. She suggests that these goals fall into two classes: “(a) learning goals, in which individuals seek to increase their competence, to understand or master something new, and (b) performance goals, in which individuals seek to gain favourable judgements of their competence or avoid negative judgements of their competence” (p. 1040). Considering a learner’s orientation to one of these types of goals, she proposes two motivational patterns.

Adaptive motivational patterns are those that promote the establishment, maintenance, and attainment of personally challenging and personally valued achievement goals. Maladaptive patterns, then, are associated with a failure to establish reasonable, valued goals, to maintain effective striving toward those goals, or, ultimately, to attain valued goals that are potentially within one's reach (Dweck, 1986, p. 1040).

Another important observation is that “although children displaying the different patterns do not differ in intellectual ability, these patterns can have profound effects on cognitive performance” (Dweck, 1986, pp. 1040-41). This is especially evident in the way children respond to challenges
or failure and the impact this may have on intrinsic motivation. Citing the research, Dweck (1986) addresses this phenomenon:

It has been noted that persistence in the face of obstacles is made more difficult within a performance goal because obstacles tend to cast doubt on the child's ability and hence to call into question goal attainment (favorable ability judgments). Persistence is also made more difficult by the fact that “intrinsic” motivational factors—such as task interest or the enjoyment of effort—may be more difficult to access within a performance goal. That is, effort in the face of uncertainty appears to be experienced as aversive for children with performance goals, and worry about goal attainment may well overwhelm any intrinsic interest the task may hold for the child. Indeed, performance goals may well create the very conditions that have been found to undermine intrinsic interest (p. 1042).

Pintrich (1999) describes three general goal orientations. The musician practicing with a mastery goal orientation focuses on learning and mastering a particular task. This may be a task focusing on technical mastery or musical interpretation. The defining characteristic of this orientation may be put this way: the musician enjoys the challenge of a part of the journey, not necessarily the arrival, the outcome. Success may be defined simply as mastering the task at hand. This musician is motivated intrinsically. The second goal orientation has the student motivated by externals: good grades on the RCM examination, the applause of parents at a concert, the praise of a music teacher. This has been referred to as a performance orientation or an ego orientation (Dweck, 1986). Musicians with this orientation are motivated extrinsically. A third goal orientation Pintrich (1999) calls a “relative ability orientation” (p. 466). Success is measured by comparing oneself with others and being motivated, extrinsically, to best them.

The implication here is that these three goal orientations are mutually exclusive. Perhaps there is a fourth goal orientation. Although they do not cite any research to support their claim, Austin, Renwick and McPherson (2006) suggest that:

Older children who are confident in their abilities and who have a history of high achievement may be able to adopt performance-approach goals – emphasizing demonstrations of competence, focusing on performance outcomes, defining success in relation to social comparisons – in conjunction with learning goals, without experiencing a deficit in motivation or achievement (p. 217).
Pintrich (1999) found that a mastery goal orientation was “strongly positively related to the use of cognitive strategies as well as self-regulatory strategies” (p. 466). There is also a strong relationship between a task or mastery orientation and achievement in musical performance (Sloboda, et. al., 1996). By contrast, participants in the study with a performance or ego orientation consistently showed a negative correlation with the use of cognitive strategies, self-regulation strategies and performance achievement. Musicians with the relative ability orientation were in between. As a possible explanation of this latter result, Pintrich (1999) speculates that it may indicate that “a concern with social comparison and besting others may help students maintain their involvement with over-learned and relatively boring classroom tasks” (p. 467).

Schunk (1990) notes that “Self-regulatory skills require that students’ goals be realistic – challenging but attainable. With realistic goals, students can monitor progress and decide on a different task approach if their present one is ineffective. Self-efficacy is increased as students note progress, attain goals, and set new challenges” (p. 81).

Dweck (1986) connects goal orientations – adaptive and maladaptive motivational patterns – to the way a student perceives ability or intelligence:

> Basically, children's theories of intelligence appear to orient them toward different goals: Children who believe intelligence is a fixed trait – entity theory of intelligence - tend to orient toward gaining favorable judgments of that trait (performance goals), whereas children who believe intelligence is a malleable quality – incremental theory - tend to orient toward developing that quality (learning goals) (p. 1041).

Austin et al., (2006, p. 219) summarize the dynamics of how these two perceptions have an impact on goals, behaviours and outcomes in Table 2.
### Table 2

**Intelligence Theory Conceptions**

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<th><strong>Malleable Ability Conception</strong></th>
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<td><strong>Actions</strong></td>
<td>Challenge avoidance</td>
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<td>Superficial learning strategies</td>
<td>Deep/active learning strategies</td>
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<td>Compares own performance with others’</td>
<td>Seeks objective feedback/help</td>
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<td>Maladaptive responses to failure</td>
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<td><strong>Outcomes</strong></td>
<td>Lower achievement</td>
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Blackwell, Trzesniewski and Dweck (2007) examined the interrelatedness of intelligence theory, attribution theory and goal orientation in a study of 7\textsuperscript{th} grade students beginning junior high school, assessing their achievement outcomes as they progressed through the seventh and eighth grades. They found that “an incremental theory of intelligence, learning goals, positive beliefs about effort, non helpless attributions, and strategies in response to failure formed a network of interrelated variables” (p. 250).

The researchers continued to monitor the participants for two years and found that “students who endorsed a strong incremental theory of intelligence at the beginning of junior high school were outperforming those who held more of an entity theory in the key subject of mathematics, controlling for prior achievement. Moreover, their motivational patterns mediated this relation such that students with an incremental orientation had more positive motivational beliefs, which in turn were related to increasing grades” (p. 253). In a follow-up study, the same researchers conducted an intervention with an experimental group of 7\textsuperscript{th} grade students at the beginning of their junior high school year. To determine motivational profiles and theories of intelligence, the
same questionnaire was used as in the first study. Both the experimental group and the control group received instruction about brain development for an 8-week period. However, at one point, the experimental group was presented with information that subscribed to incremental intelligence theory as well as activities that would support this. The control group did another brain topic. Results showed a dramatic increase in achievement, particularly among those students whose initial profiles indicated an entity theory of intelligence. “This finding supports the contention that it was the incremental theory message in particular that was responsible for the achievement benefit, rather than some other positive motivational factor in the experimental condition, which should have affected students with both theories of intelligence equally, and confirms that even a brief targeted intervention, focusing on a key belief, can have a significant effect on motivation and achievement” (p. 258).

Considering this study (Blackwell, Trzesniewski, & Dweck, 2007) and other research (Dweck, 2007, 1999), Dweck (2010) writes the following:

[There are] two distinct ways in which individuals view intelligence and learning. Individuals with a fixed mindset believe that their intelligence is simply an inborn trait—they have a certain amount, and that's that. In contrast, individuals with a growth mindset believe that they can develop their intelligence over time.

These two mindsets lead to different school behaviors. For one thing, when students view intelligence as fixed, they tend to value looking smart above all else. They may sacrifice important opportunities to learn—even those that are important to their future academic success—if those opportunities require them to risk performing poorly or admitting deficiencies. Students with a growth mindset, on the other hand, view challenging work as an opportunity to learn and grow. I have seen students with a growth mindset meet difficult problems, ones they could not solve yet, with great relish. Instead of thinking they were failing (as the students with a fixed mindset did), they said things like "I love a challenge," "Mistakes are our friends," and "I was hoping this would be informative!"

Students with a fixed mindset do not like effort. They believe that if you have ability, everything should come naturally. They tell us that when they have to work hard, they feel dumb. Students with a growth mindset, in contrast, value effort; they realize that even geniuses have to work hard to develop their abilities and make their contributions.
Finally, students with a fixed mindset tend not to handle setbacks well. Because they believe that setbacks call their intelligence into question, they become discouraged or defensive when they don't succeed right away. They may quickly withdraw their effort, blame others, lie about their scores, or consider cheating. Students with a growth mindset are more likely to respond to initial obstacles by remaining involved, trying new strategies, and using all the resources at their disposal for learning (p. 16).

For Dweck (2007) this has significant implications as to the messages teachers and parents send to children regarding their achievement:

We studied fifth graders and kindergarteners. We studied children in inner city schools, suburban schools, and rural schools. And we found the same thing in each case. After students received intelligence praise, they adopted a fixed mindset. They rejected a challenging task they could learn from, instead selecting the task that would make them look smart. When they hit difficulty and made errors, they lost confidence in their ability - now they thought they were not smart - and ended up performing poorly. Students who were praised for their effort entered a growth mindset. They wanted the challenge, they maintained their confidence and enjoyment in the face of difficulty and they ended up performing far better, even when the task was an IQ test. There was one more intriguing finding. Students who were praised for their intelligence later lied about their scores. This means that errors were so humiliating that they could not own up to them” (Dweck, 2007, p.9).

Two interesting studies consider children’s perception of their own ability and the concomitant patterns of motivation in a musical context. O’Neill and Sloboda (1997) looked at 51 children aged 6 to 10 who did not have any formal musical instruction. Administering a melodic contour recognition test, the researchers conducted four trials: a base-line test, a test designed such that the participants would meet success, a test designed such that the children would experience failure and a final post-failure test. Prior to the final test, the children were asked questions about their perception of their own ability and to predict how they would do on the final test. The researchers hypothesized that those students who expressed low confidence in their ability as a result of the failure test would perform more poorly than those students with high confidence. The results indicate that those children with mastery orientation – expressing high self-confidence in ability – improved on their musical test scores. Those with a helpless orientation deteriorated (p, 30).
In a similar study, O’Neill (1997) administered the same kind of success, failure and post-failure tests (O’Neill & Sloboda, 1997) on a problem solving task to 46 children aged 6 to 10. For participants, the researcher had selected children who were about to begin formal music instruction. Results indicated that “those children who showed adaptive ‘mastery’ motivational patterns on the problem-solving task prior to beginning formal instrumental tuition obtained higher levels of musical performance achievement at the end of their first year than those children who showed maladaptive ‘helpless’ motivational patterns” (p. 64).

Smith (2005) examined the impact of theory of intelligence – entity theory or incremental theory (Dweck, 1986) - on goal-orientation and, subsequently, on the quality of practice. Participants were 344 volunteer undergraduate instrumentalists attending 17 four-year colleges and universities in all regions of the United States. A researcher-designed questionnaire gathered participants’ responses in two general areas: goal orientation and implicit theory of musical ability. Information about a participant’s prior use of various practice strategies was collected using a researcher-designed survey. “The participants who reported using more practice strategies more often had higher levels of task goals… The message seems clear: a belief pattern built on intrinsic desire to learn is associated with a tendency to engage in varied and focused musical learning behavior” (p. 50). Connecting the three variables – intelligence theory, goal orientation and quality of practice, Smith concludes:

The higher a student’s endorsement of an entity belief, the more likely it was they endorsed ego-approach and especially ego-avoid goals. This fits with the theoretically predicted causal chain: musical ability is innate and fixed, therefore I must try to demonstrate that I ‘have it’ and most certainly avoid demonstrating I ‘don’t have it.’ It is also interesting that the more one endorsed an incremental view (lower responses to entity statements), the more likely one was to report a task orientation with its emphasis on high interest, challenge seeking, and desire to learn – the very features likely to lead to persistence and variety in the individual practice arena. In other words, if one believes that musical ability is malleable and amenable to change through effort and effective practice strategy (incremental theory), then one tends to be desirous of doing so (task-oriented) (p. 48).

Ability or intelligence perceptions, both by young musicians and their parents, pose one of the greatest challenges for the music educator in particular. “Judgements of ability are very salient in music. Many school ensembles…are organized to reflect a hierarchy of music ability…In elementary music, learning by doing… results in children demonstrating their abilities in front of
one another…children often perform in very public venues… where ability differences among peers become readily apparent” (Austin et al., 2006, p. 222).

**Expectancy-Value Theory.** Closely related to the motivational belief of self-efficacy (Bandura, 1982) is a student’s feeling that what they are learning is interesting, important and useful. Such task value beliefs are positively related to self-regulated learning (Pintrich, 1999). An important theory to put forward here is expectancy-value theory (Eccles & Wigfield, 1995). Similar to self-efficacy, expectancies refer to a self-perception of ability. The difference is that expectancies refer to how much better a learner thinks he or she can become. There are four value components to this theory: attainment value (the importance of doing well), interest value (inherent enjoyment or pleasure), utility value (reaching short- or long-term goals) and cost value (what is given up or suffered) (Eccles & Wigfield, 1995, p. 216). In their research, Eccles and Wigfield (1995) concluded that “ability perception and task value factors are positively correlated, and both of these belief systems relate negatively to adolescents’ task difficulty perceptions. Hence adolescents tend to value an activity when they think they are good at it” (p. 223). They also found that “adolescents’ perceptions of ability relate more strongly to the attainment value and intrinsic interest in the task than to its perceived utility value” (p. 223).

Pintrich (1999) found that “task value beliefs were correlated positively with cognitive strategy use… and organizational strategy use” and that “students who reported higher levels of interest and value were more likely to report that they were using more strategies to monitor and regulate their cognition” (p. 465). This construct of task value is closely aligned with the “motive” aspect of Zimmerman’s (1998) six dimensions of academic self-regulation which emphasizes the importance of personal choice.

McPherson (2000) studied 133 children from school years 3 and 4 (ages 7 to 9) who were learning an instrument in eight different school instrumental programs. From interviews with the participants which were conducted before the children had begun formal instruction, McPherson gathered data from several dimensions that he felt would influence their subsequent learning. Part of the interview asked the children how long they thought they would continue playing their instrument. Mothers of the participants were interviewed over the following nine months to report on the average weekly practice frequency and duration. At the end of the school year, the participants were again interviewed and completed a number of musical performance tasks.
Two important findings are reported: first, students who expressed long-term commitment to learning their instrument were consistently the highest on the performance tasks regardless of the amount of practicing they did. Second, McPherson notes the following significant result:

Overall, an analysis of the interviews before the children began instruction shows that they were able to make definite expectancy-value discriminations without a great deal of previous experience in music. They could differentiate between their interest in learning a musical instrument, the importance to them of being good at music, whether they believed their learning would be useful to their short- and long-term goals, and also the cost of participation, in terms of the effort needed to continue improving (McPherson, 2000, p. 125).

These expectancy-value discriminations (McPherson, 2000) figure significantly into musicians’ motivational decisions to begin music education as well as whether or not they will continue. In the same way that musical identities are shaped by social and cultural constraints (O’Neill, 2002), so, too, are task values.

In an examination of students in grades 4 to 6, Hurley (1999) considers the mediating influences on values associated with music tuition and the effects on student motivation over time. The study considers four groups of young musicians: students beginning a string instrumental program in grade 4; students in grade 6 who are continuing their tuition; students who, although assessed as having promise as instrumentalists, chose not to continue their music tuition; and those who discontinued music instruction who were deemed by their teachers as not possessing the necessary skills to continue.

Results indicate that, with academic growth into middle school, students who discontinued began to value “core” subjects such as reading and mathematics more highly than music. “They perceived music courses to be of secondary importance and value for future career goals” (p. 50). The cost of continuing music in terms of time investment was too great and would detract from the study of more important subjects. In the context of this study, music tuition took place during study hall time; discontinuing students were no longer willing to give up this time. Some students who chose not to continue expressed increased interest in other activities, including participating in band as opposed to taking instruction on a stringed instrument.

None of the discontinuing students expressed a lack of ability as a reason for stopping, though there was an acknowledgement of lack of effort. Students readily connected poor practicing with
low achievement and, consequently, a diminishing of the interest/fun value that characterized their initial involvement. None of the participants in this study indicated any negative feelings toward string instruction; rather, “other opportunities of even higher value to the student arose and/or the cost of participation in time away from other valued activities required students to make a decision among choices of activity to pursue” (p. 53). It is important to note that the musicians in this study expressed positive self-concepts of their playing abilities. But the researcher indicates that this is not enough to keep students involved: “This research has concluded that value considerations may play a more important role than expectations of current and future success in achievement choices for the students interviewed. Self-concepts have been determined to be only one factor that influences the value of the task to the individual” (p. 53). There is no mention in this study of any possible parental influence especially with regard to how music is valued in the context of other subjects.

It is important for the music educator seeking to nurture the affective underpinnings of self-regulation to be aware of the larger academic context in which musicians learn. There are factors here that shape motivation in music. An awareness of these realities can importantly influence pedagogical considerations in music education.

Drawing from an enormous sample of more than 24,000 students, aged 9 to 21, from eight countries, McPherson and O’Neill (2010) examined competence beliefs, values and perceptions of task difficulty. Music was studied in comparison to five other school subjects (art, mother tongue, physical education, mathematics, science) across three school grade levels that included the key transition from elementary to secondary school. In their findings, the researchers observed that there was:

a general decline in competence beliefs and values for a majority of subjects, including music... Students tended to rank music lower on the competence beliefs and valuing components as compared with other subjects. Thus, students more generally held lower expectations for becoming competent in music and valued the subject less than other subjects. It is also important to note that their competence beliefs and valuing were typically lower for music (and art) than the other so-called ‘academic subjects’ such as mother tongue, mathematics and science (p. 132).

As part of this larger sample, McPherson and Henricks (2010) considered a similar exploration with students in the United States. In addition to finding a corresponding decline in competence
beliefs and values as they pertain to music, the researchers noted that “music learners in the USA reported significantly higher motivation profiles as compared to non-music learners on every dimension, as follows. Music learners also demonstrated higher motivational profiles in some non-music subjects as well” (p. 206). A significant result bearing on pedagogical considerations is that, while musical interest inside school was ranked lowest of all subjects, interest in musical activities outside of school was ranked second highest in grades 6 to 9, second only to physical education, and ranked highest of all subjects in grades 10 to 12 (pp. 207 – 208).

The findings of this research suggest, however, that students already demonstrate a strong interest in musical participation, but value it less as an academic course. This finding suggests that music participation itself may not be what is undervalued, but that music study in US schools may not presently serve a broad population of students in ways that sufficiently promote the value of music for them at an individual level. While a number of practical recommendations might be explored, we have chosen two that align with the performance standards and competition, as addressed earlier in this article. These recommendations include (a) providing a broader performance emphasis, to include more experiences of personal creative expression; and (b) encouraging opportunities for autonomous, self-directed learning (McPherson & Hendricks, 2010, p.209).

As students transition from elementary school into secondary school, intrinsic personal values are often supplanted by more extrinsic concerns as one approaches the end of schooling. Since music is most often an elective course in high school, subjective task values are increasingly important in determining students’ choices. The very title of Lowe’s (2011) study asks the important question: Class music learning activities: Do students find them important, interesting and useful?

The 222 participating students in Lowe’s (2011) research were in their first year at secondary school (age 12–13 years), and their values for class music learning activities were measured at the start and end of the academic year. The study is set in the theoretical framework of expectancy-value theory (Eccles & Wigfield, 1995). A 12-item questionnaire focused student responses on the intrinsic values of attainment and interest/fun, and the extrinsic value of utility. There were no questions about cost although the researcher does note that a possible explanation for the decline in music interest is an increase in involvement in outside activities that attend adolescence (p. 151). An important distinction to note in the questionnaire is that the participants were asked two different kinds of interest questions: individual interest – “I find music class
fun,” for example, as contrasted with situational interest questions – “I find the activities in music class fun.” This distinction will feature significantly in the study’s results and implications for educators.

The findings of this study revealed a decline across all 12 task value items from pre- to post-test (p.150). Of particular interest is that the highest rate of decline was in the area of extrinsic value, that is the usefulness and relevance of studying music as it pertained to the long-term goals and future careers of the students. In the area of personal interest, the results are clear that situational interest – the activities that characterize music class – declined the most (p. 152).

A significant omission in this study is not asking the participants about their perceived competence in music. Research strongly suggests a positive correlation between subjective task value and perceived competence (Wigfield et al., 1997).

These studies (Hurley, 1999; Lowe, 2011; McPherson & Hendricks, 2010; McPherson & O’Neill, 2010) appear to be consistent in describing a decline in subjective task-value perceptions and competence beliefs of music students as they progress through school. Citing the research, Wigfield (1994) offers two possible reasons for this decline:

One explanation is that children become much better at understanding and interpreting the evaluative feedback they receive, and engage in more social comparison with their peers. As a result of these processes many children become more accurate or realistic in their self-assessments, so that their beliefs become relatively more negative…A second explanation is that the school environment changes in ways that makes evaluation more salient and competition between students more likely, thus lowering some children's achievement beliefs (p.60).

“A narrow emphasis on competition and performance repertoire may limit the accessibility and appeal of school music to some students” (McPherson & Hendricks, 2010, p. 209).

The research conducted within the framework of expectancy-value theory points out the important relationship between the value students place on a learning activity and their engagement as well as their perceived competence. Also evident is that value-related beliefs become increasingly domain-specific and differentiated as students get older. Learning music would appear to be perceived as less important and less useful by students as they progress through school. In sum, perceptions of learning music are influenced by “how children’s
expectancies for success, ability beliefs, and subjective values change across the school years; and how these beliefs and values relate to children’s performance and activity choice” (Wigfield & Eccles, 2000, p. 73). While they are alluded to, nowhere in this research is there an exploration of the influences that shape these values with respect to the cultural, social and academic contexts in which musicians learn.

The literature of the self-system explores the role of several constructs as they apply to motivation: self-efficacy, attribution theory, expectancy-value theory, goal orientation and self-determination theory. Several of these have been researched in their application to learning music.

**Flow: The Autotelic Balancing Act.** In an ideal practicing situation, if these components of the self-system, in their complex interconnectedness, all came together in just the right way, along with the cognitive components of self-regulation which I will consider next, the musician would no doubt find herself “completely involved… to the point of losing track of time and of being unaware of fatigue and of everything else but the activity itself” (Csikszentmihalyi, Rathunde & Whalen, 1993, p. 14). Csikszentmihalyi et al. (1993) note that “a deeply involving flow experience usually happens when there are clear goals and when the person receives immediate feedback on the activity…In everyday life, and all too often in classrooms, individuals don’t really know what the purpose of their activities is, and it takes them a long time to find out how well they are doing” (p. 14). Also needed for the flow experience is “the balance between the opportunities for action in a given situation and the person’s ability to act” (p. 14). Csikszentmihalyi (2004) represents this crucial balance in Figure 3.
“Flow leads to complexity because, to keep enjoying an activity, a person needs to find ever new challenges in order to avoid boredom, and perfect new skills in order to avoid anxiety” (Csikszentmihalyi et al., 1993, p. 15).

According to Csikszentmihalyi (2004), if a state of flow is, indeed, achieved, it is characterized by the following:

- Completely involved in what we are doing – focused, concentrated.
- A sense of ecstasy – of being outside everyday reality.
- Great inner clarity – knowing what needs to be done and how well we are doing.
- Knowing that the activity is doable – that our skills are adequate to the task.
- A sense of serenity, - no worries about oneself, and a feeling of growing beyond the boundaries of the ego.
- Timelessness – thoroughly focused on the present, hours seem to pass by in minutes.
- Intrinsic motivation – whatever produces flow becomes its own reward.
After examining flow theory in 394 high school students “who possessed a superior grasp of their domains” (Csikszentmihalyi et al., 1993, p. 43), the researchers note in their conclusions: “Perhaps the most important finding is that when students experience flow while working on their talent, the likelihood that they will keep on developing their gift increases significantly” (Csikszentmihalyi et al., 1993, p. 218).

Crucial to continued motivation in light of setting musical goals is maintaining a balance between the skill level of the musician and the challenges being addressed (Csikszentmihalyi et al., 1993). Students who set – or have set for them – goals which, given their skill level, they cannot achieve, will become frustrated or anxious; goals which are achieved too easily without much effort create the potential for boredom, even apathy (Csikszentmihalyi, 2004). In both cases, the motivation for learning is diminished. It is, however, only natural to seek this balance: “Developmental psychology provides ontogenetic evidence that challenge-seeking behaviour is innate... Children challenge themselves through their symbolic and constructive play, creating contexts in which their understandings can be tested and confirmed. The creative nature of music making draws upon this childhood sense of self as an agent of possibility” (Custodero, 2002, p. 3). The result of manipulating skill and challenge and finding the right balance is “a concentrated feeling of total immersion in an activity defined as flow” (Csikszentmihalyi, 1990, cited in Austin et al., 2006, p. 216). According to Csikszentmihalyi's flow theory, "flow" is achieved “when an activity challenges the individual to fully engage his or her capacities for action; as these capacities grow, staying in flow requires taking on increasingly greater challenges” (Csikszentmihalyi, 1975 cited in O’Neill, 1999b, p. 130). In examining the flow experiences of high school musicians, O’Neill (1999b) found a correlation between flow experiences and high levels of musical achievement (p. 133). Another interesting finding in this study is that a highly evaluative institutional context, as experienced by some of the participants attending a music specialist school, may reduce the opportunities for flow experiences (p. 133).

In observing flow states in 4 and 5 year olds over an 8-week period, Custodero (1999) concludes that flow is associated with high self-concept (p. 15) as well as cognitive engagement:

Children employ cognitive strategies to construct their own musical understandings. The clearly observable attempts by participants to self-regulate their own challenge levels by anticipating, expanding, and extending teacher-initiated activities, and by self-assigning and self-correcting confirm that children
want to be highly challenged and have a sense of how to monitor that challenge for themselves (p. 16).

The implications of these findings are significant for music educators: “Children actively seek musical challenges and in doing so guide teachers in designing appropriate strategies to assist in the acquisition of musical skill” (Custodero, 2002, p. 8).

“I Know What I Know …” - Metacognition

There are several definitions of metacognition: cognition about cognition; knowing about knowing. J. H. Flavell first used the word "metacognition" in 1976. He defines it in these words:

Metacognition refers to one’s knowledge concerning one’s own cognitive processes or anything related to them, e.g., the learning-relevant properties of information or data. For example, I am engaging in metacognition if I notice that I am having more trouble learning A than B; if it strikes me that I should double check C before accepting it as fact.  

Before considering the relevant literature on musical practicing and metacognition, I would like to briefly comment on the role of metacognition in learning from the point of view of educational psychology. Wang, Haertel, and Walberg (1993) conducted research over a fifty year period involving the study of twenty factors likely to affect students’ academic abilities. Their findings show a reasonable consensus of the most significant influences on learning. They organized their results using a 28-category conceptual framework based on models of schooling that posited influences on learning. At the top of their list was “metacognitive processes.” They defined this as “comprehension monitoring, planning, monitoring effectiveness of attempted actions and outcomes of actions; testing, revising, and evaluating learning strategies” (pp. 74 – 75). They observe that “a student’s metacognitive processes – that is, a student’s capacity to plan, monitor, and, if necessary, re-plan learning strategies – had the most powerful effect on his or her learning” (p. 78).

13 http://www.answers.com/topic/metacognition
In her study of 22 professional musicians, Hallam (1997a) concludes:

What emerged clearly from the data was the extensive metacognitive abilities of the professional musicians. They demonstrated acute self-awareness of their own strengths and weaknesses, extensive knowledge regarding the nature of different tasks and what would be required to complete them satisfactorily and had a range of strategies which could be adopted in response to their needs. This not only encompasses technical matters, interpretation and performance but also issues relating to learning itself, e.g. concentration, planning, monitoring and evaluation…Metacognitive activity was central in determining the nature of the practice undertaken by these musical “experts” (p. 93).

Effective practice is characterized by high levels of metacognition (Hallam 2001; Lehmann 1997; McPherson & Renwick 2001) which includes an awareness of an extensive repertoire of strategies, demands of the task, and personal strengths and weaknesses (Barry & Hallam 2002, Hallam 1995, Nielsen 1999). There is, however, an important caveat: “Although this growing awareness of knowledge and skills is important, unless students elect to monitor and control their own cognitive processes they are unlikely to become effective learners” (McPherson & Zimmerman, 2002, p. 336). Such an awareness does not, necessarily, mean that the musician is practicing effectively, nor that the quality of the musician’s engagement with making music is any higher. “Knowledge of cognitive and metacognitive strategies is usually not enough to promote student achievement; students also must be motivated to use the strategies as well as regulate their cognition and effort” (Pintrich & DeGroot, 1990, p. 33).

Metacognition, then, is an awareness not only of the cognitive aspects of learning, but also of the affective-motivational ones as have been reviewed in the literature examining the self-system.

Most fundamentally, the psychological development of the self-system can be described as bringing what is without within. To return for a moment to the metaphor of “filter” (McCombs, 1986), much of the child’s learning is the result of experiences being controlled and monitored - filtered - by external forces, usually parents and teachers. McCombs (1986) would suggest that this typifies most young children until about the mental age of 8 (p. 317). McCombs and Marzano (1990) suggest several kinds of self-regulation as informed by the self-system:

First, extrinsic regulation occurs when individuals are motivated by external factors (e.g., performance-oriented goal structures); this style puts students most at risk
who are of poor motivation and psychological well-being. Introjected regulation occurs when individuals are motivated by a sense of guilt or shame, or by approving or disapproving voices of others in their heads; it is a style in which students see themselves as responsible for their behaviour and liable for the outcomes of that behaviour. Individuals with this style are motivated by valuing and being responsible for achievement; they take on external standards and goals as their own. Finally, the style of integration occurs when individuals are motivated by goals for self-identity and autonomy of functioning; it is the highest style of self-regulation, usually seen to emerge in late adolescence and adulthood” (p. 61).

“Developmental theories suggest that our self-system filters change with biological development, experience and increased knowledge” (McCombs, 1986, p. 318). Gradually, there is an internalization of external controls; external regulating forces are subsumed into self-regulation. Extrinsic motivation becomes intrinsic, which is one of the hallmarks of self-regulation.

“…so I Do What I Do!” - Self-Regulation

The fact is that, in the typical learning context that characterizes the Western model of music education – one private lesson or one ensemble rehearsal each week – the student is left on their own a great deal of the time, without guidance from a teacher other than what might be written in a “dictation book.” The expectation is that students sustain independent learning between lessons and rehearsals – a considerable demand. And one they rarely, if ever, face in any other school subject or outside activity: the coach is always on the ice for hockey practice! Young, learning musicians must become their own teachers. This is the essence of self-regulation.

Mursell (1948) put forth the following possibility:

Suppose from the very first [music students] had been shown how to analyze their problems, how to vary their attack upon difficulties, how to use content and values of the music itself as a guide – shown these things simply and easily at first, but with an increasingly analytic insight – then by the time they reached the upper levels they would manifest that self-guidance in difficult and delicate situations (p. 165).

Definitions of self-regulated learning have evolved over the years becoming increasingly encompassing. “Early descriptions characterized self-regulated learners as metacognitively aware, planful, and strategic” (Butler, 2002, p. 59). Corno and Mandinach (1983), in describing self-regulated learning, offer “two general classes of information processing… acquisition and
transformation” (p. 94). Subsequently, through the 1980s and 1990s, conceptions of self-regulated learning evolved to comprise “interactions between students’ knowledge (e.g., metacognitive, domain specific, epistemological), metacognitive skill (e.g., planning, monitoring), motivation (e.g., self-efficacy beliefs, attributions) and cognition (e.g., application of a cognitive strategy)” (Butler, 2002, p. 59). A further evolution of the construct considered the fact that individual learners were acting in a social context: “self-regulated learning is now thought to occur when students are motivated to reflectively and strategically engage in learning activities within environments that foster self-regulation” (Butler, 2002, p. 60).

Zimmerman (1986), perhaps the most cited authority on self-regulation, describes students engaged in self-regulated learning as:

Metacognitively, motivationally, and behaviorally active participants in their own learning process. Metacognitively, self-regulated learners are persons who plan, organize, self-instruct, self-monitor, and self-evaluate at various stages during the learning process. Motivationally, self-regulated learners perceive themselves as competent, self-efficacious, and autonomous. Behaviorally, self-regulated learners select, structure, and create environments that optimize learning. According to this view, effective learners become aware of functional relationships between their patterns of thought and action (often termed strategies) and social and environmental outcomes. The effective use of self-regulation strategies is theorized to enhance perceptions of self-control (i.e., autonomy, competence, or efficacy), and these positive self-perceptions are assumed to be the motivational basis for self-regulation during learning (p. 308).

In a later article, Zimmerman (1989) adds that “such students personally initiate and direct their own efforts to acquire knowledge and skill rather than relying on teachers, parents, or other agents of instruction” (p. 329).

An important question asked by Reed, Schallert and Deithloff (2002) is whether the emphasis on metacognitive, motivational and strategic control that characterizes self-regulation excludes or compromises the psychological involvement of the learner. In the context of learning a piece of music, one might ask whether self-regulation in some way diminishes the pure enjoyment of learning or playing music. In their research on involvement, Reed et al. (2002) did not consider self-regulation to be at all related. It was only when they presented their participants with open-ended questions about involvement that it became apparent that “self-regulatory volitional
strategies play a major role in helping them become involved” (p. 57). The researchers see psychological involvement with a task – in their research, they focus on writing – as having three phases: antecedents, concomitants and consequences (p. 55). More simply: before, during and after. The data gathered from their research indicates that “self-regulation, a metacognitive activity that we had not previously connected to involvement, is critical in helping an individual enter into involvement or regain it if it has been lost. In other words, a person may be riding a wave of deep involvement that then crashes or is interrupted, leading to a metacognitive awareness that then invokes strategies to new involvement, and so on” (p. 56). Corno (1986) offers several “volitional strategies that drive self-regulation” that include attention and encoding controls, selectivity encoding, information processing, motivational control or enhancing strategies, emotional controls and environmental controls (pp. 337 - 339). In her article, she provides several examples of student verbalized thoughts that align with these strategies. These strategies more or less parallel the volitional strategies used by the students in the Reed et al. (2002) research “to get themselves into a state of involvement, as opposed to merely using these strategies to finish the task” (p. 56).

All these components of self-regulated learning have enormous significance to the development of effective instrumental music practicing. However, before considering the literature on self-regulation and learning music, it is important to bear in mind those theories, already considered in this review, that underlie self-regulation that are broadly referred to as the “self-system.” “It is in the area of self-goals that links begin to be built between the self-system and self-regulated learning… Metacognition as the process of realizing, more fully, the role of self as agent seems to contribute the most to our understanding of self-regulation” (McCombs & Marzano, 1990, pp. 61 - 62).

I would like to consider some theoretical frameworks of self-regulation in detail before looking at the literature that more specifically examines the role of self-regulated learning in music. This will consider triadic reciprocality (Zimmerman, 1989), the four-component model (Garcia & Pintrich, 1994; Hofer, Yu, & Pintrich, 1998), the three phases of self-regulation (Zimmerman, 2008), and the six psychological dimensions of self-regulation (McPherson and Zimmerman, 2011, 2002; Zimmerman, 1998).
Drawing upon the work of Bandura (1977, 1986), Zimmerman (1989, p. 330) makes the distinction among personal, behavioural and environmental determinants of self-regulated learning as depicted in Figure 4.

*Figure 4. A triadic analysis of self-regulated functioning.*

Self-regulated learning is not determined merely by personal, cognitive processes but is significantly influenced by environmental factors that would include parents and teachers. A learning environment that is fraught with distractions will influence the efficacy of the student’s self-regulated learning behaviours. However, since the components of this triad are related in a reciprocal way, the student may exercise control over their environment and, indeed, remove the distractions. This example serves to illustrate the point that the three determinants involved in self-regulated learning are context-specific (McPherson and Zimmerman, 2002): a highly structured environment in a school’s curriculum may, for example, stifle the potential for self-regulated learning to occur. “Self-regulated learning occurs to the degree that a student can use personal (i.e. self-) processes to strategically regulate behaviour and the immediate environment” (Zimmerman, 1989, p. 330). Self-efficacy as well as self-determination theory are significant in
maintaining an effective relationship between the personal, behavioural and environmental determinants of self-regulation.

The four-component model of self-regulated learning was developed by Garcia and Pintrich (1994). The authors of this model propose two general organizing constructs: knowledge/beliefs and strategies of self-regulation, considering them in the domains of cognition and motivation. Crossing the domains and constructs gives a two-by-two matrix that forms four cells: cognitive knowledge/beliefs, (meta)cognitive strategies, motivational knowledge/beliefs and motivational strategies. Research using this model (Fritz & Peklaj, 2011) explores the relationship between motivational/affective processes and metacognitive/cognitive processes that, together, make up self-regulation.

As noted earlier, self-regulation is evident when students become “metacognitively, motivationally, and behaviorally active participants in their own learning processes” (Zimmerman, 1986, p. 308). Figure 5 (Zimmerman, 2008, p. 178) illustrates these three aspects of self-regulation as they function in relation to each other in a cyclic manner.

Figure 5. Phases and Subprocesses of Self-Regulation
Table 3 (McPherson and Zimmerman, 2002, p. 329) illustrates the developmental aspect of self-regulated learning according to six psychological dimensions of self-regulation (Zimmerman, 1998) and the application of this framework to learning music (McPherson and Zimmerman, 2002).

Table 3

*Six Psychological Dimensions Of Self-Regulation*

<table>
<thead>
<tr>
<th>Scientific Question</th>
<th>Psychological Dimensions</th>
<th>Socialization Processes</th>
<th>Self-Regulation Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why?</td>
<td>Motive</td>
<td>Vicarious or direct reinforcement by others</td>
<td>Self-set goals, self-reinforcement, and self-efficacy</td>
</tr>
<tr>
<td>How?</td>
<td>Method</td>
<td>Task strategies are modeled or guided socially</td>
<td>Self-initiated covert images and verbal strategies</td>
</tr>
<tr>
<td>When?</td>
<td>Time</td>
<td>Time use is socially planned and managed</td>
<td>Time use is self-planned and managed</td>
</tr>
<tr>
<td>What? (Performance Outcomes in McPherson &amp; Renwick, 2001)</td>
<td>Behaviour</td>
<td>Performance is socially monitored and evaluated</td>
<td>Performance is self-monitored and evaluated</td>
</tr>
<tr>
<td>Where?</td>
<td>Physical environment</td>
<td>Environments are structured by others</td>
<td>Environments are structured by self</td>
</tr>
<tr>
<td>With whom?</td>
<td>Social Factors</td>
<td>Help is provided by others</td>
<td>Help is sought personally</td>
</tr>
</tbody>
</table>
Column three – Socialization Processes – describes the typical novice musician at practice, though it must be stressed that, according to the table, it is presumed that there are, in fact, “others” who will assist the novice with their practicing. What of the young musician who does not enjoy a parental presence to remind him to practice (motive) or remove distractions from the practice area (environment)? Perhaps this novice’s teacher fails to discuss or model practice strategies (method) and consistently evaluates the child’s performance rather than asking the young musician at the lesson what they think (performance outcomes). Column four – Self-Regulation Processes – describes effective practicing by the musician who is an active participant in their own learning.

Before reviewing research dealing specifically with self-regulation as it applies to learning music, it is important to emphasize that an understanding of the construct of self-regulation, as well as other theories encompassed by the self-system, needs to underpin any efforts to improve the practicing behaviours of musicians. In other words, a comprehensive look at self-regulation considers both the cognitive as well as the affective/motivational components of learning. As McCormick and McPherson (2003) observe: “Whilst practice plays a vital part in the development of a musician’s capacity to perform well, it should not be considered in isolation from motivational and related variables” (p. 48).

**Self-Regulation and Learning Music**

Several studies consider the relationship between self-regulated learning and musical practicing. Results from a study by McPherson and McCormick (1999) indicate two important relationships: first, students who engaged in all three components (Sloboda et al., 1996) of practicing – informal (improvising, playing by ear), formal (learning new repertoire) and technical – “tended to be more cognitively engaged while practicing” and, second, that “students who are more intrinsically motivated tend to be more cognitively engaged during their learning and therefore more likely to succeed” (p. 101). An important distinction to make before considering the literature in this area is that some studies explore elements of self-regulated learning in isolation, not only focusing on specific strategies such as self-evaluation (Hewitt, 2011, 2001), but also focusing on the cognitive and metacognitive components of self-regulation apart from the affective-motivational processes (Bartolome, 2009; Hallam, 1997a; Leon-Guerrero, 2008; McPherson & Renwick, 2001; Nielsen, 1997).
In the same way that self-efficacy focuses on task-specific performance expectations (Bandura, 1982; Zimmerman, 2000, 1998), self-regulation “is not seen as a fixed characteristic, but rather as a set of context-specific processes that students select from in order to accomplish a task” (McPherson & Renwick, 2001, p. 170).

Nielsen (1997) recorded the practice sessions of a church organ student. Data gathered included video-recorded practice, concurrent verbal reports while practicing and retrospective debriefing reports after practice (pp. 111 – 112). The researcher viewed learning during practice as “a kind of cognitive problem solving that involves strategic processing” (p. 119). Nielsen concludes: “The described patterns of regulation of learning strategies indicated that the student had an understanding of how to use learning strategies during practice, and had knowledge of the functions and purposes of a repertoire of strategies” (p. 120). Nielsen (2001) has similar findings emerge in his study of the practicing of two advanced conservatoire students:

The finding indicated that the students have extensive self-regulatory skill that enabled them to optimize their learning and performances, taking into account interpersonal, contextual and intrapersonal conditions. They set specific goals, engaged in strategic planning, used self-instruction, task strategies and monitored themselves selectively at a detailed level. In addition, they evaluated themselves adopting criteria that they revised. The implication is that these advanced students demonstrated skilful self-regulatory learning (p. 165).

Hallam (1997a), in considering professional musicians, concludes:

What emerged clearly from the data was the extensive metacognitive abilities of the professional musicians. They demonstrated acute self-awareness of their own strengths and weaknesses, extensive knowledge regarding the nature of different tasks and what would be required to complete them satisfactorily and had a range of strategies which could be adopted in response to their needs (p. 93).

Hallam (1997a) does comment briefly on the motivation of the professionals in her study noting that 54% of the experts were extrinsically motivated (p. 94).

While these studies focus on musicians who are already quite accomplished in their musical achievement, several researchers have undertaken to examine self-regulation among young and beginning musicians.
Using the framework of Zimmerman’s (1998) six dimensions of self-regulation, McPherson and Renwick (2001) investigated practice behaviours of seven children aged 7 to 9 over a three-year period. Results were categorized according to Zimmerman’s (2002) framework: motive, method, time, behaviour (performance outcomes in this study), physical environment and social factors. Findings in the area of motivation indicate that successful participants were intrinsically motivated. Also, intrinsic motivation was positively correlated to greater cognitive engagement and use of self-regulatory behaviour (p. 172). Method looked at how the children practiced. “Almost all the children’s practice consisted of simply playing the piece through without any other strategy being used” (p. 172). Also significant in this finding is that there was virtually no change in this strategy over the course of the three-year period of the study. Although the teachers of these students indicated that their practice advice was to play through the piece repeatedly until a degree of fluency is achieved, the participants were content to move on to another piece once they had reached the end of the piece they were “practicing.” This would hold true even if the musician stopped to correct an error. This behaviour showed no evidence of change over the period of the study. The researchers conclude that “there was virtually no evidence of the deliberate practice strategies that are typical of expert musicians” (p. 174).

In considering the self-regulation dimension of time, the researchers not only examined the length of practice, but also how the time was planned and managed. While the amount of time spent actually playing on the instrument rose from 73% in year 1 to 84% in year 3 (p. 174), the researchers note that the musicians still had a “pedagogically unbalanced diet”: time on repertoire increased while time on technical work decreased; time spent on informal practice activities such as playing by ear and improvising was negligible (p. 175). Since efficient self-regulation involves self-monitoring, evaluation and, based on feedback obtained from performance, revisions, the researchers examined the performance outcomes (behaviours in Zimmerman, 2000) of the participants by observing their making and handling of errors. In this category, the researchers encountered a wide range of results. Indeed, the two young trumpeters, because “they made too many errors to count” (p. 177), were eliminated from this analysis. Only children with some prior experience, for whom reading notation had become somewhat automatized, were part of this analysis. Results indicated that “many of the pitch errors made by the children in the first year of learning were ignored, which points to a general inability of these
young learners to correct their performances based on the feedback they received while playing” (p. 177). The study offers significant implications for teaching derived from these results:

The tradition from which these children come places great importance on learning to read notation from the first lesson and, for many of them, there is insufficient opportunity to learn to associate their nascent aural schemata with the notation. They would sometimes play new unfamiliar repertoire so slowly and hesitantly that they were no longer able to perceive the music they were rehearsing as a complete phrase or melody. In such situations they appeared deaf to the sound of what they were trying to play, because a majority of their cognitive resources were devoted to decoding the notation at the expense of them being able to listen to what they were trying to play. These results are in stark contrast to the most accurate students in our study who were relieved of this high cognitive load because they had learned how to read music on another instrument before starting in the school instrumental programme (p. 179).

Resting the bell of his trumpet on the bed, pyjama-ed, and sitting cross-legged on a pillow (p. 182) represents one extreme of the physical environment this study observed! Offering no statistical data in this category, the researchers state, quite simply, that their observations demonstrate “that the way young learners structure their physical environment does exert a powerful influence on how quickly they will develop skill on their instrument” (p. 182). Results from the musicians’ interaction with social factors indicate a drop in parental involvement over the course of the three-year study although, considering the myriad of ways parents were involved with their children’s practicing, the researchers draw no conclusions as to a relationship between the participants’ use of this resource and the efficiency of their practicing. Use of a practice diary in which the teacher had written down set tasks also declined between years 1 and 3. The researchers note that “the two trumpeters, who showed poor monitoring of their errors, were not observed referring to a diary at all” (p. 182).

Overall results from this study (McPherson & Renwick, 2001) indicate that young children are, indeed, capable – to a greater or lesser extent – of self-regulated behaviour (see Leon-Guerrero, 2008). It would seem, however, that the majority of the participants in this study “possessed the will to learn their instrument, but not necessarily the level of skill required to ensure efficient and effective practice” (p. 184). The study makes the point that the findings also indicate that teachers are making students aware of what to practice and not how to practice (p. 184).
An important limitation to this study – not expressed by the researchers – is not only the small number of participants (seven), but the influence of cognitive overload on the participants. As a result, the data, in particular performance outcomes which considers self-monitoring, evaluation and strategy use, are skewed. That is, the heavy emphasis on reading notation eclipses the opportunity to self-regulate for several of the participants. Perhaps the most significant finding of this study – albeit, indirectly implied – may be the hampering of the development of self-regulatory behaviours by the preoccupation with decoding the music. An aural model of the music in the mind of the musician is crucial for self-evaluation (Hallam, 2001a).

Leon-Guerrero (2008) set out to discover what self-regulating strategies adolescent instrumental musicians use during music practice. Sixteen middle school instrumental musicians were videotaped as they practiced a new piece of music. Immediately following the practice session, the student and researcher viewed the videotape of the session, and the student explained the strategies used during practice. The researcher categorized the comments by the musicians according to problem recognition, strategy selection and evaluation of performance (Nielsen, 2001). Strategies described in the verbal reports were grouped into four categories: musical elements, repetition, non-playing and non-specific task. While the kind of strategy most often used by the student was repetition, the researcher concludes that “examination of the verbal data from the current study indicates that adolescent instrumental musicians are able to self-regulate during music practice. The presence of problem identification, strategy selection and evaluation provide evidence of self-regulated thinking” (p. 104).

It is important to point out some limitations to this study. Other than a few illustrative examples, Leon-Guerrero provides virtually no evidence of problem identification or evaluative comments by the participants. This is to say that there is no evidence in the study of a meaningful link between the challenge perceived by the musician and the selection of a strategy to address that challenge. Furthermore, evaluation of performance by the musician is a crucial component of self-regulation as it informs a re-trial and, most likely, a revision of strategy selection. The researcher indicates that comments made by the participants in retrospective verbal reports were also classified according Nielsen’s (2001) categories, yet the focus of data assessment is limited to strategy use with no mention of problem recognition or evaluation of performance.
There is also a question about the authenticity of the video-recorded practice. Each musician participant came at an assigned time, to practice an assigned piece for an assigned period of time, 12 minutes. Among other things, self-regulation is characterized by choices made by the practicer; it seems here that some key opportunities to observe decision-making are eclipsed by the restrictive methodology. Whether this study does, in fact, offer convincing evidence of middle school students’ capacity for self-regulated practicing is questionable. At best, the researcher has demonstrated young musicians’ capacity to use certain strategies and describe them. This constitutes a limited dimension of self-regulation.

Are self-regulated practice behaviours evident among very young musicians? Bartolome (2009) interviewed three high-achieving first-year recorder students to determine what kinds of self-regulated practice behaviors emerge naturally. Like McPherson and Renwick (2001), she analyzed self-regulatory behaviours according to the six psychological dimensions of Zimmerman’s (2000) framework. The nine interview questions are somewhat limited in scope with five of them focusing on method and none on physical environment or social factors. Also absent is a question on frequency of practice. None the less, the researcher cites various responses from the three musicians indicating that “analysis of the interviews revealed that all six psychological dimensions of self-regulation were represented in the practice behaviors of the three participants” (p. 46). The study highlights self-regulated behaviours that would appear to contribute to effective practicing among young musicians. Of particular note is the goal-oriented approach to practice demonstrated by all three participants (p. 47). Each musician also made reference to aural cues in assessing melodic errors. This emphasizes the need for aural schemata (Hallam, 2001a) for effective self-monitoring and correcting.

An important question this study fails to address is exactly why the participants are, indeed, high achievers. While the practicing of these conspicuously successful young musicians is characterized by self-regulation, the researcher acknowledges that “it remains unclear whether the participants’ high level of performance achievement may be attributed to their use of self-regulated practice strategies or to any number of other factors (motivation, parental support, socioeconomic factors, musical predisposition, participation in other music activities, etc.)” (p. 49). The study draws the simple conclusion that self-regulation characterizes the practice of expert – albeit young experts, in this case – practicing (Hallam, 1997a). The study does not
address the question as to what naturally emerging self-regulation really means. I will address this concept later in reviewing the literature on developing expertise in musical ability.

These two studies (Bartolome, 2009; Leon-Guerrero, 2008), in their focus on describing self-regulated learning in young musicians, invite the question as to whether self-regulation can indeed be taught. Or is self-regulation a phenomenon that, as Bartolome’s (2009) title suggests, emerges only naturally?

Research in fields other than music have examined interventions to improve self-regulation in students (Biemiller, Shany, Inglis, & Meichenbaum, 1998; Hofer et al., 1998). In an attempt to improve the self-regulatory writing behaviours of preplanning and revising, Torrance, Fidalgo and García (2007) provided an intervention for 71 sixth grade students. The intervention used by the researchers was an observation-emulation-social feedback model. After instruction on the nature of the preplanning strategy, the participants observed the teacher using the strategy and then tried it themselves. They were provided with feedback on their use of the strategy. Students were tested before the intervention, immediately after the 10-week intervention period, and 12 weeks after the completion of the intervention. Results indicate that there was substantial increase in the amount of time the young writers spent using preplanning strategies, but the intervention seemed to have no effect on revision strategies (p. 280).

It is important to comment on the intervention procedures in this study. Instruction in strategy use was conducted in a class-wide rather than one-to-one context. This is a particularly salient point with respect to revision when an individual writer’s needs may prove highly idiosyncratic. As I shall discuss at a later point in this literature review, the effectiveness of modeling is questionable. The significant diminishing of time spent using self-regulatory behaviours at the delayed post-test assessment suggests that instruction in self-regulation may be more effective if it is ongoing. Finally, the researchers focus on the amount of time spent using the strategies of preplanning and revision; there is no comment on the quality of the strategy use or whether the participants are perfunctory in their use of self-regulation. I draw attention to the limitations in this study since the next two studies in this review will, in a similar way, seek to develop an aspect of self-regulation in the context of musical practice. Methodology in these studies likewise merits scrutiny.
Focusing on the self-monitoring and evaluating aspects of self-regulated musical practicing, Hewitt (2001) examines the effects that modeling, listening to oneself on audiotape (self-listening), and self-evaluation have on junior high school instrumentalists' music performance and attitude about practice. His participants are 82 7th, 8th and 9th grade instrumental musicians. The study took place over nine weeks. Participants were assigned four different practice treatments: practice using a professionally recorded model of the piece; practice using a recording of their own performance which was continually updated; practice using both a model as well as a self-recording; and practice using neither of these audio recordings. Students were also asked to complete a PAQ (Practice Attitude Questionnaire). There was a pre-test and a post-test of student performances. Students used an evaluation form after each practice to assess and evaluate different aspects of their performance such as tone, melodic and rhythmic accuracy, and interpretation.

The research findings indicate that, when coupled with a professionally recorded model of the piece, self-evaluation is effective in improving performance; without the model, it is ineffective (p. 318). The researcher does make the point, however, that while students seem able to diagnose their strengths and weaknesses, they seem unable to address these problems with meaningful solutions. Self-listening seemed to be an ineffective tool for improving performance (p. 319). Practice attitudes were consistently “strong” across all treatments (p. 319).

In a similar study, Hewitt (2011) focused on the effects of instruction in self-evaluation on musical performance. 211 middle school students were divided into three groups: one group received instruction in self-evaluation; the second self-evaluated with no instruction; the third group’s treatment involved neither instruction nor self-evaluation. The study was for a period of 5 weeks. Results suggest that instruction in self-evaluation may have little impact on music performance or self-evaluation accuracy (p. 13). The researcher notes that this is not consistent with other similar studies in the subjects of mathematics and writing. He does note that other studies have extended over a longer period of time and that this may be a factor. I feel it is important to comment on the fact that the potential effectiveness of the self-evaluation instruction method conducted in this study may have been significantly compromised by several variables beyond just the compressed time line. First, the 5-week agenda of the musical subareas that would be the focus of discussion was prescribed ahead of time and did not evolve from the individual needs of the participants. During the first week of treatment, focus was placed on tone
and melody while in the second week rhythm and tempo were the focal point. This was followed in Weeks 3 through 5, respectively, by articulation, intonation, and interpretation (p. 12). In a similar way, evaluative criteria were divorced from the individual musician and applied to the entire class. At each week’s initial lesson, the students who received instruction in self-evaluation created a class rubric for the focus subarea(s) with the help of their teachers. The teacher then modeled the use of the rubric by using it to evaluate a student volunteer who performed a piece from the method book (p. 12). Yet another possible shortcoming of this method of instruction may be in the assumed leap from “class” to “individual”. At the end of that day’s treatment period, students wrote individual performance goals specific to the area of focus. Students were asked to share their goals and received general input from the teacher on how to achieve the goals (p. 12). It is also important to note that the teacher did not ask the students how they might achieve their goals but rather, it would seem, told them. Nowhere in the method of instruction is there evidence that self-evaluation instruction took place in a one-to-one setting. I would submit that, despite the negative findings, this study does not preclude the potential benefit of instruction in self-evaluation as one way to develop effective self-regulated musical practicing but rather, as the researcher himself suggests, “the process outlined… is not appropriate in music performance” (p. 18).

