

NOTE TO USERS

This reproduction is the best copy available.





uOttawa

L'Université canadienne
Canada's university

FACULTÉ DES ÉTUDES SUPÉRIEURES
ET POSTDOCTORALES



FACULTY OF GRADUATE AND
POSTDOCTORAL STUDIES

Nisreen Jardaneh

AUTEUR DE LA THÈSE / AUTHOR OF THESIS

M.A. (Music)

GRADE / DEGREE

Department of Music

FACULTÉ, ÉCOLE, DÉPARTEMENT / FACULTY, SCHOOL, DEPARTMENT

Exploring Young Piano Students' Perceptions of Effective Practice Strategies

TITRE DE LA THÈSE / TITLE OF THESIS

Gilles Comeau

DIRECTEUR (DIRECTRICE) DE LA THÈSE / THESIS SUPERVISOR

CO-DIRECTEUR (CO-DIRECTRICE) DE LA THÈSE / THESIS CO-SUPERVISOR

EXAMINATEURS (EXAMINATRICES) DE LA THÈSE / THESIS EXAMINERS

Lori Burns

Murray Dineen

Gary W. Slater

Le Doyen de la Faculté des études supérieures et postdoctorales / Dean of the Faculty of Graduate and Postdoctoral Studies

**Exploring Young Piano Students' Perceptions
of Effective Practice Strategies**

Nisreen Jardaneh

Thesis submitted to the
Faculty of Graduate and Postdoctoral Studies
in partial fulfillment of the requirements for the degree of

**Master of Applied Science
in
Music**

Faculty of Arts
Department of Music
University of Ottawa

September 2007

© Nisreen Jardaneh, Ottawa, Ontario, Canada, 2007



Library and
Archives Canada

Bibliothèque et
Archives Canada

Published Heritage
Branch

Direction du
Patrimoine de l'édition

395 Wellington Street
Ottawa ON K1A 0N4
Canada

395, rue Wellington
Ottawa ON K1A 0N4
Canada

Your file Votre référence
ISBN: 978-0-494-49214-7
Our file Notre référence
ISBN: 978-0-494-49214-7

NOTICE:

The author has granted a non-exclusive license allowing Library and Archives Canada to reproduce, publish, archive, preserve, conserve, communicate to the public by telecommunication or on the Internet, loan, distribute and sell theses worldwide, for commercial or non-commercial purposes, in microform, paper, electronic and/or any other formats.

The author retains copyright ownership and moral rights in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

AVIS:

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque et Archives Canada de reproduire, publier, archiver, sauvegarder, conserver, transmettre au public par télécommunication ou par l'Internet, prêter, distribuer et vendre des thèses partout dans le monde, à des fins commerciales ou autres, sur support microforme, papier, électronique et/ou autres formats.

L'auteur conserve la propriété du droit d'auteur et des droits moraux qui protègent cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

In compliance with the Canadian Privacy Act some supporting forms may have been removed from this thesis.

Conformément à la loi canadienne sur la protection de la vie privée, quelques formulaires secondaires ont été enlevés de cette thèse.

While these forms may be included in the document page count, their removal does not represent any loss of content from the thesis.

Bien que ces formulaires aient inclus dans la pagination, il n'y aura aucun contenu manquant.


Canada

Acknowledgements

First and foremost, I would like to express my deepest appreciation to the 50 young piano students who participated in this study, their families, and their teachers. This thesis would not have been possible without their involvement. I would like to thank Dr. Gilles Comeau in particular for his guidance, support, and wise counsel as thesis supervisor, and for providing the facilities at the Piano Pedagogy Research Laboratory for the conduct of my research. I would also like to thank all of my committee members for their time and their careful consideration of my work. Thanks also go to Rosemary Covert, whose assistance has been invaluable. My family members, especially my husband Nawriz, have my wholehearted gratitude for providing motivation and support throughout my academic career. I would also like to thank my friends at the Piano Lab, especially my thesis colleague Julia, Milada, Mélina, Catherine and Tamar, for their support and encouragement through out this year. And finally, I am grateful for the funding from the Ontario Graduate Scholarship, which was essential to completing this project.

Table of Contents

Abstract.....	ii
Acknowledgements.....	iii
List of figures.....	vii
List of tables	viii
Chapter 1: Introduction.....	1
Chapter 2: Review of literature.....	6
2.1 Definitions of practice.....	6
2.2 Definitions of strategy.....	7
2.3 Practice in the teaching literature.....	9
2.3.1 The importance of practice in developing performance skills..	9
2.3.2 Developing effective practice strategies.....	10
2.3.2.1 Piano method books.....	10
2.3.2.2 Pedagogy literature.....	15
2.3.3 Recommended piano practice strategies.....	24
2.4 Practice in the research literature.....	26
2.4.1 The importance of practice in developing performance skills..	26
2.4.2 Developing effective practice strategies.....	28
2.4.3 Recommended piano practice strategies.....	36
2.5 Review of different methodologies.....	37
2.5.1 Observation.....	37
2.5.2 Case studies.....	38
2.5.3 In-depth interviews	39
2.5.4 Questionnaires.....	40
Chapter 3: Methodology.....	42
3.1 Developing a questionnaire for measuring perceptions	42
3.1.1 Questionnaire design.....	43
3.1.2 Questionnaire categories.....	45
3.1.3 Organization of statements.....	49
3.2 The process of testing the preliminary questionnaire.....	49
3.3 Sampling.....	51
3.4 Data collection setting.....	53

Table of Contents

Chapter 4: Data analysis and results.....	55
4.1 Data analysis.....	55
4.1.1 Data screening and coding.....	55
4.1.2 Data entry.....	56
4.1.3 Data presentation.....	56
4.2 Results.....	58
4.2.1 Demographics.....	58
4.2.2 Part one: Participants' use of practice strategies.....	59
4.2.2.1 Planning and preparation.....	60
4.2.2.2 Execution of practice	62
4.2.2.3 Evaluation strategies.....	65
4.2.2.4 Metastrategies.....	67
4.2.3 Part two: Participants' interest in practice strategies.....	69
4.2.4 Part three: General views on practicing.....	72
Chapter 5: Discussion and Conclusion.....	83
5.1 Participants' use of practice strategies.....	83
5.1.1 Planning and preparation	83
5.1.2 Execution of practice.....	88
5.1.3 Evaluation strategies.....	92
5.1.4 Metastrategies.....	95
5.2 Participants' interest in practice strategies	100
5.3 General views on practicing.....	103
5.4 Conclusion.....	105
5.4.1 Future research	108
References.....	110
Appendix A: Strategies' charts.....	121
Appendix B: First draft of the questionnaire.....	125
Appendix C: Part three of the questionnaire	130
Appendix D: Teachers' evaluation of the questionnaire.....	132
Appendix E: The process of testing the preliminary questionnaire	177
Appendix F: Part two of the questionnaire.....	184
Appendix G: Final draft of the questionnaire.....	186
Appendix H: Ethics committee approval.....	203
Appendix I: Consent form for piano teachers.....	206

Table of Contents

Appendix J: Invitation letter to parents.....	208
Appendix K: Consent forms for parents and students.....	211
Appendix L: Coding scheme.....	214
Appendix M: SPSS results on the use of practice strategies.....	217
Appendix N: SPSS results on the interests in practice strategies.....	275

List of Figures

Chapter 3

Figure 3.1: Statement format in part one of the questionnaire.....	44
Figure 3.2: Statement format in part two of the questionnaire.....	44
Figure 3.3: Jørgensen's model of strategies for individual practice.....	46

Chapter 4

Figure 4.1: Example of format in part one of the questionnaire.....	57
Figure 4.2: Example of format in the analysis and graphs.....	57
Figure 4.3: Participants' age distribution.....	58
Figure 4.4: Participants' gender distribution.....	58
Figure 4.5: Participants' music level.....	59
Figure 4.6: Piano method books used by participants.....	73
Figure 4.7: Number of practice days.....	74
Figure 4.8: Practice with a parent at home.....	77
Figure 4.9: Knowing how to practice after each lesson.....	77
Figure 4.10: Liking practicing.....	78
Figure 4.11: Whether teachers explain to students how to practice.....	79
Figure 4.12: How participants find practicing.....	79
Figure 4.13: Do participants think of other things while practicing	81

List of Tables

Chapter 1

Table 1.1: Practice strategies extracted from piano method books.....11

Table 1.2: Practice strategies extracted from pedagogy literature.....16

Table 1.3: Practice strategies extracted from research literature.....29

Chapter 4

Table 4.1: Activity selection and organization strategies60

Table 4.2: Setting goals strategies.....61

Table 4.3: Time management strategies.....61

Table 4.4: Rehearsal strategies.....62

Table 4.5: Distribution of practice over time strategies.....64

Table 4.6: Preparing for a public performance strategies.....65

Table 4.7: Aural and visual feedback strategies.....65

Table 4.8: Detecting errors strategies.....66

Table 4.9: Self-guided strategies.....66

Table 4.10: General knowledge strategies.....67

Table 4.11: Specific knowledge strategies.....67

Table 4.12: Relational knowledge strategies.....68

Table 4.13: Control strategies.....68

Table 4.14: Regulation strategies.....69

Table 4.15: Part two list of strategies.....70

Table 4.16: Participants' interest in practicing with parents within age groups	71
Table 4.17: Open-ended questions.....	72
Table 4.18: Length of daily practice.....	73
Table 4.19: Definitions of practice within age groups.....	75
Table 4.20: Close-ended questions.....	76
Table 4.21: Participants' own thoughts on how they find practicing.....	80
Table 4.22: List of things participants think of while practicing.....	82

Chapter 5

Table 5.1: Results of activity selection and organization strategies...	85
Table 5.2: Results of setting goals strategies.....	86
Table 5.3: Results of time management strategies.....	88
Table 5.4: Results of rehearsal strategies.....	90
Table 5.5: Results of distribution of practice over time strategies....	91
Table 5.6: Participants' imagination within age groups.....	92
Table 5.7: Results of preparing for a public performance strategies....	92
Table 5.8: Results of aural and visual feedback strategies.....	93
Table 5.9: Results of detecting errors strategies.....	94
Table 5.10: Results of self-guided strategies.....	95
Table 5.11: Results of metastrategies.....	98

CHAPTER ONE

Introduction

Playing the piano involves a variety of cognitive, auditory, visual and motor skills. Mastering the coordination for all these skills requires intensive effort, repetition and persistence through increased and sustained practice sessions over several years. These sessions allow the students to make continuous improvements and enhance their music development (Ericsson et al., 1993; Hallam, 1998; Sloboda, Davidson, How, and Moore, 1996). Nonetheless, a major concern in music education is the challenge of motivating students to continue learning the piano. In the Music Teachers National Association 2006 survey, the biggest challenge cited was to “maintain the student’s interest, keeping enthusiasm high and getting students to practice on their own” (p. 83). At a symposium held at Steinway Hall in New York City, Dr. Paul Pollei, founder and artistic director of the Gina Bachauer International Piano Festival, declared that there is an alarming dropout rate among piano students (Chappell, 1996). Moreover, Sloboda and Howe (1991) estimated that a high percentage of students who start piano lessons give up 18 months later, before reaching a modest mastery of the instrument (pp. 3-21).

A first step in learning any musical instrument is to believe in one’s own ability to achieve personal goals. This belief is called “self-efficacy” in the field of psychology. It involves a generative ability in which cognitive, social and behavioural subskills are incorporated into coherent courses of action to serve individual purposes (Bandura, 1986; Maddux, 2002). The development of this belief is influenced by at least four factors: a) the experience of mastery, b) comparing oneself with others, c) receiving feedback (e.g. a teacher’s evaluation), and d) the student’s physiological states (e.g. experiencing anxiety) (Bandura, 1997). This belief forms relatively early in the course of learning and remain

steady afterwards (O'Neil & Sloboda, 1997; Davidson & Borthwick, 2002). High self-efficacy positively affects performance, which in turn increase the ability to achieve goals.

Self-efficacy affects two main factors: self-regulation of the student's motivation, and managing the activity itself (practicing). Self-regulation of motivation involves the control of cognitive systems such as the ability to direct attention, monitor thinking and problem solving, and to engage in independent learning activities (Bronson, 2000). Although not obvious at the youngest age, the development of cognitive self-regulation begins early and becomes increasingly important as children grow and are expected to take responsibility for their own learning (Bronson, 2000). Therefore, at the beginning of the music learning process, the parents are usually the decision makers, believing that it is time for their child to start learning a musical instrument (Donnat, 1996; Sloboda 1994). At this stage, young students' motivation is supported by the parents' endorsement, as well as the excitement of starting a new activity that involves the sound the instrument makes, listening to music, parents' positive reinforcements, etc. (Sloboda et al., 1996). With time, as students mature they become more independent and the parent's role changes. At this stage, the motivation of students could take different forms, either internally or externally. Internal motivation includes the enjoyment of playing the instrument itself, i.e., enjoying the feeling of finger movements on the keys. To take it a step further, playing a musical instrument can become part of a student's identity, i.e. part of who the person is. On the other hand, external motivation involves an outside influence on engagement in an activity. Once a student finds no interest in playing the instrument, other factors, like the desire to please the parents, getting a reward or avoiding punishment, play an important role in persisting with the activity. These can provide support for learning if the skill under study is not very demanding. Conversely, when learning a complex skill such as playing the piano, the student

needs to depend on inner motives that are considerably stronger than just external factors in order to overcome the inherent quandaries (Sloboda, 1994).

To explore the patterns of self-regulation of motivation, a multidisciplinary research team at the Piano Pedagogy Research Laboratory developed a measurement tool to examine young piano students' motivation¹ (Desrochers, Comeau, Jardaneh, and Green-Demers, 2006). This project made interesting observations about certain aspects related to motivation. One of these aspects was practicing the piano, which provided the inspiration to focus on the second factor affected by self-efficacy: practicing related to managing the work on the instrument (organizing and pacing the practice session, etc.) (McCormick and McPherson, 2003, p.37).

Practicing is one of the most important variables in acquiring and developing cognitive, auditory, visual and motor skills (Ericsson et al., 1993; Hallam, 1998; Sloboda, 1994; Sloboda, Davidson, How, and Moore, 1996). Therefore, and specifically in the case of learning a musical instrument such as the piano, students spend a lot of time practicing in order to develop their musical skills (Hallam, 1998; Pedrick, 1998; Sloboda et al., 1996). Ericsson et al. (1993) consider that by the age of 20, expert pianists who excel at playing the piano have spent 10,000 hours practicing. Moreover, Jørgensen (1997) investigated whether practice time varied among different instruments. Results indicated that piano students practice the most (33 hours a week), followed by violin, then brass and woodwind students (pp.131-133).

¹ The research team developed the measurement tool within the framework of Deci and Ryan's theory of motivation and self-determination (1985, 2000), which outlines three main levels of motivation: amotivation, extrinsic motivation and intrinsic motivation. Two sources of information were considered in the formulation of the measuring scale. First, piano students, parents and teachers were interviewed. Participants expressed their opinions about why children and young individuals learn to play the piano. Then a comprehensive analysis was conducted from these observations using Deci and Ryan's framework and 60 descriptive statements were formulated, 10 for each type or sub-type of motivation. To investigate the characteristics of this measurement tool, 100 children, aged 7 to 15, were interviewed. The data collection was intended to verify the clarity of the motivation items, the internal coherence of groups of items, and the expected relationship between these groups of items.

Spending many hours practicing creates a challenge for motivating students to continue learning the piano. One of the reasons for dropping out is that piano students, specifically beginners, practice too much without thinking about it enough, and their motivation to practice fades away over time, when they do not achieve the hoped-for results or make big improvements (Hu, 1999). The old saying “practice makes perfect” may not necessarily be true, because the repetition of ineffective practice strategies can yield disappointing results (Barry and Hallam, 2002). Therefore, students must concentrate and pay attention while practicing in order to progress. This kind of practicing is frequently called “effective practice” (Berr, 1995; Pedrick, 1998; Sitton, 1992). Effective practice strategies that help students improve gradually while staying motivated are essential (Ahren and Atkinson, 1955; Baker-Jordan, 2004; Bastien, 1995; Bruser 1997; Clark, 1992; Giersbach, 2000; Hall, 1989; Hallam, 1998; Moss, 1989; Pace, 1992; Suzuki, 1978; Taylor, 1946).

It is important, therefore, to examine how students perceive the employment of their practice strategies because such perceptions will influence the lifespan of their practicing and have a major impact on performance skill development, and affect the level of their motivation. This was shown in the preliminary results of both the focus groups and the children’s questionnaires in our initial study on motivation. Both indicated negative perceptions on the use of practice strategies (like rehearsing with a metronome). This might not cause a direct threat at the beginning of students’ learning process, when their motivation is endorsed by external factors such as parents’ support or excitement of starting a new activity (Sloboda et al., 1996). However, holding negative perceptions of practicing could play a major role in dropping out as students get older, when self-regulation mechanisms take effect and they start looking for internalized ways to pursue piano learning.

The majority of researchers in piano practice employ different qualitative measuring tools to study the nature and importance of the practicing activity and better understand the practice environment that involves sequencing activities, students' behaviours and strategies used. Such qualitative tools are essential because 1) practicing takes place in a natural setting, 2) it focuses on a particular situation with particular people at a particular time, and 3) it provides us with the insights on participants' behaviours at the practice session. However, none of these approaches reflects how students perceive the employment of their practice strategies.

This study, therefore, examined the perceptions of 50 young piano students between the ages of 7 to 12 to understand how they think about practicing, what they do at their practice sessions, and how interested they are in what they do. This was achieved with a questionnaire derived from the most recommended strategies in the pedagogical and research literatures. The present chapter provided a multidisciplinary introduction to the essence of this study. Chapter two covers the pedagogy literature (method books and educators' documentations), research literature (psychology, cognitive psychology, and psychology of music), and a review of methodologies used to study practicing (social sciences and music education). The third chapter describes the methodology: how the strategies identified in the literature were categorized according to Jørgensen's model on individual practice strategies, the development of the questionnaire, its testing, and the data collection process. Chapter four presents the results. The fifth and final chapter discusses the major findings, draws some conclusions and provides recommendations, hoping that this study would lead to a better understanding of how to teach and learn effective practice strategies.

CHAPTER TWO

Review of Literature

2. Review of literature

The objective of this chapter is to present general state of knowledge about piano practice. It starts with reviewing different definitions on piano practice and strategy, followed by the teaching literature, research literature, and the different methodologies used to study practice.

2.1 Definitions of practice

The objective of this section is to define the concept of practice from three main sources: dictionaries (general); pedagogy texts; and research texts. Webster's (2004) dictionary offers several definitions for practice yet specifies one definition that relates particularly to music that is "to do something repeatedly in order to learn or acquire proficiency; exercise or drill one self [to practice on the organ]" (p.1129). The Oxford English Dictionary (2004) provides a number of definitions for practice. However, the most relevant one to music is "A repeated exercise in an activity requiring the development of skill" (p.1218). The New American Oxford Dictionary (2005) defines practice as "a play, piece of music, or other work for later public performance". The Concise Oxford English Dictionary (2005) defines the verb practice as "perform (an activity) or exercise (a skill) repeatedly or regularly in order to acquire, maintain, or improve proficiency in it".

Upon reviewing around 70 references including 16 well-known piano method books, 30 pedagogy texts, and 24 research texts, it is interesting to note that little has been found about the definition of piano practice. There is an assumption that everyone knows what a piano practice is. Therefore, documentations only revolve around the importance of practicing and how to practice certain aspects. Nevertheless, from the little that was found,

Pace (1992), the author of the famous method book *Music for Piano*, perceives piano practice as a musical problem that is solved through analysis, thinking along with physical coordination (p. 17). In the research field, a similar definition to Pace's appeared in a study by Leon-Guerrero (2004), who defines music practice as an "... individual practice during which problems that are presented in a musical example are rehearsed in order to reach a master level of performance" (p. 7). For many researchers, practice is usually linked to training and/or repetition and is traditionally used by musicians to illustrate "systematic rehearsal" (Barry and Hallam, 2000) as "the act of repeating a motor skill with the intention that repetition will lead to increased accuracy, fluency, velocity, consistency, automaticity, and flexibility in performing the skill" (Maynard, 2000). A term that appears frequently in the pedagogy and research texts is effective practice that could be defined as "that which achieves the desired end product, in as short a time as possible, without interfering with longer term goals" (Hallam, 1998, p. 142). However, for the purpose of this study, practice will be defined as *systematic repetition in order to achieve required proficiency in performing the piano; including improving technical and music expressivity skills*.

2.2 Definitions of strategy

The objective of this section is to define the concept of strategy by reviewing three main sources: dictionaries (general); pedagogy texts; and research texts. The majority of definitions provided by dictionaries revolve around the idea of having a plan to gain results on the long term. For example, the New American Oxford Dictionary (2005) provides a number of definitions for strategy. However, the most relevant one to this study is "a plan of action or policy designed to achieve a major or overall aim: time to develop a coherent economic strategy". The Concise Oxford English Dictionary (2005) defines the noun strategy as "a plan designed to achieve a particular long-term aim". Moreover, the Oxford

English Dictionary (2004) defines strategy as “a plan of action designed to achieve a long-term or overall aim”.

From reviewing around 70 references including 16 well-known piano method books, 30 pedagogy texts, and 24 research texts, it is interesting to note that nothing has been found about the definition of practice strategy. There is an assumption that everyone knows what a strategy means. In general, piano method books use different names for practice strategies dictating the way a student should practice at home. Moreover, these books seem to treat the word strategy as generic and a synonym to practice hints (Schaum, 1996), practice suggestions (Faber and Faber 1996), practice tips (Albergo et al., 2003), practice reminders (Finn and Morris, 1998), ways of practicing (Bastien, 1985; Schaum, 1996), practice steps (Clark, 1973; Noona, 1973; Pace, 1979; Palmer et al., 1995), and practice directions (Glover, 1988). Nevertheless, for the purpose of this study, strategy will be defined as a *tool used to achieve a certain objective*.

2.3 Practice in the teaching literature

The teaching literature provides us with teachers' viewpoints on practicing. With their experience as students, long years of preparing for performances, and most importantly their teaching knowledge, what they discern about practice is very important. In addition, by far the largest body of literature on practice comes from teachers (Geirsbach, 2000). Two issues emerge from this literature: 1) the importance of practice for developing performance skills, and 2) the importance of developing effective practice strategies.

2.3.1 The importance of practice in developing performance skills

Piano teachers believe that practicing is a key to the development of musical expertise (Ahren and Atkinson, 1955; Baker-Jordan, 2004; Bastien, 1995; Bruser 1997; Clark, 1992; Hallam, 1998; Hall, 1989; Moss, 1989; Pace, 1992; Suzuki, 1978; Taylor, 1946). They require that students practice in order to progress over time. Dr. Shinichi Suzuki, founder of the Suzuki method, emphasised the significance of practice and was attributed to having said, "You don't have to practice everyday, only on the days you eat". According to Crock (2005), teaching young students to understand the importance of practice is one of the most important jobs a teacher has.

Unfortunately, young piano students usually practice too much with too little thought. They perceive practice as mindless repetition, where there is no concentration on what they are doing (Hu, 1999). Such ineffective repetition can yield to disappointing results and students get discouraged after a while (Barry and Hallam, 2002). Therefore, students need to concentrate while practicing at home because it has a direct effect on the level and rate of their progress. Such concentrated practicing falls under different names in the teaching literature, like "effective practice" (Berr, 1995; Pedrick, 1998; Sitton, 1992), or "perfect practice" (Clark, 1992, p. 169). Despite the various names for the practice required,

concentration is the main criterion for progress. However, this type of practice is usually not enjoyable, particularly for young children (Ericsson et al., 1993). Consequently, piano teachers face the increased challenge of motivating young students to practice, which is becoming even harder now that students' schedules are so full (Barry and Hallam, 2002; Clark, 1992; Johnston, 2002). Therefore, effective practice that achieves progress with minimal effort becomes indispensable (Clark, 1992, pp.169–170). Piano teachers encourage the use of effective practice strategies to help students progress gradually while staying motivated (Ahren and Atkinson, 1955; Baker-Jordan, 2004; Bastien, 1995; Bruser 1997; Clark, 1992; Giersbach, 2000; Hall, 1989; Hallam, 1998; Moss, 1989; Pace, 1992; Suzuki, 1978; Taylor, 1946).

2.3.2 Developing effective practice strategies

Through piano method books and various other resource materials, piano teachers provide recommendations for students on how to practice effectively.

2.3.2.1 Piano method books

It is important to review piano method books to get an idea of how they address the types of strategies suggested at all their levels. In general, the books use different names for practice strategies dictating the way a student should practice at home. Some have practice hints (Schaum, 1996), others have practice suggestions (Faber and Faber 1996), practice tips (Albergo et al., 2003), practice reminders (Finn and Morris, 1998), ways of practicing (Bastien, 1985; Schaum, 1996), practice steps (Clark, 1973; Noona, 1973; Pace, 1979; Palmer et al., 1995), and practice directions (Glover, 1988). The following table presents practice strategies that were extracted from piano method books.

Strategy	Method Book
Practice slowly first	Piano Time; Schaum
Mental practice	Hal Leonard
Pay attention to playing with correct fingerings	Piano Time
Practice hands separately	Bastien; Hal Leonard; Piano Time
Maintain a steady tempo	Beanstalks
Set goals for practicing	Piano Adventures
Take a break	Hal Leonard ; Piano Time
Count out loud	Bastien; Piano Time; Schaum
Highlight the specific problem	Piano Time
Check the hand position while practicing	Beanstalks, Piano Time
Practice scales and technique regularly	Piano Time
Practice one aspect at a time	Suzuki
Start with short exercises in daily practice	Music Tree
Listen to a recording of the pieces being studied	Suzuki
Sing the melody while practicing	Celebrate Piano; Bastien; Noona; Schaum
Follow an assignment sheet	Piano Adventures
Incorporate sight reading, technique, and pieces in a practice sessions	Hal Leonard
Get supervision from parents	Bastien; Hal Leonard

Table 1.1: Practice strategies extracted from piano method books

The strategies emerging from a review of more than 16 well-known American and European method books include 1) practicing slowly (Hall, 1989; Schaum, 1996); 2) paying

attention to correct fingerings (Hall, 1989); 3) practicing hands separately (Bastien, 1985; Hall, 1989); 4) maintaining a steady tempo (Finn and Morris, 1998); 5) setting goals for practicing (Faber and Faber, 1996); 6) taking breaks (Hall, 1989); 7) counting out loud while playing (Bastien, 1985; Hall, 1989; Schaum, 1996); 8) checking the hand position while practicing (Finn and Morris, 1998; Hall, 1989); 9) singing the melody while practicing (Albergo et al., 2003; Bastien, 1985; Noona, 1973; Schaum, 1996); and 10) warming up for daily practice with short simple exercises (Clark, 1973).

Nevertheless, two main observations surface from the review. First, several piano methods do not extensively cover the use of strategies in their lesson books (Bastien, 1985; Clark, 1973; Faber and Faber 1996; Noona, 1973; Pace, 1979; Palmer et al., 1995) and some do not include strategies at all throughout the different levels (Fletcher, 2002; Thompson, 1994). Second, most of these methods do not present practice strategies consistently throughout the whole series (Bastien, 1985; Faber and Faber 1996; Pace, 1979; Palmer et al., 1995; Noona, 1973). For example, Bastien's series only mentions the importance of practicing hands separately first before putting the two hands together. It also stresses the importance of counting aloud in level 3. Noona's method book (1973) suggests students should follow practice steps such as singing the melody, clapping the rhythm, etc. However, these steps are not mentioned again for the rest of the same level. Clark's method book (1973) introduces practice strategies in level 1, such as warming up for daily practice with short simple exercises. However, there is no mention of these strategies in level 2, and only a few strategies are revisited in level 3.

Among the reviewed method books, only three focus on the extensive use of practice strategies in a consistent way: *Piano Time* (Hall, 1989), *Beanstalks* (Finn and Morris, 1998) and *Celebrate Piano* (Albergo et al., 2003). At the beginning of the second and third levels,

Piano Time contains general hints for young beginners on good practicing strategies to be used in daily practice at home. It provides specific suggestions that guide students on how to approach a new piece or learn a new technique in a systematic process throughout the levels. *Beanstalks* includes a “bravo box” for steps to consider at the lesson and when practicing at home, such as playing with a steady tempo, checking hand position while practicing, etc. *Celebrate Piano* includes a practice plan that consists of TIPPS that appear consistently throughout the levels. TIPPS is a mnemonic device that reminds students of the essential elements when practicing any new piece: T- for tapping to maintain steady tempo, I- for being aware of the intervals used and their directions, P- for understanding the patterns or phrase structure, and PS- for playing and singing the words.

However, even though some methods do not tackle practicing in detail in their lesson books, they publish a booklet or separate volume dedicated to practicing. For example, Faber and Faber’s *Practice & Progress* includes three main elements for successful practice: a time commitment (a written agreement between parent and student indicating the student’s commitment to practice on a daily basis); a practice plan (teachers write practice goals for the week on the practice plan page), and evaluation (the teacher checks the practice plan and grades each lesson accordingly) (Faber and Faber, 1996). Alfred’s *Practice and Performance* is a practicing guide for students from levels 1 to 6 (Palmer et al., 1995). It includes specific practice strategies for each piece with a detailed practice plan for steps to follow on a daily basis until the piece is learned. Hal Leonard’s *The Parent’s Guide to Effective Practicing* provides tips and suggestions for parents to ensure that children build good practice habits from the beginning of the learning process (Breth, 2007). The guide consists of two sections. The first section explains the nature of effective practice to parents, pointing out that many students practice by doing endless and mindless repetitions, which may help for a while, but

with time becomes tiring, unproductive, and leads to annoyance. In order to acquire effective practice habits, students should involve both mind and body during practice sessions. Accordingly, the guide contains general principles for parents to follow. Among these principles are setting aside time for practice, establishing a routine, involving children by asking them questions and exploring their perceptions rather than merely giving instructions. Consistent positive reinforcement is also essential. The second section provides over 30 practicing tips; parents can help by supervising the use of these tips during home practice sessions. As children become older and are capable of practicing on their own, they can consult a more detailed guide that is addressed solely to them, *The Piano Student's Guide to Effective Practicing* (Breth, 2004). This guide provides fifty-eight practice tips in twelve different categories for effective practice: accuracy, balance, articulation, continuity, coordination, evenness, expression, fingering, memory, pedal, rhythm, and speed. For example, accuracy includes tips such as playing a section of a well-learned piece hands separately before hands together, playing slowly and softly, paying attention to fingering, etc. The balance category includes ghosting (laying one hand and pretend to play the other like a ghost, silently), practicing left hand alone until it feels secure, playing with eyes closed, etc. The guide also provides informative ideas for students when they do not feel they are making progress no matter how well they practice. These tips include taking breaks, slowing down, working on small portions, sight-reading for a while then trying again, altering different practice tips, etc.

In conclusion, some piano method books contain effective practice strategies (for a complete list, see the recommended practice strategies section 2.3.3). Nevertheless, the majority of method books share the serious limitation of presenting the practice strategies in an inconsistent way for students throughout their levels. This limitation might confuse

students and affect the way they perceive practicing and the application of practice strategies. This leads us to wonder how the pedagogy literature deals with practicing and the employment of effective practice strategies.

2.3.2.2 Pedagogy literature

The writings of some music educators provide essential insights on the importance of piano practice and proposed strategies to be considered. The following table presents practice strategies that emerged from the pedagogy literature.