McPherson (2005, 1997) suggests that “learning” music is too often limited to the replicating of notation, and the refinement of repertoire and technique. And that this is at the expense of the equally important musical goals of aural awareness, sight-reading and creativity. Since self-regulation is context specific (McPherson & Renwick, 2001), and students will only learn to use strategies that are task-specific, the development of self-regulatory behaviours will be limited in a way that is concomitant with the tasks in which students are engaged. Do musicians use a self-regulation process when they seek a certain quality of expression when learning a piece of music? More importantly, do they possess the mental strategies necessary to do so?

Dos Santos and Gerling (2011) examined the preparation of a short Brazilian piano piece by 15 graduate and undergraduate students. They asked what role self-regulatory processes played in the quality of a given performance. The research was conducted within the theoretical framework of the six dimensions of musical self-regulation, namely: motive, method, time, behaviour, physical environment and social factors (McPherson & Zimmerman, 2002; Zimmerman, 1998). The researchers did not investigate the dimensions of motive and physical environment, but
focused on method, time, behaviour and social/cultural factors. It is important to note that the participants prepared the piece without the assistance of a teacher. Through semi-structured interviews and stimulated recall protocols, the participants “were encouraged to be explicit about technical and/or interpretative problems as well as their hypothesized and/or employed solutions, to disclose their sources of information and to describe the kinds of extra help they sought out” (p. 434).

Most self-regulatory processes described by the participants focused on method (72%), followed by behaviour (16%) and social/cultural factors (12%).

In this exploratory study, we realized that it was much easier for the students to talk about ways of practicing rather than ways of thinking… Difficulties related to rhythmic accuracy and the coordination of motor programs have shifted the focus of attention from the expressive to the basic level. The manipulation of expressive music parameters seems to have been an important issue for the students, although in most of the cases, those parameters remained more on an intentional level rather than on a realization one (Dos Santos and Gerling, 2011, p. 436).

Results also indicate that, even though the musicians were learning this piece without the guidance of a teacher, few availed themselves of other resources such as professional recordings of the piece.

The researchers conclude that “most of the students achieved only a modest degree of success in terms of expressivity” (p. 442). The focus on method – strategies to achieve accuracy of notes and rhythm at an acceptable tempo – seems to be at the expense of behaviours that would address expressivity. This is similar to the preoccupation with notation in younger musicians who “appeared deaf to the sound of what they were trying to play, because a majority of their cognitive resources were devoted to decoding the notation at the expense of them being able to listen to what they were trying to play” (McPherson & Renwick, 2001, p. 179).

The research on self-regulation in the context of learning music that I have considered thus far focuses, by and large, on the cognitive and metacognitive processes of self-regulated practicing. For the most part, the affective-motivational components are not considered. One question that arises from this dichotomy is whether it is possible to be effectively self-regulated in a cognitive and metacognitive sense and not highly motivated and vice versa. Austin and Berg (2006) considered this possibility in their study of 224 sixth grade band and orchestra students. Through
a researcher-designed questionnaire, the students were asked about various aspects of their motivation: effort, interest, affect, parental support, and challenge seeking. The questionnaire also asked questions about the students’ self-regulatory behaviours: planning, goal setting, and the use of resources. In two narrative responses, the participants were first asked to describe what an invisible person would see if they were watching them practice and, second, to describe how they would practice a difficult piece to make it sound better. A final category of data assessment concerned background factors including parent musical experience, practice environment at home, private lesson experience, and frequency and duration of practicing (pp. 541 – 542).

The researchers’ findings indicate that:

it is possible for a student to be highly motivated to practice, but not necessarily exhibit a high degree of practice regulation. Conversely, some individuals may regulate their practice to a fair degree, but not necessarily derive motivational benefits from practice – perhaps because they do not view the development of musical skill as an important goal (Austin & Berg, 2006, p. 550).

Consistent with previous research of students in this same age category (McPherson & Renwick, 2001; Pitts et al., 2000b), results indicate that inexperienced instrumentalists “generally do not use a strategic approach to practice” (p. 551). The researchers were “somewhat surprised to discover no clear relationship between private lesson experience and practice regulation” (p. 551). There was an important positive correlation between motivation and practice duration and frequency. More regulatory behaviours were also evident among those musicians who established an environment conducive to practicing and who drew upon physical (metronome, recordings) and social (parents, teachers) resources (p. 552). Finally, the study “demonstrates that there is an affective component to practice that is linked to effort expenditure” (p. 552).

In light of this research (Austin & Berg, 2006), it important to recall many of the practice “resources” described at the beginning of this review (Silver Bullets and Dangling Carrots). These resources are characterized as external motivators: contracts, planners, journals, charts and rewards. They are not promoting the development of effective practicing through the acquisition of a metacognitive awareness of one’s own learning processes – both motivational and cognitive - and the nurturing of more active participation in that learning through the development of self-regulatory behaviours. It is not surprising that, in many of these instances, the learner may indeed be motivated without being self-regulated.
Fritz and Peklaj (2011) examined the relationship between the affective-motivational processes of self-regulated learning and the metacognitive and cognitive processes. As their theoretical framework they used the four component model of self-regulation (Garcia & Pintrich, 1994). A total of 457 5th and 6th-grade students from 10 different elementary music schools in Slovenia participated in the study. The aim of the study was to determine how students regulate their learning in music theory, “to examine how (meta)cognitive and affective-motivational processes are connected in MT” (p. 17). The results showed strong correlations between most of the metacognitive and cognitive aspects of self-regulated learning and the affective-motivational ones (p. 20).

Our results thus confirmed the existence of connections between (meta)cognitive and affective-motivational factors, which were previously found in other domains (e.g., mathematics, language learning). MT students who believe that they are able to solve the tasks are more ‘cognitively involved’… Affective-motivational aspects of self-regulated learning are as important as cognitive ones (Fritz and Peklaj, 2011, pp. 20–21).

I have already considered literature that examines certain idiosyncrasies of self-regulation that are informed by the musical goals of the learner beyond rehearsing repertoire: playing by ear, sight-reading, creativity (McPherson, 2005, 1997), as well as self-regulatory behaviours influenced by a focus on expressivity and interpretation (Dos Santos & Gerling, 2011). Along this same avenue of inquiry, one might ask about the influence of musical genre on self-regulation both from the perspective of cognition as well as motivation.

de Bézenac and Swindells (2009) contextualize the affective-motivational processes of self-regulated learning within musical genres. Their research is prompted by “findings from the Investigating-Musical-Performance research project (Welch, Duffy, Potter, & Whyton 2006-2008) which suggest that popular, jazz and folk musicians experience more pleasure in musical activities than their classical counterparts” (abstract, p. 1). Based on the available data, the researchers considered three interrelated factors: musicians’ subjective experiences of and potential motivations for making music, the genre-specific learning practices they employ, and

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14 Throughout the study, the researchers refer to music theory as MT.
the specific competencies demanded by the music systems in which they are involved (p. 2). They describe their approach as follows:

The first part of the paper addresses the issue of motivation in music-making and music learning in relation to different music genres: this involves taking into account musicians’ current attitudes as well as developmental differences. Part two examines the link between motivation and genre-specific learning and performance practices, and the extent to which types of musical activity promote or thwart intrinsically motivated and self-regulated musicmaking. Finally, part three looks at the correlation between differing approaches to competence acquisition and the genre-specific knowledge and skills that result. This raises questions about the potential impact of formalizing music learning on both the evolution of music systems and musicians’ experiences of music making (p. 3).

Figure 6 (de Bézenac & Swindells 2009, p. 3) represents the reciprocal relationship between these three factors.

*Figure 6. Reciprocal Nature of Genre, Motivation and Practicing*

Conclusions from part 1 of the investigation – the relationship between motivation and musical genre – indicate that musicians in the popular, jazz and Scottish traditional genres spend more time playing for fun than their classical counterparts. There is also evidence of greater interaction with others making music, discussing music and networking. Listening to music for pleasure is more important to the popular, jazz and traditional musicians than those classically trained.
Overall, the non-classical group seems to be more intrinsically motivated than the classical group. Considering extrinsic motivators that are characteristic of beginning music tuition, the IMP results suggest that popular, jazz and folk musicians may have been less directly influenced by parents and more autonomous in their musical choices, influenced by popular musicians at the time and friends.

The second relationship examined by the researchers – between motivation and learning practices – also revealed discrepancies between non-classical and classical musicians:

The IMP data further suggests that the classical and non-classical musicians prioritize different aspects of musical competence and, consequently, pursue distinctive approaches to learning. It is notable that the classical musicians rated the following skills higher in importance than did the other respondents: ability to sight-read, technical proficiency, quality and control of tone, and ability to communicate musically with an audience. In addition, the classical group cited musicality/expressive skills and overall standard of performance as the most important areas of competence. In contrast, the non-classical musicians rated the ability to memorize and improvise as more important than did the classical, with an ability to collaborate with other performers regarded as the most important musical skill (p. 9).

de Bézenac and Swindells (2009) suggest that the more fragmented, compartmentalized view of music in the classical/Western tradition parallels industrialization and the advent of mass education. Of particular note here is the role of the teacher as pedagogue, “principally purveyors of secondhand information” (p. 13), who becomes more important to learning than the student’s responsibility to do so on their own (p. 13).

The third dimension of their study – the relationship between genre and competence acquisition - continues some of the phenomena of the second part. Citing various sources, the researchers point out that:

Ethnomusicological studies illustrate that conceptions of musical competence are not absolute, but rather reflect the worldview of the musical culture within which these traditions have emerged. Such accounts have repeatedly demonstrated that an examination of learning practices – of which types of knowledge and skills are prioritized and how competence is distributed as well as acquired – offers insights into the wider values and assumptions of particular socio-cultural groups (de Bézenac & Swindells, 2009, p. 19).
This is evident in the predominance of the Western classical tradition informing teaching and learning practices in music education. Interestingly, the IMP results indicate that, unlike those who are classically trained, the popular, jazz and traditional musicians cannot as readily transfer their skills to another domain (p. 21). The researchers suggest that “one reason for this might be that individuals in the non-classical cohort have had to contend with the hegemonic position of Western art music within the formal education system and, therefore, have become sensitive to the genre-specific nature of musical competences” (p. 21).

IMP data strongly suggest that the hegemonic place of the Western/classical model of music education characterized by “the high degree of second-hand information, rationalization and external regulation in systems of formal education more generally is not conducive to the promotion of intrinsically motivated and self-regulated behaviour” (de Bézac & Swindells, 2009, p. 24).

Self-determination theory posits that intrinsically motivated and self-regulated behaviour is curbed in situations characterized by high levels of external control. Musicians are more likely to develop the skills they need through autonomous participation and experimentation in real world contexts, rather than solely through didactic instruction (p. 25).

The three studies considered here (Austin & Berg, 2006; de Bézac & Swindells, 2009; Fritz & Peklaj, 2011) have considered both the “will” and the “skill” (Pintrich & De Groot, 1990) of self-regulated learning, emphasizing the need for both. In these studies, “will” is always considered positively, examining how musicians regulate motivational strategies in a positive sense. Are there negative “wills”?

“I don’t like this piece!” - Defensive Pessimism and Self-Handicapping

“This piece is too hard for me!” These are comments I have heard students say after working on a piece of music for some time without success. Has the young musician really changed their attitude toward the piece of music? Is it truly the case that the student no longer values the goal of learning to master it? Is the challenge really beyond their skill level? Or, in fact, is the practicer regulating some aspect of their motivation not to achieve an outcome but, rather, to avoid one?
Statements such as these, when made by some of my students, usually follow several instances of failed performance either at a private lesson or at an ensemble rehearsal. Naturally, the moment of failed performance is emotionally charged to a greater or lesser extent and has an impact on the musician’s sense of self-worth, especially if their goal orientation is ego-performance and their theory of intelligence is one of fixed ability. Garcia (1995) suggests that what these students are doing is “negotiating the affective consequences of success and failure” (p. 30). Garcia refers to two strategies used to regulate anticipated affective outcomes as defensive pessimism and self-handicapping. She suggests that these strategies have “strong implications for our understanding of self-regulated learning” (p. 32).

The musician who employs the strategy of defensive pessimism is worried and anxious about potential failure and uses this strategy to prepare for it. The anxiety actually fuels more effort on the part of the musician even though she has low expectations of outcomes. Even though this student often has a history of successful performances, she is steeling herself emotionally for failure: preparing for the worst. The defensive pessimist is easily recognizable: she is “the student with terrible worries about performance, who claims to be unprepared or dissatisfied with the quality of her work, and who yet ultimately and infuriatingly pulls A’s” (p. 31). Such students usually have a performance goal orientation. Unlike the findings of much of the research on motivation that I have already considered in this review, Garcia makes the point that a musician’s effort may indeed be driven by a lack of self-efficacy or perceived competence.

Although it is likewise a strategy to cope with anticipated failure, self-handicapping is very different from defensive pessimism. Citing the research, Garcia notes that, early in their learning experiences, young people learn certain “truths” about effort and ability: smart students do not have to try as hard and, while “high effort coupled with success is considered laudable… high effort followed by failure carries devastating implications about one’s ability. Self-handicappers are thought to be quite concerned about this effort-ability link” (p. 31). Self-handicappers put in low effort to protect themselves from this anticipated emotional devastation: if their performance outcome is poor, they can conveniently attribute the result to their poor effort; if they are successful, they can point to their ability.
Arguably, neither of these two strategies may be considered healthy components of learning. In conclusion, Garcia challenges educators to reflect on the learning contexts of which defensive pessimism and self-handicapping may be symptoms:

Defensive pessimism seems to be a symptom of a competitive, meritocratic educational system; a symptom of which we should be aware and which we should try to redress. In the same vein, self-handicapping can be seen as a corollary of students’ awareness that in our educational system, a student’s value as a person is measured by his or her scholastic achievement (Garcia, 1995, p. 40).

To sum up this part of the review, the literature makes is clear that effective practicing is characterized by self-regulatory behaviours. Though much of the research examines the cognitive and metacognitive dimensions of self-regulation apart from affective-motivational processes (Bartolome, 2009; Hallam, 1997a; Hewitt, 2011, 2001; Leon-Guerrero, 2008; McPherson & Renwick, 2001; Nielsen, 1997), it is clear that these two aspects of learning are reciprocal and inextricably connected (Austin & Berg, 2006; de Bézenac & Swindells 2009; Fritz & Peklaj, 2011). With respect to developing the self-regulatory behaviours of effective practicing, how do novices become experts? The following part of this literature review considers research on the development of expertise.

“You Say You Want an Evolution! Well…” – Development of Expert Practicing

The evolution from novice to effective, expert-type practicing seems to be a natural evolution that develops with musical knowledge and expertise (Barry & Hallam, 2002; Gruson, 1988; Hallam 1997a, 2001a). Research also suggests that this evolution of practice strategies is “more closely related to development of expertise than chronological age” (Hallam, 2001a, p. 20). Hallam (1997a), in her study comparing approaches to instrumental music practice of novices and experts, notes that “considerable musical knowledge is necessary for some strategies to be adopted effectively. This is only acquired as expertise develops. Knowledge of strategies alone will be insufficient for effective learning” (pp. 99 – 100).

I was able to find only one research study that dealt specifically with the development of practicing. As Gruson (1988) explains:

The specific focus of the study was on practising strategies and how they change with increasing musical knowledge and expertise... Of interest in the study were
changes in the form and content of both behaviour and cognitive strategy as practising behaviour changed with increasing experience in music. Attention was specifically focused on how students chunked the music and how their chunking changed with musical experience, together with other changes that occurred concomitantly (p. 93).

In the first part of Gruson’s (1988) study, comparisons were made between the practice behaviours of three groups of pianists: grades I through VIII, grade IX through ARCT, and professionals. Results indicate that, as students gained musical skill, “errors, repeated notes, and pauses tended to decrease with competence while self-guiding speech, total verbalizations, playing hands separately, time spent on each piece and, particularly, repeating sections increased as music level increased” (p. 101).

The second part of Gruson’s study compared ten successive practice sessions by students at the same level working on the same piece of music. Findings suggest that “changes in practising behaviour were far more significant between music levels than between practice sessions of individual pieces” (p. 107). Another important finding derived from interview data was that “more experienced students were able to conceptualize their practising behaviour in a more differentiated and abstract manner. They described more practising strategies and these strategies were found to be more cognitively complex” (p. 107). Growth in practice efficacy “appears to be accompanied by a metacognitive awareness of one’s own practising” (Lehmann, 1997, p. 174).

What is frustrating in considering this study by Gruson (1988) and other studies (Barry & Hallam, 2002; Hallam, 1997a, 2001a, 2001b; Lehmann, 1997) that comment on musicians’ development in practicing is the vagueness of the word “expertise.” This term seems to be variously synonymous with RCM (Royal Conservatory of Music) grades (Hallam, 1998, 2001a; Gruson, 1988), with “musical experience” and “musical skill” (Gruson, 1988), with “level of skill,” (Lehmann, 1997) and with “playing longer” (Hallam, 1998a). Musical “knowledge” is coupled with “expertise” in Gruson’s (1988) study; yet, in examining this same construct of

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15 Positive correlations between the number of practice strategies that could be articulated by a musician and the efficacy of practice and subsequent performance are also evident in Da Costa, 1999; Rohwer & Polk, 2006; Hallam, 1998b; and Nielsen, 1999.
musical expertise, Hallam (2001a) makes no mention of musical knowledge. This term is also left undefined: declarative knowledge? Procedural knowledge? Domain knowledge?

In discussing the results of the study, Gruson (1988) explains the causality of changes in practicing behaviours occurring “as individuals acquire competence as musicians” (p. 106), as being brought about by “many, many hours of practising involved in mastering a new music level” (p. 107) and the result of “increasing skill on a cognitive level” (p. 108). Quoting from an earlier version of Gruson’s study, Sloboda writes: “Gruson concludes that the major influence on rehearsal behaviour must be the experience gained from “many hours of practising a wide variety of music pieces” (Sloboda, 1985, p. 93). It appears that changes in practicing occur with practising.

What is lacking in the studies cited above is a careful exploration of just how it is that musicians begin to use more sophisticated strategies. Is it related to the automatizing of certain skills such as reading notes or rhythm? Do these students reinvest cognitive resources in the pursuit of new and more challenging goals? How tightly tied is growth in cognitive engagement when practicing to age as opposed to musical experience? What roles are played by enculturation and elements of the self-system? The influences on practicing development are both many and complex.

The somewhat quantitative view of expertise explored in the literature (Barry & Hallam, 2002; Gruson, 1988; Hallam, 1997, 1998a, 2001a, 2001b; Lehmann, 1997), as it influences musical practicing, is in significant contrast to the definition of expertise as presented by Bereiter and Scardamalia (1993). Inherent in their construct is the concept of progressive problem-solving. Their definition also includes the concept of reinvesting available mental resources to solve greater problems. These two aspects of their definition clearly apply to growth in practicing efficacy: pieces become progressively more difficult, and, as certain skills become automatized, cognitive resources can be reinvested in other aspects of learning the piece of music – solving the problem - such as expression. Considering the development of music practicing within the framework of Bereiter and Scardamalia’s (1993) construct of expertise is much more consistent with the development of self-regulation that characterizes effective practicing.

Zimmerman (2000a, p. 29), citing the supporting literature, proposes a developmental hierarchy of self-regulatory skill as presented in Table 4.
### Table 4

**Developmental Hierarchy Of Self-Regulatory Skill**

<table>
<thead>
<tr>
<th>Level</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Observation</td>
<td>Vicarious induction of a skill from a proficient model</td>
</tr>
<tr>
<td>2</td>
<td>Emulation</td>
<td>Imitative performance of a general pattern or style of a model’s skill with social assistance</td>
</tr>
<tr>
<td>3</td>
<td>Self-Control</td>
<td>Independent display of the model’s skill under structured conditions</td>
</tr>
<tr>
<td>4</td>
<td>Self-Regulation</td>
<td>Adaptive use of skill across changing personal and environmental conditions</td>
</tr>
</tbody>
</table>

This multilevel analysis of the development of self-regulatory competence begins with the most extensive social guidance at the first level, and this social support is systematically reduced as learners acquire underlying self-regulatory skill... There is a growing body of evidence indicating that the speed and quality of learners' self-regulatory development can be enhanced significantly if learners proceed according to a multilevel developmental hierarchy (Zimmerman, 2000a, p.31).

There is also evidence that the development of self-regulation is closely linked to language acquisition and development. Biemiller et al. (1998) suggest a developmental sequence “in which older children come to regulate their behaviour verbally” (p. 208). The three levels suggested by the researchers are: 1) being verbally regulated by others on a novel task; 2) being able to perform that task with verbal guidance; and 3) an internalization or mastery of the task (p. 208). This last level is characterized by task-regulatory speech similar to the increased verbalizations while practicing by higher achieving musicians in Gruson’s (1988) study. These levels roughly match Zimmerman’s (2000a) four developmental levels of self-regulation.

Effective use of practice strategies is closely aligned with acquisition of aural schemata to facilitate self-monitoring and the correction of mistakes (Hallam 2001a). As self-monitoring is a
key component of self-regulation, there is the suggestion that the development of appropriate aural schemata, as part of this expertise, may be significant in facilitating this growth toward self-regulation (Hallam, 2001b; McPherson and Renwick, 2001). Aside from early exposure to ambient music, novice musicians today, through the facility of technology, are able to listen to recordings of pieces which they are learning and monitor their progress in this aural context. Hallam (2001a) suggests that because exposure to music is such a large part of the daily environment, much of the learning of aural schemata, at least of the music of popular culture, occurs without conscious cognitive awareness and hence “most children, when they begin instrumental music lessons, will have well-developed musical schemata for the particular types of music to which they have been exposed” (Hallam, 2001a, p. 20).

Aural schemata are rendered quite ineffectual if the novice musician, when practicing, does not listen to the musical sounds he or she is producing. Perhaps the irony of this advantageous position of having aural schemata against which to monitor one’s progress is that the phenomenon of not hearing what one is playing may be quite prevalent due to the Western model’s emphasis on learning notation at such an early age. McPherson and Renwick (2001) conclude the following in their study of practice behaviours of novice musicians between the ages of 7 and 9 over a 3-year period:

They were no longer able to perceive the music they were rehearsing as a complete phrase or melody. In such situations, they appeared deaf to the sound of what they were trying to play, because a majority of their cognitive resources were devoted to decoding the notation at the expense of them being able to listen to what they were trying to play (p. 179).

This observation offers a good example of how development of musical expertise facilitates self-regulation. With continued practice, decoding notation, especially pitch, becomes automatized. Such development frees up cognitive space and allows the progressing musician to direct their cognitive energies to such tasks as listening to what they are playing and engage in the self-monitoring so integral to self-regulation.

Different stages of musical development have been identified (Manturzewska, 1990) in the musician who, eventually, becomes a professional. It is Harnischmacher’s opinion that “Musicians tend to develop useful practice strategies relatively late” (p. 72). His research suggests four developmental stages of practicing: Activity Phase, ages 8 to 10 which is
characterized by a “playful component”; Adoption, ages 11 to 12 where “the child adopts an externally imposed work ethic”; practicing, during the stage of Assimilation, ages 13 to 14, becomes a “chore and integrated into the daily schedule”; from the ages of 15 to 18 is the stage of Identification where “the student reflects on the self-orientation of practice, and the increased quality and economy of practice plays a more important role” (Harnischmacher, 1997, p. 72).

Hallam (1998a) suggests that effective practicing is most significantly recognizable in the musician’s identification of and focus on challenging passages in the music: “Only at approximately Grade 5 standard was there any attempt to practice sections identified as difficult (p. 144). Hallam (1997) identified six levels of task oriented strategy use as expertise develops:

1. Task requirements incomplete;
2. Material played through, no corrections;
3. Material played through, single notes corrected;
4. Material played through, short sections repeated;
5. Material played through, large sections practised en route; and
6. Material played through, difficult passages identified and practised in isolation (p. 100).

This focus on difficult passages is one of the key observable characteristics of intrinsic motivation (Maehr, Pintrich, & Linnenbrink, 2002).

To sum up, the literature exploring the growth of effective musical practicing (Barry & Hallam, 2002; Gruson, 1988; Hallam 1997a, 2001a) attributes its development to increased musical “knowledge” and “expertise.” Although neither of these two terms seems to be specifically defined, one can infer from the contexts in which these two items are used, that they simply refer to increased “experience” and “skill development” as these terms are used interchangeably with the term “expertise.” There is also evidence that the development of aural schemata (Hallam, 2001a, 2001b; McPherson & Renwick, 2001) allows for development in practicing efficacy as it is necessary for self-monitoring and self-evaluation, which are essential components of self-regulation. The literature also offers descriptions of (Zimmerman, 2000a) and influences on (Biemiller et al. 1998) the development of self-regulation. Finally, distinct stages of practicing development are described (Hallam, 1997; Harnischmacher, 1997).
“I know what to do, but I don’t!” – Production Deficiency and Optimal Strategy Use

As we have already seen in the literature, effective musical practicing is characterized by high levels of metacognition (Hallam 2001; Lehmann 1997; McPherson & Renwick 2001) which includes an awareness of an extensive repertoire of strategies, demands of the task, and personal strengths and weaknesses (Barry & Hallam 2002, Hallam 1995, Nielsen 1999). The literature has also pointed out that such awareness is of little value unless it is meaningfully put into action: “Knowledge of cognitive and metacognitive strategies is usually not enough to promote student achievement; students also must be motivated to use the strategies as well as regulate their cognition and effort” (Pintrich & DeGroot, 1990, p. 33). But there is an important body of literature which indicates that musicians often do not translate intelligent knowing into intelligent doing, an apparent gap between metacognition and self-regulation.

I would like to examine this phenomenon, as presented in the literature on musical practicing, through the lens of constructivism, examining musicians’ failure to construct new knowledge about practicing/learning by assimilating new metacognitions into their existing practicing framework, or by altering an existing framework to, in fact, accommodate new metacognitions about practicing. The literature refers to this as production deficiency (Flavell, Beach, & Chinsky, 1966, cited in Barry & Hallam, 2002, p. 155). Students are aware of practice strategies but, either consciously or spontaneously, do not use them.

Video recording students practicing is an effective way to determine their true cognitive engagement with respect to strategy selection and use (Leon-Guerrero, 2008; McPherson & Renwick, 2001; Pitts et al. 2000b). Christensen (2010), in examining the practice strategies of two grade 8 band students, triangulated data gathered from pre- and post-study interviews of parents and student participants with video recordings of the musicians practicing. The students, guided by specific questions, commented on their practicing at the end of each recording session. These questions asked about goals for the session, strategies used and perceived progress toward achieving goals.

In her findings, the researcher quotes examples from the student interviews as well as the video commentaries by the practicers, and compares these with the two musicians’ actual strategy use on the video recordings. The comparisons make it clear that not only did the musicians say afterwards that they used strategies that they did not, in fact, use, but also – and perhaps more
surprisingly – in spontaneous statements, said that they were going to use strategies which subsequently they did not: “I’ll just slow down… just to see if I get all the notes and rhythms right.” The video recording indicates that, although this may have been the student’s intention, there was no noticeable change in tempo (p. 27). What is clear from the study is that both participants were able to articulate several strategies; their use of them, however, was minimal. “That the student participants’ practice actions did not exactly match their descriptions was surprising only in its extent, not existence… [The] videos suggest that the problem of student practicing may extend beyond simply teaching students how to practice” (Christensen, 2010, p. 29).

Although Christensen does acknowledge limitations in the study such as the small sample size and short length of time (three months), one factor that may have had an impact on the data was the fact that the researcher was also the band teacher. In such cases, the participants may be inclined to say what the researcher wants to hear, in this case, about strategy use, and then fail to deliver in actual practice. It would also appear that each musician only video recorded one practice session.

Hallam (1997a) reported participants articulating practice strategies and procedures of which they were aware, but failed to use in the recorded practice sessions. This gap between knowledge and meaningful application was also evident in Rohwer and Polk’s (2006) investigation of the practice behaviours of eighth-grade instrumental musicians. There is yet another level to this discrepancy between knowing and doing: “Pupils know about the use of effective practicing strategies and say that they use them when, in fact, they do not” [italics added] (Hallam, 1998, p. 144).

In a survey of college-level studio music teachers and music majors, Kostka (2002) found significant discrepancies regarding the relationship between knowing and doing in the teacher-student context. Virtually all of the teachers in the study (94%) indicated that they suggested a regular practice routine to their students; yet only 45% of the music students indicated that they used such a routine (p. 149). “All the teachers said that specific practice strategies are discussed in their lessons, but the students reported that 41% of them had not discussed practice strategies with their teachers” (p. 152).
Results from a survey of practice room techniques by Byo and Cassidy (2008) are quite disturbing in so far as the participants were music education majors. “One would hope that music education majors, if they are aware of techniques for efficient practice, would demonstrate advantageous use of these skills in their own practice” (p. 33). While all the participants in the study articulated common practice strategies they supposedly used, only a minority used these strategies in optimal ways. The researchers offer some interesting examples of strategy use by the participants to illustrate what they mean by “optimal.” This point is worth noting here as it offers important insights into the quality of engagement with music while practicing.

Some participants responded to an error by repeating the phrase once or twice, sometimes accurately and sometimes not, then moving to new material. In contrast, others isolated a problem, repeated the phrase numerous times, each time accurately, and then put it back into musical context. In both conditions repetition was used; however, one form of repetition clearly had the potential to function more effectively than the other (Byo and Cassidy, 2008, p.38).

The significance of this example is that the first instance of repetition as a strategy suggests that, while the musicians may be aware of repetition as a practice strategy, there is a clear lack of metacognition of a meaningful learning process. Essentially, the first student is not using the practice strategy strategically. To consider these two uses of a practice strategy from a constructivist point of view, it is only the second student who is constructing new knowledge through accommodation, the mechanism by which failure leads to learning. In exploring music practice behaviours as demonstrated by sixth-grade band and orchestra students, Austin and Berg (2006) found the same type of discrepancy.

As the researchers note, “practice techniques… devoid of the context implied in metacognitive, self-regulatory and/or deep learner constructs… function as little more than inert activities” (Byo and Cassidy, 2008, p. 38). Such use of practice strategies would also be devoid of the mindful, effortful and purposeful aspects that characterize the construct of deliberate practice as set out by Ericsson et. al (1993). Interestingly, the participants themselves identified “better self-discipline as the one thing that would improve practice efficiency” (Byo & Cassidy, 2008, p. 33).

To sum up, there are three important aspects of metacognition and practicing strategies: first, a high level of metacognition of practice strategies characterizes effective practicing; second, a plateau before achieving this level of effective practice is a cognitive awareness of practice
strategies and the ability to verbalize them, but a failure at times to use them even when a musician believes that he or she is using them; and third, a cognitive awareness and use of a particular strategy does not necessarily imply a meaningful practice behaviour that is anchored in a metacognition of one’s own learning processes; rather, such a behaviour may be perfunctory in nature lacking the qualities of deliberate practice.

What seems clear is that many students do not self-regulate when they could and should on school tasks; and many of those who do are less efficient or effective than they might be. The evidence shows this is attributable to a combination of associated personal and environmental factors, including insufficient intellectual maturation or knowledge of task-related strategies, insufficient internal motivation, and insufficient or inappropriate home and classroom support (Corno, 1986, p. 343).

As we have seen already, self-regulation “is not seen as a fixed characteristic, but rather as a set of context-specific processes that students select from in order to accomplish a task” (McPherson & Renwick, 2001, p. 170). What is clear from these studies (Byo and Cassidy, 2008; Christensen, 2010; Hallam, 1997; Kostka, 2002) is that all the participants have the capacity to self-regulate – to be aware of personal strengths and weaknesses, to recognize challenges being addressed and to draw upon a repertoire of strategies – but fail to do so. The implication is that the specific context in which the musician is practicing is lacking some catalyst: “The volitional or metacognitive control components of self-regulated learning will be called forth by students under certain conditions” (Corno, 1986, p. 335).

One significant condition relates to the psychological needs for autonomy and agency as set forth in self-determination theory (Ryan & Deci, 2000). The young clarinet player in a study by Renwick and McPherson (2002) demonstrates a marked difference in cognitive engagement with her practicing when she works on a piece that she has chosen. Interviews with the student participant and her mother reveal that the musician is in no apparent way extraordinary either in her ability or her motivation. “Playing my clarinet is part of my morning routine, which is part of my job list and I get paid my pocket money if I do everything on the job list” (p. 178). On one occasion, her teacher played a “jazzy” version of a classical piece that he had given the student to practice; the teacher told her that he plays this new version, called Golden Wedding, with his swing band. Not having a score for the jazz arrangement, the student asks her teacher to notate it for her in her practice journal. She then set out to learn the piece merely from this short notation
and her aural memory. The researchers, viewing video recordings of the participant’s practicing, note:

In addition to the remarkable difference in time spent on the pieces, there were large differences on several other measures. Clarissa practiced the classical pieces almost exclusively with her ‘default’ play-through approach, in a manner barely distinguishable from her behaviour in Year 1 (and in contradiction of her self-reported strategy use). In stark contrast, with *Golden Wedding* there was a marked increase in silent fingering, silent thinking, and singing. *Golden Wedding* was the only example on videotape of Clarissa playing a piece through more than once (p. 179).

Repertoire selection can certainly be one of the conditions that may lead the practicer to engage the strategies at their disposal in a self-regulated way: “Allowing students to practice repertoire that they select themselves and find personally interesting can lead to a marked increase in the use of the cognitive and metacognitive strategies that typify experts’ practice, and thus more effective learning” (Renwick & McPherson, 2002, p. 185).

**Review of the Literature on Music Teachers and Practicing**

In reviewing the literature on instrumental music practicing and the role of music teachers and private lessons, I will consider studies that illuminate the general pedagogical climate of music tuition, the gap between teachers and students concerning instruction in practicing, the effects of teachers modeling musical behaviours and, finally, studies that examine the direct relationship between the lesson and the practice session.

To fully appreciate the impact of music teachers and private lessons on practicing, we might recall the literature’s general description of what characterizes the practicing of the young musician. This may be best summed up in the study by McPherson and Renwick (2001) whose extensive videotape analyses of children’s home practice indicate that over 90 percent of practice time was spent simply playing through a piece from beginning to end, without adopting a specific strategy to improve the performance. We should also recall as part of the context in examining the literature on music teachers and lessons that this general state of children’s practicing, as suggested by Barry and Hallam (2002), is due to the fact that beginners are not always aware of where they are going wrong, and because they have not developed appropriate internal aural schemata to identify and correct their own mistakes. The focus of this review, then,
is the relationship between this picture of practicing and the musicians’ experiences of teachers and lessons.

To begin, some of the research literature suggests that there are aspects of the pedagogical climate in music education that are antithetical to the development of self-regulated learning. West and Rostvall (2003), in a study of interaction and learning in instrumental teaching, describe a great deal of teacher control, a tuition paradigm that focuses on decoding notation, an instructive rather than analytic approach, a passive stance by the students, and teachers answering their own questions (see Carter, 2010). Some of the published literature promotes this concept. The following is taken from the 1st place paper of a national undergraduate essay competition: “The master-apprentice tradition has been carried on for centuries, and is conducive to achieving personal goals… In this setting the teacher is in a position of power and can act as a great motivating force” (Iambshead, 2002, p. 24). The winning author suggests that “Students need to develop a sense of personal pride and ownership to the music making process by practicing regularly and persevering through difficult musical concepts” (p. 25). Extending this teacher-dominated relationship to the undergraduate and graduate level, Gaunt (2009) suggests that students’ aligning their views closely to those of their teachers “could impede the expression of their own artistic voice” (p. 203). Students in this study also displayed “a rather passive attitude to planning and evaluating their work… Planning and evaluation was [sic] rarely an important part of lessons or of practice time” (p. 203). The power dynamic in the teacher-student relationship may even make it difficult for the musician to articulate any difficulties they may be having with their learning or even to change teachers (Gaunt, 2011).

The literature also suggests that there is a tendency for teachers to be performance oriented rather than focusing on processes of growth (Ericsson, 1997). The emphasis is to develop the child’s ability to reproduce rehearsed literature (McPherson, 2005).

There is a clear link between performance achievement and students’ perceptions of music teachers (Davidson, Moore, Sloboda, & Howe, 1998) and it is not surprising that children who liked to practice were more likely to be satisfied with their lessons (Rife, Shnek, Lauby, & Lapidus, 2001). It is significant that this satisfaction is derived primarily from children being “actively involved and playing throughout much of their lesson time” (Rife et al., 2001, p. 29). Yet, lesson time is dominated by teacher instruction (Kostka, 1984).
Although the evidence suggests that when teachers spend time on strategy instruction, their students’ skills improve (Moely, Hart, Leal, Santulli, Rao, Johnson, & Hamilton, 1992), typical classroom music teachers “do not sufficiently emphasize this in their teaching, particularly during the early years of schooling” (McPherson, 2005, p. 28). These teachers, when they do address cognitive and metacognitive strategies, do so according to their own idiosyncrasies rather than as a response to the individual needs of the students. Referring to the research by Moely et al. (1992), McPherson (2005) notes:

Their studies have found very little evidence that school teachers systematically question their pupils about the cognitive processes they employ, model appropriate cognitive processes, praise their students for using a strategy, or give hints about useful strategies which the students can apply to master specific learning tasks. Teachers also tend to spend little of their time instructing students in the generalization of a strategy… Unfortunately, evidence suggests that these problems also apply to music where instrumental lessons tend to be dominated by teacher statement oriented behaviour in which interactions consist largely of statements by the teacher about how a task should be accomplished with very few questions asked of the student (p. 28).

While the literature suggests that it is the quality of the young musician’s thinking when learning a musical instrument that bears most importantly on their performance achievement (McPherson, 2005), “analysis of what the teachers were covering in their lessons and the types of books used in lessons suggests that many children were picking these strategies up implicitly rather than through direct instruction from their teachers” (McPherson & Davidson, 2006, p. 339).

As noted earlier, there appears to be a pedagogical gap between teachers and students when it comes to practicing. Kostka’s survey (2002), indicates that virtually all of the teachers suggest a regular practice routine; yet fewer than half of the students say they use one. In a later study by Duke et al. (2009), 25% of students indicated they regularly use a practice routine (p. 61). All of the teachers in Kostka’s (2002) study affirmed that they discuss practice strategies with their students; 41% of the students say that practice strategies had not been discussed. Similar results are manifest in a survey of applied music teachers by Barry and McArthur (1994): 70 % of teachers value a goal-oriented practice and ask their students to set goals; yet, the majority of the same teachers do not have their students maintain a written record of practice objectives.
Another consideration in reviewing the literature on music teachers and practicing is the role of modeling.

The use of instruments should be shown in practice and not by words; that is to say, by example rather than by precept…It is sheer cruelty to force anyone to do what you wish, while he is ignorant of what your wishes are.


For teachers working with students both in the private studio as well as in the ensemble context, the literature suggests modeling various aspects of practicing for the students. One approach is to model both efficient and inefficient practicing (Hallam, 2001; Miksza, 2007; Rohwer, 2002); another is to have practice strategies “systematically taught by example and by explanation” (Pitts et al., 2000b, p. 54). Duke et al. (2009) asks, “If there is broad agreement that providing good models is an effective strategy for learning, then why are there so few available models of effective practice?” (p. 319). There is evidence that modeling may not be an effective pedagogical strategy by virtue of its absence. Sang (1987) observes the following:

An increasing number of instrumental music educators… now spend more class-time verbalizing about musical performance behaviours than they do demonstrating them. Perhaps teachers are either unwilling or unprepared to present adequate musical or musically-related models. For whatever reason, teachers tend to rely on their cognitive training and verbalize about performance behaviours they require of their students (p. 155).

Zurcher (1975) asked beginning brass musicians to use cassette recorded tapes as part of their home practice. The recordings offered both models of the pieces being learned as well as instructions and reminders, although the nature of these was not specified. Over the course of the six week study, the participants received a weekly 15-minute lesson with the investigator where “corrections were made and instructions given for the next lesson” (p. 134). Comparing results of the experimental and the control groups indicate that this model-supportive approach to practice was more effective than traditional practice in reducing pitch errors, developing pitch matching skills and reducing rhythm errors (p. 136).

A similar study by Rosenthal (1984) compared four groups of high level undergraduate and graduate students. In this study, one of the treatment groups received a model recording as well as a verbal guide directing the practicer’s attention to “the tempo and style of the piece, rhythmic
interpretations, phrasing, and dynamic markings” (p. 267). The other groups received the model only, the verbal guide only, or no practice direction. Unlike Zurcher’s (1975) findings, however, it was the musicians in the model-only group whose performance outcomes were significantly superior. The suggestion is that the verbal guide directing the students to “the most critical and complex aspects of the étude” (p. 269) proved a hindrance to learning. The researcher offers no elaboration on this.

Working with 10 to 12 of their beginning band students, each of 19 teachers in a study by Sang (1987) focused on modeling “a variety of musically-related performance behaviours” (p. 156). Strong correlations were found between those teachers who successfully used modeling in their instruction and the performance ability of the students.

These three studies (Rosenthal, 1984; Sang, 1987; Zurcher, 1975), which focus on teacher modeling in music education, all demonstrate the desired outcome of improved performance. As Dickey (1992) makes clear in concluding his review of the literature on modeling in music teaching and learning, a “Positive relationship exists between teacher modeling and student performance…Students’ performance preference, sense of correctness, group performance, and individual performance are all positively influenced by musical models” (p. 36).

There is no evidence in these studies of the possible effect of performance modeling on practicing behaviours. It can be assumed that such modeling, either through a professional recording or by a teacher in the classroom, assists in developing aural schemata in the student (Hallam, 2001a) against which they can monitor their progress. But these studies do not explore this.

Although quite small in scale and exploratory in nature, a study by Barry (2007) offers some interesting findings regarding the relationship between student-teacher interactions in the college instrumental music lesson and individual student practice. The study also yields findings about which practice techniques applied music teachers and their students advocate compared to what they actually do in the studio. Although questionnaires indicated that these experienced teachers had knowledge of and advocated a wide variety of techniques for effective practice, only a few of those strategies were evident on the lesson videotapes. This was also true of the students’ practice sessions (p. 57).
Perhaps the key finding from this study is the very distinctive styles among the three teachers and the impact their teaching styles have on practicing. Barry describes them as The Coach, The Professor, and The Conductor (p. 57). The impact of personality on the overall tone of the lesson and on subsequent practice is significant; these metaphors merit a detailed consideration. In attending to the review of this literature, it is worthwhile to recall the study by West and Rostvall (2003) examining the teacher-dominated pedagogical climate in music lessons.

The Coach provided modeling, gave feedback, and interacted with the students throughout the lesson. This teacher frequently sang or played to demonstrate a point and often interrupted students to call attention to some aspect of their playing or to correct a problem. This last point suggests a controlling nature to The Coach which is born out, for example, in the following exchange:

Coach: O.K. Can we try to put everything together now? [student plays] Dotted eighth, sixteenth, make sure that you go through them, O.K.? Make sure you've got [teacher sings to demonstrate] not [teacher sings]. Don't put too much of a rest there. [student plays] O.K. That's wrong. Now, how can you tell that is wrong if you're just practicing? What do I always tell you about it?

Student: Count first, count it out first.

Coach: Yes, but that's pretty tough to go into the practice room and just count out rhythms. But what is the number one thing in learning rhythm? What do you have to always count?

Student: To keep the steady beat?

Coach: Yes, but what is the most important? What subdivision is the most important . . . what we always hear?

Student: Eighth notes.

Coach: Eighth note subdivision or eighth note feel. . . . Keep practicing because I might never know if you are practicing it right, O.K.?

The Coach’s questions are clearly Socratic in nature and the student’s answer at one point – “To keep a steady beat?” – is also a question indicating an attempt at recall rather than a real analysis of the problem at hand. Barry suggests that this is an example of a “reflective conversation”.

While there may be interaction, it is clear from this exchange that The Coach is controlling the student’s reflection. Practice techniques used by The Coach’s students, though limited as noted earlier, were greater and more varied than students of the other two teaching styles.

The Professor did not demonstrate on the instrument during lessons. This teacher emphasized certain technical exercises and tended to use the metronome fairly extensively within lessons. Although this teacher offered suggestions for student practice, there was no opportunity for the student to try the suggestion during the lesson. “There was extensive use of the metronome during individual practice sessions and rigorous attempts at carrying out the technical exercises used during the lessons. Practice of repertoire tended to be rather mechanical with slow practice and much repetition as the primary practice strategies” (p.58).

The Conductor approached the lesson as a rehearsal, frequently counting aloud and even conducting as students played. These lessons were dominated by teacher talk with student talk generally limited to responses to direct questions. In comparison with The Coach and The Professor, there were very few complete cycles of reflective conversation in these lessons. This teacher tended to focus upon specific problems such as fingering and intonation. Specific practice techniques were not addressed. Students of The Conductor revealed the least diversity of practice techniques among all students in this study. Their practice videos consistently indicated reliance upon repetition, stoically "plowing through" the assigned etude over and over (p. 59).

As noted, video recordings of the practice sessions revealed few techniques used by the students of these teachers. It would appear that, in terms of the overall impact of the lesson on the nature of the students’ practicing, only those behaviours “presented within the context of complete cycles of reflective conversation during the lessons” (p. 60) were evident in the practice sessions.

Carter (2010) also considers the relationship between lessons and the nature of students’ practicing. Working with university teachers, each of whom enlisted a total of 16 undergraduate clarinet majors, Carter compares video recordings of individual lessons and follow-up practice sessions all of which took place within four hours of the lesson. The findings indicate that the two students whose practice sessions exhibited the highest number of effective practice characteristics both experienced activities of effective practice during their lesson and also engaged in conversations about practicing. “This indicates a possible relationship between
students whose lessons consistently incorporate the topic of practicing and those students who
demonstrated the most characteristics of effective practice” (p.89). Considering the results of the
entire study, however, Carter concludes that most of the musicians did not exhibit effective
practicing behaviour (p. 90).

The validity of Carter’s results merits scrutiny. Both the students Carter highlights had more
experience than most of the participants. Further, practicing immediately after a lesson is not a
realistic scenario and can certainly account for a lessening of the likelihood of production
deficiency that might characterize a more authentic schedule. Finally, Carter took no measures to
determine the nature of the practicing behaviours of the participants before the study. As Carter
herself observes, “the observations in the current study do not provide evidence that Student F3
possessed effective practice skills before the recorded lesson took place” (p. 70).

This last admission by the researcher is significant in light of the results of these two studies
(Barry, 2007; Carter, 2010). In examining practice behaviours and evaluating their relationship
to studio lessons, both researchers have selected college-level musicians as participants. It is
reasonable to assume that these musicians would not have attained their level of proficiency if
they had not already possessed some degree of efficient practicing techniques.

There are some practical suggestions offered in the literature as to how teachers, at least
indirectly, might nurture self-regulated learning/practicing. As mentioned already, the
establishment of aural schemata (Barry & Hallam, 2002; Hallam, 1995, 2001; McPherson &
Renwick, 2001) against which a musician can self-monitor and self-evaluate their practice
performance is essential; through recordings or simply playing a piece for a student, the teacher
can offer the foundations for this. Teachers can certainly encourage adaptive motivational
patterns by emphasizing task or mastery orientations to learning a piece of music (Dweck, 1986;
O’Neill, 1997). Music teachers can assume a more analytic approach to lessons, asking students
about errors and what strategies the student might use to remediate them (Rohwer & Polk, 2006).
Pearce (2004) provides a list of suggestions for music teachers that is remarkably faithful to the
constructs associated with self-regulated learning. Her goals are to have music students self-
direct their practice and be active participants in their lessons (p. 29). Hallam (1998) offers “The
Music Practice Instruction Inventory” (p. 152) against which a teacher can evaluate the degree to
which she is promoting effective practicing with her students. Kostka (2004) writes, “Once a
practice plan is in place, teachers should take time during lessons to *practice practicing* with their students” (p. 25). The overarching intent in teaching effective practicing is to help the young musician become “more and more independent, so that you are able to set your own development plans… Good coaches help their students learn how to rely on an ‘inner coach’” (Ericsson et al., 2007, p. 5).

Using the construct of reciprocity, defined as “shared exchanges among teacher, musical tasks, and students,” Yarbrough (1987, p. 7) suggests that “One way to increase the level of student commitment to the musical task might be to reduce active teacher involvement with the task and increase active student participation” (pp. 6 – 7). Citing the research, Yarbrough states that studies demonstrate that both new and experienced music teachers “find it difficult to present appropriate and accurate musical tasks consistently, allow students the right amount of time to interact with the tasks, and successfully use techniques for reinforcement” (p. 7).

In sum, the literature examining the role of music teachers and private lessons, and their possible relationship to practicing, suggests that the general pedagogical climate of music tuition is one that is teacher-dominated, focusing on the decoding of notation in rehearsed literature with little attention given to the development of metacognitive and cognitive strategic engagement. Greater student satisfaction is derived from being active during the lesson. Research also indicates that, although many teachers claim to discuss practicing with their students, most musicians fail to implement these suggestions. Further, modeling as a teacher strategy focuses on performance outcomes and not on practicing processes; modeling is seldom used by teachers. Teacher personality and the nature of the relationship between teacher and pupil are significant in determining motivation.

This review of the literature may be appropriately concluded with the sentiments of Barry and McArthur (1994) who conclude their survey of the teaching of practice strategies by applied music teachers with the following:

> The question remains – how can effective practice best be taught? Practice is a complex phenomenon involving myriad cognitive and physiological processes. More research must be forthcoming before all the variables can be assessed and the most effective ways to teach students how to practice can be determined (p. 53).
“Don’t give up! Try that ‘ta-ta’ thing your teacher showed you.” – The Role of Parents

The Western model of music education, typified by one music lesson or ensemble rehearsal each week, expects the young musician to sustain a high degree of independent learning – practicing – between these times with a teacher or conductor. One of the most significant environmental factors contributing to the overall set of conditions in which such independence is possible is the parent or guardian. I would like to situate the review of the literature examining parents and musical practicing in a larger parent-child context with three relevant dimensions: first, the role that parents play in their children’s school homework; second, the parent’s cultural view of music education including beliefs about musical ability; and finally, parent motivations to involve their children in music education. Against this backdrop, the literature illuminates significant aspects of parents’ roles in their children’s musical practicing.

Citing the research, Hoover-Dempsey, Battiato, Walker, Reed, DeJong, & Jones (2001) report that parental involvement in their children’s homework is related to student achievement as well as the development of personal attributes, such as self-regulation and self-efficacy, that are conducive to achievement (p. 195). The researchers note that parent motivations include a sense of duty, the belief that involvement will make a positive difference, and that their children or their children’s teachers want such involvement.

Referring to Hoover-Dempsey et al.’s (2001) review of the research, I would like to highlight some of the ways in which parents do, in fact, get involved with their children’s homework, as many of these have a direct parallel to possible parental involvement with music practicing. The first is the parents’ use of meta-strategies “designed to create a ‘fit’ between the child’s skill levels and task demands” (p. 203). An example of this kind of scaffolding would be dividing the homework task into manageable parts. The parent acts as a kind of guide moving the child from what he knows to what he is capable of learning next.

Another use of meta-strategies on the part of the parents is to help develop the child’s learning processes and self-awareness. “Such activities may focus on helping the child assume developmentally appropriate independence for managing learning tasks. Parents’ activities in this category may also enhance the child’s self-management skills (e.g., for coping with distractions) and the child’s skills in regulating emotional responses to homework and related learning tasks” (p. 203). Again citing the research, Hoover-Dempsey et al. (2001) state that “Parental
involvement has also been linked to effective student work habits and the development of self-regulation, both of which are critical to effective student assumption of responsibility for learning outcomes” (p. 205). It is important to bear in mind these parent interventions when we consider the potential for similar interventions with respect to practicing music.

Children who are at the age when many begin formal music tuition,\textsuperscript{16} grades 2 and 3 in school, “tend not to view homework as their own responsibility (Warton, 1997, cited in McPherson & Davidson, 2006, p. 344). Such children therefore, while aware of the importance of homework, are heavily reliant on parents for reminders and checks. “Many parents will continue to remind their child to do his or her homework for however many years it takes” (McPherson & Davidson, 2006, p. 344). “Warton’s (1997) results show that children receive constant support in the form of reminders and checking from both parents and teachers to complete homework and that this is maintained across the entire elementary school grades” (McPherson & Zimmerman, 2011, p. 135). This, then, is the first part of the larger parent-child context in which I will consider the literature on parents and practicing.

The second dimension concerns perceptions of music education and musical ability and how these inform a parent’s role in their children’s practicing. There are parents who “view competence as relatively fixed, so that they use their perceptions to guide children toward the niches for which they believe children are suited” (Pomerantz & Dong, 2006, p. 951). While there are certainly parents who view intelligence and ability as malleable, it is, as noted in examining the literature on musical giftedness and talent, the predominant adult cultural view of musical competence that it is innate (McPherson, 2007; Austin, 1997 in Smith, 2005; Walker & Plomin, 2005).

Parent perceptions of music education itself may be summed up as follows:

A commonly held view is that music is a subject that has high intrinsic value but low attainment and utility value. As an example, parents may provide their children with a music education based on their belief that their child will enjoy and find music interesting during their time at school while at the same time holding the

\textsuperscript{16} This is the age of participants in several music related studies: O’Neill, 1997; Pitts et al., 2000; McPherson & Renwick, 2001; Hallam, 2001, 2004; McPherson, 2005; Bartolome, 2009; Ritchie & Williamson, 2011.
view that music is not as important or useful as other ‘academic’ school subjects in terms of future preparation for life and a career. Consequently, how parents regard music (as compared to other learning opportunities) has far-reaching consequences for children’s musical education (McPherson, 2009, p. 96).

The third aspect of the larger parent-child context deals with parent motivations to support their children’s involvement in music education. Dai and Schader (2001) surveyed the parents of 203 musicians to explore this issue. The sample group is certainly not representative of average music students and parents. The musicians were attending pre-college programs at conservatories of music or were part of a city youth orchestra. Parents were highly educated and almost half had themselves studied music. This is all to say that these parents were conspicuous in their support of the children’s music training and would offer motivations clearly linked to student achievement. The findings indicate that parents’ most common motivations were intrinsic in nature. These included an “appreciation for the aesthetic qualities of music and enrichment of inner life” (p. 25). Rather than developing their children’s musical talent for its own sake, these parents “endorsed reasons that reflect a range of non-musical benefits of music training for their children such as discipline, diligence, academic performance, and intelligence” (p. 26).

This larger context of relationships in which to examine parents’ role in the music practicing of their children, then, is characterized by: long-term parent investment in their children’s homework both in the form of reminders and active involvement; a view by many parents that musical ability is a fixed entity and that music education has no real utilitarian value as compared to other school subjects; parents of successful musicians are motivated to support their children based on the intrinsic value of music education.

The research suggests that parental involvement in practicing is, at the outset, similar to that which characterizes involvement in homework, especially concerning reminders to practice. The difference is that this support drops sharply after the first year of tuition in music (McPherson & Davidson, 2002). Another finding indicates that mothers who, prior to their child beginning tuition, expressed concern about the amount of practicing that child would do, were more likely to have the musician cease lessons by the end of the first year (McPherson & Davidson, 2002, p. 151).