Strategy	Reference
Practice slowly first	Ahrens and Atkinson, 1955; Barker, 2002; Berr, 1995; Broughton, 1956; Clark, 1992; Crock, 2006; Green, 2006; Hinson, 2000; Johnston and Sutton, 2000; Moss, 1989; Newman, 1956; Pearce, 2002; Robilliard, 1967; Thiem, 2006
Analyze the piece before playing	Clark, 1992; Enoch, 1977; Freymuth, 1995; Hinson, 2000; Hugh, 2006; Newman, 1956; Robilliard, 1967
Mental practice	Freymuth, 2000; Robilliard, 1967
Pay attention to playing with correct fingerings	Ahrens and Atkinson, 1955; Broughton, 1956; Clark, 1992; Newman, 1956
Practice hands separately	Broughton, 1956; Hugh, 2006; Johnston and Sutton, 2000; Pearce, 2002
Maintain a steady tempo	Ahrens and Atkinson, 1955; Hugh, 2006; Moss, 1989; Newman, 1956; Powell, 1988
Set goals for practicing	Baker-Jordan, 2004; Moss, 1989; Powell, 1988; Westney, 2003
Organize the practice session	Kaplan, 2004; Moss, 1989; Powell, 1988
Take a break	Bruser, 1997; Clark, 1992; Westney, 2003
Count out loud	Hugh, 2006; Newman, 1956
Highlight the specific problem	Ahrens and Atkinson, 1955; Baker-Jordan, 2004; Thiem, 2006
Check the hand position while practicing	Broughton, 1956
Practice scales and technique regularly	Ahrens and Atkinson, 1955; Johnston and Sutton, 2000

Strategy	Reference
Practice one aspect at a time	Johnston and Sutton, 2000; Thiem, 2006
Use practice charts	Crock, 2006; Johnston and Sutton, 2000; Powell, 1988
Repeat a certain bar that needs practicing	Blum, 1982
Start with short exercises in daily practice	Kaplan, 2004
Listen to a recording of the pieces being studied	Kaplan, 2004
Follow an assignment sheet	Hugh, 2006; Powell, 1988
Incorporate sight reading, technique, and pieces in a practice sessions	Robilliard, 1967
Pay attention to time signature and key signature while practicing	Broughton, 1956
Concentrate on hard sections than the ones the student is familiar with	Broughton, 1956; Newman, 1956
Have few practice session a day instead of one long session	Johnston and Sutton, 2000; Robilliard, 1967
Listen carefully while playing	Enoch, 1977; Green, 2006; Lhevinne, 1972
Concentrate while practicing	Broughton, 1956; Green, 2006; Kaplan, 2004
Evaluate if the practice session went well or not	Hugh, 2006
Detect and handle errors	Newman 1956

Table1.2: Practice strategies extracted from pedagogy literature

Newman (1956) devotes a chapter to practicing in his book *The Pianist's Problems*. He notes that there are five pillars to effective practice: fingering, counting, interpretation, efficiency, and memorizing. He states that fingering makes or breaks a piece, since it can have a profound impact on memorizing, technique, stage poise, and general security at the piano. His recommended strategies for fingering include writing fingering on the very first piece a student plays, writing the same fingering on similar sections, etc. Newman also believes that counting and rhythm are key to authoritative playing and recommends practicing with a metronome, counting out loud while playing, etc. He points out that

interpretation, which incorporates tonality, melody, and the form of the piece, is an essential part of practicing. He therefore recommends paying attention to the concept of the piece as a whole, dynamic contrast, shaping of phrases, etc. With regard to efficiency, Newman suggests some methods to save time and effort in practicing. For instance, he recommends that students take their time while playing instead of stumbling over mistakes and creating a bad habit on the long run. Another suggestion is to avoid going back to the beginning of the piece after making a slight mistake. Others involve practicing slowly; working on the piece as a whole including all aspects such as dynamics, fingering, and phrasing, so as not to miss any element or make mistakes when adding them one at a time; first working on the parts that need practicing the most instead of wasting energy on well-learned sections; keeping a long-term logbook to track progress and accomplishments, etc. (pp.72-116).

Broughton (1956) addresses the issue of practicing in *Success in Piano Teaching*. She states that anyone who wishes to play the piano has no choice but to practice. She further explains that practice is a synonym for work. It entails persistent effort to learn by practicing at home, which can yield better results than just learning at the piano studio. She also advocates quality rather than quantity of practice. In other words, she promotes the idea of thoughtful practice: “one half hour of thoughtful practice in the morning is worth more than an hour later in the day” (p.28). In general, Broughton notes that in every practice session, pianists should consider the following points: rhythm, the right notes, fingering, and expression. At the end of her chapter on practicing, she offers some general rules: check the time and key signature; practice hands separately for every four measures, then play hands together; practice slowly first, count out loud; check the fingering while playing; check the hand position to ensure relaxation; aim to play with a beautiful tone; concentrate on hard

parts more than familiar ones; know the meaning of all terms in the piece; pinpoint unclear aspects in the piece; and finally, be attentive during practice time (p.32).

In *The Persistent Pianist* (1967), Robilliard devotes a chapter to practice techniques. She offers several ways that pianists can make the best of the practice time available. First, students should not sit and practice when feeling physically or mentally tired. Practicing when tired may result in reading inaccuracies and overworked muscles, and therefore an unsatisfactory practice session. In addition, practice periods should be so spaced as to enable frequency of repetition to reinforce remembering (p.29). Therefore, the rule of practice should be “little and often,” and in the morning if possible (p.30). Robilliard believes that each practice session should incorporate sight reading, pieces, and technique. Regarding playing technique, she suggests that muscular exercises should be done as much as possible before sitting down at the piano in order to avoid any loss of focus. Robilliard also recommends first doing a musical analysis when learning a new piece, studying the piece in great detail, followed by a technical analysis—playing slowly, learning special movements to tackle certain passages in the pieces, etc.

Enoch (1977), co-author of *Creative Piano Teaching*, talks about how to practice (p.104). Enoch says that many music students enter university and study music professionally without being taught how to practice. These students seem to learn by doing endless and thoughtless repetitions without knowing how to do detailed work, which leads to wasted time and unproductive practice. Enoch ties this to the way teachers give instructions on how to practice, indicating the need for practice without going into further detail on how to do it, or following up on the practice steps that were undertaken at home. Some of the recommended strategies were listening carefully while practicing, practicing learned pieces

with eyes closed, short practice sessions, analyzing the piece learned and checking the fingerings indicated in the score.

Seymour Bernstein (1981), internationally known pianist, teacher, and composer, devotes two chapters to practicing in *With Your Own Two Hands*. He perceives practicing as a process that promotes self-integration. It enables the student to connect with an all-pervasive order—an order that allows complete feeling of emotions, sensory perceptions and physical coordination (pp. 9-10). Bernstein states that it is not easy to practice properly. Some students practice in an inefficient way that yields negative perceptions towards practicing. He explains how to tackle such a problem by presenting case studies of students he worked with to overcome practicing problems.

Mary Craig Powell, an internationally recognized piano educator, addresses home practice in her book *Focus on Suzuki Piano* (1988). She believes that practicing is probably the most challenging aspect of studying piano, and that it can be often frustrating to students. She advocates the importance of addressing practice issues that will help students and their parents in practicing at home. She advises students to establish the habit of practicing everyday, know how much practice is needed, find a proper time to practice, focus on one aspect at a time, and plan the order of activities in the practice sessions. These and her other strategies help students perceive practicing as fun, loving and positive (pp.19–25).

The influential Canadian pianist and lecturer, Earle Moss, author of *More than Teaching* (1989), elucidates the importance of cultivating good practice habits from the beginning of the learning process. For example, he advises students to practice slowly, set objectives for practicing, practice with a metronome, etc.

Frances Clark, author of the piano method book *The Music Tree*, believes that effective practice strategies will help students in their music development and motivate them

to practice (pp.169–170). She devotes a section in *Questions and Answers* (1992) to practical solutions and recommendations for teachers on practicing. She highlights several important aspects that help students perceive practicing positively, such as asking teachers to pay attention to the number of musical tasks that are assigned during the piano lesson and suggest simple and short tasks that are challenging so that students could enjoy practicing (p.158). She also recommends providing a variety of repertoire that poses new challenges and ideas encouraging students to continue practicing (p.162). Furthermore, she highlights the importance of playing with correct fingering, taking breaks throughout the practice session, starting the practice session with short simple exercises and other essential practice strategies.

Bruser (1997) perceives practicing as an art. She states that musicians can simultaneously enjoy and benefit from practicing. From her experience as a concert pianist and piano teacher, Bruser proposes a holistic way of practicing in *The Art of Practicing*. She demonstrates a ten-step approach on how to prepare the mind and body to practice without tension and be aware of the posture and surroundings in order to perform with more freedom, expressivity and warmth. Bruser's approach combines physical, psychological and spiritual elements in order to help amateur and professional musicians achieve effective practice.

Johnston and Sutton's fully illustrated throughout guide, *Not Until You've Done Your Practice!* (2000), was written very much with children in mind, particularly those who do not like to practice. The first part of the book discusses how to make practicing more effective so that children can accomplish what needs to be done in a shorter amount of time. The authors believe that having one long practice session is often unbearable for young students. They propose splitting the time up into shorter sessions so children are able to concentrate and be more productive. The second part offers tips on making practicing easier: doing one thing at

time, practicing hands separately, practicing slowly, the best way to do repetitions, etc. Part three includes information on how to make practicing more fun by using rewards, practice charts, card games, etc. The last part provides general technique exercises such as scales, arpeggios, etc. Johnston (2002) devotes *The Practice Revolution* to getting great results in the six days between the music lessons. He believes that students need guidance on practicing between lessons and provides comprehensive advice on effective practice. Moreover, his Practice Revolution website (<http://www.practicerevolution.com/>) allows students and their parents to access strategy sheets which provide practice suggestions for them to follow when they are facing a particular problem (Johnston, 2002a). Johnston published his latest encyclopaedia, *Practiceopedia*, in 2007. The book contains practice ideas, hints, and strategies including many of interest to beginners: the use of charts and diaries, preparing for performances, learning new pieces, the use of the metronome, how bad practice habits are developed, and ways of overcoming them, etc.

Westney (2003) considers practicing healthy when it is free of physical discomfort or tension, free of quarrel between the body and mind, productive, and mentally as well as physically fun. Westney suggests ten steps to healthy practicing that help the student make logical decisions on what to repeat and how to repeat it effectively (p. 79).

Baker-Jordan (2004) devotes a chapter in *Practical Piano Pedagogy* to the importance of practicing. She explains the teacher's integral role in setting realistic practice goals, providing a detailed practice plan, offering a practice suggestion sheet for students to work with on a weekly basis, and most important, teaching students how to practice. She provides recommendations and ideas for piano teachers to better communicate the importance and practicalities of piano practice strategies.

Kaplan (2004) transfers his experience conducting workshops on practicing to his book, *Practicing for Artistic Success*. He describes practicing as a “conscious managerial skill” (p.7). He believes that the majority of musicians have never been taught to manage their own home practice, and his book serves as a practice guide for all instrumentalists. Among the topics included are the components of a practice session: every practice session should involve warming up, learning new pieces and new skills, reviewing old pieces, listening to recordings of the pieces being learned, planning and organizing the practice sessions, etc. He also highlights practicing myths that every musicians should be aware of. These myths include practicing everyday even when you don’t feel like it, continuing to practice even if things are not improving; doing a lot of repetitions, not knowing how to practice slowly and consult the metronome effectively, and focusing on parts of the piece without identifying the error patterns. In addition, Kaplan stresses the importance of a high level of concentration to avoid spending a great deal of time trying to improve something.

Green’s *Practicing Successfully* (2006) divides her guide for effective practicing into three parts. The first addresses specific aspects of how to practice rhythmic motifs, scales, sight-reading, etc. The second presents experts’ views on some of the problems students face and how they can overcome them. The last focuses on the physiological principles of practice and recommends ways to introduce the child to “serious” practicing (pp.121-126). Green states that serious practice is essential for every child’s progress. Green recommends starting with slow practice in order to allow students time to think. Once the habit of thinking is established, then students can start gradually speeding up, while listening carefully to what is played. For faster progress, this step must be followed by precise, controlled, and careful practice (pp.117-119).

Hugh (2006) created an informal website that educates students, teachers, and parents about piano practicing principles and methods. All teachers can contribute to the online entries of practice principles. The site also provides an electronic newsletter that can offer updated information for subscribers. Hugh's piano practice principles include doing the task right from the very first, by which he means aiming to get the correct notes and fingering, analyzing the music; writing down what the teacher says or the students' own interpretations, looking at practicing as problem solving; asking questions while playing (how did it sound? did it feel right?) and aiming to be your own teacher. He also outlines general practice methods that include working section by section, playing hands separately, consulting the metronome, counting out loud. Other strategies from this site are included under recommended practice strategies (2.3.3).

It is important to note that some well-known educators tackle practicing very briefly or do not mention it at all (Bastien, 1988; Camp, 1992; Uszler, 1991). For example, *How to Teach Piano Successfully* (Bastien, 1988) includes only a small paragraph about assisting young children at the practice session by supervising the practice period every day, setting aside a specific time for practicing, and keeping a record of the practice time (p.82). Camp (1992) in *Teaching Piano: The Synthesis of Mind, Ear and Body* does not cover practicing in any way. The *Well-Tempered Keyboard Teacher* (Uszler, 1991) is a great reference for teachers at all levels. In its well-presented pages, it explores different methods, types of students and gives practical advice on running a studio. It does not, however, address the topic of practicing or the use of practice strategies.

2.3.3 Recommended piano practice strategies

The following strategies are those recommended by piano teachers and educators in the reviewed literature:

- 1) Practice slowly first (whether it's a piece or technique) until the brain gets control of the harmony of mechanisms utilized, then speeding up the tempo gradually (Ahrens and Atkinson, 1955; Barker, 2002; Berr, 1995; Broughton, 1956; Clark, 1992; Crock, 2006; Green, 2006; Hall, 1989; Hinson, 2000; Johnston and Sutton, 2000; Moss, 1989; Newman, 1956; Pearce, 2002; Robilliard, 1967; Schaum, 1996; Thiem, 2006)
- 2) Analyze the piece before playing, which contributes to efficient learning and increases the excitement of practicing (Clark, 1992; Enoch, 1977; Freymuth, 1995; Hinson, 2000; Hugh, 2006; Newman, 1956; Robilliard, 1967)
- 3) Mental practice (Breth, 2004; Freymuth, 2000; Robilliard, 1967)
- 4) Pay attention to playing with correct fingerings (Ahrens and Atkinson, 1955; Broughton, 1956; Clark, 1992; Hall, 1989; Newman, 1956)
- 5) Practice hands separately (allows more sensory awareness of the role of each hand and more control of fingering, shaping and musicality) (Bastien, 1985; Breth, 2004; Broughton, 1956; Hall, 1989; Hugh, 2006; Johnston and Sutton, 2000; Pearce, 2002)
- 6) Maintain a steady tempo throughout, and/or practice with the metronome. The habit of slowing up for the more difficult passages and speeding up on the easier passages is a sign of poor practicing. (Ahrens and Atkinson, 1955; Finn and Morris, 1998; Hugh, 2006; Moss, 1989; Newman, 1956; Powell, 1988)
- 7) Set goals for practicing (Baker-Jordan, 2004; Faber and Faber, 1996; Moss, 1989; Powell, 1988; Westney, 2003)

- 8) Organize the practice session, keeping in mind that the best time to practice is when the body is relaxed and the mind is active (Kaplan, 2004; Moss, 1989; Powell, 1988)
- 9) Take a break (Breth, 2004; Bruser, 1997; Clark, 1992; Hall, 1989; Westney, 2003)
- 10) Count out loud when learning a new piece (Bastien, 1985; Hall, 1989; Hugh, 2006; Newman, 1956; Schaum, 1996)
- 11) Highlight the specific problem and/or difficult spots in order give them special attention until they are fixed (Ahrens and Atkinson, 1955; Baker-Jordan, 2004; Hall, 1989; Thiem, 2006)
- 12) Check the hand position while practicing (Broughton, 1956; Finn and Morris, 1998; Hall, 1989)
- 13) Practice scales and technique regularly (Ahrens and Atkinson, 1955; Hall, 1989; Johnston and Sutton, 2000)
- 14) Practice one aspect at a time (Johnston and Sutton, 2000; Suzuki, 1973; Thiem, 2006)
- 15) Use practice charts (Crock, 2006; Johnston and Sutton, 2000; Powell, 1988)
- 16) Repeat a certain bar that needs practicing (Blum, 1982)
- 17) Start with short exercises in daily practice (Clark, 1973; Kaplan, 2004)
- 18) Listen to a recording of the pieces being studied (Kaplan, 2004; Suzuki, 1973)
- 19) Sing the melody while practicing (Albergo et al., 2003; Bastien, 1985; Noona, 1973; Schaum, 1996)
- 20) Follow an assignment sheet (Faber and Faber, 1996; Hugh, 2006; Powell, 1988)
- 21) Incorporate sight reading, technique, and pieces in a practice sessions (Breth, 2004; Robilliard, 1967)
- 22) Pay attention to time signature and key signature while practicing (Broughton, 1956)

- 23) Concentrate on hard sections than the ones the student is familiar with (Broughton, 1956; Newman, 1956)
- 24) Have few practice session a day instead of one long session (Johnston and Sutton, 2000; Robilliard, 1967)
- 25) Listen carefully while playing (Enoch, 1977; Green, 2006; Lhevinne, 1972)
- 26) Concentrate while practicing (Broughton, 1956; Green, 2006; Kaplan, 2004)
- 27) Evaluate if the practice session went well or not (Hugh, 2006)
- 28) Detect and handle errors (Newman 1956)
- 29) Get supervision from parents (Bastien, 1985, Breth, 2004)

To conclude, teachers believe that practicing plays an integral role in developing performance skills and they encourage the use of effective practice strategies that help students improve and stay motivated. Their recommended strategies shaped the content of the measuring tool of this study.