Overall, our analysis of practice videos and the data reported here reveals important connections between how children and their mothers view school homework and
musical practice. Like school homework, children view their practice as important. However, our analyses of the student interviews and their parents’ reports of practice and how often they needed reminding, suggest that most children needed to be reminded by their mothers in order to practice regularly. It also reveals, however, that very soon after the children commenced learning, their mothers made an assessment of their child’s ability to cope with practice, as well as their own capacity to devote energy to regulating the child’s practice through continual reminders and encouragement to practice. As our qualitative comments reveal, some of the mothers continued to support practice schedules even though the child’s interest had decreased markedly. Other mothers tended to withdraw their reminders, based on an assessment that the child was not coping emotionally, that if they were really interested then they would do it anyway, or because they were unwilling themselves to invest in the time and effort needed to regulate their child’s daily schedule (McPherson & Davidson, 2002, p. 154).

Commenting on the findings from this study, the researchers note, “The overall impression we gained from these interviews was that some mothers had actually given up on their children as potential musicians, much sooner than the children had come to feel the same way” (McPherson & Davidson, 2006, p. 344). Parental attitudes can have a potentially limiting effect on the success of the young musician (Pitts et al., 2000a).

Depending on the experience of the parent, the nature of musical practicing is necessarily different from doing school homework: most parents are capable of assisting with homework to a much greater extent than they can with practicing music. Consequently, it is primarily through reinforcement – reminders, direct supervision, encouragement – rather than direct instruction or modeling, that parents are able to be meaningfully involved in developing their children’s achievement through practicing. Such involvement is particularly crucial in the early stages of learning (McPherson & Zimmerman, 2011).

Consistent with the research on parental involvement in school homework, the literature relating to musical practicing is unequivocal in finding that musicians who are most successful, not only in performance achievement, but also in continuing their studies, had parents who were highly involved in their children’s practicing from an early stage (Davidson et al., 1996; Davidson et al., 1995; Driscoll, 2009; Faulkner et al., 2010; O’Neill, 1997; Pitts et al., 2000a). A study by Brokaw (1982) concludes, “While it was not surprising to discover a strong relationship between the amount of time a student spends practicing and the student’s achievement in performance…
the amount of time spent by parents in supervising home practice is an even better predictor of successful achievement in the initial stages of development” (p. 97 cited in Creech & Hallam, 2003, p. 32).

Akin to the research describing effective parental involvement in homework (Hoover-Dempsey et al., 2001), several studies examining parental involvement in music practicing point to behaviours and attitudes that are likewise effective. The greatest challenge for parents of young musicians is being versatile (Creech, 2010). That is, the parent needs to be sensitive to what is effective proximity to the learner. While closely supporting the child through his or her learning, the parent also wants to leave space to nurture independence. This rapport is constantly in flux and changes over time with more support in early learning and the allowance for autonomy as learning progresses. Such versatility also means “remaining resilient in the face of reluctant practising while remaining as the child’s interested and supportive advocate long after practical help has ceased to be appropriate or welcomed” (Creech, 2010, p. 29). In her study of 337 parents and their children in the context of violin lessons, Creech (2010) concludes:

Positive outcomes may be achieved when parents: (1) elicit their children’s views regarding appropriate parental involvement, (2) negotiate with their children over practising issues, within parameters set by the teacher, (3) provide a structured home environment for practice, (4) take an interest in promoting good teacher-pupil rapport, (5) communicate with the teacher in relation to the child’s progress and (6) remain as a supremely interested audience (p. 29).

Case studies of three young musicians by Pitts et al. (2000a) indicate that effective parental involvement is “supportive without being interfering, with the general pattern being that the children can ask for help if they need it, but are otherwise left to work independently… The parents show a high level of awareness of what their children are and should be doing” (pp. 57 – 58).

This quality of parental involvement will only be effective, of course, if there is an appropriate receptiveness on the part of the student. In examining the musicians’ perceptions of parental involvement, Creech and Hallam (2011) found that receptiveness to parent support on the part of the students was significantly related to several aspects of the students’ experience of music lessons and practicing. “Receptiveness to parental support was found to be the most important positive predictor of pupil self-esteem” (Creech & Hallam, 2011, p. 116). The results of this
study are consistent with earlier research (Davidson et al., 1996; Manturzewska, 1990) which demonstrated that “parents of children with high self-esteem and high levels of confidence and competence were genuinely interested in them, concerned for their welfare, attentive to their needs and provided much behavioural, cognitive and personal support” (Creech & Hallam, 2011, p. 117). O’Neill (2002) found that children who gave up learning musical instruments were less likely to view their parents as supportive when compared to children who persevered, and that the choice to continue or not was influenced more by the support of parents than by the support of teachers (p. 12).

How is it, then, that there exists this apparent discrepancy between parents’ attention to homework and not to music practicing? Although I could find no research that explored this, one possibility is the view by parents that music education does not have the apparent utilitarian value of other school subjects and so, when something must be given up to accommodate other activities, or when the child expresses a negative relationship to music lessons, it is not difficult for the parent to withdraw support.

Parental involvement in home practicing makes demands that are considerably different than helping a child complete elementary school homework. Many parents may feel incapable of assisting the young musician if they have no formal musical experience themselves, reading notation or playing an instrument. “The higher their sense of efficacy to instruct their children, the more [parents] guide their children’s learning and participate actively… In contrast, parents who doubt their efficacy to help their children learn turn over their children’s education entirely to teachers” (Bandura, 1997, p. 246, cited in Creech & Hallam, 2009, p. 95). While some parents may limit the scope of their practical involvement with their children’s practicing by considering their own lack of musical experience, others derive self-efficacy from other forms of practical participation such as driving the student to lessons, purchasing paraphernalia, renting an instrument and attending concerts (Creech & Hallam, 2009).

Another possible explanation for many parents not supporting their child’s musical practicing with the same commitment as they do school homework may have its roots in their perception of musical ability. In a study involving 126 children in the fourth through sixth grades and their mothers, Pomerantz and Dong (2006) examined the relationship between student success and parent perception of both competence and intelligence theory (Blackwell, Trzesniewski, &
Dweck, 2007; Dweck, 1986). Results indicate that the optimal combination for student achievement is when a parent has a positive view of their child’s competence and subscribes to a belief that intelligence is malleable. “The broader belief system in which parents’ perceptions of children’s competence are situated has the potential to play an important role in the effect of such perceptions on children’s development” (Pomerantz and Dong, 2006, p. 960).

In this case, the “broader belief system” is that musical ability is fixed (Austin, 1997; McPherson, 2007; McPherson & Davidson, 2002; Walker & Plomin, 2005). This perception, possibly coupled with a lack of self-efficacy as a parent, is likely to contribute to a child’s poor achievement or even the decision to cease instruction.

Interviews with mothers before their children started learning showed that some held a fixed view that their child might not have sufficient ability to cope with the demands of music. Consequently, very soon after learning commenced, many of the mothers of unsuccessful learners withdrew their support for practice, based on their assessment that the child was not coping emotionally, that if he or she was really interested then practice would be completed anyway, or because they were unwilling themselves to invest in the time and effort needed to regulate their child’s daily practice schedule. Unfortunately, the fixed perceptions of children’s musical competence held by some mothers partly explained why some of the unsuccessful learners came to feel that they did not have the necessary ability to cope with the demands of learning music (McPherson, 2009, p. 96 referring to McPherson & Davidson, 2002).

A review of the literature on music practicing and the role parents play in its development indicates that parental involvement is crucial to achieving musical goals, especially in the early stages of learning. Successful interventions by parents are characterized by versatility and motivated by the intrinsic worth of music rather than possible utilitarian outcomes. Student success is attributed to a receptiveness of parental involvement and this is significant in the development of self-efficacy and self-esteem. The research also reveals that many parents do not participate in assisting and supporting their children’s home practice with the same level of commitment as they show towards their children’s homework: reminders significantly lessen after the first year of tuition; parents often feel incapable of assisting; music does not hold for them the utilitarian value of other school subjects; and lack of success is attributed to lack of musical ability which is seen as a fixed entity.
Chapter 3
Methodology

The overall goal of this qualitative study was to observe and document the instrumental music practicing – self-regulation - of the participants as it was informed by guided practice sessions. The methodology considered both the affective-motivational and the metacognitive and cognitive components of self-regulated learning, as evident in practicing.

The Parnassians: Participant Musicians and Parents

Table 5 details the age, prior music education experience and the instrument(s) of each of the musicians who participated in the study. Their age and experience are as of the commencement of the research: September, 2010.

Table 5

Musician Participants

<table>
<thead>
<tr>
<th>MUSICIAN</th>
<th>AGE</th>
<th>MUSIC EDUCATION EXPERIENCE</th>
<th>INSTRUMENT(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andy</td>
<td>7</td>
<td>1 year piano; commenced trumpet after research</td>
<td>Trumpet/piano</td>
</tr>
<tr>
<td>Damian</td>
<td>10</td>
<td>1 year in school concert band</td>
<td>Trumpet</td>
</tr>
<tr>
<td>John</td>
<td>13</td>
<td>1 year in school concert band</td>
<td>Tenor saxophone</td>
</tr>
<tr>
<td>Joan</td>
<td>11</td>
<td>1 year in school concert band; 6 months piano</td>
<td>Bells/piano</td>
</tr>
<tr>
<td>Keri</td>
<td>13</td>
<td>1 year in school concert band; 6 months piano</td>
<td>French horn/piano</td>
</tr>
<tr>
<td>Mark</td>
<td>11</td>
<td>1 year in school concert band</td>
<td>Trumpet</td>
</tr>
<tr>
<td>Doug</td>
<td>11</td>
<td>1 year in school concert band</td>
<td>Trumpet</td>
</tr>
<tr>
<td>Susan</td>
<td>13</td>
<td>1 year in school concert band</td>
<td>Percussion</td>
</tr>
<tr>
<td>Gwen</td>
<td>9</td>
<td>No prior formal music education experience</td>
<td>Trombone/piano</td>
</tr>
<tr>
<td>Norm</td>
<td>8</td>
<td>5 years piano Music for Young Children; RCM grade 1</td>
<td>Piano</td>
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<tr>
<td><strong>Erica</strong></td>
<td>12</td>
<td>1 year in school concert band; 2 years flute lessons</td>
<td>Flute</td>
</tr>
<tr>
<td><strong>Don</strong></td>
<td>9</td>
<td>1 year piano</td>
<td>Piano</td>
</tr>
<tr>
<td><strong>Cheryl</strong></td>
<td>13</td>
<td>1 year in school concert band; 6 months piano</td>
<td>Bassoon/piano</td>
</tr>
</tbody>
</table>

The 13 student participants in the study ranged in age from 7 to 13 (grades 2 to 8). They were drawn from my private studio as well as from an extra-curricular concert band I volunteer conducting at a local elementary school. Four of the participants were musicians in both settings. Although Andy joined the band playing the trumpet following the ten-month intervention period, he participated in the study as a trumpeter as well as a pianist at the six-month follow-up assessment. At least one parent of each of these musicians was also a participant in the study. The participants are referred to in the study by pseudonyms that were assigned and known only by me as researcher.

None of the participants had experienced a guided practice session prior to coming to the study. In the case of six of the participants, at least one parent had some formal music training in their background. Each student participant in the study was engaged in several guided practice sessions with me over a 10-month period during one academic year. Details of the number of sessions and total hours of video recordings are presented later in this chapter in the section titled, *GPS: Finding Our Way Practicing*.

**Framing the Data: Pre- and Post-Study Interviews**

Musician participants were interviewed prior to the guided practice sessions (see Appendix A, p. 319). Along with questions about the role of music in their lives and their reasons for joining the band or taking private piano lessons, there were questions that focused on the cognitive aspects of practicing – strategies, planning, self-evaluation – as well as on affective-motivational aspects – sense of accomplishment, persistence, focus. Parents were likewise interviewed before the intervention of the guided practice sessions (see Appendix B, p. 322). I asked about their own musical background, the level of their involvement in their child’s music at home, and what they had observed from both a cognitive as well as an affective-motivational point of view: strategies they observe their child using, for example, or how their child deals with frustration or responds
to being reminded to practice. Interviews were semi-structured in design. This semi-structured design of the interview questions allowed for the emergence of unplanned, but relevant, lines of questioning. One of the more salient occasions when this phenomenon occurred was in the post-study interviews with respect to the concept of musical identity. This data is presented in Chapter 4 in parent responses to the post-study interviews, and is analyzed in Chapter 6 of the study.

At the mid-way point of the research, student participants were given a researcher designed questionnaire asking them to compare current aspects of their practice to those that characterized their practicing prior to the study (see Appendix C, p. 324). Multiple choice questions focused on both cognitive dimensions of practicing as well as affective-motivational ones. As an example, students were asked, “Compared to before, a) I feel I persist more when I come to a challenging part; b) I give up more easily when I come to a challenging part; c) I respond to a challenging part about the same as before.” In such cases, students were also invited to comment anecdotally. For the question given above, for instance, they would be asked to provide an example of a part in a piece of music they found challenging and describe their response. At this time, parents were also surveyed, by electronic mail, and asked to detail any behaviours or attitudes they had observed that were, for them, salient in some way (see Appendix D, p. 328). This included any changes in frequency or duration of practicing. Parent responses to the survey were anecdotal in nature.

At the end of the 10-month period during which I held guided practice sessions with the students, both musicians and parents were once more interviewed (see Appendices E and F, pp. 329 - 330). Again, questions focused on perceived changes with respect to both the cognitive and the affective-motivational aspects of practicing. Parents and students were also asked to offer explanations as to why certain aspects of practicing had changed: fewer reminders, for example, or a change in practicing frequency or duration, handling frustration, or the use of a different strategic approach to learning a piece of music.

All interviews were conducted by me and recorded using a digital audio recorder. Interviews were transcribed by me and authenticated by the participants.
“Did it stick?” – A Follow-Up Questionnaire

Six months after the completion of the initial data-gathering period – mid-way through the following academic year – participants were given a researcher-designed questionnaire asking them to describe both cognitive and affective-motivational aspects of their practicing (see Appendix G, p. 331). The *Motivated Strategies for Learning Questionnaire* (Pintrich & DeGroot, 1990) was consulted in the preparation of the survey. Within the theoretical framework of the self-system, questions were asked pertaining to expectancy-value theory, attribution theory, self-determination theory and goal orientation. These questions constituted the *motive* dimension of the self-regulated learning framework. Questions with a cognitive and metacognitive focus elicited responses pertaining to the remaining five dimensions of self-regulated learning (McPherson & Zimmerman, 2002): *method, time, behaviour/performance outcomes, physical environment* and *social factors*. Parents were also surveyed at this time (see Appendix H, p. 338).

**GPS: Finding Our Way Practicing**

During the 10 months when I worked with the individual student participants, I video recorded most of the guided practice sessions. For the piano students, these occurred in the context of a lesson in my home, with a parent present. Student participants taking private piano tuition were engaged in an average of 35 lessons during the study. Guided practice was implemented at piano lessons on an individual need basis depending on performance outcomes of prepared repertoire. Students also engaged in guided practice in addressing new pieces assigned at the end of a lesson. A guided practice component usually formed part of every lesson for those participants studying piano in the private studio context. This ensured that musicians taking private lessons experienced the intervention of guided practice on a weekly basis for the duration of the data-gathering period.

For logistical reasons, band participants were engaged in fewer guided practice sessions, averaging 12 sessions of approximately 15 minutes each over the course of the 10 month data gathering period. For musicians in the concert band, these took place in the music studio at the school, usually before or after rehearsal. For those participants in the concert band, guided practice sessions were arranged on an individual basis. An attempt was made to meet with these musicians (10 students) every two weeks.
In total, there were 84 video recorded sessions of me working with student musicians both at my home during the course of private lessons, as well as in the music studio portable classroom at school with band musicians. This totaled approximately 50 hours.

Parents of six of the musicians video recorded their children at home while they were practicing. These included both piano students as well as musicians in the concert band. The recordings were made with the researcher’s camera. Parents recorded 43 sessions of six different students practicing at home totaling approximately 20 hours.

A stimulated recall protocol was used with one of these musicians in guiding the self-evaluation of his practicing at home. This session is transcribed and analyzed in Chapter 5.

Throughout the data gathering period, I kept a journal on my lap top computer in which, immediately following a guided practice session, I wrote field notes documenting any noteworthy behaviours either by me or the participant, and recorded my comments in response to these.

**An Upbeat Summer**

Following the success of the concert band program at the school during the academic year of this research, I decided to run a free summer music camp at the school called, *Upbeat!* This provided me with the opportunity to assess the effectiveness of a musician guiding the practicing of a peer in the band. Each morning was a combination of whole band sessions and one-to-one pairings of experienced musicians with newcomers intending to join the band the following school year.

One of the participants in the study, a trumpet player in the concert band, who had just finished ten months of guided practice sessions with me, was one of the student volunteers at the camp. I paired him with a new musician who wanted to learn the trumpet. I video recorded several of these sessions during which I had encouraged the study participant to work with the new musician in much the same way I had worked with him. Essentially, the veteran musician, who had experienced guided practice during the previous year, was now conducting guided practice with the newcomer. I viewed these recordings to evaluate the possibility of “training” seasoned students to work with newcomers using the pedagogical approaches that characterize guided practice.
Analyzing the Data

**Musician and Parent Participants.** Student perceptions of their own practicing behaviours, as evident in the pre- and post-study interviews, as well as the observations by their parent(s), which had likewise been gathered in pre-and post-study interviews, were coded according to predetermined themes that are components of a self-regulation framework (McPherson & Zimmerman, 2002). Within the *motive* component of this framework, data was further coded according to an affective-motivational framework comprised of expectancy-value theory (Eccles & Wigfield, 1995), self-determination theory (Ryan & Deci, 2000), attribution theory (Weiner, 1985) and goal orientation (Dweck, 1986).

Responses to the written questionnaire at the mid-way point of the data-gathering period as well as the post-study questionnaire were analyzed for frequency of response. Perceptions by the musicians of their practicing behaviours, as evident in interviews, questionnaires and stimulated recall protocols, were triangulated with parent observations, with my own observations of the video recordings, and with my own field notes.

**Finding Effective Pedagogy.** A significant part of this research included myself as participant. Video recordings of my working with the participants during guided practice sessions were observed to determine pedagogical approaches in guided practice that proved operative in developing self-regulation with the young musicians. These approaches were coded according to the facets or self-regulations as manifest in the cognitive and motivational dimensions of the theoretical framework of this study. These pedagogical approaches are presented in detail in Chapter 5.

**In the Context of Other Methodologies**

The methodologies used in the current study are not without precedent. There are, however, several significant departures and elaborations on methods previously used.

Several existing studies exploring an aspect of musical learning have employed the method of interviewing participants according to the theoretical framework the self-regulation, designing questions in both a structured (Bartolome, 2009; McPherson & Renwick, 2001) and in a semi-
structured way (Dos Santos and Gerling, 2011). Interview questions in these studies focused on the six psychological dimensions of self-regulation (McPherson & Zimmerman, 2002).

Researchers most frequently used questionnaires and surveys to obtain data as it related to affective-motivational processes in learning music. These addressed, usually in isolation from data of a cognitive nature, the four theories that form the motive framework of the current study. McCormick and McPherson (2003) employed a survey to determine self-efficacy among college level musicians; to assess the same aspect of motivation, Ritchie and Williamon (2011) also used a survey. Agency (Reeve & Tseng, 2011) and expectancy-value (Lowe, 2011) components of affect and motivation were assessed with the use of a questionnaire. Schatt (2011) conducted a survey among secondary school students to determine their attributions. The purpose of a recent study by Miksza (2012a) was to assess the validity of a questionnaire specifically designed according to the six psychological dimensions of self-regulated learning (McPherson & Zimmerman, 2002). This questionnaire was used with middle school band students, approximately the same age as the musicians in the current study. As with the current study, questionnaires used a Likert-scale format.

As noted in the review of the literature, few studies in music learning explore both affective-motivational processes as well as cognitive and metacognitive ones. Austin and Berg (2006) employ a practice inventory and student narratives in their examination of self-regulation; these are two methods not used in the current study. Fritz and Peklaj (2011) use two different questionnaires to determine self-regulatory learning behaviours in their participants. In a more specific look at aspects of motivation and cognition in music learning, Nielsen (2004) uses a questionnaire based on the MSLQ (Motivated Strategies for Learning Questionnaire, Pintrich et al., 1991) to determine the relationship between self-efficacy and strategy use. The six-month follow-up questionnaire in the current study was also designed in consultation with the MSLQ.

The technology of video recording musicians plays a significant role in the methodology of several studies. Nielsen (2001, 1997) used this methodology in his assessment of the practice behaviours of conservatoire students. He also has the participants engage in talk-aloud protocols,
describing verbally what they are doing and thinking.\footnote{Although talk-aloud protocols were not intended as methodology in the current study, most students who were video recorded at home described aloud what it was they were doing.} McPherson and Renwick (2001), much like the current study, analyze video of home practicing according to the psychological dimensions of self-regulation. Barry (2007) and Carter (2010) both employ video to record and analyze music lessons immediately followed by practice sessions of the students.

A study by Christensen (2010) most completely parallels the methodology of the current study. This researcher gathers data through pre- and post-study interviews with both musicians in the study as well as their parents. The methodology also includes video recordings of student practicing.

There was one outlier in the methodology of previous studies that bears a relationship to the current study. Leon-Guerrero (2008) was the only study I found that used stimulated-recall protocol.

While the methodologies of the current study have all been used in previous research, there are some significant departures. Most previous research that examines the role of parents in music learning does so from the perspective of their involvement in a supportive way (McPherson, 2000; McPherson & Davidson, 2002a). The current study engages parents primarily to triangulate findings with data gathered from the musicians as well as from my own observations.

In examining the role of parents in their potentially supportive role, the current study directly links this with the parents’ participation in the guided practice that takes place at the private lesson rather than from the “uninformed” stance that would characterize most parents’ involvement with their children’s music education.

Data gathered by the current study’s use of questionnaires and surveys was supplemented with anecdotal comments, in particular by the parents. This gave a depth and richness to the qualitative nature of the current study.

The current study’s use of video as a methodology, in comparison to previous uses, is significant. First, unlike the studies of Barry (2007) and Carter (2010), an examination of the relationship between the lesson – guided practice in the case of the current study – and follow-up practicing
is significantly more authentic both in venue and in temporal terms. In the two studies cited (Barry, 2007; Carter, 2010), students were artificially constrained in length of practice time, location and the immediacy of their practicing following the lesson.

An important elaboration on the use of video is in comparison to the stimulated-recall protocol used by Leon-Guerrero (2008). In viewing the recording with the student, Leon-Guerrero invited the participants only to describe their practice strategies. The current study took this protocol further, guiding the self-evaluation of the strategies the participant used and inviting the student to suggest modifications.

Similar to Barry (2007) and Carter (2010) the current study used video to record the teaching strategies of the music educator. The intention of this methodology, however, is importantly different. The intentions of the cited studies were to examine a correlation between teaching style and practicing (Barry, 2007) and between discussions about practicing during the lesson and consequent strategy use. The use of video in the current study focuses specifically on determining which pedagogical approaches are most effective in developing self-regulated learning in the musician.

While the use of the methodologies in the current study has parallels in existing research, there are important departures and elaborations, especially in the use of parent interviews as a form of triangulating results, the use of video recordings for stimulated-recall protocol of participant self-evaluation, and the use of video to focus on pedagogical approaches.
Chapter 4
Portraits of Climbers and Cheerleaders

The formal data gathering period for this research spanned the ten months of an academic school year. During this time, student participants in the study met with me for guided practice sessions. Parent participants were also invited to share with me, through electronic mail, any observations of their children’s practice at home which they deemed salient in any way. Most guided practice sessions, especially those which occurred within the context of a private piano lesson, were video recorded so there was an ongoing assessment of the musicians’ affective-motivational and cognitive processes as they pertained to practicing. I wrote field notes documenting noteworthy observations.

Presented here are data as they were assessed at four points: pre-study interviews and post-study interviews, a survey of musicians and parents at a midway point, and a follow-up questionnaire conducted six months after the conclusion of the study period. Data from these assessments are coupled with ongoing observations as documented in my own field notes. I have also presented observations of guided practice within the context of peer interaction: a musician guiding the practice of another musician. The data also include observations by parents as to the impact of guided practice sessions on their ability to assist their children with home practice. Finally, I present observations concerning pedagogical approaches used in guided practice.

Overall, the evidence suggests that the guided practice sessions had a significant impact on the development of self-regulated learning within the context of instrumental musical practicing.

A note on the fonts used:

This font is used to represent verbal questions or statements made by me as researcher during the interviews.

This font represents verbal interview responses by both musicians and parents, as well as those gathered in writing.

This font is used for field notes.
At the Foot of Parnassus: Before GPS Intervention

Affective-Motivational Processes.

**Expectancy-Value Theory.** Expectancy-value theory posits that motivation is influenced by how intrinsically interesting or fun an activity is, how important it is to do well, how useful that activity may be in the future and what cost is incurred, that is, what might have to be given up in terms of, for example, time or other activities (Eccles & Wigfield, 1995). Pre-study interviews of both musician participants and their parents suggest that the intrinsic interest value of practicing dominates the motivation to practice. This is reflected, quite simply, in whether the musician likes the piece of music that they are practicing. When asked about which piece they felt that they had really worked hard on, most students had no difficulty bringing one to mind almost immediately. And when asked why they thought that they worked hard on that particular piece, the response was simply that they enjoyed the piece.

When asked about a favourite piece, Andy, age 7, replied:

*Dragon Hunt!*

*What is it about Dragon Hunt that you like so much?*

I don’t know; it just sounds cool!

*I was amazed at how quickly Andy learned to play Dragon Hunt! It’s not at all an easy piece: sudden dynamic changes, different articulations in each hand, tricky rhythms, not to mention the cross-over arpeggio in the coda. I can’t believe he learned it in two weeks! Interestingly, however, when he moved on to Spanish Caballero to be practiced for the second week of practicing Dragon Hunt, it was evident that he had barely touched it. When asked about how much time he spent on Spanish as compared to Dragon, he fessed up. The same thing happened the next week with Pagoda Tree: the damned dragon was killing the other pieces.*

*I decided to make up a story: I told Andy that is was actually the caballero who was hunting the dragon. And, after a long day’s chase, he always went to rest under the pagoda tree because it was a very relaxing place with a waterfall and stuff. I told him what a trilogy was and that these three pieces together made up one big story. He*
bought it and by the next week, both his mom and I reveled in his performance of “The Dragon Trilogy!”

(Field Notes – October 15, 2010)

Andy’s brother, John, plays tenor sax in the band. Interest and enjoyment count for something in a Christmas piece where John played an ostinato:

*Pachelbel’s Christmas.* I don’t know, I really didn’t like that piece. So I left it aside sometimes. I didn’t think it was that interesting. My part repeated a lot. I didn’t practice it as much.

Closely aligned to this is the value of expecting to be able to play the piece well. This is importantly influenced by the student’s sense of being in a ‘comfort zone,’ usually their familiarity with the piece. Popular tunes in the piano methods book such as *Puff, the Magic Dragon, Meet the Flintstones* and *We’re Off To See the Wizard* were practiced more thoroughly than repertoire pieces. The evidence of familiarity is that rhythms were changed according to how the student ‘knew’ the piece, not as it was notated.

When asked about his motivation and the piece he was learning, Doug recalls:

I remember in the beginners’ book, I really liked that *School Spirit* piece. I would just play that anywhere and I knew that I really liked that. Even at my brother’s hockey games I would play that.

Doug also has something of a cross-over response about liking a piece and knowing it:

Yeah, I usually like to play the ones that I know.

*You mean, you know how they go?*

Yeah, but at the same time it’s just whether it’s easy or not or whether I like the rhythm. Like, I like *Hogan’s Heroes* really well. I really like that but I had no idea what that sounded like at first. But also another example is *Can You Feel the Love Tonight*, I really don’t like that piece because, even though I know it, it just doesn’t appeal to me.

Parent participants noted the significance of the interest/fun value component of practice motivation. Andy’s mother noted that, for her son, it is relative to their busy home environment:
If he sees that anyone else in the house is having fun in any way, shape or form, then he doesn’t want to do it. Andy’s 7 and the fun is a priority for him.

Mark is a first-year trumpet player. When asked about her son working hard at practicing, his mother replied:

When it was a piece he enjoyed. He still plays *Funkytown*. And in between, he’s singing it. And then half the time he doesn’t have the air because he’s singing when he should be resting. He still plays that constantly. He loves it. When he’s in a good mood and he wants to play something, he’ll play it.

The parents of another trumpeter in the band describe how their son changes the music so he does like it:

*Is practicing exciting for Doug, or is it a chore?*

Mother: Depends if he likes it.

Father: That enthusiasm? I think it’s something that he knows is part of the process, that there needs to be some time spent to learn that. If you’re going on the enthusiasm and excitement? Yeah, there seems to be more when it’s free-form, let’s play what I want. He does still enjoy the trumpet, but there are things he does, like I hear it more at the game, where after school I’m not home yet. I’ll hear him do different things. He is messing around, changing his form as the sound’s coming out.

Eccles and Wigfield (1995) note that, along with the intrinsic interest in practicing a piece of music, the young musician’s perception of ability is also strongly related to the attainment value component of expectancy-value theory: how important it is to do well. This is born out in the findings of the pre-study interviews, especially with those participants who are in the concert band as distinct from private tuition.

*What about after you practice? How do you feel when you’re done?*

Doug: It’s like, oh, man, I’m really glad I did that because now I’m going to play better at rehearsal.

John: Sometimes I’ll forget about it and my parents will remind me, but right then I know I have a commitment to the band so I need to practice. If I have some free time I’ll practice. I don’t want to fall behind the band.
Susan is the percussionist in the concert band. I asked her whether the practicing she has or has not done affects the way she feels going in to rehearsal?

Kind of. If I didn’t practice I’ll feel like I should have. I don’t want to be the one that’s holding everyone back cause I can’t play something. Plus, it’s drums and they’re loud and everyone can hear them. Normally, I feel prepared.

Susan’s feeling a lot of pressure lately from the band. The kids absolutely love to play Defying Gravity and are pretty pumped about doing at the high school concert in two weeks. Susan knew she had to have it ready for last week. But, she kept messing up the tempo change; she doesn’t know the chart well enough to look up at me. We had to stop at that point in the piece too many times and finally had to move on; we were all wasting too much time. I noticed after last week’s rehearsal that one of her buddies gave her the CD I made for all the kids with the MP3s on it. I found out later that Susan had lost hers and didn’t tell me; I had an extra and would have given her another. She has four really close friends in the band; they’re all graduating this year. I know she felt bad for them. Anyway, today she nailed it and we all gave her ‘a foot.’

(Field Notes – May 3, 2011)

Andy’s attainment value illustrates the significant role the first teacher can have:

What’s the best part of learning to play the piano?

You’re nice and you make songs for me.

If there’s a piano lesson coming up at my house, and you haven’t practiced as well as you should have, how do you feel?

I kind of feel bad cause I haven’t been practicing enough and this is when I have to play all the pieces perfect because all the pieces that I play should be perfect but sometimes when I’m at your house I don’t play them perfect because I haven’t practiced them enough.

Do you feel bad about that?

(nods)

What about when you come to my house and you have practiced a lot?
I feel good about myself ‘cause you’ll be happy that I practiced.

Do you think that you like to practice for a lesson so that I’ll be happy?

Yeah.

Andy’s mother recognizes the same motivation:

You, as his teacher, are a big part too... you have high expectations. Kids strive to meet those expectations.

Cheryl struggles with the bassoon and is one of the tightly-knit group of five graduating musicians in the concert band. Her mother is quite aware of Cheryl’s motivation to practice so she will not let down her friends and the band:

She’s never been involved in a team. She’s not a sports kind of girl. But to have a group of people that have a common goal and to be part of a team, because if one person doesn’t pull their weight, then the whole team doesn’t do well. It’s a chore to get her to practice [the bassoon]. She’ll go into her room and practice for a few minutes, then leave her room, look for something else to do. Then she thinks, I’ve got to go back... She wants to be good. And I think she wants to do it. She wants to do well with the bassoon. So I think she struggles with it. She works hard at what she does, and I think that if she doesn’t see success, then she gets a little bit discouraged... She knows that when Wednesday’s [rehearsal is] coming up, she’s playing it on Tuesday night.

Eccles and Wigfield (1995) note that utility value and cost do not figure into motivation as significantly as interest and attainment values. This is born out in the results of this study. One outlier in the responses to motivation as they relate to the utility component of expectancy-value theory was Mark, whose mother noted:

He wants to be in the military, that’s why he picked trumpet, he wanted that.\textsuperscript{18}

\textsuperscript{18} At a Remembrance Day, 2011, ceremony, Mark played solo trumpet in an arrangement of Amazing Grace With The Last Post by Tom Wade-West. He wore his Sea Cadet uniform.
Doug was the only musician who referred to the cost of practicing:

\textit{OK, so how do you feel as you’re approaching the time you’re going to practice? Are you excited? Or do you feel it’s going to be a chore?}

A little bit of both because it’s exciting to practice and it’s also joy but at the same time it’s like, I could be downstairs playing video games.

With few exceptions, most of the participants are busy with other activities – skating, karate, school sports, to name a few. This lack of concern about compromising involvement in other activities as a consequence of commitments to music can be explained by the fact that participating in the band is voluntary. Parental support for music is evident in that they are asked to invest in renting an instrument. As will be seen in results in the cognitive dimension of time management, parents help schedule music practicing around these other involvements. The same could be true of those taking private tuition.

\textit{Self-Determination Theory}. Self-determination theory (Deci & Ryan, 2000) is founded on three basic psychological needs: competence, autonomy and relatedness. Describing feelings about their own competence was difficult for the students, most likely because of their limited experience in music education. By and large, it was almost impossible to get a response from the participants in terms of their own perceptions of themselves as competent musicians. Virtually all of the responses in this area were more akin to expressions of self-efficacy: how capable they felt they were at playing a particular piece, addressing a specific task. What was clear, however, was their need to feel competent. This was best expressed by the musicians in their sense of accomplishment.

After a year struggling with learning the flute, Joan was happy to use her piano skills as a keyboard percussionist playing the bells in the concert band.

I feel pretty accomplished. I mean sometimes other kids try to play the bells and they can’t. But I can and I feel good about that.

Most students’ responses to feelings of accomplishment or competence were clearly linked to achieving a goal on a specific piece through practicing. When asked about whether or not he has a feeling of accomplishment after practicing, John says:
I think it depends on how I do when I’m practicing. Like, if I’m just messing around then, when I’m done, I feel like I’ve failed a bit.

Damian also makes this connection between a feeling of accomplishment and practicing, especially when the piece offers a particular challenge:

Well, it depends if I’ve really accomplished something, for example, something I’ve been stuck on, if I get it straightened out then I’ll be pretty happy and if I don’t then it’s basically another practice but I’ll feel that at least I got something done.

*How often do you get that feeling of accomplishment? Rarely or often?*

It really depends on the piece. Like practicing *Funktown* I got that feeling a lot because it has some hard rhythms

The need to feel competent is often expressed indirectly by the participants in their response to frustration when faced with a challenge in learning a piece. Erica was the one musician in the band who brought several years’ experience playing flute. She expressed a need to feel competent and, in the face of a situation where it might be threatened, she employs a flight strategy. Asked about getting frustrated, she responded:

Incredibly! I get really angry and I end up playing other pieces that I’m good at. Just to calm down a bit. And then I’ll go back when I’m cooled off. Maybe.

Doug has a similar response. When asked if he regarded himself as capable, he replied:

Depends on the piece. Like, at first I might say to myself, yeah I can do this. But then, when I go home and actually try it, I might say, I don’t really like this.

Erica’s mother also expressed her daughter’s need for a feeling of competence in explaining why Erica joined the band to play flute in the first place:

She was pretty excited about joining the band. Over the last few years, Erica has tried out for a number of recreational activities at the school, in sports, and unfortunately for her, she didn’t make any of the teams. And she tried every year, including up to grade 8. And when this was announced last year when she was in grade 7, she came home and she was so excited, because she said, I know I will get in! That was the main reason.
While Joan felt quite accomplished on the bells, her sense of competence in learning piano was a different situation. Her mother describes her this way:

Joan, I think she would look at it and figure out how hard it was. If she thought it was just a little bit hard, then I think she would try. If she thought it was way beyond her capability, then she would give up in a second. She would think she couldn’t do it.

Joan’s mother contrasts this feeling of a lack of competence with her other daughter, Keri, who plays French horn in the concert band and, along with her sister, has private piano lessons. She describes Keri as a musician who considers herself capable, someone who exhibits perseverance.

Keri expressed the relationship between her motivation and feeling of competence and, as an outlier, was the only participant to express a need for autonomy:

*You practice piano more than horn. Why is that?*

I’m better at it. It’s more interesting. Two hands together. Also, it’s just me progressing, I’m in control. I don’t depend on other people.

The need for relatedness was clearly expressed by many participants in the concert band. Cheryl, the bassoonist, noted that most of her close friends were going to join the band. The same relatedness is expressed in the trumpet section as well. When asked about the role of friends in his decision to learn to play an instrument in the band, Doug indicated:

Well, Damian’s been my friend like forever so when he said he was joining, I thought OK, I guess I will, too. As well as Mark. I think I’ve known Mark the longest. I used to live on his street.

*So, the three of you trumpeters have known each other for quite a while.*

Yup.

Relatedness in the context of private lessons is expressed in the musicians’ relationships to their parents. Don’s mother connects her son’s sense of accomplishment with his need to share it:

He gets a real sense of accomplishment, he does. And he’ll say, mom, did you hear it? And I’ll say no, I was busy, and he’ll say, let me play it for you.
Andy, likewise, has a need to relate to his mother in sharing his accomplishment:

I’ve always told Andy that the best part of Mummy’s day is listening to you practice. So he knows I love listening to his stuff. So if he’s kind of frustrated with the piece, he won’t want me to listen. But if he has a great piece and if he feels, even if it’s all wrong, he’ll say, Mummy what did you think? Did you like that? And he knows I’m here listening to his practicing. Sometimes he’ll say, come listen to this, I think I’ve got this. And I will specifically sit and focus on him as an audience. But he knows, when he’s practicing and I’m doing the dishes, I’m listening.

The findings in the area of self-determination theory, and in particular the need for competence, suggest that, even at a young age, perhaps before the participants have had enough experience to judge their perceived competence as musicians, there is the desire for a sense of accomplishment. What is significant in this area is that, in seeking accomplishment, most of the participants respond to challenges or frustration in non-strategic ways: Joan gives up, Erica resorts to pieces she knows, and Doug decides he does not like the piece. It is the intention of the guided practice intervention to equip the musicians with the cognitive capabilities to respond to challenges and frustrations more productively – more competently.

**Goal Orientation.** In the process of learning, the self-regulated learner is committed to achieving a goal. It is against this goal that the learner is constantly comparing their progress through ongoing self-monitoring and self-evaluation (Zimmerman, 1989). Musical – practicing – goals fall into two categories: mastery/learning goals and ego/performance goals (Dweck, 1986). The nature of each of these has a significant impact on the motivation and behaviours of the musician pursuing them: where one is going determines how one gets there.

Interview questions that prompted the musician participants to describe a possible mastery goal orientation were couched in asking about their handling of frustration or challenges. Their responses to feelings of accomplishment also gave insight into their goal orientation. As will be evident in the responses to questions regarding the method dimension of cognitive processes (McPherson & Zimmerman, 2011, 2002), few of the musicians are task-oriented in their approach to learning music. Their achievement goals, consequently, are more performance oriented, focusing on the entire piece rather than sections of it.
One exception to this is John, the oldest of the participants:

> Usually I believe I’m capable of learning a new piece. I might look at some of it and think it’s hard, but I think I can do it and I will do it. And I’ll just keep practicing that part until I get it right.

> *What would you say is your strongest asset as a musician?*

> Never giving up.

> *You’d describe yourself as fairly persistent?*

> Yeah.

Susan, the percussionist, also gives evidence of focusing on a task and wanting to master it:

> When I come back from drum lessons, I usually don’t practice right afterwards, I usually wait until later or the next day. But if I figured something out at drum lessons that I couldn’t get, when I get home I want to get right to it and make sure I really can get it, practice it more. Reinforce it.

Like Susan, Doug can focus on a specific challenge in a piece:

> If I’ve really accomplished something, for example, something I’ve been stuck on, if I get it straightened out then I’ll be pretty happy and if I don’t then it’s basically another practice but I’ll feel that at least I got something done.

However, even John and Doug are inconsistent in their goal orientation. Although John sees himself as persistent, his sense of satisfaction when practicing still rests in a performance of the whole piece. When asked specifically about when he feels a sense of accomplishment, John says:

> I’ll go back to that piece and just keep playing it over and over, the whole thing, and once I get it right I’ll feel like I’ve made a big accomplishment. And I’m really happy about it.

While Doug may sometimes work on an aspect of a piece that he is “stuck on” until he gets it “straightened out,” like John, there is an inconsistency in his response. When asked if he ever gets frustrated, Doug replies:
Sometimes, like if I’m playing something... like for example – this rarely happens, but – let’s say I can’t hit a high G and I know I can hit that, I usually can, why can’t I hit that? I’ll just play it over and over again and just get mad at myself.

Then what do you do?

I’ll just skip it, I guess, and maybe come back to it later or tomorrow.

Doug’s off-handed comment, “this rarely happens,” suggests an ego orientation: he has performed this note before and it is not achieving this past performance that frustrates him rather than a challenge inherent in the task itself.

Erica manifests a similar goal orientation when she wants to address a specific part of a piece but is seeking to replicate a past performance of it rather than a mastery of it:

What might frustrate you?

There’s this one bar in _Defying Gravity_ that I just can’t get right.

_Do you know what you want it to be? The way you want it to sound?_

Yeah. I mean, I’ve played it right before, but sometimes at home it just won’t go for me.

So, how do you respond to that?

Leave it for awhile and then maybe come back to it?

While these participants have indeed isolated challenging tasks in the music, their strategies indicate an inability to focus on mastering them in a strategic way; their response, rather, is to leave it and possibly try it later.

Doug and Erica’s response to being frustrated about not being able to perform as they have in the past is consistent with their response to playing for an audience as opposed to getting ready for rehearsal. Concert band rehearsal is an environment conducive to a mastery orientation. It is usually the case that musicians have been asked to prepare – to master – a small section of one or more pieces for rehearsal. It may also be the case that a particular aspect of the notation needs attention: dynamics, articulation, tempo or moving smoothly to a _segno_ or _coda_. The concert band participants were asked how approaching rehearsal might influence their practicing. The
evidence of an ego/performance goal orientation was strongest with Doug and Erica. When asked if his practicing was ever influenced by rehearsal with the band, Doug’s response was:

Actually, I wouldn’t say that about rehearsal, but it’s true about a concert more.

So, you’re really motivated to practice for a concert?

Oh, yeah.

Any other times?

When I had a really good rehearsal last week and I thought that I did really well or when I played something for somebody else and they said that’s really good.

Even Doug’s weekly practice schedule indicates that rehearsal is not foremost in his mind:

Does your practicing change as you get closer to Wednesday’s rehearsal? What’s the relationship between your week of practice and Wednesday?

Yeah, well usually I might take Thursday or Friday off, definitely practice on the weekends, practice really hard Monday and maybe not Tuesday.

Rehearsal seems a distant secondary concern of Erica’s:

Any time when you feel really motivated to practice?

When there’s something really big coming up. Like a concert. Like the teacher night when we sight read Linus and Lucy. There were parents and everything there and we hadn’t done a concert in a while and I wanted it to be the best it could be.

That influences your practice?

Yeah.

What about coming up to rehearsal?

Rehearsal? I don’t know...

Do you ever perform for guests?

I’ve done it before so, no problems. I’m totally good in front of crowds, people I don’t know. I’ve always loved performing.
Damian, too, feels the influence of a pending performance:

> While you’re practicing does it ever occur to you that, yes, I’m getting ready for a rehearsal?

Actually, I wouldn’t say that about rehearsal, but it’s true about a concert more.

> So, you’re really motivated to practice for a concert.

Yeah.

Mark was the only participant who felt that an upcoming rehearsal had an impact on his practicing. And even then -

> I think I practice harder the day before rehearsal. Sometimes.

> What about before a concert?

> I definitely practice harder before a concert.

Both piano and band musicians were asked about performing for others in their home as opposed to a school concert or recital. All the responses were positive in varying degrees. Cheryl was:

> Nervous at first, but OK. (then, emphatically) But NOT the bassoon, only the piano.

Andy also expresses being a little shy or nervous but, when asked if he would rather not perform:

> No, I’d do it because I’m kind of used to it because I’ve played in front of the whole school before. Yeah, I’m used to it.

When asked how he felt about performing for relatives, Don lights up:

> Excited! I did it for my brother’s birthday.

Parent responses illuminated little in terms of goal orientation. As the interview results will show in the area of cognitive processes, it is often the parents who are defining the task; their children approach learning a piece of music holistically (Gruson, 1988; Wiggins, 2002). Recalling that Doug and Erica seemed to have the most pronounced goal orientation towards ego/performance, it is not surprising that their parents’ observations corroborate this and establish clear links between goal orientation and motivation.
As reported by his father, it would appear that Doug has become a featured soloist in the arena:

And he does get a lot of motivation when he plays at his brother’s hockey games. Those parents, from the United States, from Mississauga, it’s amazing to me, and I hope it is to him, and I think it is, when he plays O CANADA, he just raised everybody to their feet. And he got everybody to clap. He did it on and off last year. Then this year one of the parents kept on asking him, can you play? And he didn’t know these parents that well, it was a new team, but it was, you got to do it. And so, off he went to play it. And the first time he was a little nervous I think, but the last 3 times... He played at the Power Centre in Brampton, which is a really big Junior A team. It just echoed... I think he played Defying Gravity for all the parents the other night when the kids went to get changed. I was on the other side of the stadium taking the banner down, and he had about 10 parents just standing there and they wanted him to play.

Doug’s mother, however, pointed out an unfortunate consequence of enjoying the limelight so much. As conductor, my perception of the three trumpet players – all participants in the study – is that they are about equally skilled. Therefore, whenever a score has more than one trumpet part, I rotate it among the section equally. Doug’s mother’s observation brought back an immediate memory of a downcast look when I gave Doug second trumpet for Pirates of the Caribbean:

Well, there was a piece just within the past couple of weeks, whatever he got, whether it was Trumpet 2 or whatever, with that particular piece he said it was boring. And I said, well think about it with the whole band. And I was sort of singing what I thought the woodwinds would play. And I said then you come in with a bom-bom-bom, you know, and he said yeah, ok. I’ll try it again.

Learning to play a musical instrument is, by its very nature, to learn to share that learning through performance. It is no surprise that parents want to highlight their children’s achievements for friends and family. Public acknowledgement of one’s achievement nourishes self-esteem. I would never discourage opportunities for these young musicians to perform. However, such a goal orientation, while natural, can potentially eclipse the mastery orientation that is essential for learning through meaningful cognitive engagement with practicing.
Cognitive and Metacognitive Processes. I have presented in this section the data of the pre-study profiles of the participants within the framework of the five psychological dimensions of self-regulated learning (McPherson & Zimmerman, 2011, 2002). These are: *method, time, behaviour/performance outcomes, physical environment* and *social factors*. The nature of the engagement that the young musician has with practicing within this framework is cognitive and metacognitive. The sixth psychological dimension as set forth by McPherson and Zimmerman (2011, 2002) is *motive*; I have chosen to document the observed data in this area separately in my examination of the affective-motivational processes of the practicer that have already been presented.

There may appear to be a conspicuous mentioning by the participants of addressing the ‘hard parts’ of a piece of music. I should qualify this by noting that, prior to my decision to focus on the effects of guided practice as a research study, I had already been seeking to discuss this metacognitive strategy with all of my private studio musicians as well as encourage it with those musicians in the concert band. As we shall see, however, this pre-study awareness of focusing on the ‘hard parts’ of a piece of music quite markedly illustrates production deficiency: failing to translate this awareness into meaningful action.

Method. The self-regulated learner employs task-oriented strategies (Hallam, 1997a). Data from pre-study profile assessments informed by musician and parent interviews, and corroborated by my own field notes, suggest that, with few exceptions, the musicians prior to the intervention of guided practice sessions, do not use practice strategies to address a specific task. Consistent with the research (Hallam, 1998b; Hallam, 1997a; McPherson & Renwick, 2001; Pitts et al., 2000b) the participants play through the piece from beginning to end. Their holistic view of the music (Gruson, 1988; Wiggins, 2002) is reflected in their practicing behaviours. My own observations at lessons, as well as viewing video recordings of lessons and participants practicing at home, confirm their focus on correcting single notes and moving on (Rohwer & Polk, 2006). Their practicing lacks the fluency that comes with addressing larger sections of the music (Williamon & Valentine, 2000).

Participants were asked to think about a piece of music which they felt that they had “worked hard on” and to describe what that meant to them:
Damian: Well, I practiced and now I look over my pieces a lot more than I did. But, basically, I just practiced and I worked on it.

Doug: Well, it means practice really hard. I practiced it more than once. Even more than twice. Making sure that I had everything perfect.

Andy’s response suggests his awareness of what he ought to do:

What does practicing carefully mean to you?

Well, it could mean starting at the hard part and just keep playing that part. And then once you’ve got that part perfect you could play the whole piece together and you might find another hard part that you’re kind of stuck on and then you fix that part. If I find a hard spot I stop and just play it from there and keep going over that part until I get it perfect. Well, first I’d look at the dynamics and then I’d see if there were any hard parts.

So, you’d look it over first? You wouldn’t just start playing it right away?

No, because I may not know the notes or I may not know if there’s a slur or if it gradually gets louder or it gradually gets quiet, softer or if it’s going faster or slower. I may not know how to play it or what the beat is, like whether it’s a fast beat or a slow beat or just medium.

So after you look it over, what would you do next?

I’d probably play the hard parts and then try to play the whole piece together.

But performance outcomes at Andy’s lessons indicate production deficiency: he doesn’t practice what he preaches. Shortly after this interview, I assigned Andy a piece called Tale of a Pirate Ship. The piece is a musical story comprising four sections, each challenging the musician with a different technique with respect to rhythm, articulation or tempo.

My memory of last week is that Andy really liked ‘Pirate’ when I played it for him. I knew he’d have trouble with Stowaway in a Barrel, the second smaller piece. It’s got pretty much everything: slurs and staccato notes, accidentals and a quick tempo. I knew the contrary motion would probably handcuff him a bit. And the whole thing’s piano and Andy loves to play everything loud!

He came in pretty excited and, as I always do, I asked which piece was the most fun for him to learn over the past week and he immediately
flipped to Pirate. The second section was a disaster! I couldn’t believe it! And he totally nailed the other three! I asked him which part he thought needed some work and - no surprises here - he said Stowaway. “What’s the problem, do you think?” His usual: “I don’t know.” So, I asked him to play it through and we worked on it in a GPS (guided practice session) way. After I’d say about 10 or 15 minutes, Andy could play it reasonably well.

After quizzing him a bit, it became apparent that not only had Andy not spent extra time on Stowaway, but he didn’t practice it hands separately or slowing down or focusing on the articulation. In fact, he’d skipped over it most times he practiced it and went right to Counting Jewels, the next small piece. The funny - maybe cute - part of our dialogue was Pam (Andy’s mother) sitting on the couch in the studio nodding the whole time with pursed lips mumbling something about, “That’s the first time I’ve heard that one”. I thought she was going to kill him!

(Field Notes – December 13, 2010)

Joan, in a similar way, was excited to learn a simpler arrangement of Beethoven’s Für Elise:

I wasn’t surprised that Joan hesitated a bit as she moved into the second motif at the bottom of the second page. But I was completely floored when the whole piece collapsed as she attempted - quite in vain - to play the octave E transition back to the first motif. Her fingers looked like they were tied in knots; she wasn’t even looking at the music but trying to guess which notes to play. After working on it for a bit, me trying to coax strategies out of her, I asked if she had given specifically directed time and attention and effort to that section of the piece... Didn’t think so!

(Field Notes – December 15, 2010)

Both of these situations – Andy and Joan failing to address the hard parts in a meaningfully strategic way – illustrate the young musicians’ inclination to stay in their comfort zone, to play over and over that part of the music at which they feel competent and which gives them pleasure. These scenarios illustrate production deficiency but only in a limited sense: in something of an expert way, the musicians are aware of the hard parts of the music (Duke et al., 2009; Hallam, 1997a; Nielsen, 1997), and they are capable of identifying them, but it is clear in the pre-study
interviews, and in observations documented in my field notes, that they lack an awareness of the strategies with which to meaningfully address the challenges. That, along with a desire to play what is fun, will tempt them to avoid the challenges.

John was the only participant who described anything that might approach a task-oriented approach to practicing. He employs one of the most common strategies used by expert musicians: “chunking” the music into smaller parts (Nielsen, 1997; Hallam, 1997a; Hallam, 1995). However, John’s decisions to focus on smaller tasks had no causal relationship with a challenge or problem that might characterize that part of the music:

Well, I split it up. I did one line and got that one perfect, then the next line and then put them both together. Then go to three and so on. And I’d do the same kind of chunking thing with the audio file. Listen to a bit, then play that bit and so on.

When asked about setting goals for his practice session, John did not orient his efforts toward problem tasks, but seemed to “chunk” in a simple linear fashion:

Would you say that when you practice you set goals for yourself?

Yeah. For example, I might say that I’m going to work on the first 20 measures and then I’ll chunk that into smaller groups of maybe five measures each.

Parent observations of home practice also suggest that the only “strategy” used by their children is playing through pieces in their entirety without addressing errors or problem areas in a meaningfully strategic way (Hallam, 1998b; Hallam 1997a; McPherson & Renwick, 2001; Pitts et al., 2000b).

For Keri’s mother, this can be a painful experience:

Do you ever notice them getting frustrated when they practice?

Joan does. Keri doesn’t seem to, or if she does, she doesn’t say anything. She just keeps going over it, like whatever song she was playing earlier, if she didn’t have it... Or even the Nutcracker one, da-da-da-da, that one, for some reason there’s just some reason she can’t get a part of that. It’s the wrong note almost every time, but she... I think I’ve got the wrong note in my head all day sometimes because she has played it wrong so many times! Whereas Joan, she’ll just try and
try and try to get it right, and then she gets frustrated. It’s sort of like a hissy-fit. She’ll just run upstairs.

Like other young musicians practicing, Cheryl likes to stay in her comfort zone where she has fun. Her mother notes:

The songs she likes to play, she’ll play them over and over and over again. And I think she feels her excitement grows.