2.4 Practice in the research literature

Two issues emerge from the research literature on practice: 1) the importance of practice in developing performance skills, and 2) the importance of developing effective practice strategies.

2.4.1 The importance of practice in developing performance skills

Several studies suggest that practice has an important role in developing performance skills and examine the effect of practice on this development. Some of these studies explore whether performance skills are the result of prolonged practice rather than innate talent. For example, Ericsson et al. (1993) closely examines the role of practice in the acquisition of expert performance by evaluating the levels of deliberate practice in three groups of adult

and elite violinists with recent performances (p. 373). Subjects had to identify the time and effort spent accomplishing ten types of activities. The results indicated that for all participants, practice is the most relevant activity for improving their performance. Ericsson et al. (1993) also compared a group of amateur pianists with expert pianists by having them keep practice diaries on a weekly basis. Results indicated large differences in deliberate practice between the two groups. The expert pianists practiced around 27 hours per week whereas amateurs practiced around 2 hours per week (p. 382). Clearly, practice has an effect on the level of pianistic expertise. Sloboda et al. (1996) discuss whether talent is an ability or something students are born with. The researchers interviewed 200 young music students aged 8 to 18 about their performing history. Their results confirmed the existence of a strong positive connection between practice and accomplishment in musical performance and revealed that high achievers practice the most, moderate achievers practice moderately, and low achievers practice the least (p. 306). Hallam (1998a) examined the relation between time spent on practicing and learning outcomes in music by observing 109 violin and viola students. The study revealed that the time spent practicing, as well as the ability to comprehend instructions, were important predictors of music achievement (p.116). All of these studies suggest that prolonged practice sessions improve performance skills.

As in the teaching literature, researchers advocate concentrated practicing as the path to progress. This type of practicing is referred to in some studies as “conscious practice” or “deliberate practice” (Ericsson et al., 1993; Ericsson and Lehmann, 1996), and “quality practice” (Williamson and Valentine, 2000). The study by Ericsson et al. (1993) confirms that deliberate practice dictates the level of a musician’s progress. Ericsson and Lehmann (1996) analyzed the role of deliberate practice in several domains like chess, typing, sports, bridge, physics, dance, music, etc. Their study also confirms the fact that an expert level of

performance is attained after deliberate practice (p. 273). Williamon and Valentine (2000) stress the importance of the quality of practice. They questioned the extent to which the number of repetitions could determine the quality of performance. The study included 22 pianists at four different skill levels who memorized a piece for performance. They audiotaped the pianists' practice sessions to measure the number of repetitions. At the end of the experiment, the pianists performed these pieces in a recital (pp. 353–355). Results of the study revealed that the quantity of the practice was not significantly related to the quality of performance and that mindless repetition may not lead to satisfying results. What these researchers want to emphasize is the importance of conscious practice or deliberate practice to achieve progress (p. 353). Manturzewski (1979) confirms the importance of effective or deliberate practice. This study revealed that advanced pianists (prize winners) practice more effectively than low achievers, even though they might spend less actual time in practicing (pp.59–61). The results of all these studies suggest that we need to investigate what the research literature has to say about employment of effective practice strategies.

2.4.2 Developing effective practice strategies

Research supports the use of effective practice strategies (Barry, 1992; Coffman, 1990; Miklawszewski, 1989; Nielson, 1999; Hallam, 1995; Ross, 1985; Rubin-Rabson, 1941). The following table presents practice strategies that were extracted from the research literature.

Strategy	Reference
Employ structured, organized, and goal-oriented practice sessions	Barry, 1992; Coffman, 1990; Hallam, 1995; Hu, 1999; Miklawszewski, 1989; Nielson, 1999
Use mental practice strategies	Coffman, 1990; Hu, 1999; Leon- Guerrero, 2004; Ross, 1985; Rubin-Rabson, 1941
Practice hands separately	Gruson, 1981
Pay attention to performing with correct dynamics, articulations, and rhythms, etc	Leon-Guerrero, 2004
Apply repetition strategies	Leon- Guerrero, 2004
Look at the music, study fingering, count or clap, tap a foot, use a pencil to mark the score before playing the piece	Hu, 1999; Leon- Guerrero, 2004
Repeat certain complex sections until they are learned	Gruson, 1981; Hu, 1999; McPherson and McCormick, 1999
Repeat longer sections	Gruson, 1981; Hu, 1999
Increase practice time according to the complexity of the pieces	Gruson, 1981; McPherson and McCormick, 1999
Use metacognition strategies	Hallam, 2001; Hu, 1999; Jørgensen, 2004
Use self-evaluation strategies	Hu, 1999; Kong, 2001
Use practice charts and practice assignments	Kong, 2001
Concentrate while playing	Hu, 1999; Kong, 2001
Take breaks	Hu, 1999
Use the metronome	Hu, 1999
Warm up to prepare the mind and muscles	Hu, 1999
Listen carefully while playing	Hu, 1999
Practice slowly	Hu, 1999

Table1.3: Practice strategies extracted from research literature

Several studies reveal that structured, organized, goal-oriented practice sessions are essential practice strategies that promote skills and expertise acquisition (Barry, 1992; Coffman, 1990; Miklawszewski, 1989; Nielson, 1999; Hallam, 1995). Barry (1992) analyzed the effects of strategies and cognitive style on technical accuracy and musicality of students'

performance. Fifty-five brass and wind students from grades 7 to 10 participated in this study, following either a free or structured practice session over two weeks. Subjects who had structured practice sessions were more accomplished in musical performance than subjects whose practice sessions were free or unstructured. Nielson (1999) observed two third-year organ students who were preparing complex pieces for performance in three planned learning periods. Verbal reports from the students during and after their practice sessions were collected and all sessions were videotaped. Results of the study show that the two advanced students applied learning strategies to acquire and arrange their information throughout the practice sessions. Moreover, they used a systematic and organized approach while practicing. In another case study, Miklawszewski (1989) examined an advanced pianist who videotaped his practice sessions while preparing a piece by Debussy. The videotaping was followed by a commentary on the work that the pianist had done. The case study revealed the stability of the pianist's objectives: the gradual build up of a mental representation of the piece, along with achieving the required skill for performing it without disruptions, and flexibility of short-term goals used in analyzing and playing specific musical fragments (p. 1). Hallam (1995) investigated the approaches that professional musicians undertake while they prepare for performance. She conducted semi-structured interviews with 22 freelance professional musicians. Data analysis showed that the subjects varied in the approaches they applied to preparing a musical piece for performance. Moreover, the study showed evidence of distinctive analytical and automatic approaches for music interpretation by subjects (p. 3). The majority of the advanced musicians followed an initial holistic overview that includes a general conception of the work before starting a new piece. However due to the small sample size of this study, results should be regarded cautiously.

Other studies encourage the use of mental practice strategies, which include practicing away from the piano, and looking at the music carefully (Coffman, 1990; Ross, 1985; Rubin-Rabson, 1941). Mental practice refers to “the cognitive rehearsal of a skill that takes place within the individual, in the absence of any gross muscular movements” (Ross, 1985, p.221). Rubin-Rabson (1941) may be the first music researcher to study mental practice. She found that mental practice surpasses physical practice in retaining memorized keyboard music (p.593). She examined nine advanced musicians by experimenting with three practice conditions: 1) five trials of physical practice followed by four minutes of mental practice, then practicing at the keyboard to finalize learning the piece, 2) learning the piece at the keyboard followed by four minutes of mental practice, and finally 3) learning the piece at the keyboard followed by four minutes of mental practice, then four minutes of practice at the keyboard. Groups using the first condition showed excellent retention at the session two weeks later (pp. 395–602). Ross (1985) examined the relative effectiveness of mental practice in improving trombone performance. The thirty participants were assigned to one of five practice conditions: all mental practice, all physical practice, a mix of physical and mental practice, mental practice with movement, and finally no practice (which served as the control group). The results of the study revealed that the combined use of mental and physical practice was the most effective in the study (p. 221). Coffman (1990) conducted a similar study, examining the effects of mental practice, physical practice, and alternating physical and mental practice on improving piano performance. The dependent variables were number of pitch mistakes, performance time, and number of rhythm errors. The subjects were 40 music education and music therapy majors who participated in a pre-test and post-test experiment. Treatment groups rehearsed two halves of a chordal piano composition that were rotated between pre-test and post-test placement under different practice conditions,

while the control group only read an article about sight-reading techniques in order to motivate students to do their best during the test. During both tests, all subjects had to go through the selected pieces as rapidly as they could and without stopping, even if they make mistakes (p. 190). Results indicated that all three practice types were effective in improving piano performance as measured by an increase in speed when they play a short chordal piano work after short practice sessions, when compared to no practice. Furthermore, the use of physical practice and/or physical and mental practice were superior to the use of mental practice only (p.187). It is important to note that even though these studies provide a wide-ranging overview on methodologies used, samples and results, they have some limitations. Some had a small sample size while others conducted data collection over a short period of time (one to three weeks), which does not provide representative data. These studies should therefore be dealt with cautiously.

Two studies highlighted the importance of practicing hands separately, repeating certain complex sections until they are learned, repeating longer sections, and spending a lot of time practicing, according to the complexity of the pieces (Gruson, 1981; McPherson and McCormick, 1999). Gruson (1981) analyzed how piano practicing builds up as the familiarity with specific musical materials and competence increase. The research consisted of two separate but related studies. First, Gruson examined the relationship between competence and practice. She observed 43 subjects of varying musical levels (from piano grade one to the concert-pianist level) while they were practicing a variety of pieces during one practice session. Second, she addressed the subject of practice and experience with musical materials. She focused on the behaviour patterns of the students at a number of points in the practice process. Thus, subsets of grade two, grade six, and Associate of the

Royal Conservatory of Music of Toronto level (ARCT) students, along with the concert pianists, practiced for nine additional sessions. Subsequently, all subjects in the second study were interviewed regarding the strategies they applied during practicing. The researcher found that the amount and complexity of repetition increased with the student level. Playing one hand at a time along with pausing were significant variables for skill development (pp. 37–38). In 1999, McPherson and McCormick showed that advanced students spend more time practicing pieces that are more difficult, or the sections of pieces that they have mastered less well (p.98). These studies suggest that practicing hands separately, repeating certain complex sections until they are learned, repeating longer sections, and increased time spent practicing according to the difficulty of the piece are important strategies to consider.

Few studies have examined the use of metacognition strategies (problem solving, spotting problematic sections, etc). Metacognition is an important concept that consists of two basic processes occurring simultaneously: monitoring progress while learning, and making changes and adapting strategies according to the progress of the individual (Winn and Snyder, 1996, p. 112–142). Hallam (2001) highlighted the metacognitive strategies applied by musicians during their preparation for performances. She interviewed 55 novices and 22 professionals about their practicing. Findings revealed the extensive use of metacognitive strategies by professional musicians during their preparation for performances. On the other hand, the novice musicians had a complex relationship between the development of expertise and applying planning strategies. (p. 27). Jørgensen (2004) strongly believes that every musician, whether beginner or professional, must learn how to control, regulate, and exploit the application of individual metastrategies.

Leon-Guerrero (2004) examined the self-regulating strategies of adolescent instrumental musicians during 12-minute practice sessions. After recording each practice session, the researcher watched the video with each student, who would explain the strategies he or she used while practicing. Analysis identified 21 self-regulating strategies. These strategies fell into four different broad categories: musical elements, repetitions, non-specific tasks and non-playing (p.109). Musical elements involved performing with correct dynamics, articulation, rhythms and notes, with or without grace notes, steady tempo, slower tempo, and faster tempo. Repetition included playing from beginning to end, repeating a measure, repeating a segment, practicing a group of notes, playing a group of notes backwards, etc. Non-specific tasks revolved around continuing to play without a goal, going to another section, or referring to the overall piece, etc. Finally, non playing included looking at the music, fingering, counting or clapping, tapping the foot, and using a pencil to mark the music before playing the piece.

Kong (2001) highlighted general strategies like the use of self-evaluation strategies, using practice charts and practice assignments, and concentrating while practicing. This study examined the piano majors' views on practice strategies and used a questionnaire to identify the kind of information students need to improve their practice. Several factors were covered in this study: practice time, motivation, goal setting, nature of practice, conscious practice, practice organization and pacing, utilization of practice strategies, understanding learning styles, readings related to practice, and the student's general thoughts on practice. The data revealed that students are aware of the nature of practice and their learning styles. Students also utilized various strategies in their practice sessions. However, some students seem to need more information on listening skills and alternative practice strategies. In addition, they need to understand the value of readings related to practice, self-evaluation,

self-critiquing, keeping lesson or practice logs, and incorporate these elements in each practice session (p. 11). The majority of the students in the sample said that they like practicing (p. 101). Nevertheless, because the sample consisted of only 16 piano majors at the University of Oklahoma, it is difficult to generalize (p. 11).

Hu (1999) outlined strategies for effective practice. This thesis based on secondary sources clarified the nature of practice and provided recommendations for an ideal practice session. As Hu suggested, strategies for effective practice should follow several steps. Step 1 consisted of preparing for the practice: examine the piece, and evaluate it by going through it. Step 2 revolved around setting goals: establish specific tasks that need to be accomplished and stick to a practice schedule when the mind is active and concentrated. Step 3 addressed setting a practice routine: focus on one thing at a time, and work slowly on it until it is fixed, consult the metronome, and evaluate how the playing is going. Step 4 was problem solving: identify problems and figure out the ways to eliminate them. Step 5 involved maintaining learned repertoire: keep reviewing pieces to achieve automaticity (pp. 59-62). Hu also proposed five stages for an ideal practice session, and emphasized the importance of taking breaks during each session. The first stage consisted of warming up by playing finger exercises to prepare the mind and muscles for work, and then playing pieces. The second stage involved a mental assessment of the pieces being learned. The third dealt with technical and musical development: students should go through difficult passages slowly and listen carefully to their playing. The fourth stage involved playing through the piece to evaluate the general outcome. The fifth included playing the piece in a music performance setting.

2.4.3 Recommended piano practice strategies

The strategies recommended by the research literature are the following:

- 1) Employ structured, organized, and goal-oriented practice sessions (Barry, 1992; Coffman, 1990; Hallam, 1995; Hu, 1999; Miklawszewski, 1989; Nielson, 1999).
- 2) Use mental practice strategies (Coffman, 1990; Hu, 1999; Leon- Guerrero, 2004; Ross, 1985; Rubin-Rabson, 1941).
- 3) Practice hands separately (Gruson, 1981)
- 4) Pay attention to performing with correct dynamics, articulations, and rhythms, etc. (Leon- Guerrero, 2004)
- 5) Apply repetition strategies (playing from beginning to end, repeating a measure, repeating a segment, practicing a group of notes, playing a group of notes backwards, etc.) (Leon- Guerrero, 2004)
- 6) Look at the music, study fingering, count or clap, tap a foot, use a pencil to mark the score before playing the piece (Hu, 1999; Leon- Guerrero, 2004)
- 7) Repeat certain complex sections until they are learned (Gruson, 1981; Hu, 1999; McPherson and McCormick, 1999)
- 8) Repeat longer sections (Gruson, 1981; Hu, 1999)
- 9) Increase practice time according to the complexity of the pieces (Gruson, 1981; McPherson and McCormick, 1999)
- 10) Use metacognition strategies, like problem solving, spotting problematic sections, etc. (Hallam, 2001; Hu, 1999; Jørgensen, 2004)
- 11) Use self-evaluation strategies (Hu, 1999; Kong, 2001)
- 12) Use practice charts and practice assignments (Kong, 2001)
- 13) Concentrate while playing (Hu, 1999; Kong, 2001)

- 14) Take breaks (Hu, 1999)
- 15) Use the metronome (Hu, 1999)
- 16) Warm up to prepare the mind and muscles by playing finger exercises followed by pieces (Hu, 1999)
- 17) Listen carefully while playing (Hu, 1999)
- 18) Practice slowly (Hu, 1999)

It is important to note that by far the largest body of literature on practice strategies comes from teachers (Geirsbach, 2000). Therefore, fewer strategies emerge from the research literature. In the methodology chapter, strategies from both were combined to develop the questionnaire.

2.5 Review of different methodologies

The review of literature on the different methodologies used to study piano practice will be organized under the following topics: observations, case studies, in-depth interviews, and questionnaires.