Some of the parents of the piano students who sit in on the lessons attempt to prompt a strategic approach by their children during practice at home. The following portion of the interview with Andy’s mother reveals an interesting way in which, as Andy’s teacher, I am situated in the practicing at home:

He definitely needs me hovering and I definitely follow your notes. I don’t pick which pieces though. He chooses, and for example, in whatever order, he sits down and plays each piece 3 times through. Or something like that. Now I’m trying to get him to – I’m actually listening and if I hear he’s gone zzzzzzt! on a piece, and so I’ll say, stop. Where were you just playing? Let’s work on that. Then he’ll say, oh yeah, that’s what Mr. Picone said. So he definitely needs even more specific instructions.

My viewing of home practice video recorded by parents confirms the holistic view of music that young people have (Gruson, 1988; Wiggins, 2002) and that this perspective is influenced by a certain excitement to learn the whole piece, not appreciating the need to break it down and address certain challenges in a strategic way. Gwen was recorded in her home for several practicing sessions before Christmas. As a new piano student, she was quite excited to get to pieces that not only belonged to the festive season, but pieces with which she was quite familiar.

I really thought Gwen would have done a bit better on the Christmas tunes at her lesson today. But, after viewing several of her practices, I’m not surprised. She jumped right in on SCICTT (Santa Claus Is Comin’ To Town), playing hands together right away, flubbing the two bass clef accidentals – Bb and Ab – in the chromatic from C to G. When she hit the repeat, she went back and flubbed them again. I mean, she heard that they were wrong, but just stuttered around the keys – both times! – until something sounded right. She did the same on the final staccato high notes. (Why do kids always miss the last chord???) Then,
much to my surprise, after “finding” the right notes, she simply turned the page and went on to the next piece! She seems content to stumble through a piece, finish with a flourish of glissando, and then move on to stutter through the next one. Hmmm...

(Field Notes – December 11, 2011)

There was one outlier in terms of strategy use among the pre-study participant profiles. John “looks over” the whole piece in a strategic way:

I’ll kind of just look at it a bit and not play it and maybe finger the notes out and tongue but not actually blow so I’m kind of playing it but not actually making the noise. Just trying to see if I’ve got it right. And I’ll do that with the audio files. So, as I finger the notes and tongue, I can hear what it sounds like while I’m sort of playing it.

So you’re playing “air tenor.”

Yeah.

*Time.* The self-regulated student’s practicing would be characterized by time being used efficiently through careful planning and management (McPherson & Zimmerman, 2011, 2002). Evidence of this in young musicians would be reflected in their sense of practicing with goals in mind and moving through their practice in a deliberately organized way. Andy, age 7, offers a rather surprisingly insightful perspective on the relationship between time and achievement:

Do you think working really hard on a piece means you spent a lot of time on it?

No, it doesn’t have to be. Like you could be practicing every day, like for only 15 minutes.

Observations from the pre-study interviews with the musicians suggest that few of the students plan their practicing with goals in mind, and that their time is poorly organized. When asked whether she would consider her piano practicing organized, Joan’s response indicates that she is somewhat muddled in her assessment of what she does:

Mostly all over the place. I’d play it through first and find the hardest part.
Do you ever have a goal in mind when you practice or work on a particular piece?

I don’t really pay attention to a goal. I sort of just play it and see if it sounds good and if it doesn’t sound good then I play it over and over until I get it right. So, it’s not really a goal to achieve. But I’ll feel good after, but it doesn’t seem like a goal.

Joan does, in fact, have an implicit goal – finding and working on the hard part – but fails to really consider mastering it as a desired outcome – a goal. It may indeed be the case that her inability to have a meaningful goal in working on a piece of music influences the quality of her cognitive engagement: she merely plays it “over and over until I get it right.” The goal, it would appear, is to play the hard part over and over, not to meaningfully and strategically address and master it.

Cognizant that young musicians will often resort to spending time with their favourite pieces and ones which they can already play well – usually at the expense of the ones that need attention - I tried a checkmark system whereby students, attending to the notes that I wrote in their books, would try to strike a balance in their practicing and address their responsibilities. The number of checkmarks would indicate the number of times – for whatever length of time – a student practiced a piece. With Joan, at least, this may not have been a good idea:

I really thought *Tingalayo* would have been better today for Joan. She knew the tune and was certainly excited to learn the piece when I played it for her last week. We looked it over and after some leading questions on my part, Joan decided that the hardest part was M12 - 14: dotted quarter in the rhythm and the r.h. position change. I remember I suggested she might start practicing at M12, not the beginning. Although the piece had the most checkmarks beside it, it wasn’t very well done. Joan was all over the province at M12, struggling for the notes with no attention to rhythm or articulation.

I’m beginning to wonder if asking Joan to put checkmarks beside the pieces I’ve listed in her notebook is such a good idea after all. I made it clear that I wasn’t looking for a minimum number of times she’s worked on each piece. She understands that harder ones will probably need more time - more check marks - than easier ones. But it’s clear that making checkmarks has become the goal, not doing something intelligent with the piece before putting a checkmark in the notebook. I mean, we’ve talked about what section of a piece needs to be
addressed and what strategies she might use to master it. But perhaps
the checkmark idea is eclipsing where her focus really needs to be.

(Field notes – November 24, 2010)

The musicians’ responses to questions about organization and setting goals indicate that, if any
sense of direction exists, it is vague and lacks specificity. Assessments of their own organization
by both Damian and Doug are good examples of this:

What did working hard on it mean? What did you do?

Damian: Well, I practiced and now I look over my pieces a lot more than I did. But, basically, I just practiced and I worked on it.

Do you ever set yourself a goal or several goals when you practice? Or do you just play it through?

Doug: I don’t really set goals, I just look at the hard part and I usually start from the beginning because sometimes starting in the middle confuses me if I don’t know the song.

Doug’s lack of goal-orientation is evident in his almost cavalier attitude toward planning when
he is even going to practice:

Do you have a sense of when you’re going to practice today? After school? After supper? Before you go to sleep?

I really have no idea. It depends on where it goes. Like, I may not have a chance to.

Would you say you’re organized when you practice? Or is it more scattered?

I don’t really have a routine. I always buzz on my thingy (mouthpiece) first. Then I do a scale up and down. Then I kind of practice every piece, but in no specific order.

The absence of specific goals clearly has an impact on strategy use or, in Mark’s case, non-use. When asked if he had a practice routine, he responded:

Not really. It changes. If I didn’t get to a piece the previous practice, I’ll start with that one. If I find that a piece is going nowhere, I’ll stop and go to another.
The reason Mark’s piece is “going nowhere” is most likely because he has no idea where he wants it to go. This “grazing” behaviour – moving from piece to piece somewhat aimlessly – is also evident as a possible consequence of Cheryl’s lack of a goal-oriented practice. When asked how she would describe the organizational aspect to her practicing, she replied:

It’s more scattered.

*Can you describe what that means?*

Well, sometimes it’s organized and sometimes it’s not.

*OK. What does it look like when it’s organized?*

I don’t write anything down, but I start with something then move on to something else. I play one thing and see how far I can get on that and then move on to something else.

Keri was the only musician who offered some kind of strategy indicative of a planned practice:

I usually scatter all the pieces on my bed and look for tricky measures that I could improve on for school. I figure out what I’m going to do in each piece. Then I’ll put them all on my music stand and go, OK, first piece this part, second piece and so on.

For some of the parents, moving from piece to piece without any real plan appears, indeed, to be semblant of an organized practice.

*Do you have a sense or organization when Mark is working on the pieces?*

Yeah there’s a sense of that because he’ll go through, ok I did this one, and I did this one and I did this one. Ok.

For others, it is the opposite – playing the same piece over and over:

I would say [Joan’s practicing] is still pretty methodical. She’s pretty organized. She’ll keep practicing. Earlier she was trying one song which I didn’t recognize. She kept going through the same things over and over, trying to get past it, I think.

Hearing a warm-up would indicate to some parents that their child’s practicing is organized, although Doug’s father addresses this in a performance context – at a sibling’s hockey game:
Would you describe Doug’s practicing as organized? Where he seems to be going about it in a methodical way?

Doug’s Father: I’d say there’s always a warm-up, because I can hear him. Whether it’s at the rink or here, he’ll go through. Now, will there be a scale every time after he gets warmed up? Not always.

Cheryl’s mother was the only parent of a piano student to make reference to the notes I write for each student at a lesson. When asked about Cheryl’s practice planning, her mother observes:

I see her personal note pad and looking over her notes that she was required to, you know, the things you would like her to practice. And she marks little notes on them and she’ll, and she knows, not necessarily which order, she knows which songs she has to practice.

McPherson and Zimmerman (2002) describe the non-self-regulated learner as someone whose time use is “socially planned and managed” (p. 329). Not surprisingly, all of the parent participants indicated that their children had to be reminded on a daily basis to practice. Perhaps surprisingly, none of the parents indicated a confrontational response by their children. Don’s mother appears to be actively involved in planning her son’s practicing:

Do you ever have to remind Don to practice?

Every day! He’s a bit of a procrastinator, so he’d rather look at the piano sitting in there. And I’ll go, you have 15 minutes before you have to go to the bus. Get on with it.

Does he put up a fuss when you say that?

No. He goes to it. He’s been told by his father, that in the morning, if he ... Will he do it on his own? No. As soon as I say to him, get to the piano, get goes. I was having him practice after school. But then I found that when he would come home from school, he was tired, wanted some down-time first. He had homework to do, right? Then I would put him on the piano first for 15-20 min. Then he would be fading. So I figured in the morning, he’s just lying on the couch and ... waiting for me to say to get on outside, right? So I said get on the piano. He’s ok.
**Behaviour / Performance Outcomes.** The ability to respond to feedback on one’s performance by modifying, choosing and adapting to learn and improve on a retrial of that performance is a distinguishing characteristic of the self-regulated learner (Zimmerman, 2000a; McPherson & Zimmerman, 2011, 2002). It is an essential component of the *Self-Reflection Phase* of Zimmerman’s (2008) phases and subprocesses of self-regulation (see Figure 5, p. 74). A key component of this aspect of self-regulation is metacognition: an awareness of the demands of a particular task, of a repertoire of strategies to address the task, and of one’s own strengths and weaknesses. Meaningfully addressing a task is also contingent upon the ability to monitor and evaluate progress and, if performance outcomes are not satisfactory, to make appropriate adjustments (Hallam, 2001b). It is clear from the pre-study profiles that this is the area of effective practicing which leaves the most room for growth.

Interview questions in this area could only probe generalities. Musicians were asked to assess and evaluate their personal strengths and weaknesses in terms of anything about musical notation that they generally found challenging or difficult. Wind players were also asked to evaluate their technique. All students were asked about their use of recordings to help them monitor achievement.

As all of the musicians had been studying music and receiving teacher / conductor feedback from me for some time, most were quite aware of those aspects of notation that deserved special attention:

Don: Sometimes playing the dynamics. Sometimes I just forget to pay attention to them.

Joan: Probably I’d say if it’s a high note on the staff and I don’t know what it is. I don’t recognize it. It was the same on the flute. Rhythm’s pretty hard, too.

John: The speed of the song. Like if there are eighth notes and it’s fast then I can have trouble with that.

Doug: Dynamics is good. Reading the notes is good. I guess just the rests. Yeah, my problem is getting the rhythm. I forget rests and get ahead of everyone else sometimes.
Damian: Well, sometimes it’s the symbols. Like I’m fine with the dynamics and the crescendos and all those but some of the symbols get really confusing. There’s just a whole bunch of symbols and I have no clue what they mean.

Aware of her difficulty with rhythm while Cheryl was playing the bassoon in the concert band, she and her mother thought piano lessons would help:

Well, last year with the bassoon, I had quite a problem with my rhythm. I was concentrating so hard on getting the notes with all the funny fingering that I didn’t pay much attention to the rhythm. I thought the piano would help me with my rhythm.

For the wind players, most students, especially those playing brass, commented on improving their embouchure. Damian is also aware of how to address the challenges:

I mean, the trumpet is all embouchure; you’ve only got three buttons to push. It’s kind of hard playing high notes cause you have to blow a lot. And sometimes I get confused with the higher notes if they’re sharps or flats. The fingering sometimes.

Susan, the percussionist in the concert band, takes private lessons and her drum teacher has made her aware of aspects of her technique to work on developing:

I have to work on the bounce. I push down too much. It’s my wrists, he says, they’re locked or something.

Gwen revealed her propensity for creative fingering early in her piano lessons:

I’ve never really seen anything quite like Gwen’s disposition to completely ignore the fingering suggested in the pieces. If anything, many students tend to “play the fingers” instead of the notes, often not realizing their hands have changed position. Ouch! Then, for the life of them, they can’t figure out what’s wrong! Anyway, Gwen’s strong at reading the notes but manages to ignore the fingering. Today she did a back flip with her right hand to treble C from A for “Sleep in heavenly peace.” I pointed out that fingering is only suggested, but that it’s usually suggested for a very good reason. She’s beginning to understand that playing the indicated fingering is setting her up for something down the line. I was letting it go for the easier pieces but I can’t let her develop this bad habit. I’ve made a point of writing
“FINGERING!” in her book and asking her what she’s going to attend to carefully this week... “Fingering?” Yup.

(Field Notes – December 13, 2010)

Mark was the one outlier in this line of questioning. He was the only participant who expressed an awareness of his personal limitations in a physical sense. When asked about an aspect of music he might find particularly challenging, Mark replied:

Usually on fast pieces. Like Hogan’s Heroes, I get tired and start to slow down. Then I fall behind the rest of the band sometimes.

Also an outlier, Erica honestly assessed an attitude toward learning a piece of music that can have an impact on her practicing:

Is there any aspect of practicing would you like to change?

Sometimes I can be overconfident thinking this looks easy and then when I play it through I realize I was wrong about that and then I get frustrated.

In monitoring her own performance, Cheryl, the bassoonist, was the only participant in the pre-study interviews to express a concern with getting the right pitch. Hallam (2001a) emphasizes the importance of aural schemata against which one can evaluate performance:

How do you feel about practicing in general?

I like practicing on the piano, but I don’t like it on the bassoon.

Because...

Because the bassoon frustrates me a lot because if I get it right I can’t really tell because it sounds the same kind of. On the piano I can tell if I get it right and understand if I get it right but on the bassoon I never really know if I get it right.

I can understand that frustration. What do you think we can do about that?

(long pause – thinking)

You’re just not sure if you’re getting the right sound.

Yeah.
You can go to SmartMusic and just listen to the bassoon line. Would that help, do you think?

Yeah, I think so because then I could understand how it’s supposed to sound.

So, you would like a model of how it sounds. Do you think that would help?

For sure.

Mindful that Cheryl is now studying piano and understands how to read the bass clef, my invitation that she come up with her own possible solution was intended to elicit the conclusion that she check her pitch on the bassoon with the piano. Cheryl did not propose this conclusion, nor did she ever install the free SmartMusic software made available to all of the members of the band to assist them with such dilemmas.

All students were asked about their use of recordings to help them in monitoring and evaluating their performance outcomes. In the case of the band students, MP3 audio files were available for most of their repertoire; for the piano students, accompaniment CDs were available for many of the pieces they were learning. Only one concert band participant, John, indicated use of such resources. The rest seemed well-intentioned as typified in Damian’s response:

Do you ever use the recordings?

Those are the things you sent us on the computer? No, we haven’t listened to them yet.

There seems to be an incongruity here: with respect to motivation, most of the participants indicated that they gravitate toward practicing pieces with which they are familiar already or “know how it goes.” Yet, there does not seem to be the initiative on the part of the musicians in the study to find out “how it goes.” The second point which this aspect of the interview illustrates is an area where parents, likewise, fail to show initiative. The MP3 recordings were sent to the members of the concert band via electronic mail. All contact addresses are the parents’, not the musicians’. Perhaps facilitating this technology is too inconvenient for the parents.

One such inconvenience is illustrated in Doug’s desire to use the recordings to familiarize himself with the music. Asked where he usually practiced, Doug replied:
In my room because my parents don’t like the loud noise in the living room. But on the weekend I was allowed to do it once because I was home alone. So they let me practice with the computer.

Oh, with the recordings that I sent you.

Yeah.

So, typically they don’t like you practicing where they can hear you a lot?

The problem is mostly my siblings. They don’t like the loud noise.

So you always practice in your room unless you have the chance to work with the computer.

Yup.

By and large, parents had few responses to questions concerning their children’s self-monitoring and self-evaluation of performance. This is most likely because they are not familiar enough with music to assess this aspect of practicing. Two mothers, however, both of whom had some background in piano, provided feedback to their sons when they heard something that did not sound right. Mark’s mother notes:

He completes the piece. Probably if he’s stuck, you call it a wrinkle. I used to work a lot with him on the wrinkles. He’d work on it for a while, then he’d think he did it. And I’d say no. He’s got something now, I was upstairs and I could tell it wasn’t… And then he was done. So I came down. Where was that? I did call it a wrinkle. He looks at me. Well, I played it, he’d say. I didn’t even know the piece, but I could tell he was struggling. I said let’s just work on those 2 measures. Oh it might have been Pachelbel’s actually. He wasn’t pleased. But I had to initiate it.

Andy’s mother also tried to assist with feedback:

Will Andy ever stop and dwell on a problem area on his own without your coming over?

No, I don’t think so.

What about if you come over and say, the problem is right here. And then if you left, would he...
You know it depends. If, now I’ve noticed the last few times, if I say ok this is the new piece we’re doing. Where would you start? Then you two would say, ok, this looks like a problem area, this is a simple area, and if you say this is a problem area, maybe we should practice this more. Then maybe this week, when I say, this is a problem area. Mr. Picone reminded you. And he’ll say, right! And then he’ll do it. But if it’s a piece you have not gone over, and I say, this is a problem in the piece, then he’ll be, you don’t know what you’re talking about! Ok. I can hear you are playing all the wrong notes. But it won’t have the same effect as the professional has spoken. And I think that’s a part of Andy’s personality. He has a strong personality. Andy’s practicing behavior is characterized by start at the beginning and play to the end. He might go slowly if you have told him to go slowly, but only if you have told him.

Both of these interventions by parents to provide feedback illustrate a vital role that parents might play in at-home practicing. More significantly, in assessing the level of cognitive engagement by these young musicians, these anecdotes point out the students’ dependence on outside social factors to monitor and evaluate their performance. There is also a need for social influences to, in fact, urge them to address problems strategically.

I’ve just finished watching several of Andy’s practice sessions at home. While he illustrates some effective strategies in looking over a piece first and, sometimes, determining and starting practice at the hard part, it’s clear that he fails to meaningfully address performance problems. I don’t think it’s really a question of whether or not Andy can monitor himself. He keeps going over a part of Amazing Grace and is obviously not getting it; equally obvious is that Andy knows he’s not getting it. Still, he just turns the page after two or three non-strategic attempts, and goes on to Sonatina in C. Harumph...!

(Field Notes – January 14, 2011)

Garcia and Pintrich’s (1994) model of self-regulation distinguishes between the constructs of knowledge/beliefs and strategies. Pre-study profiles of the participants, in the self-regulated psychological dimension of behaviour/performance outcomes, illustrate that many of the young musicians are able to monitor their performance shortcomings – knowledge – and can indeed evaluate them as shortcomings, but they are not capable of addressing them in a meaningful way – strategy. I will address possible reasons for this in the analysis of the data in Chapter 6.
Physical Environment. The personal and behavioural factors that form part of the feedback loop in Zimmerman’s (1989) triadic model of self-regulation are always in flux (see Figure 4, p. 73). In a similar way, environmental conditions are constantly changing through the processes of learning and performance. Such conditions importantly affect learning and performance and the self-regulated learner will actively seek to structure and control his or her learning environment to maximize outcomes (Zimmerman, 1998). The physical environment in which a young musician practices is much more than a place; environment also entails certain musical paraphernalia, such as a metronome or music stand, as well as the availability of resources both in the forms of people and technology.

The pre-study profiles indicate a range of perceptions and behaviours with respect to the physical environments in which the musician participants practice. John and Damian are brothers and play tenor saxophone and trumpet respectively in the concert band. As they like to practice together, they choose an environment to accommodate this:

Why do you like the living room?

It seems like a calm place and it’s very tidy.

Is that where your piano is?

Yeah, and there’s lots of room so we can bring in some chairs and music stands, too.

OK, so you’ve got lots of space.

Yeah.

The two of you often practice together, don’t you?

Yeah.

So, you need a little bit of space. Do you use your music stand all the time?

Yeah, I use my music stand all the time.

The oldest of five children, John realizes that this practice environment can get pretty distracting:

If I need to really concentrate on the music, I’ll go up to my room or down to the basement.
Like John, the basement affords Susan a place free from distractions to practice on her drum kit. However, it is also less attractive:

Distractions? Not really. It’s usually pretty quiet. It’s good in a sense. There’s nothing to distract me. But, as I said, they’re [the drums] in the basement, so it’s just a matter of getting me down there!

A basement “studio” proved, in my opinion, to be the undoing of two music students who turned out, in fact, to be the two participants who left the study:

Not that I didn’t see it coming; but I was still sad when Eleanor told me after today’s lessons that she’s decided to stop her children’s piano. Of course, it means they’re out of the study. Eleanor came in every week lamenting Billy’s lack of practicing through the week even though she indicated he truly enjoyed the lessons. She said neither of her children played the piano much if at all over the Christmas holidays which really took me aback. If there’s any occasion when one shares music, it’s at Christmas! She was firm, however, in her decision saying their practicing habits and lack of progress just didn’t indicate any promise of being successful in the future.

Initially, I was puzzled; both children clearly enjoyed the lessons and showed some degree of natural ability. Billy, especially, has a strong sense of beat. Then I thought back on the one time I went to their home for a make-up lesson. I recall my utter amazement that the piano – a rather nice Heintzman left by a grandmother - was in a corner of the damp, unfinished basement, sitting on a raw concrete floor. The décor was pine 2 by 4 studs and dangling wires from the security system. On the other side of the furnace, two younger siblings raced around on plastic tricycles. Who the hell would want to practice here, I thought.

(Field Notes – January 28, 2010)

Like John, Don takes some control – rather decisively - over distractions that might intrude upon his environment:

My brother plays the Wii and starts poking me on the back because he’s bored.

What do you do when that happens?
I stop the piece and tell him to go away and if I have to say it more than three times I get my mother up there to drag him out of the room.

Siblings are also a challenge for Cheryl:

What kinds of distractions are there?

My brother and sister.

How do you handle it?

Tell them to leave me alone. It’s hard to get rid of my sister because she’s only four and likes to sit beside me and practice with me, so I usually have to ask my mom to come and get her.

Erica, likewise, takes some steps to secure a place conducive to practicing. There is, however, a sense that she is not fully prepared to let go of social contact with her friends:

Where do you like to practice?

In my room. It’s calming. I have everything turned off. I have my phone turned off.

Are there ever any distractions you don’t count on?

There’s a home phone in my room that I forget to put out of the room. When it rings I get annoyed.

Do you ever unplug it?

I put it out in the hallway and close the door.

What would you do if the phone rang?

Probably answer it.

As far as distractions go for Mark, he just puts up with them:

Sometimes it’s distracting if my mom is making dinner or my dad’s watching tv.

What do you do when that happens?

I usually try to block it out.

Ever thought of moving somewhere else or changing time?
No, I just usually try to block it out.

At my urging, as their children’s teacher and conductor, many of the parents had purchased a metronome for the young musicians to keep in their homes preceding these first interviews. Along with a metronome in their practice “studio,” all of the band students used a music stand. As a show of support for their commitment, these were a gift to each musician in the school band from the principal when I started the program there.

Not surprisingly, given their young age, none of the musician participants had a computer in their bedrooms. All of the students had easy access to a CD player. As noted earlier, however, this technology was rarely used to listen to professional recordings of songs being learned.

The portability of a wind instrument allowed all of the band students to practice in a variety of locations depending on their needs. Not surprisingly, none of the parents of these students needed to be involved as social influences on the practicing environment. Parents of two of the piano students, however, were actively involved in this dimension of practicing. Don’s mother pointed out that having their electronic keyboard (full 88 keys) near the glass door is important for her:

I close the doors and then I sneak up and peek to make sure he didn’t hit the record button and is actually playing. But the area is free of distractions.

Andy’s mother is sensitive to potential distractions and adjusts her son’s practice schedule accordingly:

If he sees that anyone else in the house is having fun in any way, shape or form, then he doesn’t want to do it. So the best way, since Andy doesn’t have very much homework, is to have him practice when the others are doing their homework, because no one is having any fun.

Living in a small semi-detached home, and not wanting the piano in the same room as the television, Keri and her sister Joan practice in what amounts to the dining area of the kitchen. It is a “high traffic” zone and, in this environment, the piano, especially for Keri, is an irresistible magnet. Her mother makes this comment:

If anything, I have to tell them to stop playing on the piano and do whatever they’re supposed to be doing. Homework, dinner, whatever. Like yesterday, Keri
kept getting up from dinner to go back to what she was practicing. I said come back and eat! You have to do ....whatever! Can you wait till we’re done dinner? It’s getting cold!

**Social Factors.** “When they hit discouraging points, most students said they only continued if they had a strong relationship with someone who supported them through the rough spots” (Cushman, 2010, p. 52). While help in some form is usually available for the practicing musician when they face what they perceive to be an insurmountable challenge, the self-regulated learner is distinguished as one who will actively seek out that assistance (McPherson & Zimmerman, 2002).

When practicing at home, parents are the logical source of help. Some musicians, however, feel their parents are not qualified enough musically to assist them. In the beginning, Cheryl would ask one of her parents for help; things changed after a while, but she still involves them:

*Do you ever ask for help? From your mom or dad?*

If I’m working on something, like, sometimes I do. Like last year. But this year I realize they’re even more clueless than I thought. So, I really don’t ask them for help.

*Do you ever ask them to just come and listen?*

Yeah, I’ll ask them to see if it sounds good.

Don is likewise tentative. When asked if he ever asked his mother for help, he said,

Sometimes, but I have to figure it out because she doesn’t know much about music.

As noted already, one musical family has three participants in this research study: John and Damian, who play tenor saxophone and trumpet respectively, and Andy who studies piano and has been playing trumpet in the band for about six months. Interestingly, even though their mother has some musical experience, they tend to rely on each other. Damian describes it this way:

*Do you find it helpful to practice with your brother on the tenor?*
Sometimes if I have trumpet 2 he helps me with the rhythms because sometimes he has the same rhythms.

Do you ever ask your mom for help?

Not really. It’s usually just me and John helping each other.

Would you ever hesitate to ask John for help? I mean he’s a little bit older.

No. I’ll ask him.

You’re kind of lucky to have somebody that’s in the band living in the same house with you.

Yeah, and sometimes we help Andy on the piano.

When struggling with the piano, Andy goes to his mother. When asked about what might frustrate him, Andy says:

Maybe I’m getting like mad at myself because I just can’t play the piece because it’s too hard and I just get upset sometimes.

It just won’t go the way you want it to go.

(nods) It’s too hard.

What do you do when that happens?

I just ask my mom or dad if they can help me and ...

Are they able to help you sometimes?

Yup. They help me most of the time ‘cause the new pieces are hard.

Like Andy, Mark is aware of mounting frustration and, knowing his mother plays the piano, seeks her assistance:

If there’s a really frustrating part, I’ll ask my mom for help before I give up on it.

How does she help you?

She’ll play it on the piano so she knows how the rhythm goes and then she tries to explain it to me.
Mark’s parents are sensitive to their son’s need for support and ready to respond:

Father: He has a temperament to work through it, so it’s not, “I quit.”

Mother: No, he’ll call me. He’ll say how do you count this?

Father: He can be in there struggling, but we won’t know. Then all of a sudden you’ll hear him doing the beat with his hands. I’ve heard him play, then stop, and then he works out his problem.

Would you say Mark gets frustrated easily?

Mother: I would say no. If he’s really struggling, he’ll call me. He’ll say I can’t get these notes, I can’t get this beat.

With three sons in music education and having studied the piano herself, the mother of John, Damian and Andy is not only a keen eye-witness to sibling support, but is also available to help Andy on the piano:

I think John and Damian complain to each other. Complain’s not the right word. Grumble. I can’t get that note and I think there’s something wrong with my trumpet. And John is like, well just try harder. Or Damian will be like stop whining. I just want to get this music. You’re interrupting my practice too. So I think they will each do that. Or try squirting some stuff in there. I think these two helping each other is great. They seem to reinforce each other’s stick-with-it-ness.

Would Andy ask you for help?

Yes, he does, particularly the day or two after your lesson, he’s very rough on the pieces and he’ll say, mummy I can’t figure this out, and we’ll go over it. Now unfortunately, he’s getting to a stage, because I don’t know my notes as well as I should... but I’m not necessarily a huge help to him, but he can figure it out and with me there he can say, what’s wrong, what is this note? And I’ll go F-A-C-E and figure it out and then we can figure it out together. Or I can see, obviously, that his hands were one octave too high or low. So I can still help him out on that basic stuff, quite often that’s what the problem is.

It may be rare that a parent with no formal musical would take an active interest in assisting their child with practicing. Indeed, other than listening more in the capacity of audience rather than providing helpful feedback, none of the “non-musical” parents were a resource for their children.
Don’s mother was the one outlier in this regard. Her willingness and capacity to assist her son is most likely informed by her attendance at his lessons where she observed my working with Don.

Sometimes he says, mom, I don’t get this, how am I supposed to do this? And I’ll say, I don’t know, Don! He’ll huff and puff and I’ll say what’s wrong and he’ll say I can’t get past this part. So I say, what’ll we do, where are you stuck, OK, let’s play it. Then let’s play a little bit before and a little bit after. And then I’ll ask him, does that really sound right and he’ll say, no. And sometimes he’ll just fiddle with it and he’ll get it. And he’ll say, mom I’m supposed to use two hands and I say, OK. And he says, but how am I supposed to do it! Sometimes he just needs a couple of words and he’ll figure it out. He just needs a little bit of reassurance or he needs me to give my opinion and then he’ll say, no, no, I think I’ve got it.

*Sounds like Don doesn’t hesitate to ask you for help.*

No, not at all. I feel bad because I don’t know much, but I feel I can guide him.

Naturally, this relationship bears fruit when Don does succeed; he wants to share it with the one who has helped him:

When he finally figures it out, he gets a real sense of accomplishment, he does. And he’ll say, mom, did you hear it? And I’ll say no, I was busy, and he’ll say, come here and let me play it for you.

Though not in a position to help her daughter with challenges in notation, Erica’s mother is aware that her daughter will seek help from the band conductor:

I think it was earlier on in the band when she was frustrated with a piece and she said I can’t get this, I need to talk to Mr. Picone. I said ok.

*So, does she ever ask you for help with anything?*

I don’t play an instrument, so …

*She doesn’t see you as a resource then?*

No. If she’s frustrated with a certain piece then she will say mum, I’m just not getting this and I’m going to talk to Mr. Picone.

Erica was an outlier in this regard: at the time of these first interviews, none of the other band musician participants sought help outside of rehearsal time though I indicated that, if asked, I
would be happy to come early and work with any musician through morning recess. By contrast, Erica would come to me prior to rehearsal to ask if I could help her with a problem after rehearsal if I had a moment to do so. It was always rhythmic in nature.

Few elements of self-regulation characterize the portrait of the musicians prior to the study. In the area of affective-motivational processes, students are largely motivated to practice by their enjoyment of the piece and the external attainment motivation of being prepared for rehearsal or pleasing the teacher at a private lesson. Although the musicians expressed a degree of competence, their handling of frustration was not strategic. Goal orientations are, for the most part, performance/ego in nature with the imminence of concerts proving a powerful external motivating force.

With regard to the cognitive and metacognitive processes that would characterize the musicians prior to the study, their responses indicate a high level of production deficiency: there is some degree of metacognitive awareness of task orientation and practice strategies, but their use is repeatedly eclipsed by a holistic view of the music to be learned. Consistent with other research in this area (McPherson & Renwick, 2001; Pitts et al., 2000b; Hallam, 1997a; Rohwer & Polk, 2006), the only strategy used by most of the musicians was playing the piece through from beginning to end, sometimes stopping to fix errors, usually only once. Responses by parents who attend private lessons indicate that they urge their children to use more task-oriented strategies. My viewing of practice sessions recorded at home, along with field notes that reflect my observations at lessons, corroborate this portrait of the pre-study musician.

Students’ responses indicated poor structuring of practice time with few, if any, goals in mind. Parents indicate practice time characterized by playing pieces once through in their entirety and moving from piece to piece. Parents and students both indicate the need for frequent reminders to practice.

Metacognitively, students are aware of strengths and weaknesses with respect to notation and technique in a general way as distinct from evaluation of performance on a particular task. Responses from both students and parents suggest poor exploitation of technological resources that could help develop aural schemata potentially assisting in self-evaluation of performance.
Half-Way There! – Mid-Point Assessment Survey

Data reflecting possible consequences of the guided practice intervention after six months\textsuperscript{19} were gathered by means of a musician questionnaire and a parent survey. The questionnaire asked students about the frequency and duration of their practicing, cognitive engagement through the use of strategies, and affective-motivational processes such as focus, persistence, and senses of competence and accomplishment. After each comparative multiple-choice question, the students had the opportunity to elaborate on their choice with comments or examples. Musicians were also asked to indicate anecdotally how, if at all, the guided practice sessions had made a difference towards their practicing. Parents were asked to share their observations in these same areas in an anecdotal way.

**Musician Survey Responses.** Responses to the musician survey indicate several noteworthy changes when the students were asked to indicate practice strategies which they now use that they did not use prior to the study. All but one of the participants indicated that, when starting a new piece of music, they look over the entire piece first, then find what they deem to be the difficult parts and start there. Some representative comments by the students are:

- I just look at the music and go straight to the hard parts.
- I used to ignore the challenging parts, but now I try more.
- *The Crawling Spider* – measures five to nine gave me some difficult *(sic)* but by persisting I have become better at it.
- In *On the Crest of A Wave*, I was scared of the hard part but I tried it and it wasn’t so hard after I practiced.

Most of the musicians indicated that, in their practice, they “define a task and focus on that task” and that they will “make the task smaller if necessary.”\textsuperscript{20} Among the survey responses are the following:

\textsuperscript{19} This is the same period of time over which Pitts et al. (2000b) investigated the practicing of three musicians roughly the same age as those in the current study. They note that “In musical and cognitive terms, the children studied displayed few significant changes over time” (p. 53).

\textsuperscript{20} Quoted from the survey
I always define a task and if after a while I can’t get it I go to a different piece and take a break the come back to it to straighten out the wrinkles.

I pick a couple of measures to nail ‘em good!

As I start each piece during practice, I pick something on it to work on. One piece rhythm, next piece – the R hand notes.

I play little pieces of the music (measures) and once I am good at those, I put them together.

Similarly, all but two of the participants indicated that they felt their practicing was better organized than before. Musician responses include:

I use different tools to help me instead of me just playing the whole piece over and over again.

I understand what I’m trying to achieve, and how I’m going to achieve it.

I now seem to actually know what to work on.

Turning to questions pertaining to affective-motivational changes, a little more than half of the students noted an increase in persistence, confidence, more focus, a greater sense of accomplishment and, overall, a more positive attitude toward their practicing. For example:

When I practice with tools I practice the piece good. I may work on one measure for 15 min. and mastered it, still gives me a great sense of accomplishment.

I turn of (sic) my phone.

I think the sessions have helped because now I find I can master a certain part faster than before and I am a lot more confident about practices and rehearsals.

After a practice I usually am happy because I get a hard part in the music figured out.

One of the most telling responses is that only two musicians said that they practiced longer or more often. Students seemed to realize that quality of practice time is more important than quantity.

I now realize that I get more done in less time.
I try to practice more often and for less amounts of time.

Andy, the youngest participant, a piano student seven years old at the time of this survey, writes the following in response to whether guided practice had made a difference in the way he practices:

It helps me a lot. I can focus more. At the lesson Mr. P helps me find a sticky part. When I am at practice I work on that sticky part. Then I find other sticky parts and work on that. Then I put it all together.

At lessons, I would often switch from performance mode to GPS (guided practice session) to address a problem the student has encountered, or when beginning a new piece that the student and I have agreed he will start learning for the next lesson. A significant observation I made at piano lessons during GPS was the spontaneous use of strategies by all of the students when they encountered a difficult section or sought to correct an error. These included slowing the tempo, clapping rhythms using the Kodaly rhythm syllables, tapping the beat with one hand while playing the notes with the other, naming notes out loud before playing them and asking me to play the newly assigned piece because, “I’d like to hear how it goes.” In some cases, especially with slowing the tempo, the students, when asked, were quite unaware they had done so, indicating an automatizing of this strategy.

Video recordings of home practice at this time indicate an increase in the cognitive engagement of the musician when practicing:

I fully anticipated Andy choosing to start with British Grenadiers at the lesson last week. He likes anything with heavy bass chords and lots of fortissimo! There was a rhythm inaccuracy - dotted quarter again! - and, after some questioning and prompting - it’s so hard NOT to tell him what to do! - Andy clapped out the problem spot using the rhythm syllables several times and correctly played the problem measure. He then attempted to play the piece from the beginning and, sure enough, flubbed the rhythm at the spot he had just worked on. However, he stopped immediately, hearing his mistake, went back a couple of measures and played through to the end. “Once more from the top?” I asked. “Sure thing!” No problems this time.
“You didn’t clap that out at home, I guess.” “No,” he said. “I forgot.”

Hmmm… I sent home the camera with his mom and asked if she could get some home practicing recorded.

I viewed a really interesting clip of Andy beginning to learn Auld Lang Syne. There was quite a suspenseful moment when, after looking over the piece for a rather long period of time, he sat poised with his fingers on the keys, ready to play, and then… pulled them away and clapped out the dotted quarter rhythm of the melody! Yay, Andy! He did that a couple of times and then played it with just the right hand. Maybe some of this stuff is actually sinking in.

(Field Notes –February18, 2011)

One unanticipated result at this mid-way assessment of the participants’ practicing was the “invention” of strategies:

In all kindness, I’m beginning to think that Cheryl’s rather conspicuous inability to feel a beat and play the rhythm accurately is genetically encoded! Her grandmother comes for a lesson two hours before Cheryl and it’s the same damn thing! Harumph! With grandma it’s a preoccupation with the notes; I know that because she’s always telling me and blames her glasses when she plays a wrong one! But Cheryl came in today and played all the notes correctly and at a good tempo, just without any attention to the rhythm and a beat that wasn’t even discernible! I guess what I find puzzling is that she’ll play a measure rhythmically correct and then, two measures later when the same pattern comes up, she’ll play it completely differently!

Today she played Riding the Wind. In the B section, the melody switches from r.h. to l.h., maintaining the same rhythmic pattern: ti-ti-ta in 2/4 time. Cheryl played it accurately when the melody was in the r.h., but when it switched to the l.h., the eighths became quarter notes. Rather than just tell her it was wrong and show her the correct rhythm (though the temptation was incredible!), I asked Cheryl to clap and then play one of the r.h. measures which she did correctly. Then, I simply asked if she noticed anything about “these two measures,” pointing to the one she just played and one with the same rhythm in the l.h. when the melody was there. She said that the rhythm was the same even though the notes were different. Then, without my prompting her at all - here’s the neat part! - she played the r.h. measure followed by the l.h. measure, matching the rhythms, about
five times. Not only was I impressed with her “inventing” a strategy on the spot, but also that she was able to draw upon her own understanding of the challenges she’s had in the past with rhythm: she realized without my telling her that the problem was rhythmic in nature.

(Field Notes – April 27, 2011)

It would appear that such inventing of strategies also happens at home:

I knew Owl In the Woods would give Andy trouble; it gives every kid trouble! It’s the piece that introduces the dotted quarter. To be honest, I don’t think the Faber team thought this one through very well. Probably better to have the new rhythmic concept by itself in each staff, or, at the very least, a unison rhythm in both staves. Anyway, at the lesson last week, Andy only needed a brief refresher as to the job of the dot; he’d already learned the concept with the dotted-half that’s introduced early. He’s good with the rhythm syllables, so ‘ta-m’ as a vocable to represent the dotted quarter was no problem either. We clapped out a few rhythms - no sweat. With a few minutes left in the lesson, I thought it a good idea to give Owl a short trial just to be sure he’d go home and not learn it incorrectly. But the piece, in ¾ time, matched the dotted quarter; eighth, quarter rhythm in the treble staff - ta-m ti ta - with three arpeggioed quarter notes in the bass.

Naturally, it didn’t fly after several trials h.t. (hands together). Andy, on his own, tried h.s. (hands separately) with no problems at all. He tried it h.t. again. No go. Again, on his own initiative, he clapped out the treble staff, easily incorporating the new rhythm syllable, ta-m. But his brain - understandably - wanted desperately to play the same rhythm in both hands. We were both getting pretty frustrated and, as the lesson was already 15 minutes past its time and another student having arrived, we called it quits.

So, imagine my surprise when, after asking Andy what he wanted to start with today, he lit up and flipped to Owl In the Woods! And nailed it! My mouth hanging down around my knees somewhere, I turned to Andy’s mom who, as usual, was reading a book on the couch behind us. I didn’t have to say anything and she responded to my “what gives” gesture with: “I don’t know, either. All I can tell you is that he was slapping his left thigh a lot this week.” It turns out that Andy “played” the bass clef quarter note rhythm by tapping his leg with his left hand
while he played the melody on the piano with his right. Then, when he felt he was ready, he played a single note bass - somewhat discordantly, I guess - and finally added the proper notes in their arpeggio form.

I guess what overwhelms me here is not only that Andy approached the problem strategically, but that he “invented” a strategy! I asked him for permission to share this tool with other students; he said it was OK.

(Field Notes – March 12, 2011)

**Parent Survey Responses.** Parents of 11 of the 13 participants responded to the survey which was conducted by electronic mail. The questions invited responses from the parents that were anecdotal in nature. Consistent with the musicians’ responses, all of the parents noted their child focusing on the more difficult sections of a piece of music and seeking to master that task.

He works at small pieces of the music, sometimes just 2 notes in a row, until he masters it.

He will look over the piece and he will attempt to play areas of difficulty right at the start.

It is quite cute to hear him talking out loud, just as he does to you during lessons, about what he is to look out for.

Surprisingly more than the students, the parents commented on the use of specific tools by their children, especially use of the Kodaly rhythm syllables (*ta, ti-ti*), the metronome, and playing hands separately if a piano student.

When the music requires two hands, he will first try with both and then will play one hand at a time till he feels confident to proceed with two hands.

One mother who, as with all the parents of piano students, was present at her child’s lessons, would actively observe the guided practice as I worked with her son. She indicated that she used to have to remind him about practice strategies he could use when he encountered a challenge. In her response to the survey, she noted quite emphatically that one significant change she noticed was an increased independence in the use of strategies.
Andy definitely uses clapping and ta-ta on a regular basis. He does this unprompted for new pieces. As for practicing hands separately, on pieces that he finds challenging or longer pieces that seem a bit overwhelming, he will use this. Again, he does this unprompted.

Other parents had similar observations concerning strategy use:

During practice, he doesn’t get stuck and then stop like he used to. He knows how to attack the problem by himself now.

She’s got solid strategies in place to help her persist like chunking trouble areas and working through them before putting it with other sections she feels more successful at.

All of the parents noted an increase in persistence as well as a more positive attitude toward practicing at home:

Susan (the percussionist) has a much more positive attitude when approaching practice time as she feels successful more frequently. She’s also practicing on any surface available!

Keri’s mother wrote:

The piano seems to be a magnet to her and she has trouble passing it without playing a song or two… She does seem to pick the wrong times to practice though – it is always just before dinner or bedtime – I seem to be asking her to stop often.

Although she did not use the terminology of research in commenting on performance/ego goal orientation versus a learning/mastery orientation (Dweck, 1986), one parent seemed to intuitively note an increase in motivation as a result of a shift in goal orientation:

At some point in the lessons (maybe Nov??), you had talked with Andy about not having to play the piece perfectly at the following lesson. Andy was to pick sticky parts and then work on those. You stressed improvement, not perfection. (At least that is what we have interpreted it as!) This has taken a lot of pressure off of Andy. He will work on a difficult piece, but if he is getting frustrated and angry, he is able to put that piece aside knowing that you will be ok with this. I don’t mean to make this sound like he gives up. Andy will continue to work on that piece each day. But knowing that doing his best, with some of the tools you have given him, is great. If he improves a little each day, you will be fine with this. This has been like a safety net for him. He does not always need it, but it has given him
permission to move on to another piece BEFORE he gets frustrated. He is able to enjoy the practice and not feel stressed about perfection. He plays a bit, claps or uses the metronome or slows down, until he has polished a section and is still feeling good about the piece. Then he is able to move on to another piece. In this way, I think you have given him permission to enjoy learning, to view practice as a peaceful “me” time without Mom interfering (other than to tell him to slow down). He is able to progress at a speed that he is comfortable with.

Both musicians and parents were asked about being reminded to practice. Half of the musicians felt they needed to be reminded less frequently but all of the parents who responded noted that little had changed by way of reminding their children to practice.

In the pre-study parent interviews, many of the parents indicated that they would like to see increased independence in their children’s practicing, that is, not having to remind them as often to practice. One mother suggests a possible flaw in even posing the question: how often a musician needs to be reminded to practice is an irrelevant indicator of motivation to practice. In her view:

I don’t think whether or not the child needs to be reminded should be a benchmark. The kids are so busy with everything else going on in their lives that they need reminders for many of the things they enjoy. I think it is more a function of being a child and not having an adult’s sense of the passing of time. A better indicator, I think, is their reaction to being reminded. If practicing music had the same reaction as chores, we would not be continuing the music. When I do remind John, he starts practice right away. Since he is king of procrastination, this would be a better indicator of his enthusiasm, rather than the actual reminder. He definitely enjoys playing and looks forward to the concerts, even if I am the only audience. That tells me that this project is a success.

And, finally, a completely unlooked for parent observation:

I think it is also important to note how the practices affect other areas of Damian’s life. Last year we saw an amazing jump in his self confidence. Last summer he even had the confidence to try out for a more advanced level soccer team, something unbelievable in prior years. This year he has made even more advances and I think the change in practice technique has been influential. In the last 2 months he has had 2 major projects. Damian’s usual plan involves waiting until the night before and having me stay up until midnight helping him. But for
each of these assignments, he made a plan to tackle small sections of the project
each night. One night research, the next night writing, the next night drawings.
Then he put it all together. And he wanted to do it by himself. Sound familiar?

The most notable observations, as assessed at the midway point of the study, focus on the
cognitive processes of self-regulation. Both musicians and parents indicate a more task-oriented
approach to practicing, specifically targeting challenging sections of the music. There is also
evidence of more strategic thinking as well as goal orientations characterized by
learning/mastery. Interestingly, there was no significant change in either frequency or duration of
practicing.

**Post-Study Interviews**

Near the end of the school year, following approximately ten months of guided practice
intervention, I interviewed the musician participants in the study to examine if anything had
changed with respect to their motivation and attitude toward practicing, their practicing
behaviours from a cognitive and metacognitive perspective, and their identity as musicians. I
also interviewed the parents with questions addressing these same areas.

**Affective – Motivational Processes.**

*The Musicians.* The most conspicuous changes in affect and motivation were in the area
of self-determination theory (Deci & Ryan, 2000), especially with respect to a sense of
competence and, for those musicians in the concert band, relatedness. The importance of doing
well – attainment value as part of the construct of expectancy-value theory (Eccles & Wigfield,
1995) – was also evident in the relationship expressed between practicing and preparation for
band rehearsal. Differences in musicians’ goal orientation (Dweck, 1986) was most clearly
manifest in their responses to questions about their cognitive processes concerning method; I
shall address goal orientation in presenting these results later in this section.

The most interesting aspect of expressions of accomplishment was the musicians’ connection of
this feeling with their view of the way they practiced.
Is your sense of accomplishment any different?

John: I think I have more a feeling of accomplishment by taking the time to figure it out. You know, instead of almost having it right and just doing it quickly.

So you feel good about the way you’ve gone about trying to learn it rather than the outcome.

John: Yeah.

Mark expressed a similar sentiment:

Yes, since I feel I’m getting better at practicing I succeed more. So, yeah, I think I feel more accomplishment.

Damian’s sense of accomplishment demonstrates a link to a mastery goal orientation:

What about your sense of accomplishment?

I usually feel a bit more accomplished like cause I’ve done a bit more, I’ve worked on the piece, I’ve got some more work done and, like, I’m proud of myself. If there’s a really hard part and I get it done then I feel really good.

Can you think of a part that you achieved that you feel particularly proud of?

Again, I think West Side cause that was the hardest piece cause the rhythm was changing a lot and it was hard to keep up with it sometimes and like I had to practice a lot when to come in cause I had a lot of rests and I had to come in right on time or else it would sound horrible.

Don’s mom usually brings him to lessons and she’s used to things. Not only the way we work with the GPS, but also Don’s usual struggling performance. It’s not that he doesn’t try; only that he has to try a lot harder than any of my other students. He’s also busier and I can count on one of every three lessons being cancelled for hockey or soccer or something. So I said hi to his dad who brought him today with some trepidation not knowing how he’d react to my anticipated response to Don’s achievement, or lack thereof.

I was a little taken aback when I noticed that Don had The Crawling Spider open before I had scarcely finished the morning chit-chat with Max. “You want to start with that?” Don didn’t just smile - he beamed! What gives, I thought. He’d only learned flats last week and sharps the
week before and this piece was loaded with accidentals of both kinds in both clefs.

But for the crescendos, Don nailed it! No hesitations, no incorrect notes, no rhythmic mistakes... I just turned to Max who was comfy on the couch texting someone. When he looked up, I just shrugged my shoulders and raised my eyebrows. He went back to his Blackberry and said, rather nonchalantly, “He practiced in the morning this week!”

* I gave Don a big high-five. He just kept on beaming! *

(Field Notes – April 16, 2011)

Don remembers the moment in his interview:

* What about your sense of accomplishment. Do you think it’s any greater? *

I think it’s grown a lot.

* Is there a piece you’ve learned recently where you felt a real sense of accomplishment? *

*Crawling Spider.* And I remember a long time ago, *Trumpet Song.*

Susan’s observation of her sense of accomplishment reveals volitional control (Corno, 1994) in order to protect her intention to accomplish her goals:

* What about after practicing? Do you feel a sense of accomplishment? *

Yeah, I’d usually feel a pretty good sense of accomplishment if I got something done. And if something’s not working, then I’ll walk away from it for a little bit and then come back so I wouldn’t get so frustrated with it, I guess. Usually I get it quicker if I do that.

Susan, who is graduating from elementary school, is quite aware of her competence as she anticipates the forthcoming context of high school music:

* Well, I feel a lot more confident with the drums actually, yeah. Cause I’ve learned so much more and everything. And I think when I get a piece next year in high school I’ll feel better cause I’ll know how to understand it. *
Relatedness is also part of motivation within the construct of self-determination theory. Susan suggests that her practicing is related to her involvement with others in the band:

> I understand that, when you’re in a band, everyone relies on you, so you don’t want to be the person to bring them down because you can’t play it. So, when I go into rehearsal I want to be prepared because I don’t want to be the one to bring everyone else down cause I didn’t practice.

*Is that on your mind when you practice?*

Yeah, like if there’s something I couldn’t get, I’d really practice it so I wouldn’t screw it up for everyone else.

Mark and Doug likewise connect effective practicing with band rehearsal:

*Do you feel any different coming to rehearsal?*

Mark: I feel more ready cause I’ve practiced well.

Doug: I feel like I’ve lifted a weight off my shoulders that’s been building over the week. Like, oh, man, I don’t know if I can play that on Wednesday. But when I practice, I feel really good. I’m ready for rehearsal.

Doug was the only musician that expressed something of an epiphany related to his attainment value and motivation:

*Do you feel any difference in your motivation to practice?*

Yeah, I guess a bit. I mean at the beginning of the year we had *What A Wonderful World* and *Funkytown* and we’d been playing them since last year so I was a bit more confident in myself and because I felt I knew those pieces really well I thought I don’t really need to practice. But now we have new pieces and I’m feeling the importance of practicing. I want to play well and I know practicing is the only way I’m going to do it.

The one outlier in the area of affect and motivation was Keri who, in addressing her sense of competence, seems to be suggesting that accomplishment for her is finding a state of flow (Csikszentmihalyi, 2004), seeking a balance between her ability and the challenge inherent for her in the music:
Do you think your relationship to practicing has changed? Do you feel any differently about it?

Well, I like practicing but sometimes it’s hard to work on the hard parts. But once I actually do it, I feel good about it. But I don’t usually have a problem practicing at all.

What about your sense of accomplishment now?

Like, I feel like when I play a piece that doesn’t really have any hard parts and I just play through it, it’s not really as rewarding as when it’s a really, really hard piece or it has a really, really hard part in it, and I get through the hard parts and I feel really, really good when I put it all together.

The Parents. As noted in Chapter 3, Methodology, the semi-structured nature of the interviews allowed for the emergence of responses that prompted unplanned – but relevant - questions. The fifth question of the post-study interview with the parent participants (see Appendix F, p. 330) asked about any changes in the musicians’ general attitude toward making music or their participating in band or private lessons. Although this question was open-ended in design, many of the parents’ responses centered on self-determination theory, particularly the need for autonomy and, more specifically, agency. As already stated in Chapter 2, the literature review, it is this sense of agency that is most aligned with the musician’s sense of musical identity (see Hargreaves & Marshall, 2003).

When I posed this question about changes in general attitude, however, I did not anticipate the response I received from the first parent interview I conducted which was with the mother of Keri and Joan. Her response focused quite specifically on musical identity and prompted me to ask parents in subsequent interviews about this. Data from the interviews indicate that one of the dominant themes in the parents’ responses to questions pertaining to affective-motivational processes was an increase in their children’s sense of identity as musicians. This was evident to Keri’s mother while on a March Break vacation in Jamaica:

She really surprised one day on our holiday down south. There were these metal drums, I guess they have a name.

Steel pan drums?
OK, I guess so, and we were just watching a performance of them in the street and I was just enjoying them, you know. But Keri immediately wanted to do it, learn them. It was more than just entertainment. She was wondering what it would be like to play them... Overall, I think they’re much more aware of the music around them. Keri will pick out a melody and play it by ear. Maybe they see music differently. It’s not like, just out there like a magic trick. It’s something that can be learned and figured out... And then there was the time when she had all her friends here and they sang around the piano while Keri played. Like, that took me back to a time when I didn’t even live, right. I only heard stories from my mother about when she did that, you know, 50 or 60 years ago. It’s great.

Mark’s mother comments on car rides:

He loves music more now than ever and the radio is on more, especially in the car. He’s always picking out the brass in the songs, always picking it out. Just talking, driving, and he’ll say ‘trumpets’.

Backseat musical behaviour has also changed with Don:

*What about Don’s identity as a musician? Does he respond any differently to the music around him?*

Oh, yes. Before when we put the radio on he wasn’t really interested. Now I notice that he’s got this going (moves her head) and this going (tapping her finger on the table) and he’s starting to sing or hum. He does that a lot more. He was very embarrassed because he’s not a singer, but now I can hear him. He vocalizes a little more and I see him tapping a lot more than he used to. Before, his brother would be in the back seat singing and Don would just be quiet, but now I can hear them both singing in the back. Yeah, that I’ve noticed.

Similar to the responses of the students, parents commented most notably on the developing sense of accomplishment by their children. Mark’s mother notes how achieving his goals further fuels Mark’s sense of his own competence:

*After practicing, does Mark have a sense of accomplishment that’s any different than what it was?*

Yes, much more, much more. A much greater sense of having accomplished something. Cause he’s better. He feels his practicing was worthwhile, that he
achieved something. I mean, he’s always been persistent, but I think more so now because he gets it eventually.

Switching from clarinet to drums had an impact on Susan’s sense of competence as noted by her mother:

*How would you describe Susan’s belief in her ability to learn something on the drums?*

It’s high. Oh, yes, it’s much higher than it was before. Yeah. And I know it wouldn’t have been like that if she were still playing the clarinet. She just didn’t have that same sense of confidence. Where now, every time she plays a new song and works through those kinks it just elevates her confidence that much more. And then when she gets some helpful feedback from you, or when I or her dad give her some praise, that just boosts it even more.

Motivated by a sense of accomplishment not only informs Damian’s musical practicing but seems to have had an impact on his sense of competence in other areas. His mother notes:

*When you give them a new band piece Danny comes home and goes zzzuuut and he’s practicing it. So he’s very enthusiastic when he faces a challenge which I will say he’s usually not in other areas of his life. He does not approach new challenges, like, if he can’t do it perfectly the first time he really does not, if he finds it too overwhelming he just stops. He won’t do it. And definitely this year, a little last year, but this year in particular that, yes, when he gets a new piece he’s very enthusiastic about trying and accomplishing and I’m going to do this. Now I don’t know if that’s for him or for you or for the band. But it’s definitely occurring more this year than last year.*

Upon asking about their children’s sense of competence, several of the parents described a more enthusiastic desire by children to share their accomplishments.

*How would you describe Don’s sense of accomplishment after practicing?*

His sense of accomplishment is much higher. Like, he’ll call me and say, mom, listen to this. Or, did you hear it? How was it? Did I do good? He does do that with me. He really, really does enjoy it.
I asked Andy’s mother about his accomplishment not only after home practice, but also how he feels coming to a piano lesson. Andy is not only anxious to share with his mom, but with his teacher, too:

I would say for his practice when he’s gone over a bumpy part he’s like, mommy, mommy listen to this! I’ve got it, I’ve got it. So he’s like woo-hoo, I’ve got it. He’s very excited about that part of it. Like last week we were practicing a part, and it didn’t go so well in the lesson, unfortunately, but he was, like he does play better at home and he got over this wrinkly part and he was very excited that he accomplished that and so, it’s like time for piano and he’s like out the door. He’s definitely looking forward to that depending on how he does at the lesson.

Would you say Andy calls you over to listen to something he’s been working on more now than before?

Absolutely, absolutely! He definitely knows when he’s accomplished something and he wants to share that accomplishment.

Along with attesting to a greater feeling of accomplishment, an interesting link many parents expressed was between this growing competence and musical identity. Doug’s mother describes her son’s exuberant identity as a trumpeter following his accomplishment at a joint concert with the high school grade 10 class:

Does Doug, do you think, feel a greater sense of accomplishment?

Yes, absolutely. Especially during one of the performances at the school. I can’t remember which one, but I asked him what he thought of the performance and he said, the trumpets rocked! We really nailed that. And at [name of high school] Mr. Jonson (the high school conductor) said something about keeping the [elementary school band] trumpets quiet and we talked a little bit about that. So, that must make you feel good that you guys have such a large presence within the band. And he said, yeah, it’s really great! So, it’s not just the sense of accomplishment within the music, it’s also the camaraderie as well as, I believe the analogy you use is teamwork. So, it has offered many, many things.
Adding the role that the ensemble experience plays, Susan’s mother likewise makes this connection between accomplishment and identity:

I think she thinks of herself now as a musician where before she was somebody who just had an instrument in her hand and was learning the notes. And I think band was a big part of that. She’s part of that team, part of the puzzle and I think the positive feedback you were giving her as well made a difference. I’m not sure how that links with practicing, but there’s definitely a change in her attitude.

After practicing, does she show any greater sense of accomplishment?

Yes, I think so. And I think a lot of that comes with her thinking more of herself as a musician. That she, like she’ll finish her practicing and come upstairs and be tapping on the furniture and, like, she continues on and I think it’s becoming part of who she is as a person rather than, my drums are downstairs and I only practice and only for whatever length of time and then I come up and I’m done. So it’s now becoming part of her lifestyle.

Doug’s parents suggest that, for their son, the dynamic works the other way – it is Doug’s growing identity as a musician that informs his developing sense of competence and, in turn, his motivation to practice:

Mother: Seeing himself as a performer is huge for his confidence and because he’s the oldest I don’t know whether it has something to do with the age he’s at. My second son sees himself as a hockey player. But the struggle of trying to find his identity has been hard. But he certainly sees himself as a musician.

Father: It’s very much part of his life. Like hockey for his brother. I mean he doesn’t have it in his back pocket, he doesn’t take anything for granted with music, I don’t think. He knows he has to practice it and learn it and it’s not going to be just snap your finger and done. But to go back to that thing he connects with be it a jingle on tv or some part of something. I mean I remember that at school. There are always certain pieces that you really like and you’ll stick to those: “I really want to get that!”

When he’s listening to something on the tv or on the radio or somewhere, does he ever point out the trumpet?

Mother: Yes, for sure! That’s just what I was about to say. When something comes on the two of us can get into a discussion about it. Oh, listen to the brass section,
or he’ll say something like, do you think that’s an alto sax or a... and I’ll say I don’t know, let me hear that again. He’s usually pretty good.

As an outlier, Doug’s sense of accomplishment can be compromised by the ego/performance goal orientation that was evident in his first interview at the beginning of the study. Perhaps it is this orientation that informs his identity. His mother recalls a conversation after a concert where Doug did not play 1st trumpet:

Near the end of the season there was this piece and it was after the concert and I commented that the band did a great job and how did you feel about it. And he said, well, it was OK, but it’s not one of my best pieces. And I asked him why and he said he was – I forget – second or third trumpet and he said, referring to one of the other trumpet players that, I guess, had the first trumpet part, oh, it’s their piece. They’re good at that one. So, I was kind of getting the feeling that he had resigned himself to the fact that I didn’t do that one very well, and oh, I only do a couple of little things in that anyway.

By contrast, according to their mother, brothers John and Damian have maintained a mastery/task goal orientation, recognizing their responsibility to the band:

If you have said here are the pieces and we need to work on A, B and C, parts of each piece. This was a little rough or that was a little rough, when they come home they definitely have, here’s our list of things we need to accomplish and they’ll go through each thing and each task. So they’re definitely not necessarily attacking the entire piece but doing a list of whatever it is you’ve given them.

The experience of relatedness in the ensemble context has an impact on Erica’s motivation according to her mother:

She enjoys playing in the band and she likes the recognition. She likes the audience and she likes being part of a team. So, as long as she has all of those, collectively, I think she’ll excel. But if she were to attend private lessons or do it on her own, I don’t know how much drive she would have.

*Erica took flute lessons before coming to the band. Do you think joining the band accelerated her commitment or enthusiasm?*

Oh, 101%! Yup. In fact, if it wasn’t for the band, I don’t know if she’d even still be playing her instrument. She just loves the idea of playing as a whole group, and I
mean maybe if she had an audience if she was playing on her own, maybe. But she likes the camaraderie of the band, the social part of it.

According to Mark’s mother, relatedness experienced when joining together with the high grade 10 class for a joint concert augmented her son’s motivation:

He talked an awful lot about the trumpet players at [name of high school]. He knew their names, he knew who had come last year to [name of elementary school]. Who was graduating, what grades they were in. Who had a solo in whatever song. He was very in tune to what they were doing. They played the same instrument as he did and they were really good. He was very in tune with that. I think sitting with them, rehearsing and playing at the concert at the high school, well, they were over the moon.

When asked about any changes generally in the way her daughter learns a piece of music, Susan’s mother, surprisingly does not respond with an observation in the cognitive domain but, rather, comments on attainment value:

Attitude – that’s been the biggest thing. Maybe it’s been the conversations she’s had with you about practicing and how to improve her abilities, the attitude has come with that. She’s much more receptive to, in fact, improving her skills rather than just wanting to play. I think her attitude over the past year has definitely changed and she’s looking at playing the drums from a different angle and it might be a little bit of maturity maybe, but she approaches it from a different angle. And I’m not even sure I could put my finger on it, but I think she just has a more positive attitude toward music in general and wanting to become a better musician.

The significant themes evident in the observations by the parent participants are succinctly summed up in this illustration by Susan’s mother. In it, she comments on competence, identity and relatedness:

Now we have discussions about music. She’ll be listening to the radio and we’ll be driving and she’ll say I can do that, that’s a really simple drum line. She’s thinking more like a musician rather than someone who’s just learning to tap out a song on the drums. And she’s already starting to talk about high school and playing for the band. She’s really excited about taking music in first year and being bumped up to tenth grade, like everything has given her so much more confidence in her abilities.
Cognitive and Metacognitive Processes.

The Musicians. The most notable changes in practicing behaviours with respect to cognitive processes were in the area of method (McPherson & Zimmerman, 2002). In contrast to the data gathered from the first interviews, the musicians’ responses in the post-study interviews suggest a much broader and more varied range of strategies used in their practicing. What is of more significance, however, is the ability of the students to select an appropriate strategy to address the challenge they perceive. While playing hands separately, slowing the tempo and checking fingering may have been predictable strategies, there were others that are not as common: penciling in a breath mark, the use of recordings when learning to accommodate multiple measure rests, ascending a scale to reach high notes, and the extensive use of the piano by a trumpet player (see Austin & Berg, 2006; Rohwer, 2002; Rohwer & Polk, 2006).

The midpoint surveys revealed a much higher sensitivity to the parts of a piece of music the musicians found difficult. The post-study interviews indicate a higher level of analysis of these hard parts and the ability to articulate what makes them hard. This focus also gives evidence of a shift in motivation with respect to goal orientation: musicians in their comments on dealing with the “hard parts” of a piece suggest a higher level of mastery orientation.

When asked how he now prepares a new chart, John says:

Back then, I’d go for it right away, try to play it right through and now I’d look it over quite a few times and try to find a tricky part that I think would be hardest to play and play that and try to find another hard part and get the hard parts down and then once I have that down I’d play it through.

Can you think of a piece that had a hard part?

In West Side Story.

What was hard about it?

A couple of the rhythms close to the end in the part after “America”, at the ending.

You mean, “Somewhere”?  

Yeah, that’s the part.
How did you address that hard part?

I found out where the beats were and where the notes are between the beats, clap it out. Sometimes I’ll mark in the beats with a pencil.

Susan faces challenges with tempo changes:

How has your practicing changed? Do you go about learning a new piece any differently?

I think I’m more focused now. I mean, I look over the notes first instead of just trying to play it right off the bat. I’d always read it through and then focus on just one part instead of just trying to just play the whole thing through from the beginning. Like, I’d break it down and pretty much tackle the hardest part first.

What’s hard for you in percussion?

Well, for me it’s if it uses a lot of different parts of the kit, or if it’s a challenging rhythm. Like if there’s something I don’t understand or there’s a time change or something.

Can you think of an example?

West Side Story because the time changed so much.

How did you handle that?

A lot of the time when we were with the band I’d listen to other people. Obviously I couldn’t do that when I was practicing. Or a lot of the time I’d listen to the music first, the recording, listen for when the time changes and listen to the drum part and then try to play it like they did in the song.

A quick tempo and high notes challenge Mark on his trumpet:

What makes a hard part hard?

The rhythm.

Can you think of a hard part that you were trying to learn?

Lord of the Dance. Page 2, it was really fast and there were lots of different notes. Some 16th notes.
Then what did you do?

Slow it down and work it measure by measure.

Anything else? Besides a fast tempo?

Rhythm and sometimes the notes if they’re really high.

What do you about rhythm?

I slow it down and clap it.

Is clapping something you do often?

I do now. At the beginning of the year I didn’t.

Clap or the rhythm syllables?

I don’t do them both at once. I usually clap OR say “ta, ti-ti.”

How do you work on getting the high notes?

I practice the scale going up to that note. My mom told me to do that.

One of the new challenges in band, as pieces get longer and more complex, is having several measures of rests and knowing when to come in on time. Keri faced this challenge as well as breathing effectively playing her French horn. Her solutions to these problems:

Tell me more about going to the hard part.

Yeah, sometimes I go right to it and sometimes I play around in the piece and then get to it. Like, I accomplish a little bit first and then go to the hard part and start working on it.

Can you think of a piece with a hard part?

West Side Story with the horn when I had that solo part with the clarinets and the flutes but I was the loudest out of all of them.

What made it hard?

Making sure I have enough air and my lips are tight enough to get it all right and knowing when it’s going to come. I know sometimes I didn’t breathe in the right spot and couldn’t hold that one note as long as I was supposed to.
How did you work on that part?

The recordings helped because it gave me a sense of what everything else sounded like before I got to that part. But I also borrowed your “pinkifier”\textsuperscript{21} and put in a big “B” where I needed to get a breath.

Don is quite aware that he still struggles with his two hands doing different things:

If I were to give you a new piano piece and watch you learn it, what might I see that’s different than before?

I’d be more focused, I’d pay more attention to the notes and the measures and the dynamics and stuff.

To the details?

Yeah.

So you’d spend some time looking it over first.

Yeah.

Then what?

I’d go to the hardest part and figure it out and see if I could play it.

What makes a hard part hard?

Playing notes together at the same time.

Hands together?

Yeah.

Can you think of a recent piece that had a hard part?

(thinks for quite a while) Well, I’ve Got Music doesn’t really have any hard parts. Jazzy Joe is pretty OK. Oh, yeah, The Bubble. The second page where there’s lot of hands together parts and there’s accents, too.

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\textsuperscript{21} I keep a pink highlighter on the conductor’s stand. I invite musicians to “pinkify” something on their chart if they want to. For example, some will often highlight \textit{D.C. al fine} to remind them to return to the beginning of the piece.
So, playing hands together makes a hard part hard. So what do you do when that happens?

I go first the left hand and then the right hand. And if I get the notes right, then I try it hands together to see how it goes.

Something akin to playing hands separately on the piano, Susan, the band percussionist, separates her “parts”:

I break up the parts. Like I’ll do just the hi-hat, then just the snare and then try to put them together. Then maybe add the crash.

There is also evidence that, once students get a sense of what might constitute a challenge for them at a lesson, their view of a piece of music and strategy selection is shaped by that experience when they are practicing at home:

Norm is still working on the Superman theme. We spent quite a bit of time on the rhythm last week. It took him a while to feel the two beats in 6/8 time. I guess his last teacher told him to count to six which, I think is pretty common. I mean that’s what the top number means, doesn’t it? Anyway, it was the bass C pick-up note - an eighth note - into the next measure that was messing him up. The same thing happens with the melody: there’s an eighth note leading to the second beat of the measure. I asked Norm to take the pencil and circle the beats - a combination of three eighth notes or rests - in the problem measure. We tried to work it through that way; it was still pretty clunky.

Anyway, I was delighted when he came today to see that Norm had circled beats in several other measures. And he played the rhythm with those nasty pick-up notes quite well. But the real delight - for both of us, I think - was the end of section B, where the time switches to 4. It crescendos (and Norm loves volume!) to a half-note chord riddled with accidentals! Norm didn’t hesitate for a moment; nailed it! I asked him afterwards what he thought of his playing. He pointed to the section with the time change and suggested it needed more work, there were some hesitations, he said. I pointed to the chord with three flats and asked how he managed to learn that so well seeing as how we didn’t even address it last week. He smiled at me and said, “I must have played it about a million times this week, just that chord. And then the part before it lots of times, too, you know, that leads up to it.”
When I asked Norm if he ever sat down with Superman and started somewhere other than the beginning, he just pointed at that chord and nodded with a big smile. Norm’s shown lots of growth in his perception of and willingness to do some chunking.

(Field Notes – December 12, 2011)

One of the musicians who, over the course of the guided practice intervention period, appears to have changed a great deal is Doug. Formerly, this trumpet player was very motivated by an ego/performance goal orientation. He also enjoyed a unique environmental factor – playing the national anthem at his brother’s hockey games – which fueled his motivation. Part of the shift is Doug’s increased sense of responsibility to the band. When asked about his attitude toward practicing and whether he felt it was more positive or negative, Doug replies:

A bit of both. Sometimes I’m so tired that I feel like I don’t want to practice but then I think, but you have to know that piece for rehearsal on Wednesday, so it’s overall more of a good thing than a bad thing.

Doug also gives evidence of using several strategies when addressing a difficult part, including chaining when he feels he has it right:

Overall, do you think the way you’re practicing is in any way different than it was in the fall?

Yes, definitely. In the fall I’d kind of just do it. I wouldn’t even think about it. I’d just go up and play a song. But now, I actually think about what’s difficult and what’s easy and now I try and pace myself and tell myself what I think I should be working on.

OK, so let’s say you’ve decided that this part is easy and that part is hard. Then what would you do?

Well, first, to find out where the hard parts and easy parts are, I’d play the whole piece through and then I’d work on what the hard part was to make it easy.

Then what would you do once you’ve defined the task?

Well, the task is like a series of measures, let’s say four measures, so I’d play that over and over till I got it right and then I’d play the whole piece through and make sure that it fit with the rest of the piece.
What strategies might you use to get it right?

Sometimes if I don’t know a note I’ll check the key signature or I’ll check my fingering chart. And sometimes I might define the task to an even smaller part. Like one measure.

Can you think of an example?

On the Crest of a Wave, the beginning was hard because we started rehearsing the end of the piece first, so I was used to it being fast so I had to slow myself down. And the key signature is different in the middle, so I did that there, I checked my fingering and the key signature and I think I used the metronome once. I clapped it out sometimes, like ta’s and ti-ti’s and sometimes if I knew the piece well enough then I’d go down and play it on the piano and sometimes that would help if I was having an off day.

Was there a piece where the rhythm syllables were particularly useful?

Crest of a Wave. That part where it goes (he sings it here using the Kodaly rhythm syllables).

Also highly motivated by pursuing goals that were ego/performance in orientation at the beginning of the study, Erica seems to have not only shifted her focus in this regard but, like Doug, seems to have been somewhat humbled by the reality of practicing:

What are some strategies you’re aware of now that, perhaps, you weren’t aware of before?

Slowing down, identifying the hard parts, or what part might give me the most trouble.

Is there anything different in learning a piece of music now?

I focus more on practicing the harder parts rather than just playing the parts that were easy or that I liked. I used to just play the parts I didn’t have trouble with.

Can you think of a hard part in a particular piece?

West Side Story, there was a flute part in it where you heard mostly me and Sarah (the other flute player), it was before “America”. That part was hard because of the rhythm. Getting everything on the right beat and everything.
What did you do about that?

I slowed it down and went from there.

Do you ever put your flute down and use the rhythm syllables?

That’s not a tool I usually like to use.

Ever look over the whole piece?

Yeah, that’s something my first flute teacher encouraged, so it’s kind of a habit.

What are some things you look for?

The parts that look like they’ll be the most challenging, that I might have trouble with.

What about looking for any notes where you might not know the fingering?

Well, I used to feel I could cross that bridge when I get to it.

And now?

I’ll look the piece through and check out any fingerings I don’t know first.

At seven years of age, Andy is the youngest participant in the study. As his pieces become more complex, his hands change “positions.”

Try to imagine a new piece in front of you. You’re at home. How would you go about learning it now?

I’d probably use, well, if it’s hard, I’d use the tools, but if it was one that I could learn pretty easy then I’d still use the tools but I wouldn’t need to use all of them.

What makes a piece or part of a piece hard for you?

When the notes are going fast and you have to switch really quickly.

You mean switch positions?

Yeah.

Can you think of a piece recently that you had to learn that had a hard part?
Allegretto. Or the other one. Cause I had two choices, so the other one... vivatто or something.

Vivace?

Yeah, Vivace.

What was hard about Allegretto?

Cause when I was playing it there was a part when you had to switch lower.

Your left hand?

Lower, really fast. And I couldn’t get the notes.

What do you do about that?

I don’t know. Just look at my fingers. But then I make a hesitation.

At the time of the post-study interview, he had not figured out how to deal with this. The following field notes, however, are from a lesson that took place shortly thereafter:

Andy just can’t seem to get past hesitating in Allegretto. I fully understand why. When I play at church, with all those l.h. octaves, I just take for granted that I can navigate my way around the keyboard without looking. But that takes a long time to develop. I was a little frustrated in how I was going to help Andy switch his l.h. position without losing his spot on the music and hesitating until he found it again. We tried memorizing some parts, but the piece switches so much... Anyway, today I helped him analyze the l.h. We looked for any common notes when the position switched, like maybe the l.h. 4th finger was on the G that the thumb would move to. I asked Andy how he might use that to his advantage. It didn’t take him long to figure out that he could simply find the G with his thumb by orienting it to his 4th finger; his pinky fell naturally on the bass C and... Bob’s your uncle. He still kept looking at his fingers. So, I covered up his hands and asked him to play the l.h. only. He only fumbled the first time and then had it. He gradually got up to speed. The look on his face was priceless: “Hey, I can do this!” I asked Andy’s mom if she thought she might do the same at home, cover up his hands and challenge him to trust his fingers. “No problem!”

(Field Notes – June 8, 2011)
An interesting result, in considering the strategies used by the musicians, is the number of times, in response to performance outcomes that are not satisfactory, they employ volitional strategies “to protect their intentions to accomplish goals from competing intentions and surrounding distractions” (Corno, 1995, p. 229). These strategies deal not so much with environmental distractions as with a response to possible frustration. There was the sense from some of the interviews before the study that frustration was met with giving up. In several of the post-study interviews, musicians’ responses suggest they have not compromised the pursuit of their goal.

Don will try a piece hands separately for a while then attempt to play the grand staff “to see how it goes.”

*And what if the piece isn’t going the way you want it to go?*

Sometimes I just take a break for just five minutes and then come back.

When Mark was asked ten months ago how he would respond when encountering a frustrating part of the music, he responded:

*If there’s a really frustrating part I’ll ask my mom for help before I give up on it.*

When asked after the guided practice intervention what was different when he received a new piece of music, Mark said:

*I’d probably go about learning it differently. Instead of starting at the beginning, I’d look for the hardest part.*

*Then what?*

Practice those measures.

*What if it stayed really hard and wasn’t working?*

I’d just keep practicing that. But I’d break it down into even smaller measures. Maybe even down to one measure.

As will be noted later in a consideration of changes in physical environment, Damian relies heavily on listening to recordings. His resilience is evident in this volitional strategy:
What would you do if you couldn’t get a recording?

I dunno. I guess I could go on the internet and see if I could get a video of the music or something like that.

To pursue his goals more effectively, Don has changed his practice schedule:

I practice in the mornings sometimes now. In the mornings I’m more positive. Afternoons, after school I’m not that positive cause I’m very tired from school and I have homework and stuff.

Consistent with findings from the mid-study survey, none of the students had significantly changed either the duration or the frequency of their practicing. When asked about this, Damian notes:

Do you think that anything else has changed in terms of how often or how long you practice?

I haven’t changed the time cause you don’t really need to cause it’s like how you practice. I usually spend about half an hour and I find the hard parts and practice them and that usually takes me about half an hour.

Faulkner et al. (2010) suggest that musicians who work their practicing around other fixed activities rather than seeking to practice at the same time every day are more likely to continue in their music education. When asked about her practice schedule, Keri, an avid basketball player, says:

I don’t really have a set time every day to practice. I can’t! I usually practice a lot one day and then maybe miss a day. It depends on what’s going on that week.

Erica, surprisingly, addressed neither challenges in the notation nor her technique when asked about areas where she thought she needed improvement. Here, too, the musician is aware of a need for volitional strategies in removing distractions. Unfortunately, Erica still finds it hard to let go of one distraction. At the beginning of the study, she was able to put the home phone in the hallway; she has since acquired her own cellular phone:

What do you think you have to work on most with the flute?

Mostly staying focused when I practice.
Do you find that hard?

Sometimes. I try to ignore everything else, but it’s hard.

What would hurt your focus?

My phone. Definitely. (laughs)

That’s easy to fix: shut it off.

I know. But I can’t bring myself to.

As the one outlier, Erica was the only musician to comment on distractions. There were, however, other changes to many of the musicians’ practicing environments. All of the participants already had a practice studio equipped with a music stand, but Doug has gone a step further:

I always practice in my room. I’ve added some music posters to my room so that kind of helps.

At the beginning of the study, few students took advantage of listening to MP3 audio files of many of the band pieces in spite of my sending them to parents by electronic mail and even providing CDs for students who desired them. Reflecting a desire for an aural image of the music (Hallam, 2001a), many students at the time of the post-study interviews made listening to model recordings part of their practice environment (Barry & McArthur, 1994).

Along with recordings, Damian also makes use of the metronome:

Usually I just check the rhythm on my metronome and then I check if my trumpet is in tune and in my spare time I listen to the recording to get a better idea of that music and so I listen to the recording a few times so I know the music better. And it’s easier to play it.

So, do you find listening to the recording is a tool you really like to use?

Oh, yes, that definitely helps a lot.

Susan, the percussionist has also added a CD player to her basement studio:

Let’s say you have a rhythm problem. What do you do?
Sometimes I clap it out or go through it in my head. And, like I said, I listen to the recording. When I hear the rest of the song, I find it easier to figure out the rhythm. I also take it really slowly at first, then gradually speed it up.

Keri uses recordings extensively to help her with the French horn in band, not only to check her intonation, but, unlike Damian who counts through multiple-measure rests, to familiarize herself with the entire piece and “know” when to come in:

If I have the recordings, I’ll use them a lot. Cause it’s so difficult to get the right sound. The recordings helped because it gave me a sense of what everything else sounded like before I got to that part where I come in with the flutes after all those measures off.

Keri also relies on aural schemata to help with her piano practicing:

If I were to give you a new piece of music, what would look different as you learn it?

I’d look over it more instead of starting at the beginning and then, you know, stumbling all over the place. So, I’d look it over and find a part where it could be hard but I could also get it and then get an idea of how it sounds sort of and then play on.

What do you mean by “how it sounds”?

It’s easier to play if you know how it sounds, like when you play it for me first. So I have an idea and I can relate. It’s just easier.

So, you want to have an image in your head about what it sounds like.

Yeah, I don’t know why, but it’s just easier. Like that’s why I did really good on Star-Spangled Banner, cause I know how it goes.

So, what would you do if you didn’t know how it goes?

If I were by myself, I’d start playing at the beginning and see what it was like, but if I’m at a lesson, I’d probably ask you to play a certain part so I’d know if it’s right or not.

Keri has linked the importance of aural schemata with her awareness of resources upon which she can draw, in this case, having me play some or all of a new piece for her. Within this
dimensions of *social factors* (McPherson & Zimmerman, 2002), other students expressed changing relationships with parents. Though reminders remained, for the most part, the same, students who before had sought out help from their parents, especially from mothers with some musical knowledge, indicated they did so less. Mark’s mother used to spend a fair bit of time helping him, but now she is, according to Mark:

Less involved. I used to ask her for help a lot, but now I feel I’m better at working on it by myself.

Don frequently asked his mother for assistance, even though she did not have any musical training herself. This relationship has changed somewhat:

*You used to involving you mom a lot. Is that still the case?*

I ask her for help less often because she doesn’t know what I’m doing. So I try to figure it out myself and if I can’t get it I come to you on my lessons and ask you then.

An unlooked for result in the area of social factors, as an aspect of self-regulation, came from Cheryl who, along with taking piano lessons from me, had also just finished playing bassoon in the band for her last two years of elementary school. She struggled with the wind instrument still, but never showed signs of anything but persistence. At the end of her grade 8 year, sensing her anxiety about playing the bassoon in high school, I suggested she had the option of switching to low brass, that the baritone or euphonium was the same clef and she’d just have to learn some new techniques. Cheryl was determined to play bassoon the next year in grade 9. I really did not expect to be involved in Cheryl’s work with the bassoon again. My field notes of a lesson with Cheryl and two of her friends, Keri and Susan – also participants in the study - tell the story:

*I wasn’t particularly looking forward to having the three amigos for a lesson today. They were a little rowdy last week and while I know it’s convenient for all three to come from school and then get picked up all at once, I wish the two who are NOT having the lesson would be busier - and quieter - with their homework. Anyway, Cheryl’s mom had e-mailed asking if, instead of a piano lesson, Cheryl could get some extra help on her bassoon. She wrote that it was Cheryl’s request as the music course would be starting next week with the beginning of semester 2, and she really wanted to be ready. I was rather impressed that Cheryl would take the initiative for the extra help in the first*
place and, in the second place, I was quite surprised and impressed with how well she played.

The real shocker, however, came when I returned to the studio from answering a knock at the door. The intruder rapped just as I was finishing up making some suggestions as to which technical exercises in the methods book might help her over the weekend. I said she could begin packing up.

As I was coming back downstairs, however, I could still hear her playing. When I returned, she was on the stool where I left her and Keri was at the piano helping Cheryl check her pitch. I asked what gives and Cheryl asked if it were OK if Keri came over to her house and helped her. No, I said, that’s absolutely not allowed!

(Field Notes – January 19, 2012)

One of the important aspects of the Behaviour/Performance Outcomes dimension to self-regulation (McPherson & Zimmerman, 2002) is being able to monitor oneself and evaluate performance. Findings in the student responses cited above suggest that most are able to analyze the music and determine what, for them, are the hard parts. There is also evidence that they monitor progress through the use of recordings. One of the tools I use at lessons is an audio recorder. Shortly after performing a piece that has been recorded, I invite the student to listen to the playback as they follow the music and hit the stop button when an error is detected. My field notes tell of the results.

In correcting her rhythm error, Gwen also demonstrates an effective strategy to remediate the problem:

Gwen quite blew me away today! She decided only last week that she wanted to learn Tomorrow (from the musical Annie). It wasn’t hard to see the excitement as she prepared to play it for me. She missed all kinds of rests and I’m thinking that maybe this exuberance made her impatient: why wait for a rest? Let’s get going here. Anyway, we recorded it and she hit the stop button when the rhythm problem occurred. She pointed to the music noting where she had skipped a quarter rest in M6 and, later, where some tied notes weren’t held quite long enough. As usual, I suggested we shift into GPS mode and she could work on it for a while. And also, as usual, I asked her how she’d
like to go about working on it. Several strategies I might have anticipated: she started thumping the beat with her right foot (she does this a lot at band rehearsal when playing her bone) and played only the right hand. Gwen keeps the beat with her head more than any student I have, nodding forward and back. She didn't do this on the first trial. She went over the problem measure a couple of times with her right hand, then added the left. Then she surprised me by starting at the beginning of the long phrase in which the problem measure occurred. I asked what she was doing and she said, "Well, you said it's not a great idea to bust up a phrase unless you put it all back together again because it's kind of a whole chunk and not only that, I want to be sure I can run into the quarter rest measure smoothly." Good idea, I said. Then, without looking at me, Gwen said: "It's called chaining!" I was rather taken aback! I guess some things have found a home.

(Field notes - January 17, 2012)

Andy is not aware of the strategy he employs to address the problem he hears in his own playing:

We recorded Amazing Grace today. I handed Andy the recorder and asked him to stop when he thought there was something that needed to be worked on. We weren't too far into the piece when he stopped, looked at me, pointed to the piece at the bar line between M2 and M3 and said, simply, "Hesitation!" There were several more spots like that; Andy got them all and, upon playing the piece again, was able to remediate the inconsistent beat. I said afterwards that I noticed he had used another tool when he replayed it. "I did?" he asked. Yeah, you slowed down. "I did?" he said. It's clear with Andy and a few of the other students that the one strategy that is becoming automatized is slowing the tempo.

(Field Notes – January 25, 2012)

Some of the participants were able to evaluate their own performance only when I narrowed the focus of what they should attend to. This lesson with Andy exemplifies my role:

Andy's caught on to playing triplets quite nicely in Chariot Race, but some of the rhythms have been eluding him. When we listened to his first trial, he hit the stop button at the end of the first line and said, quite simply, "Ahead of the beat." Not only was I happy to see that he was able to accurately evaluate the performance, but was rather
surprised at the phrase he used: ahead of the beat. Cool! The main theme’s rhythm is triplet-triplet-quarter-quarter. But, at one point, the melodic line switches to triplet-quarter-triplet-quarter. Andy kept rushing through this and, even listening to the recording, wasn’t picking this up. I took the pencil and asked him to point out the beats I should circle in the first measure which follows the first rhythmic pattern. He directed me accurately. I handed him the pencil and asked him to do the same on the measure he was playing incorrectly. This, too, he did accurately. We then listened to the recording again and this time Andy stopped and identified his rhythm mistake and, nodding his head with the beat, played it accurately several times in isolation before we continued listening to the rest of the piece. Afterwards, I asked if he wanted to play it through again. He agreed. Before doing so, however, I asked what parts of the piece he was going to give extra attention to. He pointed to the two spots dealing with rhythm, then played it through much improved. There’s little question Andy is getting better at monitoring his performance outcomes; I think there’s still room to improve his evaluation. This will come with more recording sessions.

(Field Notes – February 1, 2012)

At the end of the interviews, I asked all the musicians about whether they felt the guided practice sessions (GPS) had made any difference and, if so, in what way. Here are some of the responses:

John: Like the way to practice. Keep doing it over and over again and hoping to get it right. Focusing on different parts and getting them right. And then adding a bit more and more together.

Erica: Yeah, it definitely had a significant impact. Check everything out, go over it without my flute and look for harder parts that I might have trouble with.

Mark: I learned how to break it down and all of that stuff.

Don: More focus wise. Paying attention to the details.

Damian: Yeah, I think they helped me a lot. Cause you learn the music better and know the music better and you know where the hard parts are so you practice them and it just gives you a better practice...I think it’s looking over my music first before I play it, cause that helps me a lot when I’m practicing.
Keri: It’s been helpful because it lets me know that I don’t have to get it all done perfectly right away, just start going at it and slow down, break it up and do what you need to do, take your time and stuff.

Susan, the percussionist, says this about her experience of the guided practice sessions:

*We didn’t meet as often as I wanted to, but did the GPS make any difference?*

Yeah, the effectiveness of my practice is better. Even though I’m pretty much just as motivated as I was before. I definitely understand practicing more, how to practice.

*What do you mean?*

I don’t know how to explain it. Um, just kind of knowing how to break up my practice, like in order to get things done faster, kind of. Isolating the hardest part.

*Defining a task.*

Yeah, that’s what I was trying to say. In fact, I’d say it’s pretty much the most valuable practice tip I’ve learned being in the band. And then, looking at the hard part and even finding out the hardest part within the hardest part. So the task can actually get smaller.

Always succinct, Andy says this about the impact of guided practice sessions and his practicing a piece of music:

I’ve been learning new things about how to learn it.

*The Parents.* Data elucidating cognitive processes gathered through the post-study interviews with the students indicated changes mostly in the psychological dimension of method, specifically the musicians’ use of task-oriented strategies to focus on the difficult parts of the music being learned. Parents’ observations as reflected in the post-study interviews cover the entire range of cognitive processes set forth in the framework of McPherson and Zimmerman (2011, 2002): time, method, behaviour/performance outcomes, physical environment and social factors.

Naturally expecting a piece to be practiced in its entirety, Don’s mother learns about her son’s focusing on the hard part of the music:
Has anything changed with Don in terms of learning a piece of music?

I see him, before when he started it was, how do I put it, he would go in and just look at the music and just try and play it. Now I see him and I’ll say, Don what’re doing? I don’t hear any music. He’s like, mom, I’m reading the music. So he’s like actually focusing, looking it over. And sometimes I’ll hear ta-ta-ta. I see a completely different aspect. Like he sits there and before he touches those keys, he’s got to look it all over which he never did before, right? So, that’s what I notice the most with Don.

Does he ever start at a part of the music other than the beginning?

I think he starts at a part of the music. Like he takes a hurdle and will try to work through it. I think he does that. He checks to see if there’s something a little bit difficult or a part that he’s not too sure of and he’ll go and play there first. And then he’ll go back up and start at the beginning. I mean, I don’t stand behind him and I can’t read the music, but from what I can hear... and sometimes I’ll say, what are you doing? And he explains to me and he’ll say, no, I’m in the middle. I’m trying to do a part and then I’ll start from the beginning. So, that’s how I know. And then I just kind of have to be quiet.

In her response to the parent survey taken at the midway point of the study, Andy’s mother indicated that being able to address a small part of a piece to work on, rather than seeking to achieve perfection of the whole piece, had, according to her perspective, taken a great deal of pressure off of her 7-year-old son:

This has been like a safety net for him. He does not always need it, but it has given him permission to move on to another piece BEFORE he gets frustrated. He is able to enjoy the practice and not feel stressed about perfection. He plays a bit, claps or uses the metronome or slows down, until he has polished a section and is still feeling good about the piece. Then he is able to move on to another piece.

Andy’s mother recalls when her sons (Andy, John and Damian) would all practice from beginning to end:

Are the boys going about learning a piece of music any differently now?

Andy definitely. I’m more involved with his practicing. It’s definitely easier not having to go from the beginning to the end. I mean before, going from the beginning to the end, the first four measures they know perfectly, they’re Olympic
players at that and by the time they get to the end it’s atrociously disgusting how every note’s wrong. They’ve played the beginning so many times. So, definitely being able to play in chunks is better, picking small parts and working on those. It’s like reading one chapter at a time rather than having to read the whole book. It’s easier and I find it less stressful for the kids. And I’d say that’s true of all the boys. But Aidan in particular.

*Would you say it’s Andy’s habit now to decide on chunks to work on?*

Oh, yeah, definitely. From the beginning he decides on what chunk to play and he intentionally is only going to play, to work on this particular chunk. At the beginning of the practice, he’s decided that.

*I’m not sure that “4M Round the Bend” is such a good idea after all. At least not with Andy. In fact, I think it’s backfired on me. It was an attempt to develop a task orientation in the students by having them choose a section of the piece to really work at and bring to perfection. The minimum size of the chunk was four measures and it had to be on more than one line; in other words, it could not conclude at the end of a line but had to go “round the bend.” This latter part of the scheme was designed to get the kids to “practice” moving their eyes 8 inches from right to left, a part of their performance often characterized by a hesitation.*

*It’s not authentic, I don’t think. It doesn’t invite an authentic view of the music or of practicing. It’s an artificial chunking of the music, not a strategic one. So, I think what’s happened in Andy’s case, being the little boy that he is with attending propensities for finding short-cuts, is that he’s made the four measures a “piece” in itself, rather than looking at them as part of a whole. I gave it a try with Allegretto and Pink Panther and not only did Andy play the lousy four measures he picked for Allegretto poorly, his whole demeanor was minimalist. Pink Panther was pretty good, but he’s been chafing at the bit to learn this one, so I don’t think the 4M idea even applied. It’s the disposition toward practicing that this idea has injured more than anything.*

*I think I need to abandon this and not put limitations on the chunking: students need to learn to make these choices within the context of real practicing of real music.*

(Field Notes – June 8, 2011)
Andy’s mother’s comments, when interviewed several weeks after this field note entry, seem to corroborate them:

I think the last two or three sessions when you said 4 measures and around the bend he’s definitely, he stops at the end. So, once he’s got those four of five measures that he’s now completed his homework and he moves on to the next piece. So I think that, at least for Aidan, is probably not a good strategy because, you’re right, he does see that as the whole piece and he’s done that and that’s it and if I ask if he wants to play more, he says, no, Mr. Picone said I only have to play this and so, you know, Mr. Picone’s words are gospel and that’s it. So he will not move on and he’s now stuck because that’s all he has to play. Whereas I think before when you had said, pick a hard part and wherever the wrinkle is in there, like wherever you hit a bump, you focus on that for a little bit and try to get it bigger and bigger. So he may start on two measures and work on that bump and then get three or four and then try to get the whole page. I think that strategy was better. Because then he was expanding further past those four measures.

Along with their children’s focusing on the difficult parts of a piece of music, parents also observe an extensive use of practice strategies. This is consistent with survey findings at the midpoint of the study. Cheryl, who consistently struggles with rhythm, is observed by her mother using strategies to address this:

She uses the ti ti ti, ta ta ta.

You notice that?

Absolutely! The clapping, that happens, too. If she’s struggling with something, she’ll kind of step back and do her ti ti ti to get the rhythm and then the clapping.

Using the rhythm syllables is also observed by Mark’s parents along with another tool, particularly useful for brass players:

Father: I hear him clap a lot, trying to figure it out.

Mother: And he sings the songs. All day, night, walking through the house. He’ll be singing the songs.

Do you think the recordings are part of this?
No, even before that. *Hogan’s Heroes*, he’d sing it. Especially after coming home from rehearsal.

Doug, who studies piano as well as playing trumpet in the band, is observed using several different strategies by his parents. Doug’s mother comments:

I find he’s going to the piano a lot more to help him with his trumpet playing, checking pitch or with timing, he may actually do it on the piano and, you know, I’ve got to hold that note longer, whatever. I see him try to play it on the piano and then play it on the trumpet. He also uses the metronome downstairs. Now, he could take the metronome upstairs but maybe it’s a bit of a reprieve, you know, get out of his room for a while, away from the trumpet for a while, that kind of thing. I don’t think the duration has increased, probably still at 15 or 20 minutes. However, it’s more frequent. And I’ve noticed him doing different things now. Are those the strategies? Am I using the right word? I mean he’s working at the trumpet, but he’s doing different things than he used to. One is leaving the room, using the metronome, trying it on the piano. I still hear him clapping things out.

Andy’s mother makes a comment about his use of various practice strategies. Andy gets some prompting from his older brother who plays in the concert band, and seems to tie his strategy selection to his lesson experience:

*What are some of the tools, as you say, that you hear Andy applying?*

Well, he needs to be reminded to go slower. He will try the metronome. And then John will say, you’re not there yet, try ta-ta’s. Ok, yeah, yeah, OK. And then he’ll do the ta-ta, ti-ti. And he has done the clapping depending on, often depending on what you’ve used in the lesson, though. So, whatever tools you have encouraged him to use, he will apply it to that particular piece. I don’t know if he’s crossing over or not. I really can’t tell if he’s using clapping, for example, in general.

Observations by the parents that addressed the dimension of *time* revealed more careful planning. Doug’s parents are aware that what their son does with his practice time is his decision. They have noticed that his practice planning has had an impact on his other schoolwork:

*Do you think Doug has more effectively taken charge of his own learning when it comes to music?*

Father: I think we could remind him that practice is important as a concept. But when you say self-learning that’s like decisions to go up stairs to his room where
he practices. That’s where we stop. We don’t say for ten minutes you should do this and for ten minutes you should do that. So, when he goes upstairs now he has to process, what do I have to practice.

Mother: I would say that he does tend more now to going over a new piece. I mean I hear him trying to hit certain notes over and over if they’re high, you know. Until he gets it. So, comparing to before, there’s no question that his practice is much more methodical and it is more structured. However, it also has spilled over into other things he’s been doing with school work. He breaks things down into the steps, what do I need to do. Now, he’s always been a little like that. But it’s clear now that he can tackle things like that more easily. He can tackle it in music so then he does it with his schoolwork and even things he has an interest in.

Like most private studio teachers, I write things in a notebook for the student. Andy’s mother comments on her son’s use of this:

Now he has a list of what he needs to accomplish. He has the notes you’ve written and he has his list. And it’s not three whole songs that he has to finish because it’s just too much. So he looks at his little list and he says, OK, so I need to do this part of this song and this part of this song and he’s definitely now, like, I don’t have to be standing there. Now maybe next year I’ll make a different decision and I’ll be more involved so that he’s not racing through it. But right now he’s definitely going through a list and saying, oh, I’ve accomplished this in this piece and this in this piece and so on, and Mr. Picone is OK, he’s not going to get angry if I – because that’s their fear, right – he won’t be angry with me if I’m not perfect at the whole piece. So he doesn’t have to come to you as, you know, Beethoven. He can just come to you as a little boy who’s tried his best that week.

*It sounds like he’s more willing to accept the responsibilities of practicing because he’s made them more manageable for himself?*

Exactly! Exactly!... By the end of the year he’d definitely able to organize himself better and faster to even start the practice. He’s got his books, he knows what books, which song is in which book. So he’s paying attention to that when you’re going through. Whereas in the fall he’d kind of flip through all of them and say, oh, this is one of the pieces. Now he definitely knows his target.

Consistent with results from interviews at the midway point of the study, there was still no significant change in either duration or frequency of practicing. As Susan, the percussionist’s,
mother observes when asked about changes in either how long or how often her daughter practices:

No. These are about the same. But I would say she’s much more focused. The strategies you’ve taught her are there. So, if she’s stuck on a part, she’ll go back to that part and go over and over it. I’ve noticed that. And then she’ll go back to the beginning again. Like, she’ll try to figure out the kinks and then put it all together. So I think she’s getting better at her practice time. The frequency hasn’t increased but she’s more productive, she’s getting more done.

Andy’s mother’s observations echo the same phenomenon:

Actually, I think his practices are shorter because he’s accomplished his goals. So, some days he may practice only 10 or 15 minutes because he’s accomplished the goals and he’s picked, you know, whatever he’s picking and he’s gone through it and I say you can’t be done, it’s too fast and it’s I’ve gone through my list, mom.

In at least one instance, a musician seems to practice longer only because his sense of time disappears, suggesting one of the elements of being in flow (Csikszentmihalyi, 2004). Asked about changes in frequency or duration of practicing, Don’s mother observes:

I do know that if I said to him on a Saturday morning, get on the piano, he’ll huff and puff a bit, but once he gets there he loses track of time. Like, he’ll say I’m just going on for 15 minutes and then he’ll ask how long it’s been and it’s often half an hour and he’ll say, OK, I’m just going to finish. It doesn’t always happen. He’s got to be really interested in the piece he’s doing. But sometimes I’ll have to interrupt him and say, OK, you want to go outside? And he’s like, I’m almost done, I’m almost done.

One salient change in the self-regulation framework is in the area of social factors, in particular the seeking of assistance from parents. Most of the parents interviewed indicated observing greater independence among their children. Mark’s mother has rather extensive experience with playing the piano and used to assist her son quite often:

One change is that he hasn’t asked me to help him nearly as much. Before, he would ask me for help quite a bit. I mean I know music, I play the piano. I’d help him with the beats, especially that West Side Story piece. A couple of places, could I count this out with him, but it was only after a long time with him trying it that could I help him count this out.
Would you say Mark shows greater independence?

Yes, oh, yes, definitely.

Andy, too, shows greater independence, not only from his mother, but also from his musical siblings:

I guess he more easily, if he’s having trouble, he will go to the different tools in his toolbox without me having to remind him. That is a big thing if it’s not working, or if John or Damian over there, they’ll say, John in particular will say why don’t you try this and Andy will say, oh yeah. So John doesn’t have to go through it with him or anything, but he’ll just say why don’t you try this and it’s oh, yeah, now stay out of my way.

Don’s mother is still available, but she notes:

He will sometimes call me. But that’s decreased since before. Before he was always, mom, mom, and I’m like I can’t read music. So, the odd time – and I find it more if he’s tired – and he’ll say I can’t figure this out, you know. And he’ll start to (makes exasperated sighing sound). And it’s like, OK Don, what did we learn, what does Mr. Picone say? OK, pick the area. Where are you having trouble? OK, let’s start there. And he’ll do it. He’s becoming more independent, that’s for sure. Because he knows I can’t read it. All I can do is emphasize what you’ve taught him, right? So, where are you having trouble, I keep saying to him, and he shows me. And then I’ll say, OK, is it one hands or two hands – I can’t tell. OK, so try with one hand. OK, now try with both hands.

From much of this data, as observed by the parents participating in the study, one can infer growth in the self-regulation psychological dimension of behaviour/performance outcomes. This dimension accounts for self-monitoring and self-evaluation. Focusing on the difficult sections of a piece of music, the use of task-oriented strategies and greater independence all signify development in the area of metacognition.

Another component of metacognitive behaviour evident in the observations of the parents is their children’s use of volitional strategies. Protecting their pursuit of achievement goals is manifest in the way they respond to frustration. Many parents commented on an overall decrease in levels of frustration.
Susan’s mother notes how her daughter continues to “practice” even when she has left her drum kit:

I can honestly say I haven’t seen her get frustrated and I think it might be because she’s able to work on it everywhere she goes. So, if she’s sitting at the kitchen table and she was frustrated downstairs, she’ll keep working at it. It’s as though she never puts her instrument aside. She still kind of continues to work through it.

Don’s mother points out that her son is aware of the teacher as resource:

He used to get a lot more frustrated. There’s a little bit of frustration, but he’s able to work through it. He’s more persistent. And then if there’s the odd time when he can’t figure it out, that’s fine, he says, we’ll just ask at the next lesson. And sometimes I’ll say, bring your book to school and if you see Mr. Picone if he’s there for rehearsal, then ask him. But he’s afraid, like he’s really shy, and feels like at school isn’t the place where I’m supposed to talk to him.

At the beginning of the study, Doug said that when he encountered a challenge such as reaching a high note on his trumpet and could not achieve it, he would “get mad at myself” and “I’ll skip it.” His parents commented that, in such circumstances, Doug’s response was that the piece was boring. At the end of the intervention period, they note:

About the frustration, I don’t see him quitting the same way he used to if he can’t get something right away. He may walk away and do something else, but he’ll come back to it.

Although the practice area is usually the living room where the piano is, John’s mother describes her son’s volitional strategy if he finds that unsuitable:

If it’s busy up here, John will take his stuff down the basement where it’s not so loud or if the little ones have gone to bed and do his thing down there.

Doug, likewise, as indicated by his parents, modifies his practicing environment:

Father: when he goes to his room, it’s the door shut. Like, don’t come. Which is great because sometimes his brother and sister want to come in and watch and he says they can hear through the door.

Mother: I’ve asked him what he thinks has changed – I don’t know if he told you this – but he did say he thinks he needs to get rid of some distractions in his room.
So, he’s got his music stand set up in one area away from the book shelf so he can’t really see anything, it’s not at his desk where all of his little doo-dads are (laughs).

Parents’ observations of their children’s cognitive processes as reflected in post-study interviews, suggest a high degree of consistency with the reported assessments of the musicians.

“Nearing the Summit?” - Six-Month Follow-Up Musician Questionnaire

Six months after the end of the guided practice intervention, the musicians were asked to complete a questionnaire describing their musical practicing according to the self-regulation framework of the research. Questions pertained to both their affective-motivational and cognitive processes. Responses were indicated on a 5-point Likert scale. The findings below reflect the responses of ten musicians. It should be noted that of the five participants who had graduated from the elementary school at which the study was conducted, three had not been involved in music practicing in an ongoing way as their high school music course did not commence until the second term. Hence, this six-month survey did not apply to these students or their parents in a meaningful way.

Affective-Motivational Processes.

Expectancy-Value Theory. All of the musicians indicated that practicing was fun with a relatively even spread of responses falling between sometimes and very often. The only other question that indicated a similar spread of responses concerned the cost value of practicing with all but one of the musicians indicating that their failure to practice was due to involvement with other activities; again, there was an even distribution of nine responses between sometimes and often. Other questions in this area of affective-motivational processes solicited answers that were clearly extreme on the 5-point scale. To three questions about the utilitarian value of music education – whether it was useful to their future, its usefulness compared to other subjects at school, and the positive influence that learning music has on other subjects – all the students responded with either agree or strongly agree. Responses also indicated a high attainment value: asked about the importance of doing well on learning a piece of music, including those which they did not enjoy but for which they were responsible, eight students indicated that they either agree or strongly agree. Finally, in terms of expectancy value, more than half of the participants indicated a high level of confidence in learning music. This was also reflected in a question
about their perceived ability as musicians to which all students responded with either agree or strongly agree.

**Self-Determination Theory.** This theory reflects the musicians’ needs to feel competent, autonomous and related to others when learning music (Ryan & Deci, 2000). With respect to choice, the students indicated an even response across the scale when asked about the importance of choosing which music to learn. High levels of autonomy are also evident in the question about control over practicing environment. Competence levels were high with all the students indicating positive responses to feelings of accomplishment after practicing, with eight musicians indicating that they agree or strongly agree. Relatedness was strongly evident in questions asking about commitment and preparedness for lessons and rehearsals: student responses were all positive in this area, most falling between regularly and often. This commitment to band, in particular, is also evident in the extremely high willingness to “work hard at learning a piece of music even if I don’t really like it.”

In terms of involving family members to listen to practicing, the response was evenly spread.

**Attribution Theory.** Several questions asked the musicians to consider to what they would attribute their success or failure concerning the achievement of performance outcomes, as well as their views about giftedness and musical ability (Austin et. al., 2006; Weiner, 1985). Responses were fairly even when asked whether they believed exceptional musical ability is inborn: three students disagreed and three agreed; others were neutral. When asked about their success at “learning or performing a piece of music” being attributable to their effort, all students responded with agree or strongly agree. The indicators were the same when asked if it were “possible to develop my musical ability.”

**Goal Orientation.** The questionnaire considered two goal orientations: a learning/mastery orientation or a performance/ego orientation (Dweck, 1986). Tendencies in the former are more clearly manifest in questions dealing with the cognitive processes of learning music. Questions in the performance orientation asked about the role of an audience. Interestingly, the importance of performing for an audience had an even spread of responses between neutral and strongly agree.

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22 Statements in quotation marks are taken from the survey.
while the prospect of performing for others had a very strong impact on all the participants’ motivation to practice harder.

**Cognitive and Metacognitive Processes.** The survey questioned the musicians in the five psychological dimensions of the self-regulated learning framework that describe cognitive and metacognitive processes: method, time, behaviour/performance outcomes, physical environment and social factors (McPherson & Zimmerman, 2011, 2002). As with responses to affective-motivational processes, students answered questions on a five-point Likert Scale ranging from *never* to *often* with *sometimes* as a middle point.

**Method.** The strongest responses in the method dimension were to questions about looking over and assessing the piece of music before practicing it, beginning practice at a place other than the beginning, mastering a small task, and repeating a section of the music “until I get it right.” To each of these questions, eight of the ten responses were *regularly* or *often*. When asked to explain, in a space provided, why they would start somewhere other than the beginning, all respondents indicated the importance of addressing the “hard parts” first. Seven of ten responses indicated slowing the tempo *regularly* or *often* when practicing. Using strategies such as clapping and the Kodaly rhythm syllables to practice rhythmic challenges were represented by eight students in the *sometimes* to *regularly* range. Frequency of metronome use was evenly spread and marking up the music with a pencil was a strategy used only by a few musicians.