2.5.1 Observation

Since pianists spend many hours practicing their instruments, researchers are interested in knowing what happens in the practice sessions. Therefore, these researchers rely heavily on observation to perceive phenomena and accommodate their understanding of these pianists within a framework of previous theories and ideas, by recording the sequence of activities in a session (using audio taping or videotaping or both) in order to analyze it. For example, Gruson (1981) observed the practice sessions of 43 subjects of varying musical levels, analyzing the behaviour patterns of the students at a number of points in the practice process. Mazza-Kovas (2001) used a systematic observation technique to analyze child's behaviors, parents' behaviors, and the effectiveness of the interaction between the parent and

the child at the practice session. McPherson and Renwick (2000) analyzed the videotapes of children's home practice in order to understand how these children practice. Leon-Guerrero (2004) videotaped the practice sessions of adolescent instrumental musicians then watched the video with the student as he or she explained the strategies used while practicing. O'Neil (2003) relied on SCRIBE, an observational software program, to record activities and behaviours according to frequency of practice activities occurring in 60 Suzuki students. Finally, Williamon and Valentine (2000) taped pianists' practice sessions to measure the quantity of practice taking place among 22 pianists at four different skill levels. Clearly, observation is a widely used research methodology among piano practice researchers. With the help of recordings, it provides comprehensive direct observation of phenomena in their natural setting and helps researchers create a solid background as an introductory step from which to move to a more specific research problem.

2.5.2 Case studies

Rather than using large samples and following a rigid protocol to examine a limited number of variables, some piano practice researchers use case studies that involve an in-depth, longitudinal examination of a single pianist as a detailed case. With this methodology, researchers employ a systematic way of looking at events, collecting data, analyzing information, and reporting the results. Miklawszewski (1989) presented a comprehensive case study by video recording the practice sessions of an advanced pianist preparing a piece by Debussy. The videotaping was followed by an audiotape commentary on the pianist's work. Nielson (1999) examined closely two third-year organ students who were preparing complex pieces for performance in three planned learning periods and focused on learning strategies during music practice. Verbal reports from the students during and after their practice sessions were also collected. Permenter (1997) documented the use of practice

techniques and their effectiveness in preparing a performance of Schumann piano concerto over two months in order to serve as an example that could benefit other pianists who are performing this piece. To conclude, case studies provide a systematic way of looking at events, collecting data, analyzing information, and reporting the findings. As a result, piano practice researchers may gain a clearer understanding of why a phenomenon happened as it did, and what might become important to look at more extensively in future research.

2.5.3 In-depth interviews

Some researchers interested in piano practice use in-depth interviews as a structured interaction between a researcher and a pianist who has been identified as a potential source of information. The interviewer initiates and controls the exchange to obtain qualitative insights and comparable information relevant to an emerging or previously stated hypothesis. Sloboda et al. (1996) interviewed 200 young music students aged 8 to 18 about their performing history and confirmed the existence of a strong positive connection between practice and accomplishment in musical performance. Hallam used in-depth interviews in a number of her studies. In 1995, she conducted semi-structured interviews with 22 freelance professional musicians and investigated the approaches that they take while preparing for performance. In 2001, Hallam interviewed 55 novices and 22 professionals about their practicing to get an insight on the use of metacognitive strategies during preparation for performances. Gruson (1981) also used in-depth interviews in the second part of her study to further explore the students' applied strategies during practicing. In summary, in-depth interviews occur with one individual at a time to provide a more engaging experience. They involve systematic recording and documenting of responses coupled with intense probing for deeper meaning and understanding of the responses in the natural practice setting.

2.5.4 Questionnaires

Few researchers looking into piano practice have used quantitative analyses like questionnaires to collect the required data. Barry (2000) combined qualitative and quantitative analysis in her study by observing the practice sessions of twelve music students. She followed up these observations by asking the students to complete a questionnaire. Only two studies, exclusively using questionnaires to explore views and perceptions of piano practice aspects, were found in the literature. Kostka (2002) asked participants to complete a short questionnaire that addressed four major areas of interest: attitudes about specific music skills, expectations relating to the use of practice time, expectations of the strategies and routines for practicing, and general attitudes towards practicing. Another study by Kong (2001) examined the piano majors' views on practice and identified the kind of information students need to improve their practice, by using a questionnaire as the survey instrument. The questionnaire included open-ended questions, scaled items and checklists. These studies provide a strong base and effective guidance for the use of questionnaires as measuring tools. However, none of them measured young piano students' perceptions of their practice strategies with a questionnaire. As can be seen, researchers have used varied qualitative measuring tools to study the nature of the practicing activity and to better understand the practice environment involving the sequence of activities, student behaviours and strategies employed. Such qualitative tools are essential because 1) practicing takes place in a natural setting, 2) it focuses on a particular situation with particular people at a particular time, and 3) it provides us with insights on participants' behaviours at the practice session. However, none of these qualitative approaches provides information on how students perceive the use of their practice strategies. This creates a research need that will be met by this study.

Therefore, **the present study used a questionnaire to examine young piano students' perceptions of their practice strategies, their interest in employing general practice strategies, and finally their general views on practicing.** One of the best ways to measure perceptions with a large sample of young piano students is to use a questionnaire (Johnson and Christensen, 2004, p. 164). The questionnaire will serve as a self-reporting data collection instrument that students fill out in order to obtain information about their perceptions. Accordingly, the next section will highlight the details of developing a questionnaire for measuring young piano students' perceptions.

CHAPTER THREE

Methodology

This chapter covers the methodology developed to examine young piano students' perceptions of their practice strategies as well as their interest in employing general practice strategies. The first section reviews the development of the questionnaire (design, categories, and organization of statements), and the process of testing the preliminary questionnaire. The second section examines sampling and the third section presents the data collection setting.

3.1 Developing a questionnaire for measuring perceptions

This questionnaire-based study examined the perceptions of young piano students towards the practice strategies they employ and their interest in using these strategies. A questionnaire is a "self-report data-collection instrument that each research participant fills out as part of a research study" (Johnson and Christensen, 2004, p. 164). Researchers use questionnaires to gather information about thoughts, feelings, values, beliefs, attitudes, perceptions, and behavioural intentions of participants under study. Therefore, the questionnaire is a useful tool for the purposes of this study, which aims to elicit participants' perceptions about their use of and interest in piano practice strategies.

There are several advantages to using a questionnaire as a measuring tool. According to Henerson et al. (1987), a questionnaire provides the opportunity of getting a large number of students responding to a specific aspect; permits anonymity so students will feel free to answer what they really think, which will enhance the credibility of the data collection; allows students time to think about the questions before answering; can be administrated all at once when the subjects are old enough and do not need individual supervision, as opposed

to in-depth interviews or observations; and facilitates the uniformity of response, since all participants respond to the same questions (pp. 27-29).

Nevertheless, the questionnaire is not a perfect tool and some disadvantages related to its use should be considered. It does not have the flexibility that the interview provides, such as the ability to probe and find out more about the topic under study (what the researcher gets is a number that reflects the chosen answer) and there is a risk that not all respondents will understand the questions in the same way, which might affect the credibility of the data. In order to overcome this latter limitation, the researcher supervised every student while filling out the questionnaire to make sure that all participants understood all questions in this study.

3.1.1 Questionnaire design

The first part of the questionnaire examined students' perceptions about how likely they were to use a certain practice strategy. For example, students would express their thoughts on whether or not they are using the metronome, counting out loud, practicing hands separately, etc. The second part explored students' interest in using general practice strategies commonly found in piano pedagogy documentations, textbooks, and teacher handbooks. For example, do they favour or disfavour strategies such as practicing slowly, singing the melody while practicing their piece or using practice charts, etc. The third and final part of the questionnaire contained questions about students' general views on practicing.

The first and second part of the questionnaire shared the same rating scale—a seven-point Likert scale, which is a type of psychometric scale often used in quantitative studies. Research shows that children prefer the Likert scale to other scales and find it easiest to use (Laerhoven et al. 2004). Moreover, many psychometricians advocate the use of a seven- or even a nine-point scale as a more reliable statistical tool than a four- or five-point scale

(Johnson and Christensen, 2004, p. 175). In addition, this researcher had experience using this type of scale in a previous study on motivation (Desrochers, Comeau, Jardaneh, and Green-Demers, 2006), finding that it was easy for students to use a seven-point Likert scale in a questionnaire that examined the motivation of 100 young piano students.

In the present study, participants read a series of practice strategy statements and then indicated how likely or unlikely they were to use them. Secondly, participants showed the extent to which they favoured or disfavoured the use of various general practice strategies by circling a numerical value from 1 to 7. This questionnaire used a visual representation to help young students better understand the concept of progression. A bar was placed around each number so that the height of the bar was in a linear relationship with the extent to which the respondent agreed with the statement associated with it. Consequently, the better the statement describes the respondent, the higher the bar (See figures 3.1 & 3.2).

Statement	Not At All Like me	Exactly like me
I practice with the metronome	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px 5px; margin: 2px;">1</div> <div style="border: 1px solid black; padding: 2px 5px; margin: 2px;">2</div> <div style="border: 1px solid black; padding: 2px 5px; margin: 2px;">3</div> <div style="border: 1px solid black; padding: 2px 5px; margin: 2px;">4</div> <div style="border: 1px solid black; padding: 2px 5px; margin: 2px;">5</div> <div style="border: 1px solid black; padding: 2px 5px; margin: 2px;">6</div> <div style="border: 1px solid black; padding: 2px 5px; margin: 2px;">7</div> </div>	

Figure 3.1: Statement format in part one of the questionnaire

Statement	Not interesting at all	Very interesting
Using practice charts	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px 5px; margin: 2px;">1</div> <div style="border: 1px solid black; padding: 2px 5px; margin: 2px;">2</div> <div style="border: 1px solid black; padding: 2px 5px; margin: 2px;">3</div> <div style="border: 1px solid black; padding: 2px 5px; margin: 2px;">4</div> <div style="border: 1px solid black; padding: 2px 5px; margin: 2px;">5</div> <div style="border: 1px solid black; padding: 2px 5px; margin: 2px;">6</div> <div style="border: 1px solid black; padding: 2px 5px; margin: 2px;">7</div> </div>	

Figure 3.2: Statement format in part two of the questionnaire

The third part took the form of open- and close-ended questions. Johnson and Christensen (2004) noted that open-ended questions allow participants to answer in their own words. Examples of open-ended questions in the questionnaire include the frequency and length of students' practice sessions, the name of their method books, the descriptions of the things they think about while they practice, and their definition of practicing. On the other hand, the close-ended type of question obliges participants to choose from existing responses (p. 168). Specifically, the closed-ended questions in this part took the form of a frequency scale (always, often, sometimes, seldom, never), a type of rating scale that uses a set of categories designed to elicit information about a quantitative attribute. Examples of these questions included the frequency of practicing with a parent at home; knowing how to practice after their piano lessons, etc.

3.1.2 Questionnaire categories

As mentioned previously, a review of over 70 references including 16 well-known piano method books, 30 pedagogy texts, and 24 research texts provided a large number of recommended strategies. In order to make better use and sense of the wide variety of practice strategies, however, they needed to be organized into broad categories. A good model that focused exclusively on individual practice strategies and organized them into categories was the one developed by Jørgensen (2004). This researcher based his model on the idea that all musicians strive for effective practice to achieve desired goals in an efficient way and because of their varied scope, he divided the different strategies into several categories. Jørgensen noted that teachers urge students to view themselves as self-teachers during their practice sessions. Therefore, students should be able to assign tasks, plan, execute and evaluate their own work. Based on this view, a good practice session should include the three phases of self-teaching: "1- planning and preparation of practice, 2- execution of

practice, 3- observation and evaluation of practice” (Jørgensen, 2004, p.85). These phases serve as the fundamental components of effective practice.

Based on this theory, Jørgensen created a model that classifies and presents practice strategies in terms of their self-teaching phases (planning, executing, and evaluating). Furthermore, he strongly believed that every musician, whether a beginner or professional, must learn how to control, regulate, and exploit the application of individual strategies. Therefore, he took the model a step further by adding the metastrategies category, which involves the examining of one’s own thinking. Figure 3.3 outlines the different categories that make up the model.

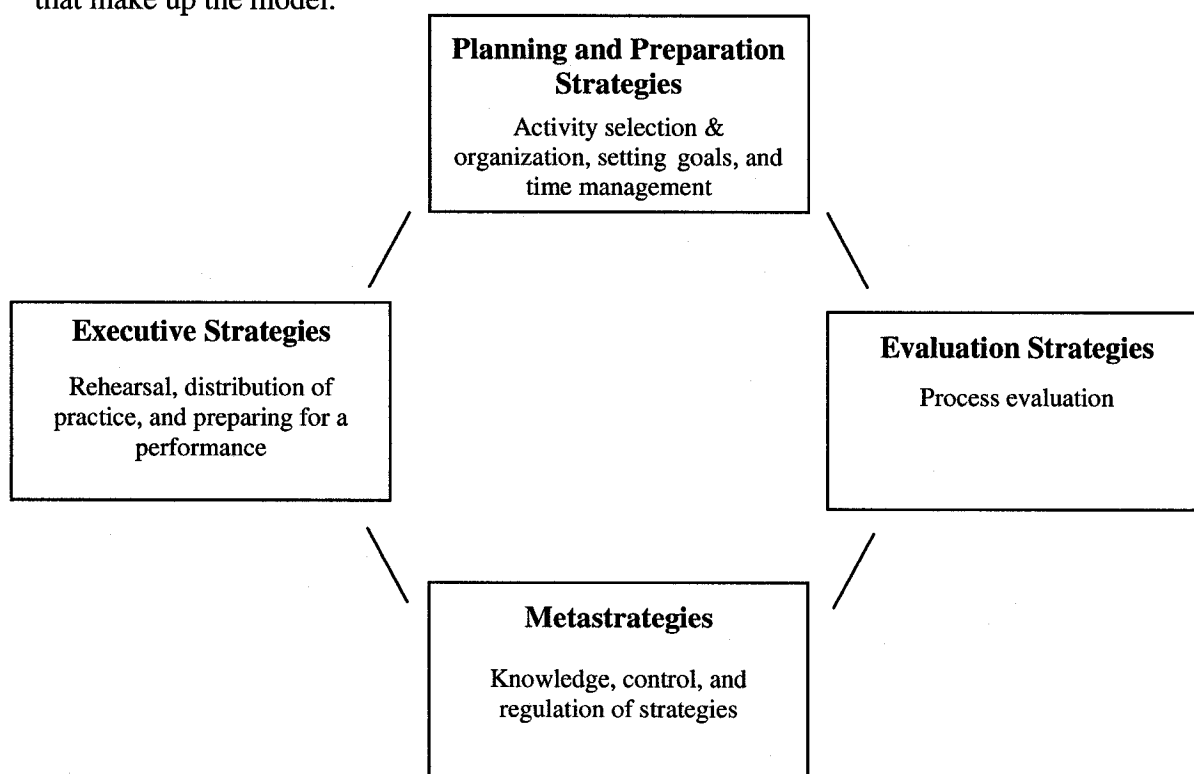


Figure 3.3: Jørgensen’s model of strategies for individual practice (p.86)

Accordingly, for the present study, the strategies identified in the literature were organized in two steps. The first involved developing charts that indicated the literature source (pedagogy or research) for each of these strategies (Appendix A); the second involved

the use of Jørgensen's (2004) individual practice strategies model as an organizational framework, where each of the strategies from the literature were put into the appropriate category.

Jørgensen's (2004) individual practice strategies model

The following presents a description of each category and the type of strategies that fall into that category.

Planning and preparation strategies

This category involves strategies that revolve around activity selection and organization, setting goals, and time management. Therefore, activity selection and organization involves the choice and sequencing of the various components of a practice session and entails such strategies as starting by playing pieces first, then practicing technique, or practicing sight-reading in every session. The setting goals category includes strategies such as following points written in the practice notebook; working on one aspect at a time, etc. The time management category contains items that relate to managing the time of practice session such as practicing more when an important event like an exam or recital is coming up; practicing two or more times a day instead of one long session; practicing at times in the day when the student is most focused.

Execution of practice

This category includes strategies used for rehearsal (mental "non-playing" strategies versus playing strategies), distribution of practice over time, and preparing for a public performance. Rehearsal strategies include practicing the piece in one's head or on a table, examining the music carefully, using practice charts, etc. Distribution of practice over time includes practicing more on weekdays than weekends, or vice versa; taking breaks, etc.

Preparing for a public performance incorporates imagining oneself playing in front of an audience when practicing, and watching videos of previous performances.

Evaluation strategies

This category focuses on the need to assess one's own practice and get feedback in order to plan the following session more effectively. It includes three types of strategies: 1) aural and visual feedback, such as listening to recordings of the pieces being learned and videotaping the practice sessions; 2) detecting errors as they happen and trying to fix them, stopping and correcting mistakes while practicing; and 3) self-guided strategies, such as counting aloud, singing when playing, and warning signals.

Metastrategies

This category refers to reasoning about one's own thinking. It includes the knowledge, control and regulation of strategies. Knowledge relates to three main layers: a) general awareness about the use of strategies, such as concentrating on problematic areas in a piece; b) specific strategies that the student actually knows; and c) relational knowledge—using varied strategies for different tasks (working on sight reading is different from preparing for performances). Strategy control depends on knowing and classifying the strategies that one uses in order to allow for checking, evaluating, and predicting their value in future practice. Thinking about whether or not the practicing session went well and recognizing that practicing improves the level of performance are also part of this category. Regulation involves a deliberate effort to solve a problem, i.e., how much work is put into solving a problem and what kind of strategies are used. As well, regulation includes task selection (where to start); speed (how many strategies needed to solve a certain problem); and intensity (how long will students keep using these strategies if they are not showing any improvement). Examples of this include trying everything to improve playing and using

different tools to fix a problem in a piece (metronome, playing at a slower tempo, playing hands separately).

3.1.3 Organization of statements

The process of organizing each strategy into its related category produced a first draft of the questionnaire, which comprised seventy-six strategies. The number of strategies per category ranged from one to sixteen, depending on what emerged from the literature (Appendix B). Moreover, as shown in Appendix B, some statements appear twice, with different phrasing. The intention was to eliminate the weaker statements during the pilot test period.

Special care was given to the wording of statements to make sure it was familiar language for young piano students. Therefore, items were formulated to be clear, precise, simple and relatively short so that the students could easily process them. In order to guarantee that the developed questionnaire was easy for the participants to use, it went through several stages of testing.

3.2 The process of testing the preliminary questionnaire

Researchers recommend pilot testing as part of a research project since it helps evaluate the procedures or tools planned for use in the main study, in order to revise them after they have been used in practice (Johnson and Christensen, 2004; Borg, Gall, and Gall, 1996). Researchers suggest that pilot test be reviewed by experts, followed by a try-out session with a representative sample (Gorard, 2001, p.103). Therefore, the questionnaire used in this study went through a five-stage pretesting process. First, the draft of a questionnaire consisting of seventy-six strategies was sent to three experienced piano teachers who have been teaching young students for several years. The researcher then conducted a focus group with these teachers to gather their comments or questions on the

content, and sequence of the questionnaire's statements. These teachers provided general verbal suggestions on phrasing, clarity of statements, and added general ideas that helped in developing the third part of the questionnaire (Appendix C). Second, a revised draft of the questionnaire was distributed to another group of four experienced piano teachers who gave written comments as well as rated the strength and clarity of each statement on a five-point Likert scale. Most of the teachers had similar insights about clarity and phrasing of some sentences and suggested which statements could be deleted (Appendix D for teachers' evaluations). Upon reviewing these teachers' evaluations of the questionnaire, the researcher modified the questionnaire to create a third draft that reduced the number of statements from seventy-six to seventy-two (Appendix E)². This draft was then tested on a small group of piano students who were representative of the age range of the sample to be studied. The goal of data collection at this stage was to verify the clarity of the items in the questionnaire, the appropriateness of the sentence structure, the relationships expected between the statement groups before targeting the required sample, and length of the session. The first pilot test took place at the Piano Pedagogy Research Laboratory at the University of Ottawa, and lasted forty-five minutes. The researcher noted that participants had difficulty understanding the statements relating to the metastrategies category. The questionnaire was long and in some cases, the participants offered different answers than the ones provided among the multiple choices offered in part three. All these points were considered in editing the questionnaire. In part one specifically, all statements relating to the metastrategies category were carefully examined, all statements in general were revised and rephrased, and weaker statements were deleted, which brought the total number of items in part one of the

² Appendix E contains a summary table that presents: original strategies, changes made after teachers' feedback, and changes made after students' feedback.

questionnaire to fifty-seven (Appendix E). In deleting the items, special care was given to make sure that every category would have at least one or two items. The length of the pilot test session was due to the fact that the statements used in part one to measure likelihood of using the strategies were repeated in part two to measure participants' interest in these strategies. In order to shorten the questionnaire, only general strategies were selected to be tested in part two (practicing sight reading, scales, using practice charts, counting out loud, practicing slowly), lowering the number of statements in part two to fourteen (Appendix F). All of these modifications provided another chance to refine the questionnaire. Finally, another pilot test of the questionnaire took place with a different sample of young students. These students found it easy to go through the statements and did not have any questions or comments. Moreover, the length of the session was down to twenty-five minutes.

After completing several stages of testing the questionnaire, which included the deletion, rephrasing, and/or addition of statements and questions in all three parts of the questionnaire, a final draft with a total of seventy-one statements and ten questions was completed. Each part of the questionnaire had a brief introduction, followed by instructions and an example of how to respond to each statement. Part one contained fifty-seven strategy statements used to measure the likelihood of using various practice strategies. Items within the specified categories were randomized. Part two contained fourteen general practice strategies to measure participants' level of interest in them; and part three contained ten open and close-ended questions. The final statements used in parts one, two and three respectively, as they are ordered in the final questionnaire, appear in Appendix G.

3.3 Sampling

Fifty students were recruited for this study. All were between the age of seven and twelve and were taking lessons in various private piano studios in the Ottawa region. These

participants represented different learning methods and ethnic backgrounds. There were two reasons for choosing children in this age range. First, research suggests that before the age of seven, children are too young to perform certain mental operations (Myers, 2004). Moreover, their reading ability is not very well developed, so it would be hard for many younger students to read and fill out the questionnaire. However, by age seven, research has found that children show more organized and logical thought patterns and are capable of concrete problem solving. They also have the ability to perform multiple classification tasks, order objects in a logical sequence, and comprehend the principle of conservation. In other words, thinking becomes less transductive and egocentric (Child Development Institute, 2006). Consequently, it seemed that children age seven or older would find it easy to read and process the questionnaire. Secondly, some researchers have estimated that a high percentage of students who start piano lessons give up eighteen months later, before reaching a modest mastery of the instrument (Sloboda and Howe, 1991, pp. 3-21; Wigfield et al. 1997). Most piano students start learning at the age of five and six, and there is a severe decline in the number of students who continue from age seven onward (Manturzewska, 1990). Examining the perceptions of children in this age range may help explain why some students persist and others drop out.

After obtaining ethics approval (Appendix H), the process of enrolling the participants in this study began by contacting approximately twenty different piano teachers in Ottawa by phone, e-mail, and regular mail. Teachers, who agreed to have students participate in the study, signed consent forms (Appendix I) and received sealed packages that they gave to parents with children aged seven to twelve. The package contained a detailed invitation letter that described the objective of the study, its content, and the data collection setting (Appendix J). Parents and students who were interested in participating filled out and

signed participation consent forms (Appendix K). They also gave the researcher permission to contact them by phone or e-mail to set up an appointment. The researcher then scheduled appointments based on their availability.

The data collection period began on March 28, 2007 and ended on June 12, 2007. The interviews were spread over weekdays and weekends, daytime and evenings and were made at the convenience of the participating families.

3.4 Data collection setting

To control the research environment, the study took place at the Piano Pedagogy Research Laboratory at the University of Ottawa. At the beginning of every session, the researcher welcomed the parents and student(s), and showed the child where he/she would be completing the questionnaire with the researcher. The parents were asked to wait outside of the interview room, and were given the option of waiting in an adjoining room furnished with a two-way mirror. This allowed the parents to observe the session without being involved, which made the student feel more comfortable. Parents were also notified about the importance of not being in the room where the child was filling out the questionnaire in order to avoid any psychological pressure which could have an effect on the students' answers and cause bias in data collection.

Once the child was seated, the researcher began the session by providing a detailed description of the study. The researcher explained in detail that the questionnaire was about the practicing session that takes place at home; students knew what to expect, understood the format of the questionnaire, and knew how to fill out the questionnaire. It was also made clear that none of the questions were intended to be embarrassing to the child and no judgment or mark would come out from this study as there were no right or wrong answer to these questions. In other words, children were only invited to express their own opinions.

The researcher also assured the child that the questionnaire was confidential, the answers were anonymous, and all questionnaires were kept in a locked space at the Piano Pedagogy Research Laboratory where no one would have access to it except the researcher.

Next, the researcher went through an example statement that appeared on page two of the questionnaire in order to make sure that each participant was familiar and comfortable with the format of the statements and the use of 7-point Likert scale. The same process was repeated when the child reached part two of the questionnaire to express his or her interest in general practice strategies. The participant then completed the questionnaire under the supervision of the researcher to assure the clarity of statements and context, which solidified the reliability of data collection. Once the session was over, the researcher double-checked the questionnaire for missing answers or incomplete information.

The data collected fifty viewpoints of young piano students between the ages of seven and twelve. All questionnaires were reviewed and organized in preparation for data analysis and interpretation. The process of coding, entering, and analyzing findings of students' perceptions about the practice strategies they employ, their interests in general practice strategies, and their general views on practicing will be discussed in the following chapter.

CHAPTER FOUR

Data Analysis and Results

4.1 Data analysis

To clarify how the data was analyzed and present the findings, the process of preparing the data for analysis (coding, screening and entering data) is outlined below, and then the results from each part of the questionnaire are presented: 1) use of practice strategies, 2) participants' interest in general strategies, and 3) general views on practicing.

4.1.1 Data screening and coding

Fifty students participated in the study by filling out the questionnaire under the researcher's supervision. After each session, the researcher reviewed the questionnaire to make sure that all items were answered and no mistakes were made. Each questionnaire was then assigned a number to assure anonymity and locked in a cabinet at the Piano Pedagogy Research Laboratory.

After the data collection was complete, a coding scheme was created to organize all questions (Appendix L). As mentioned earlier, the first and second part of the questionnaire shared the same rating scale—a seven-point Likert scale. However, the third and final part of the questionnaire contained close- and open-ended questions about students' general views. Close-ended questions used a frequency scale (always, often, sometimes, seldom, never). With the open-ended questions, the researcher entered the answers as they had been written down by students. Reviewing the questionnaires, numbering them, and coding questions allowed the researcher to input the data for analysis.

4.1.2 Data entry

The Statistical Package for the Social Sciences (SPSS) program, a data management and analysis product produced by SPSS Inc., was used for analyzing the data in this study. This software is particularly suitable to analyze research data in the social sciences and widely used (Tuckman, 1999, p. 298). Among its features are modules for statistical data analysis, including descriptive statistics such as plots, frequencies, charts, and lists, as well as sophisticated inferential and multivariate statistical procedures like analysis of variance (ANOVA), factor analysis, cluster analysis, and categorical data analysis. For this study, the researcher analyzed the questionnaire by running descriptive statistical analysis, which yields frequencies and percentages, and in addition for those questions involving scaled responses, cross tabulation and inferential statistical analysis, including correlations. As for responses to open-ended questions, they were quoted exactly as the participants wrote them down and organized in tables and graphs.

The researcher entered the answers to all questionnaires in SPSS and then checked data completeness to avoid missing values or mistakes. The researcher also tested the validity of every data item. Validity testing verified that variables measured on the 7-point-Lickert scale did not contain values outside the proper range. For example, a variable containing 9 as an answer would be considered a data entry error and would be corrected. All these steps were to confirm that data was ready to be analyzed and presented.

4.1.3 Data presentation

In presenting the data for part one of the questionnaire, Jørgensen's individual practice strategies model (2004) will be borrowed again to organize the results of the strategies for each category. For the purpose of presenting clear data, answers from 1 to 3

were coded as negative perceptions, answers from 5 to 7 were coded positive, and 4 as neutral.

Therefore, the questionnaire format that looks like this:

Statement	Not At All Like me Exactly like me						
I practice with the metronome	1	2	3	4	5	6	7

Figure 4.1: Example of format in part one of the questionnaire

Will be presented in the following format in the analysis and graphs:

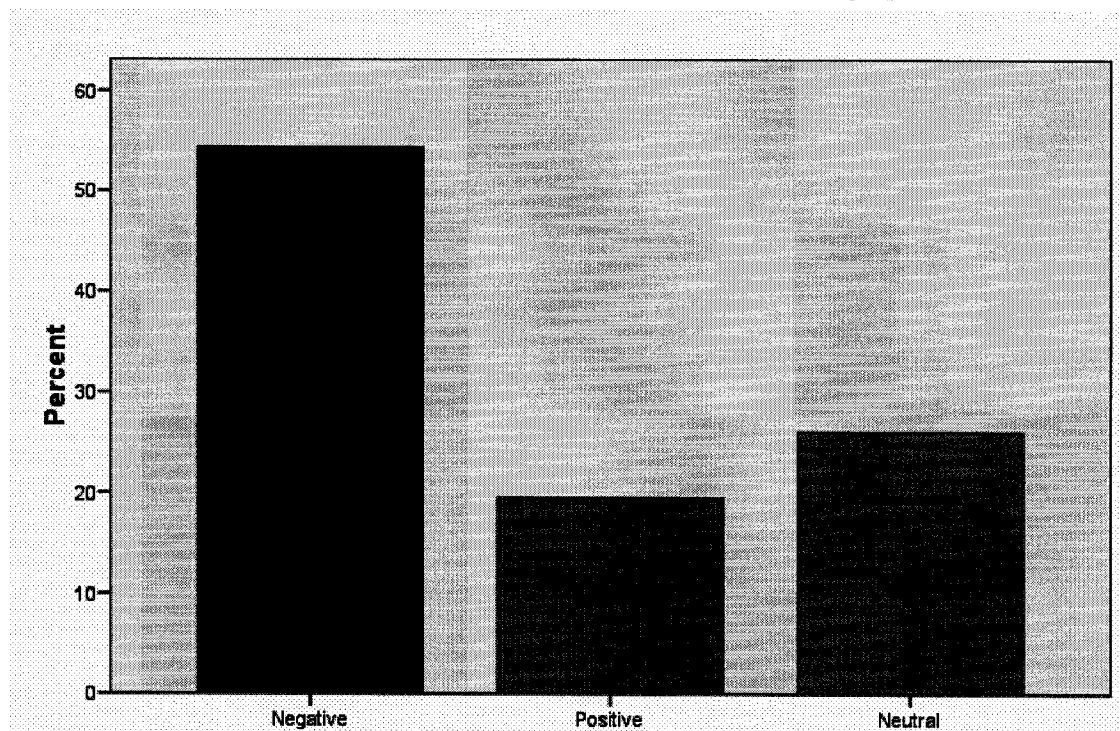


Figure 4.2: Example of format in the analysis and graphs

4.2 Results

This section presents the data collected and its statistical treatment, beginning with the demographics (participants' age, gender, and level), followed by the results from each part of the questionnaire.

4.2.1 Demographics

The sample study included young piano students aged 7 to 12. As can be seen from the following graph, the percentage distribution was as follows: 7-year-olds, 8%; 8-year-olds, 12%; 9-year-olds, 38%; 10-year-olds, 14%; 11-year-olds, 12%, and 12-year-olds, 10%.

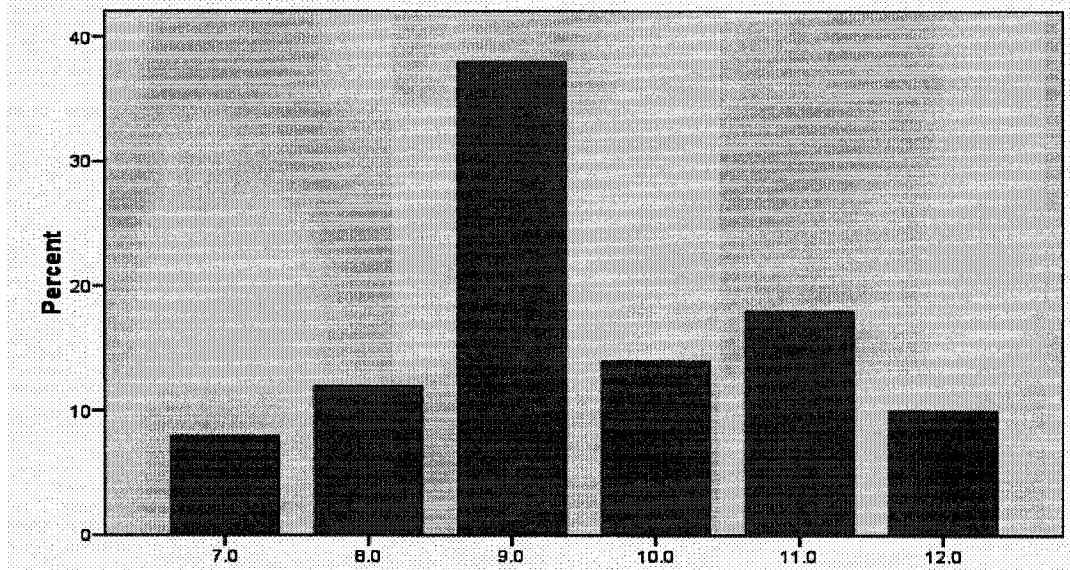


Figure 4.3: Participants' age distribution

The majority of participants were females (62%).