**Time.** Only one student indicated *not very often* setting goals for a practice session; the other nine indicated that they did so *sometimes* or *regularly*. These results are replicated by the students’ responses to the statement: “When I practice, I do not follow a plan but move around from piece to piece.” Only one student indicated regularly; the other responses were spread between sometimes and never. The response to this question is corroborated by the students when asked if their practice sessions were organized. All students practice on weekends with an even distribution between sometimes and often. Only one musician practices more than once a day *regularly* while three others do so *sometimes*; only one student regularly practices in the morning. Perhaps the most interesting response in this area was to a question about needing to be reminded to practice: there was an even distribution between *sometimes* and *never*. 
**Behaviour/Performance Outcomes.** The behaviour/performance outcomes questions asked about monitoring and self-evaluation. Eight students indicated that they were focused during their practicing *regularly* or *often*; almost the exact distribution is evident when the musicians were asked if they were distracted during practice with the response spread evenly between *not very often* and *never*. In terms of volitional control, only one student indicated *regularly* stopping his practice as a response to frustration. Five students said *sometimes* and the remaining four were *not very often* or *never*. Two interesting responses dealt with self-evaluation. To the statement: “I feel I am aware of my own strengths and weaknesses as a musician,” only three musicians were *neutral* while the rest indicated that they *agree* or *strongly agree*. Two students indicated a *neutral* response when asked whether they “think about how well I have practiced” after a practice session. Other responses are evenly spread between *sometimes* and *often*.

**Physical Environment.** As part of their practicing environment, the use of recordings was evenly spread. All students indicated that they were in control of their practicing environment, ensuring it was distraction free.

**Social Factors.** In the area of social factors, all but one of the musicians indicated that they personally sought assistance *regularly* or *often* if they encountered a problem or could not understand something.

**Six Months Later: Parents’ Perspective**

At the same time the students were asked to complete the six-month follow-up questionnaire, parent participants were also asked to respond anecdotally to questions dealing with motivation and cognition. In the areas of affect and motivation, parents were asked about overall attitude toward practicing, handling frustrations or challenges, feelings of competence, independence, and attributions. Considering the cognitive aspects of practicing, the survey asked parents about their observations of strategy use, including control of environment, and practice structure: planning and organization.

The parent survey was conducted through electronic mail. Parents of six of the ten musicians, both concert band and piano students, responded.
**Affective-Motivational Processes.** Not surprisingly, all parents who responded to the survey indicated that their children had a positive attitude toward practicing, though only one parent actually used the word “fun.” Another common theme in the responses was an attitude of responsibility toward the ensemble:

I think both John and Damian have a positive attitude towards practicing. Both enjoy the time with their instruments. Both definitely feel a loyalty towards the other members of the band.

Doug’s quite positive overall, especially with a new piece. Yes, a sense of responsibility to the band itself in terms of having his own part prepared. He makes it fun for himself by trying different rhythms then playing it on the piano and trying a different key.

Andy’s responsibility to the ensemble would seem to extend even to me, the conductor:

Andy is in the band and he feels a “responsibility” towards the other band members not to let them down. Mr. P is part of the band in this case. If Andy doesn’t practice he definitely feels badly going to band and letting the other kids AND Mr. P down. He is practicing more to keep up with the band and the band expectations.

While some degree of frustration continues to exist, musicians maintain a sense of persistence:

Mark can get frustrated but it’s rare. He usually persists with a “Can do” attitude.

Exercising a volitional strategy:

Mastery on the piano really helps Doug with a troublesome spot.

Sometimes Andy’s mother steps in with a volitional strategy:

Now and then, if he is tired, he will start crying if he is frustrated during the practice. I definitely call it quits for the day (or the morning if it’s on the weekend). In this case, I know the piano practice is just part of the picture because after a break (either a few hours or the next day) Andy will go back to the piece and try again.

There were several interesting observations by parents when asked about attributions of success or failure. All the respondents specifically noted a connection between the attribution and a
performance context, either a concert or a band rehearsal or a lesson. Mark and Doug see the relationship between practice effort and rehearsal results:

I ask Mark all the time, “How was band rehearsal? And when he says we were pretty good, I point out to him that he practiced extra hard that week and maybe that’s why it was good”. I’m not sure if he makes the connection himself.

Doug recognizes the DISTINCT connection between effort/practice and outcome with feedback at band practice.

John and Damian increase their effort for an audience:

If there is a concert or a performance coming up, there is definitely an increase in practicing so I would say yes, both John and Damian see a connection in effort and outcome.

Both Don and Andy connect effort with lesson results:

When Don has had a good week of practicing, he does recognize that his lesson has gone well and is happy about it. When he has not practiced enough he knows that it shows in his lesson.

Andy does recognize the link between effort and outcome. If his lesson is great, he does know it is from a week of practicing every day, with concentration and focus.

Consistent with the student questionnaires which indicated few reminders to practice being needed, parents’ responses suggest a degree of independence on the part of their children and practicing:

John and Damian both practice independently, without reminders. Well, Damian might need a reminder once or twice a week, but it is really just “did you practice trumpet today?” and Damian will say “Oh ya, I forgot. I’ll do it after my homework.” He will follow through without me saying anything again.

None the less, some musicians still need to be reminded. Mark’s mother notes:

Well, I gave him months of independence about deciding when and for how long he will practice and it never happened outside of the night before a rehearsal. So, I’m back to telling him.
While Mark may still need reminding, it is clear he still enjoys a sense of accomplishment:

I always know when Mark experiences a sense of accomplishment because he shouts out loud for joy and then plays it for me.

Sharing their accomplishment with a parent is also true of John and Damian.

John really enjoys being in the band at [high school name] and learning new songs. Both John and Damian like showing me the whole song, not just parts.

Observations by his parents suggest that Doug continues to manifest an ego/performance goal orientation:

If he has had a troubled spot, once it is mastered his sense of accomplishment is being able to play the whole piece.

**Cognitive and Metacognitive Processes.** Several parents qualified their responses about their children’s use of practice strategies, indicating that they were not consistently in a position to observe these details. However, those who were able to get a sense of which strategies the musicians were using all noted a task-oriented focus on the hard parts of the music which were determined after looking over or playing through the entire piece.

I’m not sure what strategies John and Damian use. I am truly not part of their practice until they have the piece completed and then they like to perform for me/us. They do seem to have a plan when they start and they look over the piece before they start playing, playing it their head before they start. If they are having difficulty I will find the piece on Youtube and play it for them. This definitely helps them hear where they need to adjust their own music.

I notice at the beginning of the week, some practices there is not much piano actually being played but rather looking at the book or humming.

He stops and replays sticky parts. He picks parts and then works on that at each practice.

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23 At the time of this survey, John, having graduated from grade 8, had been playing for several months in the high school jazz ensemble.
Parents noted, too, that the musicians “Repeat sections several times until they are satisfactory.”

Mark stays with a part that is giving him trouble until he’s satisfied.

He seems to play some sticky parts over several times. Sometimes more than several times!

Andy’s mother’s observation of his use of playing hands separately clearly indicates a strategic use of this tool:

This he uses a lot. If there are faster parts or awkward hand movements he will use this tool.

These observations are consistent with the musicians’ responses in these areas. So, too, are parent observations about their children being in control of practice environments, keeping them free from distractions.

Similar qualifications were part of parent responses to questions about practice organization:

From what I can see, I mean he always closes his bedroom door, Doug seems organized. For example, warm up, older pieces, current pieces, newest pieces with time spent on the troublesome spots, then plays through.

Mark and his mother seem to have different perspectives on his practice structure:

I asked Mark this question and he answered random and scattered. I would have answered organized and methodical. He said he randomly selects what he will practice.

Accommodating Don’s practicing into a busy schedule is the challenge:

I will have to say that I wish that Don would have a more structured practice routine but, unfortunately he does not. I must say that he is a busy boy and his other activities do get in the way of his practicing. His practice schedule is random.

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24 Taken from the parent survey.
and scattered. However, when he does start to practice he does set a goal for himself.

An overall assessment of the musicians’ practicing taken six months after the guided practice intervention period, suggests that the development in self-regulated learning that was evident in the post-study interviews and my personal field notes at that time, has, indeed, been maintained. Perspectives of musicians and their parents reveal a high degree of consistency. In the area of affect and motivation, this is particularly true with respect to the expectancy-value theory component of attainment, the self-determination theory component of competence, and the attribution theory component linking personal effort to achievement. Cognitive decisions to focus on a particular task suggest a mastery/learning goal orientation by the students.

In the affective-motivational component of the self-regulation framework that informs the conduct of this study, I propose that factors in this construct influence what ultimately matters when a young person practices: self-efficacy. That is, how the musician views their ability to achieve the specific task before them (Bandura, 1982; Lehmann et al., 2007; Pintrich & DeGroot, 1990; Zimmerman, 2000). In this context, it is important to note that among the student responses indicating the highest frequencies of agree and strongly agree were those to questions linking success with effort, having musical ability, the potential to develop that ability, and the importance to do well in music. These are consistent with the results to the self-efficacy question: “When I get a piece of music, I am confident that I will learn to play it.”

In the area of cognitive engagement processes, both parent and student responses after six months indicate a high degree of metacognition in task-oriented strategy use, especially a focus on more difficult sections of music to be learned. Musicians use volitional strategies such as taking a break and controlling the practicing environment, to deal with frustration and maintain focus while practicing. Student responses after six months also indicate an awareness of personal strengths and weaknesses as well as an evaluative response to practicing.
The Guided Become the Guides: *Upbeat Summer Music Camp*

The *Upbeat Summer Music Camp* took place in an elementary school setting. There was no wind program as part of the curriculum and the concert band was extra-curricular in nature, rehearsing during lunch periods. The intention of the summer camp was to offer students wishing to join the concert band in the fall, when school began, an opportunity to learn their instrument in the context of one-to-one instruction. There was no cost to participate in the camp, however parents were required to secure a wind instrument. The other goal of the music camp was to provide leadership opportunities for the experienced band musicians who were the teachers.

The camp followed the academic year during which the guided practice interventions took place. Each camper was paired with one of the veteran musicians. There were also two high school students who volunteered their time to help. It should be noted that none of the campers had experienced any previous formal musical instruction; none could read notation.

Two of the student teachers in the camp were also participants in the study and had experienced, at that point, ten months of guided practice intervention. I paired Damian with one of the campers, Kate, who wanted to learn to play the trumpet. I wanted to see if, and to what extent, what Damian had learned about effective practicing through the guided practice sessions would inform the way he taught Kate.

At the time of the *Upbeat Summer Music Camp*, Damian was 11 years of age, had just completed grade 6 in school and had been playing trumpet in the band for two years. Kate was 9 years old. Earlier that summer, she had come to my home for two private lessons on getting started on the trumpet. These sessions focused primarily on technique.

The lesson with Damian that is transcribed here took place on the third day of the music camp. The two musicians were working in a portable classroom free from other distractions. I was not present during the recording. The transcription is of the first 12 minutes of a video recorded one-to-one session. Damian is introducing Kate to a new piece.
Interestingly, Damian starts to look over the song himself – one of the strategies he has learned – before realizing that he wants Kate to discover for herself any noteworthy characteristics of the piece:

**Damian**: OK, this is the new piece you’re going to be working on, # 45, *The William Tell*, so this is going to be a harder song. So I think the main thing you’re going to be working on in this song is rhythm cause there’s not too many high notes and, yeah, so we should look it over right now and see if there’s a hard part. And if there is, that’s what we’ll work on.

**Kate**: (pointing to *mf*) What’s that mean?

**Damian**: That’s *mezzo forte* which is below forte. Forte is loud and this is, like mezzo forte is medium. OK, so is there any particularly tricky parts you want to work on in here?

**Kate**: I don’t think so. There’s a lot of repeating stuff.

**Damian**: OK, let’s just work on the first two measures for now.

(Kate plays the pick-up measure and the first measure, the notes being all on middle C; her rhythm is a little uneven)

**Damian**: OK, that was good. Let’s do the eighth notes again.

(Damian claps the rhythm as he sings the melody; Kate plays the same part a little faster)

Damian has here modeled two strategies - clapping the rhythm and singing – as well as affirming Kate’s trial.

**Damian**: There you go. Alright, let’s go from measure one to the next measure.

(Kate plays, starting from the beginning, but hesitates before going to F, G, A in measure 2; she does not play these well. Damian sings these three notes to her using hand gestures to visually represent the ascending notes; Kate tries again)

Damian makes the two-measure chunk smaller, another strategy he has learned.

**Damian**: OK, let’s practice this little part here, see? Going from F to G to A.

(Kate tries again, but does not quite get the pitch)
**Damian:** a bit higher.

Intuitively knowing that aural schemata will help the brass player, Damian provides this. When Kate is successful, he recognizes that playing it correctly once is not enough:

(Damian takes his own trumpet and plays the notes for Kate. As he replaces his trumpet on its stand, he sings the pitches of the three notes to her again. Kate plays once more and this time hits the notes securely)

**Damian:** There you go! Let’s do that one more time.

After Kate does so, just that measure, Damian again affirms her performance and then uses the strategy of chaining. What he refers to here as the “second measure” is actually the first complete measure; the first chunk Kate worked on was the first measure with two eighth pick-up notes.

**Damian:** There you go! Now, let’s play the second measure to the third measure.

(Kate joins the two measures, but misses the fingering for G – open – and, by mistake, fingers A – first two valves; Damian sings it to her again. Kate tries again, hesitates before the higher notes, and does not quite reach them. Damian sings the three problem notes to her again.)

**Damian:** OK, so it goes ...

(Damian sings both measures to Kate; she tries them again, but again misses the fingering and plays A instead of G)

Unfortunately, Damian is watching the music and not Kate’s fingering, otherwise he might have been able to address this. Still, it is clear from the video that Kate knows what the nature of her error is: the fingering.

**Damian:** OK, so you can go from measure one (pick-up measure) to measure two. You’re just having trouble going from F to A. So, F, G, A.

Kate automatically realizes that her “teacher” is isolating the problem and she plays the three notes. When she is successful at this, Damian chains this just to the two eighth pick-up notes that lead into them, realizing that it is the fourth from middle C to F that Kate needs to get. When she is successful, Damian once again affirms her performance outcome before chaining everything she has done so far together.
(Kate plays the three notes)

**Damian:** There you go! See, you got it! OK, so play these two eighth notes and go up and play these notes.

(He points to the F, G and A; Kate does so twice)

**Damian:** There you go! OK, now let’s play from 1 to 3.

(Kate does so quite well and tries to continue, returning from the dominant G to the tonic C; she gets the open fingering but plays G instead of middle C and stops)

**Damian:** you’ve got to come down again. (Then, with excitement) But that was good, that was good though. You did the whole first part.

(Without prompting, Kate starts from the beginning again and makes the same fingering mistake playing A prematurely; Damian, still not watching Kate, does not see the nature of the error)

**Damian:** You’re going right to A there. So F, G, A.

(Kate plays just the problem measure, instead of returning to the beginning of the piece, and plays it accurately)

**Damian:** There you go! So, now that you’ve gotten that, you’ve gotten measure 1 to measure 3. Let’s practice just measure 4.

At this point, Kate employs the first strategy used in the session – looking over the music. She is silently fingering the new melody. When she does not quite get the notes, Damian suggests a volitional strategy: maybe it’s time for a rest. His expression is very “teacher-ish.”

(Kate moves in closer to the music stand and looks over the music, silently fingering the new note sequence, then plays that measure. She gets the pitch, but the rhythm is uncertain)

**Damian:** OK, so you’ve got to go a bit faster on the eighth notes

(Damian sings the notes and rhythm for Kate. Kate tries again to go from the tonic C to F and then up a third to A, but struggles)

**Damian:** It’s OK, you’re just getting tired. If you want, you can take a break cause I don’t want you getting tired.
(Kate tries again with pretty good results)

**Damian**: OK, let’s try the whole first line.

(Kate plays it well, pitch and rhythm)

Damian continues to work in this fashion. Moving to the second line, Kate recognizes the pattern of the pick-up and first two measures of the song repeating. She continues to finger A instead of G two more times; not seeing or recognizing this, Damian and Kate never articulate this fingering problem. Kate, however, can hear the mistake, is aware it is due to her fingering, and fixes it herself. Kate manages to play all but the last two measures. Eight notes have been paired up to this point in the music; now Kate sees a beam over four of them and it is clear this catches her attention.

**Damian**: There you go! OK, so then we have a rest for one beat and then just play this ending area.

(Kate leans in as before and looks closely at the notation; she notices the $f$ sign)

**Kate**: Loud?

**Damian**: Oh, yeah, I guess so. It says *forte* there.

(Kate takes some time to play the last two measures. The run of four eighth notes is new to her and it is clear from the video that she is going over this rhythm in her head as she moves the bell of her trumpet up and down to the beats and from left to right in the air. She takes a full 12 seconds before she starts to play, rehearsing the music mentally. After a false start, she plays the last two measures well)

**Damian**: There you go! You made it through the entire song. Good job!

(He claps.)

**Kate**: So, now should I play it all together?

**Damian**: Yeah, OK.

Kate stumbles through the song, with several mistakes and retrials of certain parts. She does not make the error of going to A prematurely as she has been doing. It is clear Damian knows it needs more work, but, no doubt drawing from his own experience, he suggests a pause:
Damian: OK, that was really good. You should take a break now, you’re getting tired.

(Kate sits)

In concluding the guided practice session, Damian reviews Kate’s challenges, suggests a way she can strengthen her embouchure to assist playing higher notes, and, once again, nurtures her self-efficacy. Kate’s last comment reveals her motivation with respect to expectancy-value. Damian’s last comment reveals his attribution of success to effort.

Damian: OK, so we made it through the whole song. So when you get home, you should work on buzzing to strengthen your lips.

(Kate immediately takes her mouthpiece off and starts some quiet buzzing as Damian continues)

Damian: Cause you can play that, you’ve got all the rhythms. Remember to do the eighth notes like (here he sings the rhythm and Kate repeats it buzzing on her mouthpiece) cause you’re still having a bit of trouble with your high notes and, other than that, I think you can play the whole piece so, good job. And then, just go over that song at home.

Kate: Now I’m really ahead of everybody.

Damian: Yeah, you are. Now you can play harder songs.

Kate: Well, I just can’t play these ones yet.

(She points to a Sousa march on the next page and then, after looking it over for a moment, reconsiders)

Kate: Well, I probably can, though.

Damian: Oh, yeah, with a bit of practice you can.

Damian and Kate spend a little over 12 minutes on the methods book arrangement of Rossini’s The William Tell Overture. Kate does very little talking in this guided practice session. Damian’s pedagogy is rudimentary but, considering his youth, surprisingly effective. He fixes his gaze on the music rather than on Kate playing and, as a result, does not see her fingering problem. Although Damian’s “guiding” does not reflect the inductive approach that invites the student to monitor, asses, evaluate and suggest strategies for modification, what is apparent is Damian’s
own understanding of effective practicing: isolating challenging parts of the song, repetition of those parts, chaining parts together, singing pitches and clapping rhythms, and the volitional strategy of taking a break when one is tired. The length of time spent practicing the overture – a mere 8 measures – reflects a task/mastery goal orientation, addressing and chaining together small chunks of music.

Experiencing this problem-solving approach exposes Kate to possibilities when she makes her practicing choices at home. She has already shown evidence that she is automatizing certain strategies: looking over the music first, repeating a problem measure, mentally rehearsing a rhythm before playing it, and the silent fingering of notes.

As a teacher, Damian praises Kate’s accomplishments on performing small tasks on the way to playing the piece in its entirety, greatly influencing her self-efficacy. He gives her sound directions on what she can do at home to improve the strength of her embouchure – recognizing that this is necessary to reach higher notes – and attend to the eighth-note rhythms. He also emphasizes the role practice plays in achieving the performance outcomes Kate seeks. More than merely teaching Kate how to play the trumpet or play the overture, the video gives evidence that Damian is helping Kate learn how to learn.

As I will propose later in this dissertation, in Chapter 6, I believe these results have significant implications for the adoption of guided practice in the context of the ensemble where a conductor’s one-to-one time with musicians is at a premium.

**Strategies for the Cheerleaders: GPS At Home**

Several music education programs, such as Suzuki and Music For Young Children, have parental involvement built into their pedagogical structure. In the case of private lessons, oftentimes a teacher will insist that a parent be present to preclude the possibility that a student might make false allegations of impropriety.

The mothers of four participants in the study regularly attend their children’s piano lesson at my home and, though sometimes texting, reading or knitting, all are close to the guided practice session that may be part of the lesson that day. By electronic mail, I asked these parents two
questions to determine to what extent their presence at the lesson influenced the nature of their participation in their child’s practicing at home. All four responded to the request.

What kind of relationship do you have with your child when it comes to helping them when they practice? Do they seek help from you? Or do you take the initiative to offer it? A little of each, or is one of these more the norm?

Responses to the first question suggest a dynamic rather than a fixed relationship. Parents not only respond to the needs of their children as they perceive them, but also have an agenda that allows a certain amount of struggling before they will help. All the mothers’ responses to this question clearly indicate a close and consistent support for their children’s practicing and a presence that is highly aware of what is occurring.

Andy’s mother is sensitive to her son’s need for relatedness realizing that “helping” can mean just being present:

If I am on the same floor as Andy, he will ask me after each piece “Did you like that mommy?” or “Did that sound better?” if I have called over that I can hear a sticky part. He rarely asks for actual help with the practice, such as should he play a piece faster or slower – I guess technical questions. However, it is important to Andy that I enjoy the sound of the music. I guess I didn’t really think of this as “helping” Andy, but since he does it after each piece it is obviously something that Andy needs to hear as part of his practice.

There is also a strategic plan for helping Andy which depends on his progress with a piece of music:

If Andy is starting a new piece I am more involved the first few days as Andy will get frustrated and need a bit of support. It seems to take about 3 weeks to cycle through a piece. Week 1 – lots of “tools” reminders, Week 2 – only the odd “tools” reminder and more reassurance that I like the piece, Week 3 – almost all reassurance of enjoyment.

Gwen’s mother has the reverse strategy:

I let her initiate for the first few days in the week, because I find that she does quite well figuring out stuff on her own. I am in the room, but I am usually doing something else, so she doesn’t feel like I am hovering over her. She does ask for
Prior to taking private piano lessons with me, Norm was involved in the *Music For Young Children* program. Norm’s mother is used to being intimately involved with his practicing at home:

The expectation of the program is that the parent will actively participate in the formal group lesson with their child and then during the week will sit with him/her and guide them through their practices. As a result... I have spent many hours behind the piano assisting my children in their practicing and helping them with their theory homework. It has become somewhat ingrained.

The second question I asked dealt specifically with the possible impact on home practicing of the parents’ “participation” in the guided practice session at lessons:

> If you do assist your child in learning a piece of music or addressing some part of that music, has your witnessing of the guided practice sessions at their lessons informed in any way how you work with your young musician? If so, can you describe how?

The four mothers responded to this question thoughtfully and comprehensively. Three themes emerged that were common to all replies: the use of jargon germane to musical practicing; the feeling of being equipped to help; and a pedagogical rapport with their children that was consistent with the teaching style they witnessed at lessons.

All of the mothers used terms such as “sticky part,” “tricky bits,” “tools,” and “goal setting”. Norm’s younger sister does homework with her mother during his lesson. His mother notes how observing the guided practice sessions has helped her work with Norm’s sister who continues in the *Music For Young Children* program:

> I think watching the guided lessons has also given me a broader spectrum from which to view my approach in guiding Tori through her MYC practices. It's great! She even talks about "chunking" and does it herself.
Responses also give evidence of the value of knowing which strategies to suggest to their children:

I have to know what the tools are in order to suggest them to Andy. If he is stuck or feeling discouraged I can suggest some of the techniques that may have been discussed at the lesson that Andy may not be thinking of.

I think witnessing the guided lessons has been a good experience for me. It has given me some more tools to add to my teaching strategies tool box and also helped me in the approach I take when helping Norm with his practices.

Gwen’s mother has realized the practicing process of whole-part-whole (see Miksza, 2007; Rohwer & Polk, 2006):

I try to help her focus on problem spots and challenges in the music, then add them to the larger piece of music. Yeah, she would rather plod on, but I do remind her to stop at the tricky bits.

After a particularly intense and focused guided practice session working out a problem in a piece of music, I have sometimes suggested at a lesson that a student simply stand up and walk around the studio or shake their arms at their sides just to relax a little before moving on. Don’s mother has used this volitional strategy at home:

Sometimes, when I listen to Don practice and hear that he is struggling with a specific area of music I will suggest a tool that I have learned from you, which is .......... shake it off.....take a walk and come back.

Andy’s mother expresses a sense of feeling equipped to assist at home:

The tools also give me a concrete way of helping Andy. I can do more than tell him to focus. We can brainstorm together.

She continues noting the connection between the lesson and practicing at home:

I guess the biggest difference is that the practices are probably more like the lesson rather than Andy “practicing” at the lesson one way and then “practicing” another way at home. By having the parent there at the lesson, the “practicing” would be more consistent.
Perhaps the most significant aspect of this connection between lesson and home practicing is the pedagogical approach of questioning that characterizes guided practice:

I do think watching her lesson has helped to form how I help her throughout the week. I like the way you interact with her, and coach her through the problems, asking questions so that she finds the solution on her own.

Asking the young musician to make the connection between the lesson and practicing is an approach Don’s mother employs:

He will come to me with some level of frustration and I will at that refer back to what I have heard you say, for example, What would Mr. Picone say to do when you are stuck? At that point he will look at me and give the answers as to what he should try to do, then go back to the piano and put into place the tools that he was taught.

Norm’s mother recognizes the importance of nurturing independence if her son is going to develop into a self-regulated learner:

I have given them more freedom to practice on their own and a greater independence to work through their practices and set goals for what needs to be accomplished. Now that Norm is older and taking private lessons there is a greater expectation placed on them to take ownership of their practicing... I'm trying to put more ownership on Norm and his abilities and helping him to realize that he has many tools at his fingertips that he can rely on - he just doesn't always want to dig deep and use them - and sometimes it doesn't even mean digging that deep. It's easy to tell him what to do - but to question him and see if he can figure it out - that will become a much deeper learning experience for him.

One outlier in the responses pertained to student and parent actually discussing the lesson and its connection to the week of practicing. Conversations between Andy and his mother indicate a significant degree of metacognition on the part of the musician and, in talking about the lesson in an evaluative way, a degree of metacognition on the part of his mother:

On weeks that he does not have quite as good a lesson, he knows it is because he missed a few days of practice and/or he played his favourite pieces instead of his assigned pieces or he was distracted during practice. However, this is almost always AFTER the lesson, looking back. After the lesson we (Andy and I) always
talk about how it went, what he liked about the lesson and what could have gone better. He always takes responsibility for a not so great lesson. Not once has he said Mr. P was in a bad mood or any of those external possible reasons. I will add that if he has had a really great week practicing he will say “Mr. Picone is going to be surprised how well I can play this!” or something similar BEFORE the lesson.

About a month before Andy’s mother sent me her observations, Andy had to switch his lesson venue to the school during lunch for logistical reasons. It would appear, however, that the relationship already established between Andy and his mother is sustained, including an assessment of the lesson:

By going to the lessons I think this also shows the child that the parent is supporting them – they aren’t doing this adventure by themselves. Andy, I think, has come far enough and I have gone to enough lessons that I believe Andy feels this support even though I am not attending the lessons. When Andy comes home his explanation of the lesson probably takes as long as the lesson!

The research clearly indicates that parental involvement in schoolwork is linked to achievement (Hoover-Dempsey et al. 2001). Consistent with this research are studies that have demonstrated quite unequivocally the same phenomenon when parents are involved with their children’s music education (Davidson et al., 1995; Davidson et al., 1996; Driscoll, 2009; Faulkner et al., 2010; O’Neill, 1997; Pitts & McPherson, 2000).
Chapter 5
Pedagogical Approaches: A Framework for the Guide

One who learns from one who is learning drinks from a running stream.

Siletz Proverb

During the intervention period, roughly ten months of an academic school year, I video recorded 84 guided practice sessions of myself working with the participants in the study. Not only did assessing these recordings provide information about the way the students were “practicing” at their private lessons and in the one-to-one sessions I held with the band musicians, it also afforded me a rich source of data upon which I could reflect in terms of my own efficacy as a music teacher guiding the practicing of the students.

As the above proverb from a Native American Tribe suggests, the effective teacher is also a learner. As a music educator guiding musicians towards self-regulation, I must be a self-regulated learner myself. It is appropriate, then, to observe, evaluate and reflect upon my pedagogical approach to guiding the practicing of the young musicians within the same self-regulation framework as the observations and evaluations of the students’ learning.

Data presented here are derived from observations of video recordings taken at various times during the intervention period. I selected episodes for transcription that I felt to be representative of common characteristics of guided practice sessions. These observations are intended to be illustrative in nature. While some of these exemplify aspects of a music lesson that might have general application, such as establishing a friendly rapport, the transcriptions illustrate specific behaviours that characterize guided practice: asking questions, narrowing the focus, a flexible lesson agenda, student autonomy, the opportunity for monitoring and evaluating, and the use of technology. I will also comment on some weaknesses in my pedagogical approaches to illustrate how they could have been more operative in assisting the musicians. These pedagogical approaches are all intended to help students become self-regulated learners.
Along with getting Don to feel at ease, I want him to know that I’m interested in his other activities. This sets the tone of the lesson before we work on his self-selected favourite piece, *Blue Canoe*. I begin the lesson asking him to reflect upon and evaluate his week of practicing. What I fail to do is invite Don to elaborate on his response.

*So, how was your practicing this week?*

OK.

*Well, on a scale of 1 to 2—I mean, 1 to 7, how would you rate your practicing?*

(thinks about it)

Six.

*Six! That’s great! Now, how would you rate your week at hockey?*

(no hesitation)

Seven!

*Seven?*

(I give Don a high five)

*Terrific! But I can’t wait until you come in some week and piano is a seven and hockey is a four.*

I made the first round of tryouts.

*Congratulations! What does that mean? They pay you more?*

(laughs)

*How many more rounds of tryouts?*

Two.

*They make cuts after each one I guess.*

Yeah.

*You need some prayers?*

(laughs)
What would you like to start with?

Blue Canoe.

Don plays this piece through. His problem is holding half notes two beats. As with all students, I want them to be aware of and appreciate the fact that, as their teacher, I will not be present when they practice for the next six days. I remind Don of his ownership of his learning.

Well, it’s not bad, not bad. It’s got a couple of wrinkles. I’m going to see if you can find them. Because if you can learn to find them yourself, you can do a good job of that when I’m not around for the next six days. Now let’s talk about some different kinds of wrinkles that you might have. I’ll give you one and you give me one. One wrinkle you could have is you could be playing the wrong notes. (Don nods) But in this piece, the notes are pretty good. What’s another possible kind of wrinkle?

(Don thinks)

The beats?

Yup. Keeping an even beat, an even tempo is important.

The rhythm?

The rhythm. Which means how long you hold a note or a rest. So, what I’m going to ask you to do is to pay close attention to the rhythm and just play the first line.

This is also an example of the importance of language. Don and I are using the language of music precisely. Many students use the terms “beat” and “rhythm” interchangeably; Don and I make a distinction. We are also using the language of practicing: “wrinkle.” Don’s two “answers” are in the form of questions, suggesting he is trying to remember discussing this before.

Later in the lesson, once we have addressed the rhythm, Don is playing incorrect quarter notes in the melody following a half note. It involves a change in the right hand position; he is not moving quickly enough. I am also asking Don to identify the error, even if it means playing the mistake again. I am asking him to monitor his own performance. This is also an occasion to introduce a new tool: looking ahead.

Try it again from the beginning of the phrase.
(Don makes a retrial; I start snapping the beat and counting softly aloud. He mouths “1,2” on the half note. He makes an error in pitch)

OK, let’s stop there. Where in this line do we have a bit of a pot-hole?

(Don’s not sure)

OK, well you play that line again and, as you go down the track, pay attention to any bumps. And if you see a bump, you can say “bump.”

This behaviour encourages Don to monitor his performance.

(Plays wrong notes and stops)

I didn’t hear you say “bump.”

Bump!

OK, so what’s the problem? What kind of a bump is it?

I played the wrong notes?

In which hand?

Left.

So, now what do you want to do?

(thinks)

Well, first of all you want to figure out what the note is. So what is the note?

B

Yes, and where is it on the piano?

(he plays it correctly)

Second finger. Would it help if we wrote in the number two?

(shakes his head)

OK, so now we want to make sure we can get past this little bump here, so where do you want to start?

(points to beginning of the line)
Yes, I think we should start at the beginning of the line because of the phrase. Now, can I give you a little hint? You play defense, don’t you?

Right defense.

Do you ever carry the puck out of your own end?

All the time.

Do you keep your head down, watching the puck and your fancy stick handling?

No! I could get creamed!

This is another tool. It’s called the E-A tool. Know what E-A stands for? “Eyes ahead.” Same as keeping your head up when you come out of your own zone. So, as soon as you play that half note, you’ve got two beats there, right? So you’ve got your eyes ahead, lots of time, look ahead and give your brain... don’t play it too soon. How many counts in this one?

Two

Half note. But give your brain a head start. See if that works. OK.

(Plays incorrectly. I laugh)

Too much of a head start! You got the right note, but too soon. You’re funny. OK, c’mon, let’s try it again.

Don eventually gets it. Just prior to his best trial, he slowed the tempo, but was unaware of this. It is my experience that many students believe that if they can identify a mistake and correct it once, then it is “corrected” for all time. As they have usually made the error more than once, this is most likely not true. So, as part of guiding their practice, I speak about the “Horowitz Factor.”25 We have worked on Blue Canoe for about 20 minutes. Don is ready to perform the whole piece. We have invited his mother to listen.

OK, I know this one is going to get an applause.

(I outstretch my hands)

25 Vladimir Horowitz supposedly said that he was only sure he could perform something if he could play it well 100 times in a row.
In fact, I’m ready to clap.

(Plays it correctly; I clap. Give Don a high five)

Good for you! But that’s only once. What did Mr. Horowitz say? How many times?

(Holds up 3 fingers)

A hundred! But we don’t have time for 100, so you better do it at least two more times.

(Plays it once correctly. I hold up my index finger)

(Plays it again correctly. I hold up two fingers)

(Again, Don plays the entire piece correctly)

Good. Good for you. That’s hard work. It sounds fantastic!

I also remind Don of the appropriate attribution for his success: “hard work.” In the context of both conducting the band and teaching piano, I have noticed that, when a student begins a new piece, it is often their impulse to start playing from the beginning right away. This is usually hands together, in the case of piano, and at a tempo much faster than they are capable of playing. This tendency seems especially prevalent if the student has just heard me play the piece for them.

We had a pretty good lesson at the school today. Andy’s next piece was Grieg’s Morning. I thought I would impress him with his own knowledge of the classics by announcing that he knew it already. He looked at the music and said he’d never heard of it before. “Oh, you’ve heard it, believe me!” I said. I sat and played it through. It wasn’t long before Andy shouted: “That’s from the cartoons! It’s when Tweety wakes up, I think, and Sylvester’s going to eat him!” We were going to video record the practice session so as to evaluate it afterwards. I turned on the camera and left the room. I viewed the recording when I got home tonight.

What a disaster! Andy must have spent several minutes exploring the treble notes trying to find something that sounded like what I played. Oh, he had the rhythm down pat right away, but there was no way he was going to make the effort to work out the ledger lines and get the correct pitch. I’m beginning to wonder how he might have approached this piece if I had NOT, in fact, played it for him.

(Field Notes – February 1, 2012)
I try to time the lessons so that I do not end by merely assigning work for next week, but take a few minutes to, in fact, start practicing one or two of the new pieces. Observations of the video recordings indicate that, as the guided practice intervention period progressed, I became better at managing the time of the lesson in this regard. The intention of allowing time to begin practicing a piece is to develop the practice behaviour of looking over the entire piece before starting. It is more than assessing the time and key signatures. For beginning students, there are often “surprises,” especially if a new concept has been introduced, such as an accidental carrying through the entire measure. This is also an opportunity for me to pre-empt possible errors, especially if there are tricky rhythms involving syncopation or tied notes across a bar line.

Another change in my behaviour over the course of the study was an increase in my awareness of the students’ need for autonomy. Where previously I had assigned all the pieces to prepare, I started giving them some choice in what they pursue, empowering their sense of agency. For example, if there were several pieces in a unit that embodied a particular musical concept, I played a portion of all of them in that unit, giving the student a glimpse of each piece, and offering the student a choice of any two to begin to prepare for the next lesson. The student could make the choice at home after further exploration.

I also developed the courage to skip pieces. My previous use of methods books was characterized by a methodical step by step curriculum, taking the student through the books one unit at a time. About the midway point of the research, I realized that some students were not only able to move more quickly through the methods books but, in fact, could skip several pieces. I became far more sensitive to balancing their skill level and the challenges offered by the music. Gwen, for example, has progressed very quickly. Both of her parents are musical, her mother playing the piano and singing in the church choir, and her father playing the drums.

In the last several minutes of Gwen’s lesson, I introduce her to a new book. While it is at the same level as the regular methods book, the pieces are longer and more challenging.

So, if you just picked up this book, and you decided you were going to learn something in it, how would you go about finding a piece?

(Gwen finds the table of contents)

You’d look at the titles, would you?
I’d find out if I knew any of these pieces first.

*Oh, anything that might be familiar. That’s always a good strategy. There might be one in there you know.*

(Gwen keeps looking. I thought she might recognize *Little Bunny Foo Foo*)

*This one doesn’t sound familiar?*

Nope.

*Well, tell your mom the title and see if she knows it.*

*Little Bunny Foo Foo.*

(Gwen’s mother laughs)

Mother: it’s about smashing little creatures.

*Yeah, it has some violence in it.*

(I take a few moments to tell Gwen the story; we turn to the music and read the lyrics; I explain the punch-line: “Hare today, goon tomorrow.”)

*Does this one catch your interest, maybe?*

I’ll try.

*Do you want to look it over first? You don’t want to get any surprises.*

(she looks it over. I point to a spot)

*Do you know what that means?*

That’s the octave sign. It means you play higher.

*Or lower. Well, do you know how to tell whether you play eight notes higher or lower?*

No.

(I explain this)

*Anything else in here you don’t want to get surprised about?*

There are a lot of flats. And it’s double treble clef, treble clef the whole song.
Well, not the whole song.

(I point out the clef change indicators and what they mean)

Anything else?

(Gwen identifies both hands moving an octave, tries playing a couple of the notes with accidental flats, figures out a five-note ‘chord’ that is the “poof” at the end of the song)

You want to start learning it now?

Sure.

You want to start at the beginning? OK.

(she is looking over the first few measures with both hands on the keys)

You want to start hands together? Ok.

I’m just checking the fingering.

Check fingering. That’s probably a good idea.

(Gwen plays a couple of lines tentatively, but with fair accuracy)

I am actually impressed with Gwen’s last statement as she has shown an inclination toward some rather creative fingering that often gets her into trouble. It is clear from her statement that she is aware of this tendency in herself.

Another observation of my working with the musicians is helping them to discover patterns in the music. Various kinds of repetition are typical of the music for young and beginning musicians in piano; recognizing patterns is a useful strategy. In playing The Bubble, Gwen is clearly reading a parallel pattern as two unrelated grand staff lines of music. As soon as she discovers they are the same notes an octave apart, she plays it correctly and confidently. In this sequence, I also ask her to reflect on her own practicing at home.

What was the funnest piece for you this week?

It was probably this one.

The Bubble! Would you like to start with that one?
Sure.

OK.

(Gwen plays through with several errors. She guesses at many notes, looking at her hands and not the music)

What did you think of that?

I made a couple of mistakes, but other than that it was OK.

Where did you make the mistakes?

(points to music)

Right around here

Yeah, that kind of surprised me a little bit. How are the right hand, the treble clef and the bass clef related to each other?

(Gwen notes the parallel contour of the lines but not that the notes are the same; she still sees “two” lines of music)

Every note has a space between it.

(plays an interval of a third on the piano)

OK, let me ask the question a little differently.

(I point to two notes, one in each clef, that are the same, an octave apart)

How are these two notes related?

They're the same, just an octave apart.

And that’s true all the way along, all the way to there. OK, so we’ve agreed that this chunk was a little bit rocky. Was there another chunk that was a little bit rough?

(pointing to music)

Well, sort of around here.

I agree. Measures 9, 10, 11 and 12. Yes, this in here was kind of rough as well. Do you remember how you went about learning this?
Well, first I had to go back and find out what an accent actually was. And it’s just like, sort of...

(she thinks for a while)

_**A little bit louder.**_

Yeah.

_**But how did you go about... I mean did you play hands... well, here are some things you might have done. I’m just curious if these are any of things you might have done. Did you play any parts of this one hand first and then the other hand?**_

Yup.

_**Which parts?**_

(Gwen points)

Through there.

_**Were there any parts in here, maybe a small part, that you played over and over again?**_

(pointing)

Well, a couple of times I played that part.

_**Just in here?**_

Yeah.

_**And why was that?**_

Well, it was just that I kept making a mistake there by playing the B instead.

_**Where?**_

(Gwen points)

Right here, instead of playing a C, I mean a C#, I played a B.

_I see. OK. Let’s pretend now that you’ve gone home and Mr. Picone has said, “I’d like you to practice this piece one more week.” So, now you’re at home. How will you go about practicing it?_
I’m going to start at measure 24. Just the last note on measure 24.

(Gwen plays the parallel notes of the pattern previously examined once through correctly)

After introducing strategies to the musicians, I observe that I offer them the opportunity to choose which “tool” they will employ to address the problem. This was difficult if the student selected a “hammer” when the job really needed a “screwdriver.” Andy is playing an incorrect rhythm in *The British Grenadiers*. After playing it through with some gusto, I point to a line and ask him to play it again. What I observe, in reviewing this video recording, is that Andy suggests a tool to correct the problem – slowing the tempo - but I say it is the wrong tool rather than letting him try it. I have a preconceived notion that he should use a rhythm tool such as clapping. The fact is that by slowing the tempo, Andy may, indeed, have fixed the rhythm.

*Can you just play this line again? Here, play the whole phrase, from here.*

(He plays right hand only with the incorrect rhythm)

*I don’t think that’s quite it. How can you check it?*

(He starts to name the notes to make sure they are correct)

That’s an A...

*No, your notes are OK. But what about the rhythm? How can you check the rhythm?*

Andy just keeps playing the phrase over and over. There is a stubbornness here that says, “I’ll figure this out on my own.” He does, in fact, get close to what is notated, but not quite.

(I laugh)

*Are you just kind of playing it hoping you’ll get lucky?*

(shakes his head)

*Alright. How can you check it? What are some of the ways you can do rhythm without...*

Slow down.

Instead of letting Andy try the tool he’s suggested, I disagree with him.
No, but what are some ways you can do the rhythm without actually doing the notes?

(here I clap my hands)

Using “ta.”

Why don’t you try that.

Using the rhythm syllables, Andy claps the phrase several times correctly and then, eventually, masters the small task before playing through the entire piece.

On another occasion, Andy was struggling with descending right hand parallel sixths. His hands are certainly large enough to stretch the sixth comfortably, but it is a new technique for him. It occurred to me only after playing it myself, that part of Andy’s problem was that he was not touching the keys before playing them, but falling on them from above.

Now, look at my hand when I’m doing that. See how my thumb and pinky are touching the notes before I play them? I’m not playing them like this (from the air). Why don’t you try that.

(Aidan plays it the best when he tried this)

Well done! So, maybe that’s the secret.

(he plays it again, even better)

OK, so what I’m also writing in your notebook is “Touch the notes first!” I think that might be the secret. And I discovered that by doing it myself, which is interesting.

This was not the only teaching technique that I discovered. The video recordings of my working with the students during guided practice sessions revealed that I habitually asked them to evaluate their performance of a piece. I would always begin with a positive comment on my part, something about the performance that was laudable. I would then ask the musician to assess the performance and comment on strengths and weaknesses, something, perhaps, that could be improved. This was consistently – yet understandably – frustrating.
Joan performs an arrangement of Gurlitt’s *Music Box Waltz*. Her rendering of it is characterized by hesitations, inconsistent tempo, awkward pedaling and some incorrect notes. Before I can even ask her for an evaluation, she exclaims:

Well, it was better than last week!

Yes, indeed it was. What makes it better?

I don’t know.

Where do you think it still needs some work?

I don’t know.

Attempting to develop in the musicians the self-regulating ability to monitor and evaluate performance, and then to make meaningful, strategic practice modifications to achieve a better outcome, I started using a small digital recorder at the lessons. I would record the student performing a piece and then play it back through computer speakers, inviting the student to follow the music while listening to their performance and ask me to stop the playback anytime for the student to comment. While the idea of using this technology seemed initially a good one, my review of the video recordings indicates that I needed to refine how I used the audio recorder to maximize the efficacy of this learning technique.

*Today was the first time I used the audio recorder with Don. I explained what we were going to do: record his playing a piece and then, with him holding the recorder, listen to his performance as he followed the notation. He could stop any time he felt there was a problem, an error, that he could work on. He played through Jumbo’s Lullaby. It’s in ¾ time with several measures in the bass clef having three quarter notes. Don held the last note of each of these measures two beats, thus effectively making the piece 4/4 at these points. I’ve noticed that quite a few beginners do this: pause at the bar line after three quarter notes before moving on.*

*The pattern occurred five times and Don held the 3rd beat quarter note two beats every time but one. I could understand the measure at the end of the second line as he had to move to a new line. I was, however, a little puzzled as to why he did NOT make this mistake in the third last measure. But, I figured that the rit. combined with the third quarter note being staccato kept him moving.*
I was certain he’d pick this up on the evaluation; in fact, I almost didn’t take the time to listen to the recording because the rest of the piece went so well. As usual, I asked him what he thought of his performance and he said he thought it was pretty good. “Any problems you think you’d like to work on?” He suggested (as with most students) that maybe he could address the dynamics more (the whole song is mp or p; Don’s a big boy with a heavy hand). “Anything else?” No, he didn’t think so. I was about to point out the rhythm problem and have him play a couple of measures correctly but thought, no, let’s listen to the recording; surely he’ll pick these out right away and we can move on.

Hell, we must have listened to the darn thing five times! And Don just couldn’t hear what was wrong. I was quite befuddled to say the least and quite at a loss as to what to do. I mean, I just kept narrowing his focus from “listen carefully to this line” to “listen carefully to these two measures” to “listen carefully to this measure” to “I want you to pay attention to this note.” Finally, he lit up: “Oh, it’s two beats!”

So, now I’m thinking, “What gives here? This should work.”

(Field Notes – January 21, 2012)

My observation of a lesson with Gwen when we used this teaching tool revealed that one way to enhance its efficacy was to give control of the “stop” button of the recorder to the student during the playback. This, in effect, forced them to attend to what they were hearing as well as follow the music. Until I did this, Gwen was, in fact, reliving her experience of playing the piece rather than objectifying her performance. In this transcription, Gwen performs a piece called The Loch Ness Monster. I spend some time in this lesson asking Gwen about the feeling of the piece. During the playback, I am holding the audio recorder and ask Gwen to stop me when she wants to do so.

This one’s fun. Especially this part.

Well, it sounds like you’re anxious to play it. But just before you do, I’m going to record it, OK? So you can listen to it afterwards. Alright, you can start.

(Gwen plays it through. There are several errors: rhythm, notes)

You do like that one, I can tell.
It’s fun.

*Now before we listen to the recording, what is it that makes it fun?*

Well, it just sounds so cool.

*What does that mean?*

It’s really low and long tones.

(Grace plays trombone in the band and understands this concept)

*Yes, it does use a part of the piano that isn’t used very much.*

(she plays a low note)

This note hardly ever gets used.

*Does this have a mood for you?*

It’s sort of like mysterious and sort of “oh-oh!”

Alright, we’re going to spend a little bit of time with this one. *But before we listen to the recording, what is your own... if you were sitting here in my chair, what is your own... if you were marking it and it were a test and you could get good, or very good, or just OK, or terrible. Not a number, but what would you say about this one?*

Well, it was good, except for I missed a couple of notes.

*Do you know where?*

(nods)

*Where?*

Well, right here I played that wrong.

(Gwen points out two other notes she played incorrectly)

*OK, we’re going to listen to the recording now, and you tell me what you think. What you should do is follow the music and, by the way, I’m going to put my thumb on the stop button, so you can stop me any time you like. Ready?*

(while the recording is playing back, Gwen is touching the piano keys as though playing it again; she does this for the first page only, then just watches the music
and listens. Importantly, she does not ask to stop the recording at any point, but lets it play through to the end.

Well, are there any parts that you think need a little bit of attention?

Well, I played this part a little bit too fast.

Your tempo did change through there, yes.

(points to music)

Cause right here it was a bit slow and right here it went a bit faster.

And how fast do you think it should go or would you like it to go? You said you wanted it to feel “oh-oh!” and mysterious.

I think it should be about the same tempo as that.

(Gwen has made a rhythm error. There are two measures on two different lines with the same rhythmic pattern though different notes. She plays them rhythmically different)

OK. Now, I’m going to ask you to play just those two measures.

(Gwen plays them rhythmically correctly. She did not hear this error on the playback)

OK, we’re going to listen to the beginning again. Remember, I want you to stop me when you think there’s a problem we need to work on. Ready?

OK.

Watch carefully, tell me when to stop.

Gwen stops at a wrong note and we fix it. She does not perceive the error in rhythm: not holding for a quarter rest. I ask her to play it and she plays the same error. It’s clear from this she has been playing the incorrect rhythm all week and thoroughly learned it the wrong way. We spend more time working out the rhythm before going on to another piece.

We then record Gwen playing a piece called *Roadrunner*. Again, there are errors in rhythm. This time, on the playback, I let Gwen hold the audio recorder, show her where the stop button is, and, as before, invite her to stop when she thinks there’s a problem to address. While she is much more attentive to the music and the replay, she misses the rhythm errors, but stops near the end.
Why did you stop there?

Cause I messed up a lot there.

Where?

(points to music)

Right around here.

And what’s the problem?

I played these two separately.

(two unison quarter notes, one in each clef, didn’t quite come in together)

OK, but that’s easy to fix. Let’s look up here. At the rhythm.

Yeah, it got a little bit slower around here.

(points)

And here.

Where?

Right at the end of these two lines.

What do you mean it got slower?

Well, I sort of hesitated in the last measure of those lines.

Can you try playing from here, then, and...

(I start keeping a beat on my thigh. Gwen starts to play the problem area; I keep sounding the beat. The problem is that she is playing a quarter note as an eighth)

I want you to look very, very carefully at those two measures and the beats, the rhythm.

(Gwen mentally rehearses this for several moments, then points to the music)

OK, so this should be a little bit faster.

Go ahead. Play it the way you think it should be played.
(Gwen plays the rhythm closer to the notation, but not quite)

Is that it?

*How can you check it? With a tool that’s not a playing tool.*

Try the beat and clapping out.

*OK. You know about the rhythm syllables, don’t you?*

Yeah.

*Which one would you like to try?*

I’ll clap it out.

*OK, just these two measures. Just the right hand, treble clef.*

(Gwen claps it correctly)

*So, that’s the chunk you’re working on. Let’s try to play that now. Do you want to play it hands together? Hands separately?*

I’ll try just the right hand.

(Gwen works at the two measures and, after several attempts, plays it correctly)

*Now what would you like to do?*

I’ll add the left hand.

(On the second trial, she plays it hands together well)

*Now what would you like to do?*

Play the whole line.

Gwen plays it well. I introduce her to the concept of “chaining”: after working on a small chunk join it with the section before and after. She then goes back to the beginning and plays the piece through. This has taken 22 minutes.

I am beginning to wonder about the efficacy of using the audio recordings to help students develop the ability to monitor and evaluate their own performance. Then, I made one more change in the procedure. Observations suggest that this was the important modification in my
own method. I tried my revision with Don the week after my first attempt at recording his performance:

I was preparing my proposal for the Helsinki conference this week. I finished it Sunday night and was about to send it off but thought it better to leave it overnight and look at it once more in the morning. I got to thinking about writing and the importance of an incubation period, leaving a draft aside for a while, getting some distance between me and what I wrote so I could better make any editorial changes. Well, a big light went on: that's the problem with Don listening to his own playing — it's too soon after he's played it! The sounds are still fresh in his head! What he saw on the page and what he played, as far as he's concerned, match up. Naturally, with the music still fresh in his memory, what he sees on the page and what he hears are more likely to match up as well.

So, today, we recorded Soccer Victory, his favourite, at the beginning of the lesson. I asked him about it and he pointed out one slur that he thought he could have played better. “Anything else? Rhythm? Tempo? Dynamics?” He pointed at the \textit{8va} on the last three notes in the bass clef and said he forgot to drop down the octave, but that was all he could see. “OK,” I said. “We’ll come back to this one later one.” We went on with some of his other work and did some GPS on a new piece, \textit{The Bubble}.

We then listened to the recording about 20 minutes later, near the end of the lesson, and Don was pushing stop about every two measures. The piece is similar to \textit{When the Saints}: 4/4, melody in the l.h., three pick-up notes into beat 1, with the right hand adding accompaniment on beats 2, 3 and 4. Well, naturally, there’s a quarter rest in the treble clef while the melodic l.h. plays its quarter note. Don was playing the quarter note and \textit{THEN} waiting the one-beat rest before playing the treble accompaniment, effectively making it a 5-beat measure. Don could hear the broken rhythm right away.

So, it seems, perhaps, that an incubation period helps make this kind of self-evaluation more effective. The trick is timing it in the lesson. Maybe I should try filing the recording and listening to it a week later. The problem is that the piece stays in limbo for a week. No, careful planning at the lesson is the way to go.

(Field Notes – January 28, 2012)
The following transcription is a guided practice session with Damian who plays trumpet in the concert band. The student encounters two challenges here: pitch and rhythm in a short section of a *Pirates of the Caribbean* medley. My interaction with Damian illustrates some pedagogical approaches that are developing cognitive engagement with practicing, developing metacognitive awareness of ability, and giving the musician ownership of his learning processes. In this guided practice session, I also address some of the affective and motivational processes such as attributing Damian’s success to effort, commenting on his identity as a musician, allowing the opportunity for him to work on a piece that interests him, and working towards a goal that is task-mastery in orientation.

There are also a number of instances in this guided practice session where opportunities for metacognitive development were curtailed by me. The guided practice session lasted 12 minutes.

What should I practice?

*That’s up to you. Just imagine you’re at home and you’re getting ready for rehearsal. What would you practice there?*

I usually like to play *Pirates of the Caribbean*, it’s my favourite piece.

*We’re going to pretend that we’ve done your scales and you’ve done your warm-up, whatever you’re going to do. So, you’ve decided to pick Pirates.*

Can I do a scale cause that really helps me.

(plays concert Bb scale; adjusts music stand)

*Alright? OK there?*

Does it matter where I start?

*You’re practicing. This is the Damian show. So you can...*

I’ll start at the beginning.

*OK.*

(counts measures off; plays through the first 25 measures)

*OK, that’s 25 measures.*
I do not afford Damian the opportunity to reflect on the performance before making my own comments.

*Now, if you look that over, I’m not sure what you would do next, but I’m going to give you a little observation here: there were at least three spots that were a little bit rough. I don’t know, did you pick out any that were a little bit rough?*

Um (points to music) that part I would say and (pointing to another part) here I went too fast.

*Alright. Have you listened to this (the recording) at all? Or was it you who said you can’t open it.*

Yeah, unfortunately.

*Try to open it or go to the Hal Leonard web site. You can find it there. Alright, let’s start at the beginning again and I’ll ask you to pay close attention to... well, you said this was a problem area here* (I point to the chart).

Yeah.

*What do you think the problem is?*

I think I used that as a quarter note instead of...

I cut Damian off.

*So, a rhythm problem. OK, so now what are you going to do?*

I would say clap it. What do you do for a slur?

*You’re asking a very good question. You can’t clap a slur, just pretend there’s no slur*

OK.

(claps with rhythm syllables)

*How’re you going to say that note?*

(I point to a dotted quarter note)

Ta-m. Is that it?
(I clap)

"ta-m ti-ti-ti How many counts in a measure at this point?

It’s four? No, three.

Three.

(Damian claps)

ta-m ti-ti-ti.

(he repeats this)

That’s right. Now if I do this (I snap the beat) 1, 2, 3. You just do what you did according to this beat.

(I keep snapping; Damian claps and says the rhythm syllables)

That’s right.

(I snap the beat again, slapping the rhythm on my thigh and saying the rhythm syllables; Damian claps with me)

Ta-m ti-ti-ti

(I repeat this, saying)

1 and 2 and 3 and

(Damian claps the rhythm with me. I repeat it again, this time singing the melody; Damian claps with me. Damian tries to play the measure several times but is hitting middle C instead of the dominant, G)

Wait, is that G?

Try it.

(he does and hits middle C again)

No.

(he then starts at C and plays the scale up to G, then attempts the measure. The sequence is G-D-B-A-G; Damian is playing first valve F after D instead of the leading note, B.)
If that’s G you have to finish on G.

(he tries three more times with the same result: D to F instead of D to B. I sing the melody. Damian plays it correctly)

So another challenge you have in there is what besides the rhythm?

Um, getting the notes.

Rather than try to address both the rhythm and the pitch issues at the same time, I decide to isolate the pitch.

Getting the notes right. So, how would you go about getting the notes right?

Uh...

Although I remind Damian of a strategy he has already used, I did not give him an opportunity to suggest this himself.

Now, you did something really good there and actually, when I play trumpet, I do the same thing: you start at C and go up to G to find the correct pitch.

Yeah.

To make sure you have the G, so...

That’s what I always do.

So let’s make sure we’ve got the notes right. And what you can do is you can absolutely forget about the rhythm and just try to get the notes one at a time. Try it now. Forget about the rhythm. You just want to play a G then a D then B then an A.

(Damian plays F instead of B)

Oops.

(he does the same again)

Nope.

(he plays it correctly)

So,

(I sing the four-note melody; he plays it correctly)
So, do you think you’ve got them?

Yeah.

(I look at him with a look that asks, “Are you sure?” He starts to raise the trumpet to play again)

_OK, this is just something for you to think about. You’ve gotten them maybe once or twice. You’ve got to be sure you get them all the time. Try it one more time, maybe two more times._

(Damian plays it correctly twice)

_You know what’s happening here? I want to tell you what’s happening here. When you look at that measure, your brain has got those sounds in your head because you’ve gone over it several times. So what you will do in the future is, if you put this away for a week and come back to it, when your eyes see that, your brain’s going to hear those sounds in your imagination and you’re more likely to get them._

Alright?

And I find that sometimes like singing it sort of like...

Yes, well that’s what I was doing.

(I hum the melody)

I find that helps.

_OK, so you think you’ve got that measure, what are you going to do next?_

Probably (points to music) I think that one was my other wrinkle, so...

_OK, I’m going to make a suggestion to you here. You’ve isolated those two measures._

(I sing the melody we’ve been working on)

_But we haven’t played it with the right rhythm yet._

We’ll try that.

(Damian plays with correct pitch)

_Let’s try that again._
(I start to snap the beat; he plays it correctly)

*You’ve got it once. But you know when you go over that you’ve got to do it several times to know you know it.*

OK.

*OK? Don’t forget that. It’s kind of like I was out Friday afternoon flying and I don’t know if you remember how windy it was Friday afternoon, but …*

Yeah, it was windy.

*Well, just because I could land the plane once in that wind doesn’t mean I can do it every time. So I did it four more times just to be sure.*

So, that’s a lot harder, putting a plane down in that?

*Yes, very difficult. Hard work, let me tell you!*

Cause if you go too slow the wind could pick you up.

*Pick you up or slam you down.*

Especially if you’re in a small aircraft?

*Oh, small aircraft get tossed around like a feather in winds like that. But, just because I can do it once in strong winds doesn’t mean I can do it every time. The more times I go over that in that kind of wind, then the more likely I am to do it in that kind of wind next year or next week or whenever. And I only learn to do that with a lot of effort, just like the hard work you’re putting in right now.*

Confident that Damian has pretty well mastered the task we have been working on, I ask him to place the chunk into a larger context: chaining.

*OK, so now it looks like we’ve got the notes; it looks like we’ve got a pretty good rhythm, so now what can you do to make sure you can really go into that measure?*

Practice that a few times.

*Yeah, but here’s another thing. Now, go before it, maybe start there (I point to the chart) and go into that.*

(Damian starts about five measures before the measure we’ve been working on while I keep the beat slapping my thigh; he misses the B)
OK, you didn’t quite get the B, but do you understand what I mean? Just because you can do that, especially because you have to go around the corner. Look, your eyes have to move eight inches.

Yeah.

So, once you get that (I designate the problem measure) practice a little bit before it. Make the little chunk into a little bit bigger chunk, OK?

OK. Yeah, that makes sense.

I had noticed a rhythmic problem with this piece at rehearsal and so took this opportunity to address it with Damian.

Now, we’re going to work on this rhythm and I want you to play the first... I want you to play just the first few measures. The tempo goes more slowly than what we were just working on.

(I snap a slower tempo and count 1, 2, 3, 4; Damian starts the beat with his right foot on the floor and then plays. The second measure is a half note followed by two quarters; Damian plays the quarters as eighths, which is exactly what happened with several musicians at that week’s rehearsal)

This happened in rehearsal.

I point to the chart where the problem is, but do not ask Damian to analyze the rhythm; rather, I tell him.

Those are quarter notes.

(I sing the melody with the counts)

4 and 1-2-3-4

(Damian plays it incorrectly again; I sing it again. Damian plays it correctly)

OK, I want you to do that three more times right now because you’ve got that in your head.

(Damian plays it correctly once; I do not afford him the opportunity to go over it two more times as I had suggested)

So, one thing I want you to be really, really careful of is the rhythms, and that’s why listening to a recording of it might help you a bit.
OK.

Thanks.

Thank you.

You’re a great musician. Keep up the good effort.

I will.

The video suggests that I may have hurried this session near the end. There was another student in the portable classroom, that serves as the band’s studio, who was waiting his turn for some guided practice. This may have caused me to unfairly rush my time with Damian.

**Guided Eavesdropping On Home Practicing: Andy Evaluates Himself.**

The pedagogical approaches described above seek to develop self-regulation in the context of the private lesson or, as in Damian’s case, in a one-to-one guided practice session. Such approaches can influence self-regulated practicing at home only indirectly: one hopes that the practicing that is practiced during the sessions has an impact on practicing at home. Not content with students’ self-evaluative comments about their practicing at home, I began to wonder if there were any pedagogical approaches that might be brought to bear more directly on at-home practicing and would improve student ability in the self-regulation dimension of *behaviour/performance outcomes*: monitoring, evaluating and modifying practice strategies (McPherson & Zimmerman, 2011, 2002).

“An important component of helping students acquire metacognitive abilities is the teacher’s willingness to have the students describe what goes on in their minds as they think” (McPherson & Zimmerman, 2002, p. 336). While I was able to get the students to describe their thinking during a lesson, the task of getting them to describe in a meaningful way their thinking during the other six days of practicing eluded me.

I already had several hours of recorded home practicing that was a source of data for observing changes in behaviours that may have been the consequence of the guided practice interventions. As a pedagogical approach to help “students describe what goes on in their minds as they think” (McPherson & Zimmerman, 2002, p. 336) and thereby develop their metacognitive abilities, I used one of Andy’s practice sessions and observed it with him. As a pedagogical approach, the
purpose was not only to have Andy describe how he is practicing (see Leon-Guerrero, 2008), but also to have him evaluate how effective he perceives his practicing to be. It was my intention, through this guided practice teaching strategy, to develop metacognitive ability in the context of practicing at home. While Andy’s responses are indeed interesting, the focus of analysis is on the effectiveness of the pedagogical approach rather than Andy’s metacognition.

The following is a transcription of a guided practice session with Andy. In considering this transcription, I am observing my pedagogical approach to helping Andy reflect upon and evaluate his practicing at home. I should note here that this is not the first time I attempted to work with Andy with this approach. The first time was highly ineffectual with Andy able to make few if any meaningful comments about his practicing. I attributed this to a temporal distance between the practice and the evaluation that was too great, approximately three weeks. I then attempted to have Andy practice at school following his lesson; I recorded the practicing and we viewed it immediately afterwards. This, too, proved ineffectual. Not only was there not the necessary temporal distance to objectify the practicing, Andy was simply too tired by that point to participate meaningfully. The evaluation session transcribed here took place four days after the video recording was made.

Andy and I are viewing the video recording made at his home on my laptop computer. As we watch the video, Andy has the music in front of him should he choose to follow it, or if either of us wishes to refer to it. There is nothing subversive here; I want Andy to fully understand the point of what we are going to do. Andy is 8 years old at this point, and has been playing trumpet for four months.

*I have a question for you: why do you think we’re doing this?*

*We’re doing this to help me, like learn the notes?*

*Well, what we’re going to do here is we’re going to watch you practicing. We’re going to watch a couple of practice sessions today. And I’m going to ask you about your practicing, about how well you think you’re practicing. So, why do you think I’d like to do that?*

*Cause just in case I’m not practicing the right way?*

*Well, why wouldn’t I just tell you?*
Cause you don’t know if I’m practicing.

*Well, why don’t I just watch them and then tell you?*

Interestingly, Andy is astute enough to understand self-regulation and its merit.

Cause you’d like me to know, to see, try and see what the problem is and be able to know what it is so I can fix it myself.

Much like my use of the audio recorder, I show Andy where to press to stop the video should he wish to make a comment.

*Oh, OK. Alright. Well, that’s what we’re going to try to do today. We’re going to start with this one where you’re practicing the trumpet. You know this is the stop button here. And either I can stop it or you can stop it. All set?*

Yup.

(I start the video. On the recording, Andy plays a concert Bb scale, then tonic, dominant, upper tonic and back. Andy stops the video)

It was a little airy there. You could hear, it goes (blowing sound). Like you could hear the breath, but it was like before the blowing, you could hear it, it was airy.

*Do you know how to fix that?*

(shakes his head)

*Tonguing.*

(Andy already knows about tonguing; I re-explain the technique to him here. He mimics the “t” sounds I’m making)

Here Andy plays through #89 in the methods book, a short chorale by Bach that was assigned to the band at the most recent rehearsal. He stumbles on the second last measure which has two eighth notes and two quarters. He plays the repeat, stumbling at the same spot and turns the page to the next piece. His tonguing through this is fine; the airiness he pointed out is not present.

(I stop the video)
At this point, having previously viewed the video, I know that Andy is not going to work on the problem measure, but move on. What I observe in my approach here is that I commented on this in a neutral tone, one that is void of judgement.

*Looks like you’ve moved on to another piece.*

Bad idea.

*Do you think it was?*

(nods)

*Really?*

That one part was not ready.

*Tell you what we’ll do. We’ll back up and maybe we can find where that part was.*

(We go back to the beginning and watch and listen again, starting with the warm-up)

I affirm Andy’s ability to evaluate himself:

*Yeah, I see what you mean about the airiness.*

(He stops the video at the problem part)

Yeah, I did a slur on the, instead of ...

(here he sings the melody using the rhythm syllables)

ti-ti ta ta

*You slurred them.*

(nods)

*OK. I think you go through it one more time.*

(we listen to the repeat)

*What about that time?*

Still the same. I still did the slur.
Do you know where that is in the music?

(he points to the measure)

Right here.

Again, my tone is neutral, not inviting a response from Andy that he thinks I want to hear:

And now you’re going on to another piece. So, if you were to do this practice again, would you do anything differently?

Just work on that piece, I mean that part.

A judgemental statement on my part:

I would agree. In fact, I’m kind of surprised you went on to another piece, Trombone Rag, I think.

(we listen to his playing of Trombone Rag; he makes an error on a note and pushes stop)

Right there...

(pointing to the chart)

I messed up on this note.

OK, well, let’s see what you do.

(we continue the video)

See, I also messed up here...

(pointing to measure where four quarter notes are slurred in pairs; he played all four legato)

I went ...

(he sings the melody with one slur)

I didn’t go ...

(he sings the melody as written with two slurs)

I went ...
(sings it again with the incorrect articulation)

*So you made like one big slur. OK.*

Andy plays the repeat, going to the second ending. The trombone has a solo glissando on the first three beats with everyone playing an accented quarter note in unison on the fourth beat. Andy plays middle C instead of G.

That note I couldn’t get, I don’t know why.

(I look at the chart)

*Let’s see, it’s a G. Well, OK, you’ve been through it once with the repeat, so let’s see what you do, OK?*

(clearly working specifically on getting the final note, G, Andy plays a scale from C to G. I stop the video)

Although I recognize this as a good strategy, I reserve judgement at this point:

*What was that? What were you doing?*

I was playing a scale to get that G.

*To get the last G. Well, what do you think about that idea?*

Good.

Yeah, that was a good idea. Let’s see where you go next.

(Andy goes back to the beginning; I stop the video)

*OK, you’ve gone back to the beginning. You’ve practiced getting this G and then you went back to the beginning. Can you think of a different way... are you pretty sure you’re going to get that G the next time?*

No.

*What might have been a better way to do it?*

Just start from here ...

(points to two measures before the end)
...and then do that.

(pointing to the G)

*Or maybe just count to three, where you have rests, and then play it. 1, 2, 3 “bah”. Let’s see what you do.*

(blow out his water key; starts from beginning and plays repeat, partially getting the final G with something of a scoop. He turns the page to the next piece)

*Now, you’ve decided to turn the page.*

(nods yes)

*Do you think it’s a good time to turn the page?*

No, it’s not a good time.

*What would you…*

I’d still be working on this one.

*Specifically, what would you do? You’ve played it through two times.*

I’d be working on this part cause I didn’t do that note perfectly. This part, cause I went...

(sings four-note legato)

...cause I did one big slur and this still ...

(points to final G)

*On that last note?*

Yeah.

*I think you go to #103 now, the minuet.*

This piece, by Bach, is a duet. Students were required to learn both parts so that they can switch on the repeat. Aidan plays it through once, switching from part A to B on the repeat as the band had been instructed to practice it. He makes several errors and then goes to the next piece that was assigned at the last rehearsal.
And you go right to…

March Militaire.

OK, so we’re going to stop that one there before we look at one of your piano practices. We looked at about 12 minutes of practicing there. What would you say?

Not that good?

I affirm Andy as a musician:

You play the trumpet quite well, I think. But, what could you do differently? How could you practice more strategically?

Andy is getting tired. His response reflects abandon rather than genuine ignorance. I suggest that, in fact, he does know.

I don’t know.

You’ve actually already told me what you would do differently.

I’d practice on those parts?

Well, remember you pointed out the breathiness, the airiness of your notes. So you could practice tonguing, even with just the mouthpiece.

(nods)

And the other thing is just focusing on the hard parts. And then you did that scale up to the G to get that note. Remember? In Trombone Rag? But then you’ve got to stay with that for awhile. You can’t get it once and think you’re always going to get it. Know what I mean?

Yes.

The pedagogical approach in this guided practice session attempts to develop metacognitive ability in Andy, encouraging him to describe what he is doing when he practices and evaluate its effectiveness. A significant aspect of the approach that I observed here is my neutrality: Andy is the evaluator; I am the guide.
Chapter 6
Analysis of Observations from the Summit

This research has viewed practicing as a highly complex phenomenon with many interconnected dimensions that revolve around and are informed by a musician engaged in learning to play a notated score. Overall, a musician’s development towards effective practicing may be described as the acquisition of a metacognitive awareness of one’s own learning and hence a more active participation in that learning that is characterized by self-regulatory behaviours. This development is facilitated by a strong sense of personal self-efficacy that is informed by other affective-motivational processes which, taken together, form the self-system.

This research asked: Can the intervention of teacher-guided practice sessions develop effective practicing in young musicians?

The study sought to answer this question by addressing the following sub-questions:

a. What characterizes effective musical practicing?

b. What observable practice behaviours will characterize growth toward effective musical practicing?

c. What musician attitudes with respect to affect and motivation will indicate growth toward effective practicing?

d. What pedagogical approaches used by the music educator during guided practice intervention will prove operative in developing effective practicing behaviours and attitudes in the young musician?

Results of the research were obtained from two interviews which framed the data gathering period; both musicians and their parents were interviewed. The semi-structured design of these interviews allowed for the emergence of unplanned but relevant lines of questioning that figured into subsequent interview sessions. A survey of both parent and student participants was conducted at the mid-way point of the academic year during which the guided practice interventions took place. A follow-up questionnaire was given to the musicians six months after the conclusion of the study. Parents of pianists in the study who attended their children’s lessons were surveyed about the possible impact of their witnessing the guided practice sessions on any
assistance they provided to their children when practicing at home. Video recordings were made of pedagogical approaches used in guided practice sessions. Video recordings were also made of the home practice of several participants. As a pedagogical approach, one of these video recorded home practice sessions was used with one participant in a guided evaluation of his practicing to develop the musician’s metacognitive ability. A video recording was also made of a musician guiding the practice of another student at a summer music camp. Throughout the study, I kept field notes documenting observations saliently relevant to the study.

The data was coded for themes within the framework of self-regulation as articulated by McPherson and Zimmerman (2011, 2002). While the complete construct of self-regulation includes both affective-motivational and cognitive-metacognitive processes, I grouped the results of this study into these two categories separately. This categorizing of the results corresponded more meaningfully with sub-questions (b) and (c).

Results in the cognitive domain were presented within the framework of the five psychological dimensions of self-regulation that encompass cognitive and metacognitive processes: method, time, behaviour/performance outcomes, physical environment, social factors (McPherson & Zimmerman, 2011, 2002).

It was rare that comments by the student participants and observations by their parents, as documented in the interviews, fell neatly into one of the affective-motivational or cognitive-metacognitive categories noted above. This is also true of observations that I documented in field notes. This phenomenon is particularly true of the affective-motivational theoretical framework of expectancy-value theory, self-determination theory, attribution theory, and goal orientation. That the data is marked by this characteristic is eloquent testimony to the complexity of the interconnectedness of the various affective and motivational components of learning.

**Sub-Question a: What characterizes effective musical practicing?**

Turning to the expert musician as a model, Susan Hallam (1997a) notes that “experts know how to do the right thing at the right time” (p. 91). She goes on: “Within this framework, effective musical practice might be defined as that which achieves the desired end-product, in as short a time as possible, without interfering negatively with longer-term goals” (p. 91). Hallam (2001b) argues that successful musicians must be able:
To recognize the nature and requirements of a particular task; to identify particular
difficulties; to have knowledge of a range of strategies for dealing with these
problems; to know which strategy is appropriate for tackling each task, to monitor
progress towards the goal and, if progress is unsatisfactory, acknowledge this and
draw on alternative strategies; to evaluate learning outcomes in performance
contexts and take action to improve as necessary in the future (p. 28).

The important consideration of effective practicing is to see it as effective learning, as effective
problem-solving. In this light, two characteristics of effective practicing are, first, the musician is
an active participant in their own practicing/learning with a sense of ownership of both the
problem and the solution; second, the musician demonstrates a high level of independence –the
student has learned how to learn.

Effective practicing can only be sustained and facilitated by motivation that is characterized by a
high level of self-efficacy which is “concerned with judgements of how well one can execute
courses of action required to deal with prospective situations (Bandura, 1982, p. 122). Self-
efficacy, unlike self-concept, is context specific. It will determine, in a particular situation, how
much effort a person will expend in order to achieve a goal, as well as how long that person will
persist when encountering a challenge or an obstacle.

Musical practicing is likewise a specific situation in a specific context: “I am learning this piece
of music – *Fright Night*, 2nd trumpet - right now, before supper. I have about 15 minutes and I
really want to play it well at the spring concert in two weeks because grandma will be there.”
The essential motivational component for effective practicing to occur is self-efficacy
(Zimmerman, 1989).

In sum, musicians who practice effectively are self-regulated learners. They are:

Metacognitively, motivationally, and behaviorally active participants in their own
learning process. Metacognitively, self-regulated learners are persons who plan,
organize, self-instruct, self-monitor, and self-evaluate at various stages during the
learning process. Motivationally, self-regulated learners perceive themselves as
competent, self-efficacious, and autonomous. Behaviorally, self-regulated learners
select, structure, and create environments that optimize learning... The effective
use of self-regulation strategies is theorized to enhance perceptions of self-control
(i.e., autonomy, competence, or efficacy), and these positive self-perceptions are
assumed to be the motivational basis for self-regulation during learning (Zimmerman, 1986, p. 308).

Students with strong self-efficacy are more likely to be self-regulated learners (McCormick & McPherson, 2003; McPherson & McCormick, 2006; Nielsen, 2004; Pintrich & De Groot, 1990; Zimmerman, 2000).

**Sub-Question b: What observable practice behaviours in the musicians in the study will characterize growth toward effective musical practicing?**

Behaviours that give evidence of effective practicing are examined according to the five cognitive and metacognitive psychological dimensions of the self-regulation framework of this study: method, time, behaviour/performance outcomes, physical environment and social factors (McPherson & Zimmerman, 2011, 2002).

**Method.** Self-regulated practicing occurs when a student acquires and draws upon a repertoire of task-oriented strategies (Hallam, 1997a; McPherson, 2005; McPherson & Davidson, 2006; Rohwer, 2002; Rohwer & Polk, 2006). When engaging with the musical task, a student will “choose or adapt one particular method over others” (McPherson & Zimmerman, 2011, p. 143). The self-regulated student may also “spontaneously invent increasingly advanced strategies to improve their performance” (Nielsen, 1999, p. 275).

One of the principal aims of my working with the students in guided practice sessions was to develop in them a task-orientation, specifically targeting the difficult sections of the music. Consistent with the research, most of the participants at the beginning of the study viewed the piece of music they were learning holistically (Gruson, 1988; Wiggins, 2002), most often “practicing” by playing the piece through in its entirety, rarely pausing to correct an error (Hallam, 1997a, 1998b; McPherson & Renwick, 2001; Pitts et al., 2000b; Rohwer & Polk, 2006). Results from the pre-study interviews of both parents and students give evidence of this “method.”

Data from the mid-point assessment surveys of both students and parents indicate a marked increase in focusing on the difficult parts of the music. That this focus was sustained by the musicians through the course of the study is evident in the interviews of both students and parents conducted at the end of the study period. A survey of the musicians six months after the
study strongly suggests that this strategy of finding and practicing difficult passages in isolation has been maintained. One difference noted along this continuum is the musicians’ increasing ability not only to identify difficult sections of the music, but to articulate what, for them, made the section challenging.

That students are able to discern the difficult sections of a piece of music they are learning is also evident in video recordings of guided practice sessions, particularly those sessions that took place after the midway point of the intervention period. When asked at lessons, following a performance, where the student felt the piece needed the most attention, most were able to readily identify the challenging part and the nature of the problem encountered. When presented with a new piece, students would also be able to suggest a section they anticipated being challenging by looking over the piece of music or, in some cases, by playing it through.

There were a number of tasks-oriented strategies demonstrated and used during guided practice sessions: looking over the entire piece, or playing it through to identify difficult parts; using rhythm syllables and/or clapping the rhythm to learn it apart from playing it; slowing the tempo; playing hands separately; repeating a small chunk of music; chaining a learned chunk to a larger section; beginning practicing a piece at a difficult part rather than at the beginning. In an effort to empower the student to make strategy choices, I would refrain from prescribing which strategy to use. There were times, however, when I would introduce a new strategy such as using a rest or a tied note to look ahead, or demonstrate the use of a metronome.

Results from the surveys and video recordings indicate an increased repertoire of strategies used by the students.

I notice at the beginning of the week, the couple of days after a lesson, some practices there is not much piano actually being played. But rather looking at the book. And I can hear humming, too.

(Parent response: six-month follow-up survey)

The questionnaire assessing practice behaviours six months following the intervention period indicates this in a salient way. Video recordings of lessons indicate that the musicians are astute at suggesting appropriate strategies to address a problem they perceive in their performance, in particular the use of clapping and/or rhythm syllables to learn difficult rhythms.
Two other important findings in the self-regulation dimension of method are the inventing of strategies both at a lesson and at home, and the automatization of strategies, slowing the tempo and playing hands separately in particular. Another automatic strategy evident at lessons was the repetition of a small section several times without any direction from me.

**Time.** When they practice, self-regulated musicians plan and use their time efficiently (McPherson & Zimmerman, 2011, 2002). Post-study interviews and, especially, the six-month follow-up questionnaire, indicate that all of the participants in the study became more focused during their practicing and less distracted. Setting goals for their practicing and following a plan did not score high on the surveys with most musicians indicating sometimes. Parents of piano students seem to indicate a high degree of practice organization which may be due, in part, to the fact that the musician has a notebook in which are written responsibilities.

He is organized. He has small goals for each piece and he practices on that particular piece until he reaches his goal, then moves on to the next piece. He does have a particular song in mind each time because when he sits down, he will shuffle through his books thinking (hmmmm to himself) and then pick a book.

(Parent response: six-month follow-up survey)

Band students, by contrast, would only have such a list if they wrote it out themselves. While it is a strategy that I encourage at rehearsal (even providing pencils), many students do not use it.

Both parents and musicians indicate that there was not a significant decrease in reminders to practice. Two mitigating considerations here, however, are first, that none of the parents indicated anything other than agreeable compliance when children were reminded to practice; second, as one mother points out in the mid-point survey:

I don’t think whether or not the child needs to be reminded should be a benchmark. The kids are so busy with everything else going on in their lives that they need reminders for many of the things they enjoy. I think it is more a function of being a child and not having an adult’s sense of the passing of time. A better indicator, I think, is their reaction to being reminded. If practicing music had the same reaction as chores, we would not be continuing the music.

Through the course of the research, assessments of practice frequency and duration did not significantly change. While several students indicated that they now get more done in less time, a
reflection, perhaps on practicing more strategically, this may be also due to the fact that the
participants in the study are involved in many other activities and a “tight” schedule may not
allow for increases in frequency or duration.

About half the students practice regularly or often on weekends (see Faulkner et al., 2009) and
one student practices regularly in the morning before school.

Observations of musicians’ time use and planning suggest that this is an area that did not
progress as much as other dimensions of self-regulation, particularly with respect to practice
organization, planning and setting goals. A possible explanation of this is that the time dimension
of self-regulation is something that can be discussed during a guided practice session, but not
actually practiced. It is also reasonable to conclude that, given the age of the musicians – 7 to 13
– parent reminders are concomitant with the students’ maturity.

**Behaviour/Performance Outcomes.** The dimension of behaviour/performance
outcomes is, perhaps, the most distinguishing aspect of the self-regulated learner: the ability to
monitor and evaluate performance outcomes, and then to select the appropriate behaviours or
modify actions to improve these outcomes (McPherson & Zimmerman, 2011, 2002). In this
dimension of self-regulation, learners demonstrate a high degree of metacognition. In the broader
context of learning, the literature indicates that metacognitive processes have the most significant
influence on learning and academic ability (Wang, 1993).

The self-regulated musician is metacognitively aware of what it is they know and believe, and
what skills they can use (see Garcia & Pintrich, 1994). The self-regulated musician would
possess knowledge of personal attributes such as musical strengths and weaknesses, an
awareness of the demands of the musical task, of competing interests and distractions, and of
their own motivational and affective state. Such learners would also be metacognitively aware of
what strategies are appropriate to use to revise outcomes, including resources and support
strategies. Effective practicing is characterized by high levels of metacognition (Barry and
Hallam 2002; Hallam 2001b; Hallam, 1995; Lehmann 1997; McPherson & Renwick 2001;
Nielsen, 1999).

As self-monitoring is a key component of the behaviour/performance outcomes dimension of
self-regulation, the research suggests that the development of appropriate aural schemata may be
significant in facilitating this growth toward self-regulation (Hallam, 2001b; McPherson & Renwick, 2001). Aside from exposure to ambient music, novice musicians today, through the facility of technology, are able to listen to recordings of pieces that they are learning and monitor their progress in this aural context. Through the course of the current study, there was an increase in the musicians’ use of recordings. This was particularly evident with band musicians. At private lessons, students would often request that I play a piece for them. In both cases, students demonstrated an increasing reliance on aural schemata against which to monitor their performances.

An outlier in the area of self-monitoring was one musician’s propensity to evaluate his lesson with his mother. This is most likely facilitated not only by the parent’s genuine interest in her son’s progress, but also by a shared vocabulary of music learning. I shall elaborate on this phenomenon later in this chapter where I consider observations of parents’ interactions with their children at home.

Central to monitoring performance outcomes in a meaningful way is the learner’s ability to view herself not just as subject, that is a causal agent, but also as object of experience or cognitive construction: “I practice the piano!” (subject) versus “I view myself as a pianist practicing the piano!” (object). It is this view the learner has of herself as object that allows for self-interaction and, thereby, allows the learner to assume responsibility for the self-management of her learning activities: “How effective am I as a pianist practicing the piano? How might I change things to be more effective?”

Early in the data gathering stage, my field notes suggest that several of the musicians were unable to monitor their performance outcomes when, having just played it for me, I asked for their evaluation. Responses were accurate in terms of being positive or negative, but often remained vague: “Well, it was better than last week.” Students were incapable of being specific. It became clear that this was largely due to playing the piece the same way – rightly or wrongly – for the several days prior to the lesson or rehearsal. Also, during the lesson, there was not the necessary condition to objectify the performance. It was only after using an audio recorder at the lessons, several minutes after the performance, that the musicians demonstrated their ability to monitor, evaluate and respond to their performance outcomes. In such cases, students were able to determine where there was a weakness, and suggest ways to address the problem.
Observations documented by me in field notes indicate that students likewise possess the vocabulary to assess their performance: “ahead of the beat,” “hesitation,” as well as the language of strategy use: “chaining.” These observations suggest that, with the opportunity for inductive analysis during guided practice, along with the development of a “practicing” vocabulary, students can learn to meaningfully monitor and evaluate their performance outcomes. In order to objectify the performance, the use of an audio recorder appears an effective use of technology.

Perhaps the most significant aspect of this dimension of self-regulation to examine is the capacity of the young musicians in the study to monitor, evaluate and strategize in response to their own practicing at home. Results from the guided self-evaluation session with Andy indicate that, once the musician is acquainted with task-oriented practice strategies, as may be evident in the method dimension of self-regulation, that student is quite capable of evaluating the effectiveness of their own practicing at home and likewise capable of suggesting modifications to their practice behaviour to render it more effective (see Leon-Guerrero, 2008). As these sessions with Andy took place near the end of the study, there was not the opportunity to assess the impact of this on his practicing at home. It is my opinion that this guided practice strategy holds much potential for developing effective practicing in young and beginning musicians.

One area that remains something of a mystery is production deficiency (Barry & Hallam, 2002; Rohwer & Polk, 2006). This is evident in the video recordings of the home practicing of some of the musicians. To return to the two general organizing constructs of the self-regulation model proposed by Garcia and Pintrich (1994), knowledge/beliefs and strategies, it is clear that several musicians in the study, even after ten months of guided practice intervention, still demonstrated a failure to translate intelligent knowing into intelligent doing, thus hindering the potential for achievement (see McPherson & McCormick, 1999 and Pintrich & De Groot, 1990).

There are a number of possible explanations for this. One possible reason for production deficiency, as evident in the case of Andy’s attempt at learning Morning by Grieg, is an exuberance to play – not learn - the piece right away. This inclination may, ironically, be exacerbated by having heard the piece played by the teacher. Another possible explanation is that there is not sufficient motivation on the part of the musician to bring the piece of music to a high performance level. Pieces practiced strategically were consistently those the student thoroughly enjoyed playing and was highly motivated to learn, regardless of its difficulty. Norm’s strategic
approach to the Superman Theme illustrates this. It is worth noting that other performances in the same lesson clearly demonstrated production deficiency in his practicing of them.

The presence of external motivators may also have an impact on production deficiency. Results from both parents and students indicate that much more care is given to practice when a concert or recital is imminent. Finally, it may simply be the case that the student is unaware of their practicing behaviours at home. Perhaps an opportunity to assess a video recording of a practice session at home with guided self-evaluation will assist the young musician towards greater metacognition in this area.

An important aspect of the behaviour/performance outcomes dimension of self-regulation is the musicians’ use of volitional strategies to ensure an optimal pursuit of goals (see Corno, 1994). There was noticeable growth in this area. The post-study interviews suggested that students responded to frustrations more productively, either taking a break or seeking assistance. In some instances, practicing environments were modified or relocated to better ensure achievement.

**Physical Environment.** There was no real change in this aspect of self-regulation. Most students from the beginning of the study were sensitive to the need for a distraction-free environment; parents, likewise, were supportive in this regard from the start. Thanks to the generosity of the school principal, all the band students already had music stands. There were some unique challenges, however. One family had three participants in the research study playing four instruments:

The boys (John, Damian and Andy) negotiate amongst themselves on the weekend who will be practicing sax/trumpet/piano at what times/first.

(Parent response: six-month follow-up survey)

By the end of the study, several practice environments included metronomes and technology for listening to recordings.

**Social Factors.** Responses to the six-month follow-up survey indicate that most students would actively seek help if they encountered a problem or did not understand something. Interestingly, however, all the parents indicated their children asked them for help far less often than before. This could certainly indicate that, as a result of the guided practice sessions, the
students are indeed more independent in their learning, feeling better equipped to strategically respond to task challenges. It could also be the case that the perception they have of their parents’ ability to assist them has changed: they may see the increasing complexity of the music as distancing themselves from their parents. At the same time, the three mothers, whose musical experience with piano clearly equips them to assist their children, indicate being called upon less frequently for help, even at the end of the research period.

In sum, data that reflect the cognitive and metacognitive psychological dimensions of the self-regulation framework – method, time, behaviour/performance outcomes, physical environment and social factors – indicate significant development toward effective, self-regulated practicing among the musicians who participated in the current study.

**Sub-Question c: What musician attitudes with respect to affect and motivation will indicate growth toward effective practicing?**

I have considered the results pertaining to affective-motivational processes within the framework of four theories that all inform self-efficacy (Bandura, 1982; Zimmerman, 1989): Expectancy Value Theory (Eccles & Wigfield, 1995), Self-Determination Theory (Ryan & Deci, 2000), Attribution Theory (Austin et al., 2006; Weiner, 1985) and Goal Orientation (Dweck, 1986; Gruson, 1988; O’Neill, 1997; Pintrich, 1999).

The most noticeable changes in the musicians’ motivational processes at the end of the study were in the area of self-determination theory. Students expressed high feelings of competence in learning music. Results from the follow-up questionnaire conducted six months after the study indicate that, although the musicians did not subscribe to musical ability as being innate, they strongly agreed that they had musical ability and that it could be developed.

My field notes indicate that there were certainly times at lessons when the performance of an entire piece was a source of accomplishment for the musician. This was often at the conclusion of a guided practice session. However, observations at private lessons also indicate expressions of accomplishment on the part of the student at the successful performance of the section of the piece that was the focus of the guided practice.

In the post-study interviews, both parents and musicians expressed a more common theme that connected feelings of accomplishment not with the performance of an entire piece, but with an
effective practice session at home. Indeed, several parents indicated noticing expressions of competence by their children following the mastery of a small part of the music. This expression took the form of inviting the parent to come and listen, not to the entire piece, but just to that section of the piece which the musician had accomplished.

The complexity of the interconnectedness of motivations and cognitive processes is evident here: as noted already, one of the most significant areas of growth toward more effective practicing in the cognitive domain is the decision to focus on the challenging parts of a piece of music. This task-oriented strategy gives evidence of a learning/mastery goal orientation (Dweck, 1986). When this is coupled with metacognitive development in monitoring, evaluating and revising strategies to master the challenging section, the potential for achievement is enormously greater. Musicians, as a consequence, derive a motivating sense of competence from mastering small tasks rather than learning to perform an entire piece.

Another component of self-determination theory is relatedness: the need to experience meaningful relationships with others. Throughout the study, concert band students expressed the motivation to practice so they would be prepared for rehearsal; all musicians indicated that they did not want “to let the band down.” This element of self-determination theory – the need for relatedness – has an impact on the musicians’ motivation to do well: attainment value. This is a component of expectancy-value theory. Another component of expectancy-value theory, that figures significantly into an examination of the data, is the interest value of learning a piece of music: how much fun it is. Data obtained from the follow-up questionnaire are unambiguous: band musicians are highly motivated to do well – attainment value – as part of their commitment to the band. The frequency of responses to the questions about the importance of doing well and learning a piece of music “even if I don’t really like it” were virtually identical: all but one response indicated agree or strongly agree.

Interesting observations, with respect to the expectancy-value components of attainment and interest, came from the parents of participants who were musicians in the band and taking private piano lessons as well. They noted a difference in so far as the band musician in their home was motivated by an expressed responsibility to the band. The pianist part of the same musician was notably more motivated as long as the piece was fun.
A third component of self-determination theory is the need for autonomy, defined as the freedom to exercise choice, to self-determine and control one’s behaviours (McPherson & Zimmerman, 2002). On the surface, it may appear that musicians, especially in the context of the ensemble, have very little opportunity for choice. Even in the private piano studio, choice may exist only within the covers of the methods books being used. This may be too limited and limiting a view of autonomy in the context of practicing. Achieving self-regulatory capabilities, with respect to autonomy, requires a sense of personal agency. The stronger this sense of agency, the more likely a musician is to be cognitively engaged in practicing (Hargreaves & Marshall, 2003; Reeve & Tseng, 2011).

In one sense, the satisfaction of this need for autonomy is foundational to the principles of guided practice which, by its very nature, affords the musician many opportunities to be agents of their own learning. Guided practice accomplishes this by allowing musicians choice – albeit guided - in the way they go about practicing. This sense of agency is also manifest in the students’ sense of musical identity (Hargreaves & Marshall, 2003). In the post-study interviews, this was a dominant theme expressed by parents. They gave evidence of their children relating differently to their peers as well as to the music around them. As with their children’s developing feelings of competence, this musical identity seemed to be linked to the deliberateness of their practicing to achieve effective performance. The musicians perceive themselves as agents of their own performance outcomes. This musical identity is particularly pronounced in the band students who see themselves as part of the “trumpet section,” for example, and a member of the musical team.

She’s thinking more like a musician rather than someone who’s just learning to tap out a song on the drums.

(Parent response: post-study interview)

This sense of musical identity clearly augments the musicians’ attribution of personal effort. As agents of their own learning, they recognize the link between effort and being prepared for rehearsal or a lesson or, indeed, a concert. The follow-up questionnaire given to the students indicates clearly the attribution of success “at learning or performing a piece of music” to personal effort; all responses were agree or strongly agree. Parent responses also suggest that their children recognize the connection between effort and performance outcomes. Interestingly,
some of this recognition on the part of the musician relates to a metacognitive awareness of the quality of outcomes, especially at private lessons.

If his lesson is great, he does know it is from a week of practicing every day, with concentration and focus and effort.

(Parent response: six-month follow-up survey)

Parents also pointed out that an attribution to personal effort does not ensure that such an effort with be forthcoming. Here there is evidence of the interrelatedness of attribution and the interest component of expectancy-value: some parents note that a great deal of effort is put forth when the piece is fun.

In one instance, there was an interesting correlation between attribution and goal orientation. Throughout the study, Doug maintained a performance/ego goal orientation. While this musician developed in many of the cognitive/metacognitive areas of self-regulation, his attribution showed evidence of being external when he was not assigned the 1st trumpet chart for a particular piece the band was learning. His parents indicate that he attributed his poor performance to the piece being, from his point of view, boring; they also note that his poorer effort was attributed, again from Doug’s viewpoint, to the fact that the piece belonged to the two 1st trumpet players: “It’s their piece.”

With the one exception of Doug, all the students in the study developed a consistent learning/mastery goal orientation (Dweck, 1989). Two interesting responses in the follow-up questionnaire pertained to the role of performing for an audience. While all the musicians agreed or strongly agreed that “Performing for others motivates me to practice harder,” the importance of performing for an audience was noticeably less. Relating this to expectancy-value theory, it would appear that mastering the smaller task has at least as much value as mastering an entire piece for performance.

This is borne out in parent responses that describe a sense of accomplishment in their children when they achieve a satisfactory performance outcome with a small task.
He likes the success of finding a mistake and correcting it – although he may not always be aware that he is making a mistake.

(Parent response: six-month follow-up survey)

Examining the goal orientation of the musicians highlights the significant degree of interplay between the four component theories of the affective-motivational framework of the study, and the significance of the cognitive self-regulation dimension of method – the use of task-oriented strategies – in shaping the attitudes of musicians who practice effectively. The literature on practicing suggests that, of the practice strategies used by expert musicians, the most salient are identifying the difficult parts of a piece of music (Duke et al., 2009; Hallam, 1997a; Nielsen, 1997) and “chunking” the music into smaller parts (Hallam, 1997a, 1997b, 1995; Nielsen, 1997).

Continuing with this observation of experts, Hallam (1998a) suggests that effective practicing is most significantly recognizable in the developing musician’s identification of and focus on challenging passages in the music and that this was not consistently evident in musicians until a Grade 5 standard. In identifying six levels of task-oriented strategy use, Hallam (1997a) suggests that the identification of difficult passages and practicing them in isolation is the highest level of strategy use in this developmental hierarchy.

An evaluation of data gathered in the current study indicates that the musicians, following the intervention of guided practice sessions, are consistently able to identify difficult passages in a piece of music, assess the nature of the challenge, and meaningfully respond with an appropriate practicing strategy. The data further indicate that a task-oriented strategic approach characterizes the participants’ cognitive engagement with practicing. This approach, in turn, significantly influences the nature of the goals that are important to the students. Observations suggest the musicians have a learning/mastery goal orientation.

Consequently, it is attaining mastery of a task – in particular, the difficult passages - that has value for the musicians in this study (expectancy-value theory). It is from achieving this mastery that the students derive a sense of competence (self-determination theory, expectancy-value theory). Emphasizing the role of self in the development of self-regulation, the guided practice sessions empower the musicians as agents of their own learning (self-determination theory) and,
in so doing, guided practice nurtures the recognition that achieving the desired performance outcomes is a result of personal effort (attribution theory).

For effective practicing to occur, the affective disposition of the musician needs to be one of high self-efficacy: the learner approaches practicing with an attitude toward the task that reflects a strong belief that the performance goal can be achieved. Musical practicing is an enterprise that is, for the most part, undertaken by oneself. Further, in the Western model of music education, musicians engaged in private tuition or ensemble rehearsals are expected to sustain a high level of independent learning between lessons or rehearsals. In this context, for effective practicing to develop and be maintained, the requisite motivation must be intrinsic. Maehr et al. (2002) suggest that there are four observable behaviours that give evidence of intrinsic motivation. They are presented here with musical examples:

1. Choice and preference – choosing to practice the piano instead of watching television
2. Intensity – focusing all of one’s attention on practicing a difficult passage
3. Persistence – continuing to practice the flute after rehearsal ends
4. Quality of engagement – finding aspects of a piece that are difficult to play and working on those passage until they can be played correctly (p. 349)

Data from the current study indicate a high incidence of the task-oriented strategy of finding, isolating and practicing the hard parts of a piece of music. In light of the examples used by Maehr et al. (2002) to illustrate intrinsic motivation, one may conclude that the musicians in the current study are, indeed, intrinsically motivated.

Through the second and third sub-questions of the research, I have discussed the data of the current study by separating cognitive/metacognitive dimensions from affective-motivational ones. The literature indicates a high correlation between self-efficacy and self-regulated learning (Pintrich & De Groot, 1990; Ritchie & Williamon, 2011; Zimmerman, 2000, 1989). Data from the current study illustrate that these dimensions are inextricably linked. “Self-efficacy and self-regulated learning have been considered reciprocal processes: feelings of self-efficacy lead students to implement self-regulated behaviours, which in turn lead to increased self-efficacy” (Renwick et al., 2002, p. 377).
Sub-Question d: What pedagogical approaches used by the music educator during guided practice intervention will prove operative in developing effective practicing behaviours and attitudes in the young musician?

The characteristics of effective practicing delineated in the answer to the first sub-question of this research study make clear that the musician who practices effectively is a self-regulated learner. It was the intention of the guided practice interventions to promote the development of self-regulated learning behaviours in the musical practicing of the students in the study. A determination of what pedagogical approaches proved operative in achieving this goal was based on observations of approximately 50 hours of video recordings of my working with the musicians either at private piano lessons or, in the case of students in the concert band, in one-to-one guided practice sessions held in the music studio at school.

As I consider myself a music teacher who aspires to be a self-regulated learner, observations as to the efficacy of guided practice pedagogical approaches are considered, first, within the affective-motivational framework of expectancy-value theory (Wigfield, 1994; Bandura, 1982), self-determination theory (Ryan & Deci, 2000), attribution theory (Weiner, 1986) and goal orientation (Dweck, 1986).

I believe students, as well as parents who attend the lessons, intuitively know the teacher’s mood and relationship to teaching music: that teacher’s affect and motivation. “Personal qualities of individual teachers exert influences which are of crucial importance in young musicians’ lives” (Howe & Sloboda, 1991, p. 55). Undoubtedly influenced by the excitement of the research study itself, early lessons reveal high intrinsic motivation on my part, as well a positive disposition toward working with the young students. This is evident in motivations associated with expectancy-value theory: it is clear that I enjoy teaching music and that I want to attain an effective way, in fact, of doing so. None of the video recordings suggest that there is anything perfunctory about what I am doing. Time lapse indicators on the recordings indicate that I am not concerned about having to give up personal time beyond the agreed upon length of the lesson – half an hour. Every guided practice “lesson” was of a duration longer than 30 minutes, the longest being 51 minutes. It is also apparent in the observations that I believe the guided practice sessions have a utilitarian value to the student.
Observations suggest that the goal orientation in guided practice is a learning/mastery one: the focus of performance outcomes during the sessions is on the student mastering a small task, not performing the entire piece. As one mother noted, this orientation takes a great deal of pressure off of her son as he practices through the week, knowing that learning to play a piece of music is a process. Another mother compared this orientation to that of her son’s previous teacher who emphasized competition and looked for entire pieces to be prepared for lessons.

Considering the components of self-determination theory, data from the video recordings indicate my need to relate well not only to the students but also, in the case of private piano lessons, to the parents who are present; they are very much part of the guided practice component of the lesson and I do not hesitate to involve them by pointing something out or giving them some information that may be of use in their assisting with practicing at home. Humour is a significant part of the guided practice sessions. Observations from video recordings early in the study suggest, however, that while such conversations may create the friendly rapport and climate that beginning students value (see Davidson et al., 1998), it is quite time-consuming. I believe that the perception of both parents and students is that I am competent at what I am doing and that I feel this way about myself.

In terms of attribution theory, the growth in what I perceive to be the efficacy of my pedagogical approaches through the course of the study suggests that I have an entity theory of intelligence and that, with personal effort – particularly in the area of self-reflection – I can become a more effective music educator.

I have also assessed the pedagogical approaches used in guided practice within the framework of the five cognitive and metacognitive psychological dimensions of self-regulated learning (McPherson & Zimmerman, 2001, 2002): method, time, behaviour/performance outcomes, physical environment, and social factors.

**Method.** Like effective practicing, effective guided practicing relies heavily on a task-oriented strategic approach. The data relating to *method* suggest that the most significant pedagogical strategy is the use of questioning by the teacher. If genuine learning is heuristic – a moment of discovery – then it is through careful, guiding questions that the musician will come to discover what is effective in their own learning processes as well as the means to monitor and
control them (see Hallam, 2001a). It is through careful questioning by the teacher that the musicians will learn about learning.

An assessment of the observations in the video recorded sessions suggests that this is a difficult paradigm shift. There were several instances, especially in guided practice sessions at the beginning of the study, when I was not “guiding” but telling. This may be explained, in part, as being a more traditional approach that I was used to: pointing out the error and how to fix it. A pedagogy of teacher-centered diagnosis and prescription is also more expedient. As one video revealed, guiding the practice of four problematic measures can, potentially, consume almost the entire lesson! I will address this issue further in the dimension of time.

It is important when considering the data pertaining to strategy use, particularly questioning, to recognize that there are different kinds of questions that solicit different kinds of thinking on the part of the student: factual recall, deductive and inductive reasoning, and evaluative analysis. Most errors in notation invite questions of a factual nature or deductive reasoning: these kinds of questions, quite simply, direct the student’s attention to the notation first, then to their performance outcomes. Such questions typically invite a “right” answer or, at least, a narrow range of answers that do not merit elaboration. Questions that invite inductive reasoning and evaluative analysis are far more difficult, take more time, and are at the heart of learning how to learn. These questions direct the student’s attention first to themselves to describe the problem and then to external phenomena, such as the notation or, more likely, performance outcomes, to explain the nature of the problem and to look for solutions. An example of an inductive question might be, “What was your favourite piece this week? What did you like about it?” An evaluative question might occur immediately after the playing of that piece: “Well, how satisfied are you with that performance?”

Observations of the use of these latter two kinds of questions – inductive and evaluative – indicate two important considerations. The first is that both kinds of questions invite elaboration on the part of the student. Often student responses are vague – “I thought this piece was cool!” – and this is an opportunity to challenge students to think more deeply about their response and to give them the vocabulary to do so. In The Loch Ness Monster, Gwen enjoyed playing notes in the very low register of the piano. Perhaps it is enough for Gwen to know “low notes.” But I did miss an opportunity to introduce the musical term “register” to her.
The second consideration deals more specifically with evaluative questions. These are the most significant because, in addressing the behaviour/performance outcomes dimension of self-regulated learning, these are the questions that challenge the young musician to monitor and evaluate performance outcomes and revise behaviours. The ability to do so is, perhaps, the most distinguishing characteristic of the self-regulated learner (McPherson & Zimmerman, 2011, 2002). Evaluative questions are also the most challenging for students to answer largely because they have had very little practice in doing so and because they lack the vocabulary required to describe an assessment of their performance – monitoring – and to judge it – evaluation. Language allows musicians who are self-regulated to do this with precision (see Biemiller et al., 1998). In these circumstances and under these conditions, it is tempting for the teacher to effectively interrupt the monitoring/evaluating process and do the reflecting for the student. Doing so precludes any opportunity for the musician to learn for themselves.

Early observations of the video recordings of guided practice sessions make it clear that, at times, I gave in to this temptation. As students developed self-regulatory speech and were able to better articulate their assessments and evaluations, I became more patient, allowing them the opportunity to respond to evaluative questions. This became most noticeable in the guided practice session with Andy as we viewed the video recording of his practicing at home: my questions challenged Andy to do the evaluating himself. Also evident in the data gathered in this session is that the questions I posed were void of any judgemental tone; that is, I tried to ask the question in such a way as to suggest that I did not, in fact, already know the answer. Student responses to questions posed early in the study were actually in the form of questions themselves suggesting they were trying to guess the “right” answer that I already knew.

The strategy of questioning a student about a live performance at a lesson immediately after that performance appears to be limited in its learning potential. However, the data suggest that two other guided practice strategies did prove highly effective in developing in the musicians’ ability to assess and evaluate their performance outcomes. Employing the use of an audio recorder afforded the opportunity to somewhat objectify the student’s performance. In so doing, the musician was distanced from her own playing and, therefore, more effectively positioned to evaluate it. The second strategy is closely aligned to this one, holding, I believe, enormous potential to develop self-regulated practicing: a guided evaluation of practice sessions that are video recorded at home. While the guided evaluation session with Andy transcribed in chapter 5
was carried out for the purposes of this research, it is clear that such a strategy could well become part of a private lesson. Current technology facilitates this with most homes having video recording capabilities; recordings could be sent to the teacher ahead of the lesson via electronic mail. Indeed, a 30-minute music lesson spent entirely in guided self-evaluation of a video recorded home practice session would prove a worthwhile investment of that time.

Another strategy is the judicious use of teacher duets. Many current methods books provide a teacher duet part to be played along with the student part. This, in effect, amounts to a “concert” at the lesson. Video recordings of my playing such duets with students reveal several significant phenomena: first, I situated joining the student in the duet as being my privilege, always thanking the musician afterwards for allowing me to play with them; second, the concert was in the presence of a parent who acknowledged the efforts of their child; finally, if the student’s part was not quite ready for the duet concert, there was an external motivator to work on the piece for performance at the next lesson. This approach to teacher duets, I believe, has a positive influence on their musical identity.

In the context of pedagogical approaches, data pertaining to the self-regulation dimension of method indicate that, in order for students to learn about their own learning processes and how to regulate them, asking questions of the student about those processes is the most significant strategy. Further, in order for the questioning to be effective, the teacher must understand the different types of questions, the kinds of thinking each type provokes, and how to pose them appropriately. Meaningful dialogue can only occur with a shared language of self-regulation. This pedagogical approach can be greatly enhanced if outcomes to be evaluated are not restricted to a live performance at the lesson. Audio recordings offer students an important objectivity in assessing their own work. Video recordings of the “performance outcome” of at-home practicing merit consideration as viable – and valuable - data to be evaluated by the musician under the guidance of the teacher.

**Time.** Observations relating to the *time* dimension of self-regulation suggest that the most effective pedagogical disposition is one of “planned” flexibility. The agenda of a traditional lesson is usually set forth by what has been written in the student’s notebook the week before: play through the pieces that were assigned, the teacher points out mistakes and demonstrates the correct way to play the erroneous passage, assigns new repertoire and/or what to address in
current material, and possibly introduce a new concept. All this is written in the notebook prescribing the practicing agenda for the student during the week and setting the agenda for the next lesson.