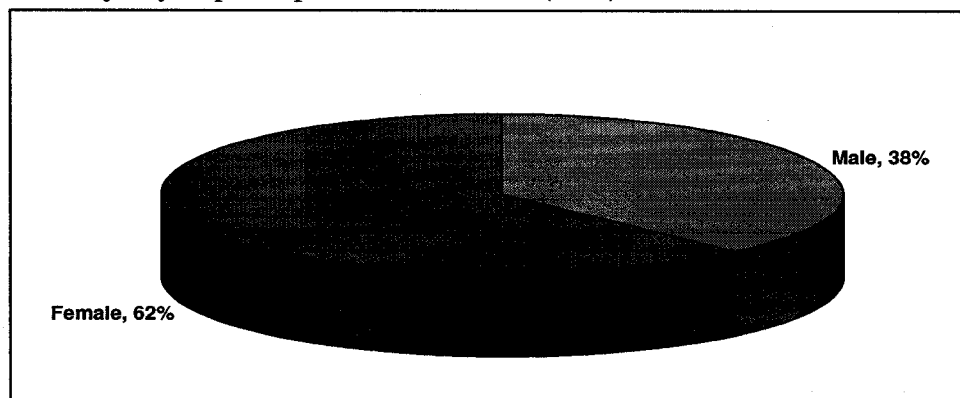


Figure 4.4: Participants' gender distribution

Participants' music levels ranged from grade 1 to grade 8 (Royal Conservatory of Music Grading System); the majority of sample was in grade 2 (34.9%) followed by grade 1 (25.6%), grade 3 (25.6%), grade 4 (9.3%), grade 5 (2.3%) and grade 8 (2.3%) respectively.

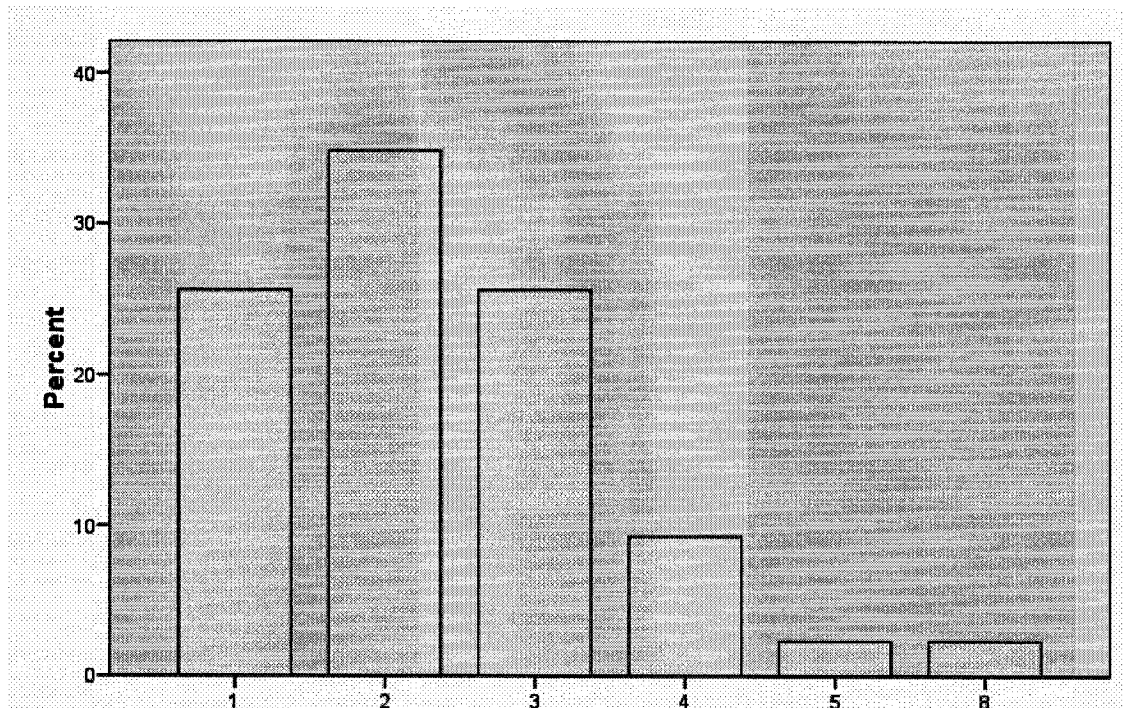


Figure 4.5: Participants' music level

4.2.2. Part one: Participants' use of practice strategies

The first part of the questionnaire examined students' perceptions about how likely they were to use a certain practice strategy. Students expressed their thoughts on whether or not they use various strategies, such as the metronome, counting out loud, practicing hands separately, etc., during their practice sessions by circling one of the numbers from 1 to 7. Findings were organized according to Jørgensen's model to facilitate the flow of results. Each strategy, therefore, will be presented within the appropriate category (Appendix J for graphs for each strategy).

4.2.2.1 Planning and preparation

This category involves strategies for activity selection and organization, goal setting and time management.

Strategy no.	Item in the questionnaire	Negative	Positive	Neutral
1	I stretch before sitting at the piano (exercise)	84%	14%	2%
3	I start my practicing by playing finger exercises before I play my pieces.	48%	38%	14%
4	I start my practicing by playing pieces first and then I play scales.	64%	30%	6%
5	I do sight reading in every practice session.	54%	26%	20%
6	I follow the points written in my practice notebook.	10%	78%	12%
7	I review pieces that I already know in every practice session.	28%	62%	10%
8	I do my scales at the beginning of my practice session.	40%	48%	12%
9	During my practice session, I use a pencil to mark my music (dynamics, fingering, circle errors, etc.)	68%	22%	10%
10	I practice with silent fingers over the keys (ghosting)	72%	14%	14%
44	I name all the notes before practicing my piece	86%	6%	8%
46	I practice with eyes closed	76%	10%	14%

Table 4.1: Activity selection and organization strategies

With regard to stretching before sitting at the piano, only 14% of participants responded positively, while 84% say they do not stretch, and 2% were neutral. Thirty-eight percent of participants start practicing by playing finger exercises before they play their pieces, while 48% do not, and 14% were neutral. Thirty percent of participants start practicing by playing pieces first and then play scales while more than twice as many (64%) do not, and 6% were neutral. As for sight reading, just 26% of participants do sight reading at every practice session, while 54% do not, with 20% were neutral. Most participants (78%) follow the points written in their practice notebook, while 10% do not, and 12% were

neutral. Nearly two-thirds of participants (62%) review pieces that they already know, 28% do not, and 10% were neutral. Forty-eight percent of participants do their scales at the beginning of their practice sessions, while 40% do not, and 12% were neutral. In response to the question of whether they mark their music with a pencil, 22% were positive, 68% were negative, and 10% were neutral. Most participants (72%) do not practice with silent fingers over the keys, although 14% do, and 14% were neutral. Only 6% of participants name all the notes before practicing their pieces; 86% do not, and 8% were neutral. Ten percent of participants practice with eyes closed, while 76% do not, and 14% were neutral.

Strategies 11 and 12 in the questionnaire addressed goal setting.

Strategy no.	Item in the questionnaire	Negative	Positive	Neutral
11	I give myself goals at every practice session.	46%	38%	16%
12	I know my practice is over when I have done all the things my teacher has asked me to do.	20%	70%	10%

Table 4.2: Setting goals strategies

Thirty-eight percent of participants give themselves goals at every practice session, while 46% do not, and 16% were neutral. Moreover, a high percentage of participants (70%) judge when their practice is over by whether they have done all the things their teacher has asked them to do, while 20% do not, and 10% were neutral.

Strategies 13, 14, 15, 16, and 17 in the questionnaire covered time management.

Strategy no.	Item in the questionnaire	Negative	Positive	Neutral
13	I practice more when an important event is coming (exam, performance, recital, etc).	6%	92%	2%
14	I practice at times in the day when I am most focused.	28%	50%	22%
15	I make sure I practice before going out with my friends	46%	40%	14%

Strategy no.	Item in the questionnaire	Negative	Positive	Neutral
16	I would rather practice than do other activities (soccer, hockey, swimming, skiing, etc.).	56%	18%	26%
17	I practice everyday if I can	14%	64%	22%

Table 4.3: Time management strategies

Regarding time management, a large majority of participants (92%) practice more when an important event like an exam, performance, or recital is coming up. Only 6% noted do not (2% were neutral). Half the sample practice at times of the day when they are most focused, while 28% do not, and 22% were neutral. When it comes to time spent on practicing as opposed to other activities, 40% of participants answered that they make sure they practice before going out with their friends, while 46% do not, and 14% were neutral. Only 18% of participants would rather practice than do other activities; 56% would not, and 26% were neutral. However, 64% of participants are willing to practice everyday if they can, while 14% do not, and 22% were neutral.

4.2.2.2 Execution of practice

This category includes strategies used for rehearsal (mental “non-playing” strategies versus playing strategies), distribution of practice over time, and preparing for a public performance. Strategies 2, 18, 19, 20-30, 45, 47, and 52 addressed rehearsing.

Strategy no.	Item in the questionnaire	Negative	Positive	Neutral
2	I use practice charts	63.3%	28.6%	8.2%
18	I practice away from the piano (I play in my head, on a table, etc.)	46%	36%	18%
19	I try to fix one thing at a time when I’m practicing	22%	54%	24%
20	I look at the music carefully before I start	48%	38%	14%
21	I mark difficult spots in each piece with a pencil before playing.	74%	20%	6%

Strategy no.	Item in the questionnaire	Negative	Positive	Neutral
22	I play through the whole piece from beginning to end several times during my practice session	20%	68%	12%
23	I practice the most difficult spots before I play the whole piece	44%	30%	26%
24	I always practice with the speed indicated in the music score	44%	32%	24%
25	I pay attention to fingering when I practice a piece or scales	10%	72%	18%
26	I count out loud when I'm practicing	72%	16%	12%
27	I check my hand position while I'm practicing	28%	54%	18%
28	I use the metronome a lot in my practice sessions	62%	26%	12%
29	I say out loud the name of the notes while I am practicing the piece.	84%	4%	12%
30	I repeat a difficult part until I know it very	26%	62%	12%
45	I check the time signature(s) of every piece I practice	48%	40%	12%
47	I clap and count the rhythm every piece before practicing it	84%	6%	10%
52	I check the key signature(s) of every piece I practice	24%	64%	12%

Table 4.4: Rehearsal strategies

With regard to practice charts, while the majority (63.3%) do not use them, 28.6% of participants do, and 8.2% were neutral. Thirty-six percent of participants practice away from the piano (play in their head, on a table, etc.), but 46% do not, and 18% were neutral. More than half the sample (54%) try to fix one thing at a time when they are practicing, while 22% do not, and 24% were neutral. Nearly half of the participants (48%) do not look at the music carefully before they start playing, although 38% do, and 14% were neutral. Most participants (74%) do not mark difficult spots in each piece with a pencil before playing, while 20% do, and 6% were neutral. Sixty-eight percent of participants play through the whole piece from beginning to end several times during their practice session, while 20% do

not, and 12% were neutral. Only a third of the participants practice the most difficult spots before they play the whole piece—44% do not, and 26% were neutral. Thirty-two percent always practice with the speed indicated in the score, but the highest percentage (44%) do not (24% were neutral). Most participants (72%) pay attention to fingering when they practice a piece or scales, while 10% do not, and 18% were neutral. In terms of counting out loud while practicing a piece, 72% do not, 16% do, and 12% were neutral. Fifty-four percent of participants check their hand position while practicing, while 28% do not, and 18% were neutral. Twenty-six percent of participants use the metronome a lot in practice sessions, while 62% do not, and 12% were neutral. A large majority of the participants (84%) do not say the names of the notes out loud while practicing; only 4% say they use this strategy (12% were neutral). Sixty-two percent repeat a difficult part until they know it very well, while 26% do not, and 12% were neutral. Forty percent of participants check the time signature(s) of every piece they practice, while 48% do not, and 12% were neutral. Only 6% of participants clap and count the rhythm every piece before practicing it, while 84% do not, and 10% were neutral. Sixty-four percent of participants responded that they check the key signature(s) of every piece they practice, while 24% did not, and 12% were neutral.

Strategies 31, 33, and 34 in the questionnaire present the distribution of practice over time.

Strategy no.	Item in the questionnaire	Negative	Positive	Neutral
31	I usually have a few practice sessions every day	64%	26%	10%
33	I practice more on weekends than weekdays	52%	34%	14%
34	I practice all at once in one long session per day	26%	64%	10%

Table 4.5: Distribution of practice over time strategies

Regarding the results on these strategies, 26% of participants agree that they usually have a few practice sessions every day, but the majority (64%) do not, and 10% were neutral. Rather, the results for strategy 34 are exactly the inverse: the majority of participants (64%) practice all at once in one long session per day, while 26% do not, and 10% were neutral. In addition, more than half the sample (52%) seem to practice more on weekdays than weekends, while 34% practice more on weekends, and 14% were neutral.

Strategy 32 addressed the sub-category of preparing for a public performance.

Strategy no.	Item in the questionnaire	Negative	Positive	Neutral
32	I imagine myself playing in front of an audience when I practice	62%	22%	16%

Table 4.6: Preparing for a public performance strategies

However, the majority of participants do not imagine themselves playing in front of an audience when they practice (62%), while 22% do, and 16% were neutral.

4.2.2.3 Evaluation strategies

This category includes three types of strategies: 1) aural and visual feedback; 2) detecting errors as they happen and trying to fix them; and 3) self-guided strategies.

Regarding aural and visual feedback sub-category, strategies 35 and 41 addressed it.

Strategy no.	Item in the questionnaire	Negative	Positive	Neutral
35	I listen to recordings of the pieces that I am learning	56%	32%	12%
41	I listen carefully to my playing while I am practicing	12%	66%	22%

Table 4.7: Aural and visual feedback strategies

Results indicate that 32% of participants listen to recording of the pieces that they are playing, while 56% do not, and 12% were neutral. However, most of the participants (66%)

indicated that they listen carefully to their playing while practicing, while 12% participants do not, and 22% were neutral.

Strategies 37, 38, and 39 presented detecting errors sub-category.

Strategy no.	Item in the questionnaire	Negative	Positive	Neutral
37	I stop and correct mistakes when I am practicing.	12%	70%	18%
38	During my practice, I keep going in my piece even when I make a mistake.	50%	32%	18%
39	I practice the whole piece then I focus on sections where I usually make mistakes.	40%	50%	10%

Table 4.8: Detecting errors strategies

Results for these strategies show that the majority of participants (70%) stop and correct mistakes when they are practicing, while 12% do not, and 18% were neutral. Thirty-two percent of participants keep going in their piece even when they make a mistake, while half the participants in the sample do not, and 18% were neutral. Fifty percent replied that they practice the whole piece then they focus on sections where they usually make mistakes, while 40% do not, and 10% were neutral.

Strategies 36 and 40 deal with self-guidance.

Strategy no.	Item in the questionnaire	Negative	Positive	Neutral
36	I sing the melody out loud as I am practicing my pieces	58%	16%	26%
40	I count out loud so I won't make mistakes	84%	12%	4%

Table 4.9: Self-guided strategies

Results indicate that only 16% of participants sing the melody out loud as they are practicing pieces, while 58% do not, and 26% were neutral. Only twelve percent of the participants count out loud so they won't make mistakes, while very high percentage of them (84%) do not, and 4% were neutral.

4.2.2.4 Metastrategies

This category includes the knowledge (awareness, specific, and relational), control, and regulation of strategies.

Strategy 42 addressed general knowledge sub-category.

Strategy no.	Item in the questionnaire	Negative	Positive	Neutral
42	I work more on the hard sections in my piece than the sections that I know better.	24%	54%	22%

Table 4.10: General knowledge strategies

Findings of this strategy indicated that more than half the sample (54%) work more on the hard sections in their piece than the sections that they know better, while 24% participants do not, and 22% were neutral.

Strategies 43, 48 and 55 tackled specific knowledge sub-category.