Effective pedagogy in terms of planning recognizes the central position of the student’s learning. That is, it is the musician’s learning needs as demonstrated in performance outcomes that dictate the agenda of the guided practice session. My guided practice session with Damian illustrates this: Damian assessed and evaluated his prior attempts at the piece, *Pirates of the Caribbean*, and he chose which section needed attention. Through careful questioning on my part, Damian suggested the nature of the problem, in this case, both rhythm and pitch, and again through careful questioning, Damian selected strategies he felt would help improve his performance of that passage. In effect, as his teacher, I had no agenda for the guided practice session whatsoever. Damian made all the choices about his own learning; I merely guided those choices.

Private piano lessons present a variable that is not present in the band situation in quite the same way: the presentation of new music. When presenting the band with new charts, I will always provide an opportunity for the musicians to look over their music and ask any questions if there is something they do not understand; I will then go over anything I feel is important, especially regarding rhythm. In the private studio, where a guided practice session may occur in the context of a lesson, I found it imperative to allow time to begin practicing new pieces before leaving the lesson. This not only provides me with the occasion to nurture the strategy of looking over the entire piece and getting a sense of the whole (see Chaffin et al., 2003), but also allows me the opportunity to pre-empt any possibility of learning something incorrectly. Again, this is especially true with tricky rhythms. Video recordings indicate that I would often have a student clap out a particular passage before leaving the lesson. The paramount nature of this pedagogical approach necessitates a careful regard for time. As such, I found that I needed to reschedule private lessons to allow for more “cushion” time. Early lessons reveal a great deal of teacher talk – both with parents and with students – at the expense of the student being “actively

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26 I found the optimum to be a 30-minute lesson scheduled every hour. This accommodated unforeseen late arrivals, avoided “musical cars” in the driveway, and afforded “extra” lesson time if needed.
involved and playing throughout much of their playing time" (Rife et al., 2001, p. 29). There was noticeable improvement in this area.

**Behaviour/Performance Outcomes.** Effective pedagogical approaches in this dimension of self-regulated learning consist of monitoring and evaluating the musicians in an ongoing way and making modifications in guiding their practice accordingly. Data suggest the importance of maintaining a balance of skill and challenge in repertoire selection (see Csikszentmihalyi, 2004). This entails a willingness on my part, as the music teacher, to deviate from the linear structure of most methods books curricula. Effective practicing can only occur if the musician is challenged but still has a high degree of self-efficacy in meeting that challenge.

As with the musicians, this area of pedagogy is characterized by a metacognitive awareness of the dynamic of the guided practice session. This is particularly true with respect to the nature of questioning noted above. Observations of early guided practice sessions indicate that there were opportunities for me to invite an elaboration of student responses to questions, especially those of an evaluative nature, that were not fully exploited.

The musicians in this study were junior and intermediate age elementary school students. They may not be able to sustain the level of attention required for effective guided practicing for the duration of an entire 30-minute piano lesson. Observations of some of the sessions indicate that guided practice went on for as long as 25 minutes. The mental energy required of the young musician is considerable and most likely cannot be sustained for this period of time. Damian’s guided practice with the trumpet was 12 minutes in length and observation of this video recorded session suggests that this was manageable both in the content that was covered and the level of focus required of the musician. By contrast, the guided evaluation session with Andy, though deliberately scheduled during the morning before first recess, proved too long. The transcription indicates that I intended to have Andy evaluate not only his trumpet practicing but also a session of his practicing the piano. Monitoring and evaluating the guided session, however, indicated that Andy was tired and that continuing was pointless.

Pedagogical approaches in the area of behaviour/performance outcomes, as with the psychological dimension of time, are only effective if the teacher is flexible and metacognitively aware of the dynamics of the guided practice session as it unfolds.
In the same way the self-regulated learner is a self-reflective learner, the effective teacher is a self-reflective teacher. Viewing the recordings of my working with students in guided practice sessions, and reading observations of these sessions documented in my field notes, have both proved powerful assessment tools. Considering this data allows me to evaluate the efficacy of pedagogical approaches and to revise them.

**Physical Environment.** Guided practice sessions were held in the venues of my home studio for private piano students, and in the portable classroom studio at school where the band rehearses for students learning wind instruments. Essential to both environments is that they be free from distractions. In two of the video recordings of guided practice sessions held in my home, I can be seen answering the phone. I now unplug the telephone during lessons; the PA system in the portable classroom is also disabled during guided practice sessions.

To support the pedagogy of guided practice, my home studio is now equipped with a compact digital audio recorder and speakers for playback. My laptop computer is also part of the guided practice environment on which to view recordings of students practicing at home.

**Social Factors.** Outside of the time a musician has with his or her teacher, the most important social resource is a parent. As will be examined in greater detail in *Other Observations*, a pedagogical approach that includes parents can be extremely beneficial to the student practicing at home. Observations of the video recordings suggest that, while I do not insist that the parent be directly involved in the guided practice session, neither do I hesitate to get their attention to take advantage of a teachable moment. In one video, I almost off-handedly suggest that, given his busy hockey schedule, Don consider getting up a little earlier and doing some of his piano practicing in the morning. His mother responded by saying they would try it. As my field notes indicate, Don had one of his finest lessons following a week during which he practiced piano in the morning before going to school.

Though not formally part of the current study, an in-service evening workshop was held for parents of all band students at the school. Working with one of the participants in the current study - Gwen learning a new piece of music on her trombone - I demonstrated a guided practice session and delineated practical ways in which parents could assist the young musician at home.
Data in the dimension of social factors suggest that effective pedagogical approaches will involve parents in an informative way through exposure to the dynamics of guided practice and equip them with the language of practicing.

**Other Observations at the Peak**

**GPP: Guided Practice Parents.** The overarching question of this research study asks if the development of effective practicing in young musicians can be nurtured through intervention by the teacher in guided practice sessions. In examining the potential transfer of guided practice pedagogy to parents, thereby effecting the development of practicing behaviours at home, the following questions were asked of four mothers who regularly attend the private piano lessons of their children:

*What kind of relationship do you have with your child when it comes to helping them when they practice? Do they seek help from you? Or do you take the initiative to offer it? A little of each, or is one of these more the norm?*

*If you do assist your child in learning a piece of music or addressing some part of that music, has your witnessing of the guided practice sessions at their lessons informed in any way how you work with your young musician? If so, can you describe how?*

Findings from the responses indicate a high degree of transfer of guided practice pedagogy. It is not within the purview of this study to comment on possible correlations between the involvement of these four mothers and the performance outcomes of their children. However, the relationship between the guided practice sessions witnessed by four of the parent participants in the study indicates that their involvement with their children’s music practicing at home is informed in such a way as to promote self-regulated learning. Consistent with the pedagogical approach of guided practice, these parents promote their children’s taking ownership of their own learning, as well as fostering a gradual independence in making decisions. When asked to help at home, their approach is to ask questions rather than give solutions. Having the language of practicing as part of their vocabulary equips them to assist in concrete ways that are extensions of the student’s experience of the lesson itself. Overall, there is the sense that parent
and teacher form a music education team, assisting and complementing each other in the
development of self-regulation in the young musicians who are their children and students.

“**There You Go!” - Guiding the Band.** Proportionately, musicians in the band
participated in fewer guided practice sessions through the ten-month intervention period than did
students engaged in private piano tuition. Arranging guided practice with the band musicians
presented inherent scheduling problems that did not characterize the piano lessons. The guided
practice schedule for piano students was already in place with their attendance at weekly lessons;
sessions with band students had to be scheduled at school either during the lunch period or the
recess break. The conductor who seeks to develop effective practicing in ensemble musicians,
through the use of guided practice sessions, is presented with a considerable logistical challenge.

As noted above, there was a transfer of guided practice pedagogy to parents who participated in
the sessions of their children at piano lessons. Observations of a video recorded session of two
musicians at a summer music camp suggest that the same kind of transfer takes place with the
student of a guided practice paradigm. As a participant in the current study, Damian has been
involved in the guided practice intervention for ten months. His working with Kate, a beginning
trumpet player, in the context of the summer music camp, demonstrates his ability, even at the
age of 11, to be an effective guide to Kate’s practicing. This has significant implications for the
ensemble conductor whose one-to-one time with musicians is at a premium.

**Artistic Summits: Finding Fun and Drama in the Climb!** “I don’t know; it just sounds
cool!” This is the only explanation that 8-year-old Andy can articulate when asked why he likes
*Dragon Hunt* so much. Andy’s response, however, illustrates an aspect of the relationship that
Andy has with not only performing but with practicing a piece of music: engagement. The goals
Andy pursues in practicing are more than just an accurate technical replication of the notation.
They are best described as artistic or musical goals: to make the piece sound “cool.” There is no
artistic meaning in *Dragon Hunt* until Andy, as a meaning-maker, makes it. Creates it. It is this
connection with the notated score that is best described as engagement.

Bartel and Cameron (2000) make an important distinction between engagement and motivation
noting that “presence or physical participation is no assurance of cognitive connection, or self-
initiated problem solving, of fascination, appreciation, criticism, delight, or sustained attention”
(p. 22). Another important distinction is between meaningful engagement and achievement. One
does not necessarily follow the other: a musician practicing can be meaningfully engaged in the struggle to lean and not achieve the intended musical goal; likewise, a highly successful musician may be “engaged” in performing a concert in a perfunctory way. This distinction cannot be over emphasized as a significant amount of research in practicing draws relationships between practicing and performance achievement as evidenced in the titles of the research studies; for example: *Quantity and quality of musical practice as predictors of performance quality* (Williamon and Valentine, 2000) and *Effective Practice: An investigation of Observed Practice Behaviours, Self-Reported Practice Habits, and the Performance Achievement of High School Wind Players* (Miksza, 2007).

It is important here to recall two constructs that figure prominently into the affective-motivational processes of learning musicians, especially young musicians: the “fun” value of expectancy-value theory (Eccles & Wigfield, 1995) and the autonomy/agency component of self-determination theory (Bandura, 2006; Ryan & Deci, 2000). When these are present, quality engagement is possible and, consequently, the motivation to engage strategic cognitive processes – self-regulation – in practicing. The first construct – the fun or interest value in learning – has implications for repertoire selection. Andy’s enthusiastic pursuit of *Dragon Hunt*, effectively took over his practicing at the expense of his learning other pieces. However, as reflected in my field notes, when I weaved two other pieces for which Andy was responsible – *Spanish Caballero* and *Pagoda Tree* – into the same plot as the story of the *Dragon Hunt*, these pieces were imbued with the fun value that engaged Andy and motivated him to practice effectively.

While the best explanation of his engagement with *Dragon Hunt* that Andy can articulate is because it “sounds cool,” some young musicians can be more specific. In her response to *The Loch Ness Monster*, Gwen begins expressing her engagement by saying, quite simply, “This one’s fun!” However, Gwen is capable of addressing the aesthetic aspects of the piece that make it fun for her: “Especially this part… It’s really low and long tones… This note hardly ever gets used… It’s sort of like mysterious and sort of ‘oh-oh!’” Gwen’s awareness of the aesthetic elements of the piece allows her to manipulate them, and therefore to be an agent in her interpretation of the piece. It was often the case, after performing a piece well, that I would ask students if they wanted to modify some of the aesthetic elements of the music. This provided them with the opportunity to exercise autonomy in assuming an important degree of ownership in their personal artistic interpretation of the piece, further heightening the quality of their
engagement with it. Often students would suggest adding a *ritardando* at the end, reversing a dynamic motion, adding a *legato* or dropping the final chord an octave. These, of course, were not done whimsically but, through the careful questioning that characterizes the protocol of guided practicing, were thoughtful and rational.

Often, the opportunity for the pursuit of artistic goals is eclipsed by the myth that success, in the minds not only of music teachers (see West & Rostvall, 2003), but of parents as well, is measured by the technical accuracy with which the child has performed.

The tradition from which these children come places great importance on learning to read notation from the first lesson and, for many of them, there is insufficient opportunity to learn to associate their nascent aural schemata with the notation. They would sometimes play new unfamiliar repertoire so slowly and hesitantly that they were no longer able to perceive the music they were rehearsing as a complete phrase or melody. In such situations they appeared deaf to the sound of what they were trying to play, because a majority of their cognitive resources were devoted to decoding the notation at the expense of them being able to listen to what they were trying to play (McPherson & Renwick, 2001, p. 179).

The aural schemata with which Andy associates the notation – the aural schemata that sound “cool” – become nascent when he hears me perform pieces for him at a lesson. I play as dramatically as I can, with my whole body. For the musicians in the concert band, these aural schemata were achieved through professional recordings of the pieces. The importance of having aural schemata with which to engage young musicians in their pursuit of artistic goals cannot be overemphasized. McPherson and Renwick (2001) note that “the most accurate students in our study who were relieved of this high cognitive load [decoding the notation] …had learned how to read music on another instrument before starting in the school instrumental programme” (p. 179).

Data from the current study suggest that there is a reciprocal relationship between the quality of practicing and the artistic engagement with a piece of music, even if, initially, that engagement is with nascent aural schemata of the piece. Norm, for example, is quite familiar with the *Superman Theme*. After a surprisingly successful performance of the piece at his piano lesson, I asked him to describe his practicing. As reflected in my field notes, Norm’s cognitive processes in practicing were saliently strategic: he circled beats in the complicated compound time with a pencil, chunked the music, and repeatedly addressed the five-note chord riddled with accidentals,
chaining it to the measures preceding it. Don’s engagement with *The Crawling Spider* prompted him to practice in the morning before school. A video recording of Andy’s practice at home reveals the strategy of clapping the rhythm while saying the rhythm syllables in *Auld Lang Syne* following a lesson where he employed the same strategy is mastering a rhythmically challenging section of his favourite piece that week. *The British Grenadiers*. Gwen is immediately engaged with the story line of *Little Bunny Foo-Foo*, succinctly described at the lesson by her mother: “It’s about smashing little creatures!” Gwen’s affective engagement has an immediate impact on her cognitive processes: she looks over the whole piece. “There are a lot of flats. And it’s double treble clef, treble clef the whole song.” Perhaps the most salient self-regulatory behaviour Gwen manifests reveals her metacognitive awareness of one of her own challenges: “I’m just checking the fingering.”

As noted in the literature, “task value beliefs were correlated positively with cognitive strategy use… and organizational strategy use” and “students who reported higher levels of interest and value were more likely to report that they were using more strategies to monitor and regulate their cognition” (Pintrich, 1999, p. 465). The research also indicates that “Self-regulatory capabilities require tools of personal agency and the self-assurance to use them effectively” (Bandura, 1982, p. 129). Observations from the current study suggest that the fun/interest value of learning a notated piece of music is best achieved through personal engagement and the pursuit of artistic and interpretive goals, not merely technical ones. Further, the agentic component of problem-solving in learning to play a piece cannot be restricted to the autonomy involved in cognitive decision-making but must extend to ownership of manipulating the aesthetic elements of the music as well.

The central governing question this research asked was: Can the intervention of guided practice sessions by the teacher develop effective practicing in young musicians?

A comprehensive evaluation of the data gathered in this study strongly suggests that both directly and indirectly, guided practice holds the potential to facilitate the development of effective musical practicing in young musicians. The data indicate growth over the course of the study in all areas of self-regulation: affective-motivation processes as well as cognitive and metacognitive processes. This growth was facilitated directly through one-to-one guided practice sessions with
the researcher as their music teacher and conductor, and indirectly through the assistance at home of parents informed by the pedagogy of the guided practice sessions they witnessed.

One More Mountain to Climb: Implications for Education

This research study explored the development of effective musical practicing through guided practice. An evaluation of the data gathered suggests several implications for music education. These are offered quite specifically as they relate to the development of self-regulatory learning/practicing in young musicians. The implications focus on both the affective-motivational processes of self-regulation as well as the cognitive and metacognitive ones. These implications address music education policy, teacher education, and the nature of the private lesson.

As self-regulation refers to processes of learning, teachers need to learn about learning, especially the paramount function of “discovery”. If one considers, for example, the self-reflective phase of the self-regulation cycle (see Figure 5, p. 74), it is necessary for the teacher to allow the student to do the reflecting – the discovering - even though teacher-reflection is obviously more expedient. Genuine learning occurs in an environment that is student-centered, where the musician has ownership of the problem and, with guidance, finds her own solution.

Given this first implication advocating a more child-centered approach to teaching music, there is clearly a call for a fundamental paradigm shift in the teacher-student relationship. Yarbrough (1987) sums it up quite succinctly: “One way to increase the level of student commitment to the musical task might be to reduce active teacher involvement with the task and increase active student participation” (pp. 6 – 7). Although not great poetry, the adage has truth: the teacher needs to shift his or her identity from being “the Sage on the Stage to the Guide on the Side.”

Closely aligned with this last observation is the implication that music teachers need to be conversant with the varied landscape of questioning. They need to become highly skilled at understanding the different kinds of cognitive engagement that different kinds of questioning elicit. Further, teachers must develop the ability to recognize which kind of question is appropriate for the situation. This is particularly true of questions inviting the music learner to monitor, evaluate and revise. To cut off this dynamic of thinking is to curtail the possibility of learning. Teachers must also believe that young people are indeed capable of evaluative thinking,
even in its most rudimentary form. Concomitant with any kind of questioning – especially when the teacher believes she knows the answer – is the patience to allow the student time to analyze and respond.

The one-on-one, teacher-student dynamic of guided practice situates itself naturally within the context of the private lesson. However, it is important to remember that a great number of young musicians will only experience music education in the ensemble experience of the school setting. The facility with which a music teacher can devote time with the individual musician in a guided practice session in the ensemble context is significantly compromised. The guided practice session between Damian and Kate that took place in the Upbeat Summer Music Camp, as transcribed in Chapter 4 and analyzed earlier in this chapter, strongly suggests that student musicians who have experienced guided practice are well equipped to assist their peers in developing effective, self-regulatory practicing behaviours. Aware of this possibility, the ensemble conductor can stage a guided practice session for the rest of the ensemble to observe. Through several such sessions, the conductor can “train” a few individuals in the ensemble – section leaders, perhaps - as to the principles of guided practice and then facilitate and encourage one-to-one peer interaction outside of rehearsal time.

The ensemble conductor can also model the principles of guided practice within the rehearsal itself. While it is certainly reasonable to expect individual musicians to be responsible in their preparation for rehearsal with diligent practicing, it is possible that a situation may arise during rehearsal - just as it may occur in the private piano lesson - that necessitates a shift from “rehearsing” to practicing. Rather than lamenting the fact that the 1st clarinet cannot play a section of his chart, the conductor may use the opportunity to invite the rest of the ensemble to guide that musician’s practicing right at that moment. In a similar way, after issuing a new piece for the band to learn, some of rehearsal time could be devoted to practicing in small groups. In this context, musicians could assist each other in identifying the more challenging sections of the chart and possibly try different strategies to address the challenges. Although there is certainly a clear distinction between the individual musician musicking at home as opposed to musicking with the ensemble, there need not be a rigid distinction between rehearsing and practicing: the former can certainly give way to the latter as easily in the ensemble setting as in the context of the private lesson.
In sum, the ensemble conductor needs to facilitate hands-on practicing opportunities within the rehearsal context. It is not enough to exhort musicians to practice, prescribe how to practice or even to model it: create the time and occasion for ensemble musicians to assist other musicians in guiding their practicing. As this will lead to the development of self-regulation in the young musicians and more effective practicing at home, rehearsals will be more productive. An investment of time in guided practice in the ensemble context will, in the long term, augment rather than hinder the progress and achievement of the group.

Music teachers need to realize that language is power. Guiding a young musician’s practicing necessitates dialogue. The dialogue between student and teacher – between parent and teacher – cannot be limited to the vocabulary of the music on the page, words one finds in a dictionary of musical terms. Neither can it be limited to the jargon of concrete and observable practicing behaviours.

Along with language such as crescendo, there is “defining a task;” along with the behavioural strategy of playing “hands separately,” there is “chaining.” Recall that Norm’s sister, after attending several of her brother’s lessons, started to talk about “chunking” when she practiced her own music. The all-important difference is that playing hands separately is often a teacher-directed behaviour: “Learn just the right hand for next week, OK?” Norm’s sister Tori’s use of the word, “chunking” is conceptual; it implies the thought process of making the decision about how - and why – to address a particular section of the piece. For those parents who are actively involved in assisting their children’s practicing at home, such a vocabulary of learning not only allows them meaningful dialogue with the musician at home, but also helps them, through language, to understand the cognitive dimension to practicing.

Assuming that guided practice sessions will occur, for the most part, within the context of a studio lesson, music teachers need to be flexible in the lesson’s agenda, sensitive to “the teachable moment,” and willing to accept the time-consuming nature of a student-centered, analytic approach. Considering the psychological dimension of motive (McPherson & Zimmerman, 2002), and the interest component of expectancy-value theory (Eccles & Wigfield, 1995), there is the implication of a more flexible approach to repertoire selection, one that is more student-centered and generated, yet still develops requisite skills and concepts.
Given the significance of developing aural schemata to facilitate self-monitoring and self-evaluation, music teachers – and music programs in schools – must allow for a rich aural experience of music before focusing on decoding notation. A more comprehensive curricular consideration of musical development is required. Students’ music education experiences should begin at a young age in schools with a greater emphasis on singing and Orff instrument training; notation should be introduced only after several years’ experience with these kinds of aural musical engagement. Doing so would lay a firm foundation of aural schemata – in terms of both rhythm and pitch – that would greatly facilitate the self-monitoring and self-evaluation so essential for self-regulated learning to develop in the practicing musician.

Too often in the Western model of music education, success is measured by the achievement of technical goals in performing notated music. This impersonal relationship with practicing nurtures extrinsic motivation as the musician often has no personal, affective investment in learning. Music educators need to recognize the reciprocal relationship between affective engagement with learning a piece of music, through the pursuit of artistic, musical goals, and the quality of a musician’s practicing. In seeking to engage young musicians, teachers must be flexible in repertoire selection. Often, repertoire in beginning and early methods books have accompanying lyrics; having the student read these aloud – dramatically – can help shape the artistic goals to be pursued. As with the jargon of practicing and the technical aspects of a musical score, teachers also need to empower the young musicians with language that addresses the aesthetic dimensions of music and, in so doing, nurture a personal, artistic engagement with making music. It is not enough to know about the dynamics, articulation and tempo changes in a piece of music. Neither is it a satisfactory mark of a successful performance outcome if the musician can merely replicate these. Discussions between student and teacher must be characterized by vocabulary that includes artistic concepts such as “mood” and “drama” and even “audience rapport” and how manipulating the aesthetic characteristics of music create these.

The narrative of a piece of solo piano music often has its counterpart in the ensemble setting. Two of the favourite pieces for the musicians in the concert band who participated in the current study were a medley from West Side Story and Defying Gravity. The artistic goals pursued by the musicians were augmented by enhancing their engagement with these pieces. This was achieved by my telling them the romantic narrative of the West Side Story and its parallel to Shakespeare’s
Romeo and Juliet, with which the students were quite familiar. Placing Defying Gravity in the context of Elphaba’s dilemma in the musical, Wicked, offered the musicians an emotional relationship with the character as captured in the music. These opportunities for placing a piece of music in a larger narrative context cannot be overlooked by the ensemble teacher seeking to have the band engage affectively with the music. In both of these examples, there is also the opportunity to take some rehearsal time to view short video clips of these musicals. A visual schemata often enhances the aural one.

The best-intentioned interventions by parents, teachers and other forms of extrinsic motivation can certainly lead to effective practicing in so far as the novice can achieve many technical goals. But the young learning musician in this scenario is merely a spectator of the music they are learning, seeking merely to replicate as accurately as possible someone else’s art. Meaningful engagement will only come about when the child becomes a protagonist, an active, decision-making participant in their own learning including – and, perhaps, most importantly – the pursuit of artistic interpretive goals.

Conspicuously absent from curricular contexts is a pedagogy of practicing. As noted in the introduction to this dissertation, there is no evidence that music teachers in Ontario are required to pursue curriculum expectations that address the development of effective practicing in school music students. Neither do such expectations figure anywhere in the syllabi of additional qualifications courses offered under the auspices of The Ontario College of Teachers. The findings of this study, and those of the body of literature that serves as its backdrop, strongly indicate that leaving the development of self-regulated practicing to chance is at the peril of many musicians who will prematurely leave music education (see Katzenmoyer, 2007).

Along with being designated a “learning expectation” in music education curriculum policy documents and additional qualification courses in music education, learning about effective practicing, and how to practice practicing with their future students, should receive a much greater profile in music teacher education courses. This includes a thorough investigation of the conceptual underpinnings of effective learning of music: the self-system and self-regulation. Development of the various elements of the self-system all converge toward the improvement of intrinsic motivation: self-determination theory, self-efficacy theory, expectancy-value theory, attribution theory, goal orientation, intelligence theory. Pre-service music teachers need a
thorough grounding in these constructs. Studying self-regulated learning and its various frameworks should be central to music education courses.

After the conclusion of his presentation on developing literacy at a conference of English teachers, a frustrated colleague of mine observed, “It’s damned difficult to talk to teachers of writing about teaching writing if they don’t write!” One of the most important implications of this research is that, in order to fully understand – in a necessarily metacognitive way – the learning processes involved in effective practicing, the teacher of practicing needs to practice.27

The implications of the current study on music education may be summed up in the following paradigm shift: It is not the task of the music educator to teach Andy how to play the piano; rather, it is the task of that teacher to teach Andy how to learn for himself how to play the piano.

Further Research Needed

The current study was exploratory in nature, seeking to determine with a small sample of musicians the effects of guided practice on the development of their practicing efficacy. As such, there are many facets of this research that invite further exploration.

The demographic make-up of the participants in this study was limited in several ways. As such, research into the effects of guided practice could be undertaken with a larger and more diverse sampling of musicians, especially students in high school who are just beginning music education. As the participants in this study were involved in music education in an extracurricular context, there is a need for research that explores working with the development of self-regulated practicing in the more varied motivational milieu of the music credit course.

The ensemble conductor faces considerable logistical challenges in working with students on a one-to-one basis to develop musical skills. The data from the current study concerning students assisting the practice of peers offer an exciting possibility for further research. Such research would explore the potential of musicians, who are guided practice “specialists,” in developing effective practicing behaviours and attitudes in fellow musicians.

Nielsen (2004) groups together vocal and instrumental musicians in higher education to explore possible correlations between self-efficacy beliefs and the use of practicing strategies. The researcher makes no distinction between the “instruments.” The current study focused on developing effective practicing in instrumental music students. Can the same principles of guided practice be applied to vocal music education? This is another possible area for research to explore.

Longitudinal case studies would validate the efficacy of guided practice over the long term. Students in the current study were assessed six months after the end of guided practice intervention. A worthwhile research project would assess these students in an ongoing way, especially as they continue their music education and extra-curricular musical pursuits into high school and post-secondary education.

The three young recorder students in Bartolome’s (2009) study demonstrated precocious tendencies toward self-regulated learning in their musical practice. While the researcher describes what characterizes their practicing, establishing clear causal relationships between self-regulation and effective practicing, no explanation is explored as to what may have shaped these young musicians into being highly self-regulated learners, especially at such a conspicuously young age. More research is needed into the factors that contribute to naturally emerging self-regulation in musicians. Findings of such a study could greatly assist the music teacher in pedagogical approaches to guided practice. Aligned with this last suggestion for further research is a need for an examination of whether or not self-regulation can be directly taught.

Only one musician in the current study had the opportunity to evaluate his own practicing through stimulated-recall protocol guided by the teacher. Although observing this data illuminates an effective pedagogical approach, there is a need for further research in the use of video recordings to assist novice musicians in developing metacognitive skills with which to evaluate their own practicing.

One phenomenon that was evident in the current study was that of production deficiency: the gap between intelligent knowing and intelligent doing. Even though musicians in the current study clearly demonstrated their knowledge and beliefs about self-regulation, these did not always translate into meaningful application (see Garcia & Pintrich, 1994). Research into the causes of production deficiency and how it might be remediated through an examination of learning
conditions, would greatly assist teachers seeking to develop self-regulatory practicing behaviours in their students.

There is a current body of research that illuminates the various roles parents play in developing their children’s musical achievement. The current study considered a specific role that might be described as “co-teacher.” That is, the parent, through their participation in guided practice sessions, was better equipped to assist their child with practicing at home. Further research exploring this potential with a larger and more varied demographic of parents is needed here.

There is a need for further research into the nature of existing pedagogy. Very little is known about the way music teachers actually teach. Parallel to this would be research investigating music teacher participants who engaged in self-reflective activities either through the maintenance of field notes or the use of video recordings of their own pedagogical methods.

Finally, much of the literature on practicing explores the relationship between practicing and musical achievement characterized by some form of test or evaluation of performance. No such examination was given to the students in the current study; the focus was on developing effective practicing. Further research in this area could examine the effects of guided practice on musical achievement.

Overall, the findings of the current study suggest that the zeitgeist of future research undertakings in music education, with respect to practicing, should focus on growth in the quality of engagement with learning music rather than improvement in performance achievement.

**Conclusion**

Germane to this study are three important considerations about music education: the first is that many musicians are successful; the second is that many musicians quit before they have the chance to become successful; and, the third consideration is that practicing figures significantly in the first two.

The research on practicing is clear: effective, self-regulatory practicing/learning emerges naturally only after several years of tuition, years during which many novices quit their music education. There are certainly many reasons for this; the popular culture of the beginning
musician is fraught with more competing distractions than ever, especially those that offer a gratification more “instant” than learning to play a clarinet. Further, parents may not be in a position to be as supportive as they might want to be given the greater demands that attend two-income and single-parent families. But one of the reasons that cannot be ignored is the frustration that ensues from ineffective practicing and the potential for meaningful and life-long musical engagement that is thereby precluded.

Motivation, effort and even a clear picture of the desired outcome are not sufficient to achieve that outcome. To borrow an image from Johnston (2002a), ineffective practicing can be like trying to chop down a tree with a spoon.

The literature suggests that the evolution from novice to effective, expert-type practicing seems to be a natural evolution that develops with musical knowledge and expertise (Barry & Hallam, 2002; Gruson, 1988; Hallam 1997a, 2001a), although these constructs are never clearly defined. And it is clear that many musicians so evolve, presumably through their engagement with music education in one form or another.

But the musical experience of most novice musicians is confined to the experience of developing their skill to replicate increasingly complex notation and their knowledge about music. They may also experience developing skills such as sight-reading, playing by ear or improvising. These are all explicitly taught as part of music education. Novice musicians most likely develop experience by applying certain practice behaviours as prescribed by their teacher or set forth in the planning chart. What is missing from the equation – as the literature makes abundantly clear – is teaching the skill of practicing, especially with a consideration of its cognitive dimensions.

In the context of music education – evident in its absence from curriculum policy document expectations, additional qualification course objectives, and music teacher education syllabi – the development of this skill in practicing effectively is implicitly taken for granted. When students do not practice effectively, teachers resort to silver bullets and carrots, verbal directions, and rare instances of modeling (usually the performance and not the process). Parents become ingenious with enticing rewards. Or, of course, the lessons stop.

While it may be true that the development of effective practicing only comes with increasing musical knowledge and expertise, guided practice immerses the young musician in a kind of
musical knowledge and experience that is not normally part of their usual progress in taking lessons or being part of an ensemble.

Guided practice engages the musician in practicing authentically, immediately and intimately. This is done in the same way as engaging the musician at a lesson in playing a scale or playing a repertoire piece or identifying an interval in ear test exercises. It is done so under the guidance of an informed teacher who is knowledgeable about the complexity of the cognitive, metacognitive and affective-motivational processes that make up self-regulated learning. The teacher is sensitive to these processes as they are manifest in the student as an individual, and engages in the interplay in ways that nurture these learning processes and the musician’s awareness, ownership, and control of them.

Instead of talking about the music or about the child’s technique or even talking about their practicing at home, the dialogue in guided practice sessions is about learning, about problem solving. The interaction between teacher and student is such that the musician owns both the problem and the solution. The expertise the musician gains is not merely solving the problem of learning a new piece of music; the student is, in fact, developing the expertise of *learning to solve the problem about how to solve the problem of learning the new piece of music*. In guided practice, the student practices learning how to practice. With increasing knowledge and expertise of this kind, the young musician becomes a protagonist in the meta-narrative of her own learning, and the climb to the summit of self-regulation.

As a music educator – and a musician who regularly practices his trombone - I would submit that this kind of meaningful engagement with learning to practice is far more important in sustaining an enjoyable and fulfilling life-long experience of making music than any performance achievement. I concur with Pitts and her colleagues: “Effective practice is too important an area to be left to chance” (2000b, p. 54).
References


Appendices

Appendix A: Pre-Study Semi-Structured Interview Guideline for Musician Participants

GENERAL

1. Please tell me some things about yourself in terms of:
   - Your name and age
   - Where you go to school and what grade you are currently in

MUSIC IN YOUR LIFE

1. Do you listen to music as a leisurely activity? How do you do this?
2. How much time might you spend each day listening to music? Any particular time you like to do this?
3. Is there a particular kind of music you like to listen to more than others? Or a particular artist?

BEING IN THE BAND (these questions are for participants in the school concert band)

1. For how long have you been involved in music education?
2. Why did you decide to join the school concert band last year?
3. Is there any particular reason you chose the instrument you did?
4. Did you have any expectations? What did you hope to get out of it?
5. Were you surprised or disappointed at anything?
6. What, for you, is the best part of being in band?
7. What’s the hardest part of being in band?
8. Thinking back on this past year, what’s the best single experience you think you had in the band? What made is so good?
9. Was there a particularly bad experience? What made it bad?
10. Was there a piece of music you were learning to play this past year where you think you practiced really hard? What was the piece?
11. As you think about this experience, can you describe for me what you mean by “I practiced really hard?”
12. Was there a time when you didn’t practice a piece very hard? Why was that? Was it a matter of not liking the piece? Or, perhaps, was the piece too hard for you to learn?

TAKING PIANO LESSONS (these questions are for the participants who take private music lessons)

1. For how long have you been involved in music education?
2. Why did you decide to take piano lessons? Was it your idea or, perhaps, your parents’?
3. Did you have any expectations? What did you hope to get out of it?
4. Were you surprised or disappointed at anything?
5. What, for you, is the best part of taking piano lessons?
6. What's the hardest part?
7. Was there a piece of music you were learning to play this past year where you think you practiced really hard? What was the piece?
8. As you think about this experience, can you describe for me what you mean by “I practiced really hard?”
9. Was there a time when you didn’t practice a piece very hard? Why was that? Was it a matter of not liking the piece? Or, perhaps, was the piece too hard for you to learn?

ABOUT PRACTICING

Attitude
1. How do you feel before you practice? Look forward to it, or try to avoid it?
2. How do you feel afterwards? Sense of accomplishment? Glad it’s over and done with?
3. Do you ever get frustrated? What might frustrate you? What do you do about that?
4. How do you feel about practicing? Is it important to you personally or just because someone else, like your teacher or your parents say it’s important?
5. Is there a particular time when you feel really motivated to practice? Why is that?
6. If a piano lesson or a band rehearsal is coming up, does the practicing you’ve done to get ready affect your feelings about the lesson or the rehearsal?

Environment
1. Where do you usually practice? Is it always in the same place?
3. Distractions? What do you do about distractions? Are you easily distracted?

Motivation and Affect
1. How do you see yourself as a musician? Do you think you’re a good one?
2. In preparing a piece of music, what do you think is your strongest asset: a skill? An attitude?
3. Is there a particular aspect about music that you find challenging? Getting the right notes or the right rhythm, perhaps?
4. In terms of your ability or attitude as a musician, what would you most like to improve upon?
5. Is there any particular aspect about playing your instrument – your technique – that you find challenging? What do you do about that?

Practice Behaviours
1. Tell me about your practicing: how often do you practice in a week? When? For how long? Does this change at all? Always at the same time, in the same place?
2. Is there a routine that you follow? Or does it change all the time?
3. If I were to give you a piece of music right now to start working on, how would you go about it?
4. Would you say your practice sessions are organized? OR scattered?
5. Do you set clear and definite goals or tasks for yourself or just wander about the music?
6. What do you do when you think you’ve made an error or that something needs to change?

Other Questions
1. Do you ever get together with another musician to practice, perhaps a friend that lives near you?
2. Do you ever go to your parents for help if you’re having a problem when you’re practicing? How do they help you?
3. How do you feel if some friends or relatives come over and you’re asked to perform?
Appendix B: Initial Semi-Structured Interview Guideline for Parent / Guardian Participants

BACKGROUND

1. Did you ever take music lessons? Tell me about that.
2. What are your memories about practicing?
3. About how long has your child been involved in music education?
4. What motivated you to involve your child in music education either in the school band or taking private lessons?
5. Have you taken any steps to provide a suitable place to practice, one that is free of distractions? What kinds of things have you done?
6. Did you have any expectations? What did you hope your child would get out of it?
7. Have you been surprised or disappointed at anything?
8. Do you see music education for your child as something that comes and goes? Or would you like your child to have making music a part of their lifestyle for a long time? Why do you feel this way about making music?

CHILD OBSERVATION

1. Are you present when your child is practicing? About how often each week might you hear your child practice?
2. Do you ever have to remind your child to practice? Can you describe this? Is it a gentle reminder or does it ever become confrontational?
3. How would you describe your child’s motivation to practice? Does it ever fluctuate, or is it pretty constant?
4. How would you compare your child’s motivation to practice with other extra-curricular activities they’re involved in?
5. Do you ever perceive your child getting frustrated when they are practicing? How do they respond to these moments?
6. Do you ever get frustrated at your child’s practicing? In what ways?
7. Are there any ways in which you’d like to see your child’s practicing habits or behaviours change? Why?

INVolVEMENT

1. Do you ever purposefully attend your child’s practicing to see how they’re doing, perhaps?
2. Do you ever become an “audience” for your child and ask them to perform for you at home?
3. Do you ask your child to perform for guests who come to visit, perhaps family members or on the occasion of a special celebration?
4. How does your child respond to performing for others at your home? Is it a good experience?
5. Does your child ever come to you for assistance when they’re having a problem while practicing? How do you respond to this?
Appendix C: Guided Practice: Mid-Point Musician Questionnaire

Name: _____________

Your honest response to these questions will greatly assist me in sharing the results of my working with you in guided practice with other music teachers. There are no right answers. Please check which box best applies to you. There’s room underneath to expand on your answer if you want to. There are some suggestions in the brackets.

I’d like you to think about how your practicing has – or has not – changed since I interviewed you back in the fall. Please take your time; there’s no rush.

1. During the week I practice
   a. More often than I used to
   b. About the same as I used to
   c. Less than I used to

2. When I practice, my sessions are usually:
   a. Longer than before
   b. About the same length
   c. Shorter than before

3. I need to be reminded to practice:
   a. More often than before
   b. Less often than before
   c. About the same as before
   d. I never need to be reminded
4. When I practice, I am
   a. Less focused than before  [ ] (I now get rid of distractions.)
   b. More focused than before  [ ]
   c. My focus is about the same  [ ]

5. I think my practice sessions are
   a. More organized than they were before  [ ] (Can you describe in what ways
      your practice is organized?)
   b. Less organized than they were before  [ ]
   c. Organized about the same way  [ ]

6. Before I begin a practice session I usually
   a. Have some goals in mind for that session  [ ] (What might be a
      typical goal you set?)
   b. Don’t have any specific goals for that session  [ ]
   c. Decide on my goals for that session as I go along  [ ]

7. When I practice a piece of music I usually
   a. Define a task – a section of the music – and focus on that section  [ ]
   b. Play the whole piece of music from beginning to end over and over  [ ]
   c. Wander from section to section without any particular focus  [ ]

8. Compared to before
   a. I feel a greater sense of accomplishment after I practice  [ ]
   b. I don’t feel a sense of accomplishment after I practice  [ ]
   c. I feel about the same as before after I practice  [ ]
9. Compared to before
   a. I feel I persist more when I come to a challenging part
   b. I give up more easily when I come to a challenging part
   c. I respond to a challenging part about the same as before

10. On the whole, I feel
    a. Better prepared when coming to a rehearsal or lesson
    b. Less prepared when coming to a rehearsal or lesson
    c. About the same when coming to a rehearsal or lesson

11. I feel that my attitude toward practicing is
    a. More positive
    b. More negative
    c. About the same

12. When faced with a new piece of music that looks difficult to learn I feel
    a. More confident that I can master it
    b. Less confident that I can master it
    c. My confidence that I can master it is the same
13. Place a check mark beside practice strategies that you draw upon regularly now; strategies that you did not use before or that you did not use very often before:
   a. Look over the whole piece before playing it  
   b. Find the difficult parts and start there  
   c. Clap out the rhythm of a section or say the rhythm syllables (ta, ti-ti)  
   d. Slow the tempo, then speed up as I learn the piece  
   e. Listen to recordings  
   f. Play along with recordings  
   g. Mark up the music  
   h. Stop at an error, figure out what the problem is, and go over it several times  
   i. Define a task and focus on that task  
   j. Make a task smaller if necessary  
   k. Ask for help from a parent or teacher  
   l. Take charge of my practice environment: get rid of distractions

14. Overall, do you think that the guided practice sessions you’ve had with me have made a difference in the way you practice or the way you feel about practice? Please answer this question with as much detail as possible.

___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________

Please take a moment to add any other comments you think are important concerning how you think your practicing music has changed. Perhaps there’s a question I didn’t ask you that you think I should have. You can write these on the back of this page.

Thank you so much for taking the time to complete this questionnaire. The information you’ve given me will be a great help.
Appendix D: Guided Practice: Mid-Point Parent Survey

Dear Parent(s),

Several months have passed since I interviewed you about your child’s practice attitudes and habits. I’d like to know if anything has changed since then that might be a result of my working with your child in guided practice.

Could you please take a few moments to answer the following questions about your child’s practicing. The more detailed you can be in your responses the better, especially if you can illustrate your answer with an incident. You can type your answer right under the questions and send this back to me as an e-mail attachment.

1. Do you sense that your child’s attitude toward practicing has changed at all, either positively or negatively? You might consider some of the following when addressing this:
   a. Looks forward to practicing or finds excuses to avoid it
   b. Persists or gives up
   c. Stays focused or is easily distracted
   d. Still needs to be reminded, or not as much as before

Other Comments:

2. While I realize that observation of your child’s practicing may be limited, do you notice your child going about their practicing any differently than before. Here are some behaviours you might consider:
   a. Clapping out or counting a rhythm out loud – “1,2,3,…” or “ta-ta… ti-ti-ti-ti”
   b. Marking up the music (especially band music)
   c. Playing hands separately (piano)
   d. Slowing down
   e. Looking over the whole piece before playing it
   f. Using a metronome to keep a steady beat
   g. Repeating sections several times
   h. Practice structure is organized and methodical, or is it random and scattered

Comments:

3. What about how often your child practices and for how long. Have these changed at all?

My sincere thanks for taking the time to respond to this survey.
Appendix E: Post-Study Interview Guideline for Musician Participants

PRACTICE BASICS

1. Since your last interview, has anything changed about the basics of your music practicing. For example: where and when you practice, for how long or how often? Why do you think these changes have come about?

2. What about your parents’ involvement in your practicing? Do they have to remind you about practicing any more or less than before?

3. Do you get together with a friend to practice any more or less often than before?

PRACTICE BEHAVIOURS

1. If I were to give you a piece of music right now to start working on, how would you go about it that would be different than before? Why do you think this has changed?

2. There were certain challenges before both in learning a piece of music as well as in your technique. Have these improved in any significant way? Why do you think this has or hasn’t happened?

PRACTICE ATTITUDES

1. Has your attitude towards practicing changed at all as far as its importance? Why do you think this change has or has not happened?

2. What about your motivation to practice? Do you think your feel any more or less motivated to practice?

3. Overall, how would you describe the effectiveness of your practicing as compared to the time of your last interview?

4. Do you feel any different coming to band rehearsal or to a piano lesson than before in terms of the practicing you’ve done prior to the rehearsal or lesson? Why do you think you feel this way?

5. Has your sense of competence changed at all? How do you feel about your ability to learn a piece of music compared to the beginning of the year?
Appendix F: Post-Study Interview Guideline for Parent / Guardian Participants

OBSERVATION

1. Do you notice any changes in your child’s practicing with respect to frequency or duration? How do you account for this?

2. Have you noticed any changes in your child’s practice behaviours, that is, how and what they practice? Can you describe these changes if there are any?

3. If your child faces a challenge when practicing or seems to get frustrated at something, do you notice any changes in the way your child responds to this?

4. What about reminding your child to practice; are there any changes in this regard? How to account for this?

5. Have you noticed any changes in your child’s attitude toward making music in general? Are they any more or less excited about being in band (or taking piano lessons)?

6. Do you notice any changes in their attitude towards rehearsal (or a piano lesson)?

7. How would you describe your child’s motivation with respect to practicing as compared to their motivation at the time of our last interview?

8. Have you noticed any differences in the way your child feels about “performing” for you or guests at your home? How would you describe these changes and how might you account for them?

INVOLVEMENT

1. Since our last interview, do you find yourself attending to your child’s music practicing more or less often? How do you feel about this?

2. Does your child ask you for assistance any more or less often than before?

3. Does your child “perform” at home any more or less often than before? Why do you think this is?
Appendix G: Guided Practice – Six-Month Follow-Up Musician Questionnaire

Name: ______________________________________

1. I set goals for my practice session.

|________________|__________________|__________________|_________________|
never            not very often     sometimes     regularly     often

2. Before beginning a new piece of music, I look it over and study it.

|________________|__________________|__________________|_________________|
never            not very often     sometimes     regularly     often

3. If I look over the whole piece first and study it, some of the things I’m looking for are:

________________________________________________________________________

4. When I practice a piece of music, I start practicing somewhere in the piece other than the beginning?

|________________|__________|__________________|_________________|
never            not very often     sometimes     regularly     often

5. Some reasons why I start practicing a piece at a part other than the beginning are:

________________________________________________________________________

6. I am focused on what I’m doing during practicing?

|________________|__________________|__________________|_________________|
never            not very often     sometimes     regularly     often

7. I feel practicing is fun and interesting.

|________________|__________________|__________________|_________________|
never            not very often     sometimes     regularly     often

8. I believe that if a person’s musical ability is exceptional, it’s something they are born with.

|________________|__________________|__________________|_________________|
strongly disagree disagree neutral agree strongly agree
9. Learning music will be useful to me in the future.

| strongly disagree | disagree | neutral | agree | strongly agree |

10. I feel I am prepared when it comes time for rehearsal or a lesson.

| never | not very often | sometimes | regularly | often |

11. When I finish practicing, I feel a sense of accomplishment.

| never | not very often | sometimes | regularly | often |

12. When I do not practice, it is because I am busy with other activities.

| never | not very often | sometimes | regularly | often |

13. Performing for an audience is important for me.

| strongly disagree | disagree | neutral | agree | strongly agree |

14. When I get a piece of music, I am confident that I will learn to play it.

| never | not very often | sometimes | regularly | often |

15. I practice on weekends.

| never | not very often | sometimes | regularly | often |

16. When I am successful at learning or performing a piece of music, I feel it is because of my effort.

| strongly disagree | disagree | neutral | agree | strongly agree |
17. I feel that it is possible to develop my musical ability.

| strongly disagree | disagree | neutral | agree | strongly agree |

18. When I have a problem or there is something I do not understand, I ask for help.

| never | not very often | sometimes | regularly | often |

19. When I practice, I do not follow a plan but move around from piece to piece.

| never | not very often | sometimes | regularly | often |

20. When an audio recording of the piece I am learning is available, I use it to help me practice.

| never | not very often | sometimes | regularly | often |

21. I schedule my practicing around other activities.

| never | not very often | sometimes | regularly | often |

22. When I practice, I am distracted.

| never | not very often | sometimes | regularly | often |

23. When I practice, it is important for me to master a small task.

| never | not very often | sometimes | regularly | often |

24. I believe I have musical ability.

| strongly disagree | disagree | neutral | agree | strongly agree |
25. It is important for me to choose the music I learn.

| strongly disagree | disagree | neutral | agree | strongly agree |

26. I practice more than once a day.

| never | not very often | sometimes | regularly | often |

27. It is important for me to do well in music.

| strongly disagree | disagree | neutral | agree | strongly agree |

28. I will work hard at learning a piece of music even if I don’t really like it.

| strongly disagree | disagree | neutral | agree | strongly agree |

29. When I am not successful at music, it is because other things got in the way of practicing.

| strongly disagree | disagree | neutral | agree | strongly agree |

30. I will repeat a section of the piece of music I am learning until I get it right.

| never | not very often | sometimes | regularly | often |

31. My practice sessions are organized.

| strongly disagree | disagree | neutral | agree | strongly agree |

32. I feel I am aware of my own strengths and weaknesses as a musician.

| strongly disagree | disagree | neutral | agree | strongly agree |
33. I practice in the morning before school.

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34. One of the strategies I use is marking up the music with a pencil.

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35. When I have problems with the rhythm, I clap and/or say the rhythm syllables – “ta”, “ti-ti”.

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36. Slowing the tempo is a strategy I use when I practice.

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37. I am in control of my practice environment and make sure I am away from distractions.

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38. I ask a family member to come and listen to me when I practice.

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39. I need to be reminded to practice.

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40. I feel motivated to practice.

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41. After a session of practicing, I think about how well I have practiced.

__________________________ |__________________________ |__________________________ |__________________________ |
never not very often sometimes regularly often

42. When I practice, I focus on small chunks of the music.

__________________________ |__________________________ |__________________________ |__________________________ |
never not very often sometimes regularly often

43. I use a metronome when I practice.

__________________________ |__________________________ |__________________________ |__________________________ |
never not very often sometimes regularly often

44. I try to get a section of music perfect before practicing another section or another piece.

__________________________ |__________________________ |__________________________ |__________________________ |
never not very often sometimes regularly often

45. Time passes quickly when I practice.

__________________________ |__________________________ |__________________________ |__________________________ |
never not very often sometimes regularly often

46. If I get frustrated, I stop practicing.

__________________________ |__________________________ |__________________________ |__________________________ |
never not very often sometimes regularly often

47. Compared to studying other subjects in school, how useful is studying music?

__________________________ |__________________________ |__________________________ |__________________________ |
not at all useful not very useful neutral somewhat useful very useful

48. I prefer to work on a piece of music that is challenging for me.

__________________________ |__________________________ |__________________________ |__________________________ |
strongly disagree disagree neutral agree strongly agree
49. When I practice a piece of music, I have a goal in mind.

| ______________ | ______________ | ______________ | ______________ |

never not very often sometimes regularly often

50. Learning music has a positive influence on my other school subjects.

| ______________ | ______________ | ______________ | ______________ |

strongly disagree disagree neutral agree strongly agree

51. I have to be reminded to practice.

| ______________ | ______________ | ______________ | ______________ |

never not very often sometimes regularly often

52. Performing for others motivates me to practice harder.

| ______________ | ______________ | ______________ | ______________ |

strongly disagree disagree neutral agree strongly agree

Imagine that a new musician playing your instrument (piano or band) has just joined the band or started lessons. They have asked you for some advice about practicing. On the piece of paper I have given you, write them a letter with some tips about practicing effectively.
Appendix H: Guided Practice: A Sixth-Month Follow-Up Parent/Guardian Survey

Dear Parent(s),

Several months have passed since the end of the formal period of gathering data for my research. During this time I have been busy preparing the final project, the thesis. Parents have played an incredibly important role in this journey! Listening to the interviews again – those of more than a year ago, and those from last summer – have brought back wonderful memories of sharing time and ideas and tea! Well, this is your last chance to have your say and I hope you’ll be again generous in your response.

Last week, I gathered the musician participants and gave them a questionnaire asking them to describe how they go about practicing at this time. Quite simply, I’m curious as to whether the guided practice sessions I held with them have made any difference in their motivation and their strategy use. Your response is important to authenticate theirs. So, I would like you to consider these same two areas: motivation and practice strategies.

Could you please take a few moments to answer the following questions about your child’s practicing. The more detailed you can be in your responses the better, especially if you can illustrate your answer with an incident or example. You can type your answer right under the questions and send this back to me as an attachment. I realize that you are involved in your children’s practicing in varying degrees; some of you can be more present than others. I respect that. Please share what you can; everything is appreciated. But don’t do this right away! Take your time and observe for a few days, OK?

1. MOTIVATION: Overall – would you say your child is intrinsically or extrinsically motivated?

   a. How would you describe your child’s attitude toward practicing: positive or negative? Finds excuses to avoid it? Is it sometimes fun? A sense of responsibility to being prepared for a lesson or band rehearsal?

   b. How are challenges or frustrations handled? Persists with a sense of competence? Gives up? “I can do this!” or “I don’t like this piece.” Or “It’s too hard.”

   c. Recognizes the connection between effort and outcomes? Or attributes success or failure to other causes such as natural ability? Distractions? Other activities?

   d. Independence in making decisions about practicing: when, where, for how long? Reminders?
e. What about a sense of accomplishment? If this happens, is it from mastering a small section of a piece? Or from being able to play the whole piece?

2. PRACTICE STRATEGIES: This is the “thinking-doing” part. Much of the time, students KNOW how they should practice, but, for some reason, they don’t put what they know into ACTION. You could simply put an “X” after the behaviours you notice your child putting into action. The really important ones have a “*” – these I’m particularly interested in. Any comments afterwards are appreciated.

   a. *Looks over the whole piece before playing it -
   b. *Finds the hard part and spends time there -
   c. *Repeats sections several times until they are satisfactory -
   d. Claps out or counting a rhythm out loud – “1,2,3,…” or “ta-ta… ti-ti-ti-ti” -
   e. Marks up the music (especially band music) -
   f. Plays hands separately (piano) -
   g. Slows down –
   h. Takes charge of practice environment, getting rid of distractions -
   i. Uses a metronome –
   j. Is focused during practice -
   k. *Plays a piece through from the beginning and, even if there are errors, moves on
   l. Asks for assistance from someone: parent, sibling –
   m. Makes use of audio recordings (band) -

Would you say that your child’s practice structure is organized and methodical, or is it random and scattered? Do you sense they have a goal in mind, something specific they want to achieve?

Scheduling: What about how often your child practices and for how long. Have these changed at all? Would your child schedule practicing around other activities? Or might other activities be a cause of not practicing?

Any other comments…

I would like to suggest that you possibly make an extra effort to observe your child through this coming week and send this to me next weekend sometime. You could certainly tell your musician what you’re doing and even ask them to explain what they’re doing at practicing if you don’t understand.

If you have any questions, please get in touch. And, once again, please know how important your feedback is and how much I appreciate your time, your effort, and your support of my work in learning how to be a better music teacher. And, I hope, to share this with other music teachers!
Appendix I: Survey Questions of Parent Participants in Guided Practice Lessons

1. What kind of relationship do you have with your child when it comes to helping them when they practice? Do they seek help from you? Or do you take the initiative to offer it? A little of each, or is one of these more the norm?

2. If you do assist your child in learning a piece of music or addressing some part of that music, has your witnessing of the guided practice sessions at their lessons informed in any way how you work with your young musician? If so, can you describe how?