Strategy no.	Item in the questionnaire	Negative	Positive	Neutral
43	I always start practicing new pieces slowly.	10%	76%	14%
48	Every time I learn a new piece, I play hands separately.	14%	76%	10%
55	In every practice session, I do repertoire, technique, and sight-reading.	34%	50%	16%

Table 4.11: Specific knowledge strategies

In terms of these strategies, the majority of participants (76%) always start practicing new pieces slowly, while 10% do not, and 14% were neutral. Seventy-six percent of participants play hands separately every time they learn a new piece, while 14% do not, and 10% were neutral. Half the participants in the sample say they combine repertoire, technique, and sight reading in every practice session, while 34% do not, and 16% were neutral.

Strategies 50 and 54 fall under relational knowledge sub-category.

Strategy no.	Item in the questionnaire	Negative	Positive	Neutral
50	I follow different steps for sight reading than when I prepare a piece for performance	34%	36%	30%
54	I follow different steps for practicing each of the following: sight reading, pieces, scales	20%	48%	32%

Table 4.12: Relational knowledge strategies

Results of these strategies indicated that 36% of participants follow different steps for sight-reading than when they prepare a piece for performance, while 34% do not, and 30% were neutral. In addition, 48% of participants noted that they follow different steps for practicing each of the following: sight reading, pieces, and scales, while 20% do not, and 32% were neutral.

Strategies 49 and 51 addressed the control sub-category.

Strategy no.	Item in the questionnaire	Negative	Positive	Neutral
49	I think about whether or not my practicing is going well	32%	48%	20%
51	I know when my practicing improves my piano playing	4%	84%	12%

Table 4.13: Control strategies

Results of these strategies showed that nearly half of the participants (48%) think about whether or not their practicing is going well, while 32% do not, and 20% were neutral. However, the majority of participants (84%) know when their practicing improves their piano playing; only 4% say they do not (12% were neutral).

Regulation of strategies

The regulation sub-category contained strategies 53, 56, and 57 in the questionnaire.

Strategy no.	Item in the questionnaire	Negative	Positive	Neutral
53	I always practice the same way even if my playing is not improving.	44%	40%	16%
56	I will try everything to make my playing improve.	22%	62%	16%
57	I try different ways to fix a problem in a piece (practicing slowly, use of metronome, hands separately).	12%	70%	18%

Table 4.14: Regulation strategies

Findings indicated that 40% of participants always practice the same way even if their playing is not improving, while 44% do not, and 16% were neutral. Most of the participants (62%) would try different ways to fix a problem in a piece (practicing slowly, use of metronome, hands separately), while 22% would not, and 16% were neutral. Finally, a high percentage of participants (70%) are willing to try everything to make their playing improve; only 12% would not, with 18% neutral. All of these results will be discussed in relation to the literature in the discussion chapter.

4.2.3. Part two: Participants' interest in practice strategies

The second part of the questionnaire explored the students' interest in using general practice strategies commonly found in the piano pedagogy literature, textbooks, and teachers' handbooks. For example, students would circle a number from 1 to 7 to indicate whether they favour or disfavour a strategy, such as practicing slowly, singing the melody while practicing their piece, or using practice charts. Answers from 1 to 3 were considered negative perceptions (not interesting), and answers from 5 to 7 were considered as positive (interesting), and 4 as neutral.

The following were the general strategies addressed in part two:

Strategy No.	Item in the questionnaire	Negative	Positive	Neutral
1	Practicing sight reading	54.3%	19.6%	26.1%
2	Practicing scales	40.4%	44.7%	14.9%
3	Practicing with a slow tempo	64%	12%	24%
4	Using a pencil to mark my music	60.9%	21.7%	17.4%
5	Practicing with the metronome	48.9%	29.8%	21.3%
6	Counting out loud while practicing	68%	14%	18%
7	Listening to music recordings	38.3%	51.1%	10.6%
8	Singing the melody while practicing a piece	52%	36%	12%
9	Using practice charts	51.2%	24.2%	24.2%
10	Stopping and correcting mistakes while practicing	48%	28%	24%
11	Clapping or tapping rhythm exercises	46%	38%	16%
12	Reviewing pieces that I already know	20%	68%	12%
13	Having my parents help me with practicing	37.5%	43.8%	18.8%
14	Practicing with eyes closed	29.8%	59.6%	10.6%

Table 4.15: Part two list of strategies

Results of each of these strategies will be presented in order (Appendix K for graphs). Regarding the first strategy, 19.6% of participants think sight reading is interesting, while 54.3% do not, and 26.1% were neutral. As for practicing scales, more participants are positive (44.7%), than negative (40.4%); 14.9% were neutral. Only 12% of participants think that practicing with a slow tempo is interesting, while the majority (64%) do not (24% neutral). In addition, most of the participants (60.9%) do not perceive marking music as interesting, but 21.7% do, and 17.4% were neutral. Almost half the sample does not like practicing with the metronome (48.9%), while 29.8% consider it interesting, and 21.3% were neutral. Only 14% of participants perceive counting out loud positively, while the majority

do not (68%) with 18% neutral. Over half the participants (51.1%) enjoy listening to music recordings, while 38.3% do not, and 10.6% were neutral. More than half the participants in the sample (52%) perceive singing out the melody negatively, while 36% favour it, and 12% were neutral. As for practice charts, about a quarter of the participants find using them an interesting strategy, while 51.2% do not (24.4% neutral). Only 28% of participants like stopping to correct mistakes while practicing, while 48% do not, and 24% were neutral. There are more participants (46%) who do not like clapping or tapping rhythm exercises than do (38%), while 10% were neutral. The majority of participants (68%) perceive reviewing pieces they already know as interesting, while 20% do not (12% were neutral). As for having parents help them with their practicing, the majority of participants seem to like it (43.8%), while 37.5% do not, and 18.8% were neutral. Finally, 59.6% of participants consider practicing with eyes closed interesting, while 29.8% do not (10.6% were neutral).

To further investigate interest in parental help, crosstabulation analysis was used to examine if participants' interest in practicing with parents differed within age groups. Results showed that at the age of 7, most participants were neutral towards parents' help, while lower number of participants held equal positive and negative perceptions. At 8 and 9 years old, more participants had positive perceptions about their parent's help. As for 10 and 11 year old participants, negative and positive perceptions were equal. At 12, most participants were neutral; the rest were negative. None of the participants in this age group had a positive perception about parental help.

Age		Int13			Total
		Negative	Positive	Neutral	Negative
	7	1	1	2	4
	8	2	4	0	6
	9	7	10	2	19
	10	3	3	0	6
	11	3	3	2	8
	12	2	0	3	5
Total		18	21	9	48

Table 4.16: Participants' interest in practicing with parents within age groups

4.2.4 Part three: General views on practicing

The third and final part of the questionnaire contained questions about students' general views on practicing, which took the form of open- and close-ended questions. The researcher entered these answers as they were written down by the students. The close-ended questions entailed a frequency scale (always, often, sometimes, seldom, never) from which participants had to choose.

Questions 1, 5, 6, and 10 were open-ended questions. The following table presents the questions as they appear in the questionnaire.

Question no.	Item in the Questionnaire
1	What method book are you using?
5	How long do you usually practice?
6	How many days a week do you practice?
10	If a friend of yours came to ask you what piano practicing is, what would you say?

Table 4.17: Open-ended questions

Participants were asked for the name of method books that they use, and interestingly, some students did not know what method book they were using. The researcher had to ask the parent after the completion of the session or contact the teacher if the parent did not know. The findings indicate that 35% of participants use Royal Conservatory of Music (RCM) books, 22% use Suzuki method, 18% use Piano Adventures, 5% use Music for Young Children, 4% use Conservatory Canada, and 4% use Music Tree method. Five percent noted that they did not use method books; they mainly learn various pieces that they like.

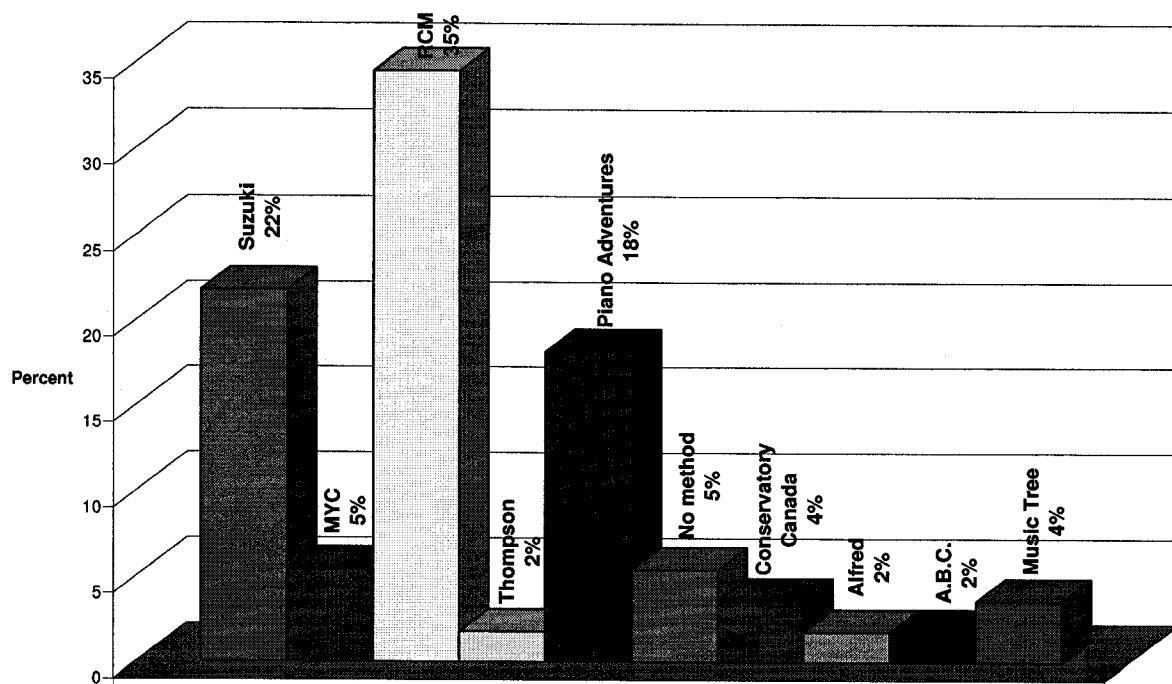


Figure 4.6: Piano method books used by participants

Participants were then asked to provide information on how long they practiced and how many days a week. Findings on the length of practice showed practice time ranged from a minimum of 5 minutes a day to 90 minutes. The largest number of students, 9 or 18% of the sample, practice for 30 minutes every day. According to these figures, 44% of the participants practice from 20 to 30 minutes a day, with 10% practicing for 5 minutes and another 10% practicing an hour or more.

Number of students	Percent	Length of Practice
5	10%	5
3	6%	10
1	2%	13
3	6%	15
4	8%	18
4	8%	20
4	8%	23
3	6%	25
2	4%	28
9	18%	30
1	2%	33
1	2%	35
1	2%	38
1	2%	40
2	4%	45
1	2%	53
3	6%	60
2	4%	90

Table 4.18: Length of daily practice

As for the number of practice days, results showed that it ranged from 2.5 days up to 7 days a week. The largest number of participants (26%) practice 5 days a week, 20% practice 7 days, 16% practice 6 days, and 14% practice 4 days a week.

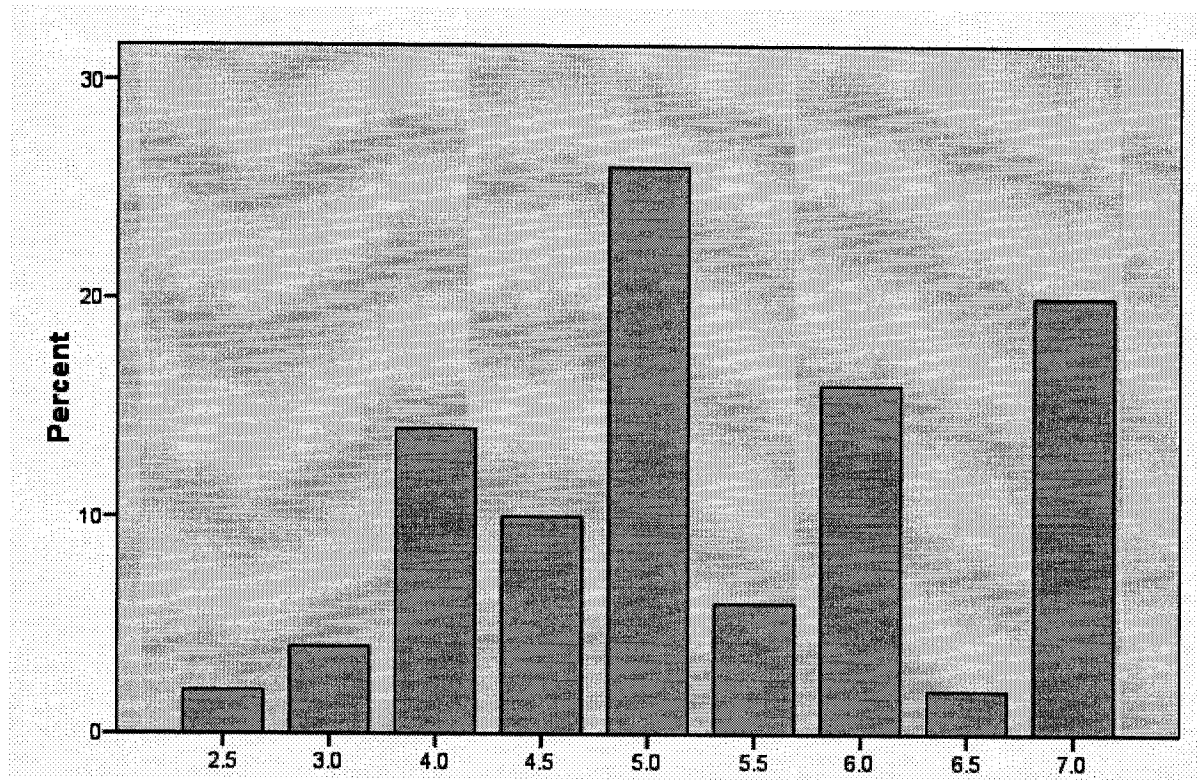


Figure 4.7: Number of practice days

A sub-set of participants were asked to define piano practicing. The researcher asked 23 participants (46% of the general sample) the following question: “If a friend of yours came to ask you what piano practicing is, what would you say?”. As can be seen from table 3, answers ranged from general ideas such as knowing notes, keys, staff, pressing the piano keys and improving piano skills to more specific definitions like “when a teacher gives homework and the student had to do it.”

7 Years Old
Practicing songs
Try to prepare a piece or more
8 Years Old
Put your hands on keys, press on keys it makes music
Try your best to do the songs that you have learned
Practicing and reviewing songs that you need to know to do for a lesson
9 Years Old
Learn the piano, use the keys, focus on pieces and homework
Doing a lot of things to be good at, having talent, get to play on a nice piano
Notes, keys, staff, bass clef, treble clef
Learning about music, trying to be the best I could be at the piano
Playing with your hands, playing with notes
Something you do to help you be good at playing piano
Practicing the pieces over and over until you have them correct. Helps you get ready for exam or recital
Way to learn to play the piano
Improving your piano skills
10 Years Old
When you sit at the piano to learn pieces of music, scales, and chords. Also it helps you learn more about the piano
When our teacher gives us homework and we have to do it
When you practice things to improve things already know or new things, play for fun and practice songs you made up
11 Years Old
Learning new things, practicing old things, and having fun while learning
Playing a piece a lot of times
A way to get better at piano because it makes your fingers used to moving
To look at the notebook and see what I have to do, sometimes I do more or less. Playing scales and sight reading
Practicing piano songs that your learning, doing note reading, stuff you learned in the lesson
12 Years Old
When I get to be creative by practicing the type of music I like (i.e. pop, jazz, study)

Table 4.19: Definitions of practice within age groups

To further investigate these definitions, the researcher organized them within each age group. As the table shows, seven year old participants defined practice in terms of playing pieces only. Eight-year-olds mentioned playing pieces but they also included the physical movements, and the interaction with the instrument. At 9 years of age, the participants' definitions linked practice with repetition, homework, and improvement. Moreover, the idea of doing scales, chords, sight-reading first emerged in this age group. Similarly, the 10-year-olds mentioned improvement, homework, reviewing old things, and interacting with the piano, but they also began to refer to developing automaticity. The 11-year-old participants continued to define practice in terms of homework, improvement and

automaticity, and the idea of repetition reappears in this age group. One practice definition, elicited from a 12 year old participant, defined practice as a time for becoming creative.

Participants were asked five close-ended questions. The responses took the form of frequency scale (always, often, sometimes, seldom, never). This type of rating scale uses a set of categories designed to elicit information about a quantitative attribute. Below is a table that indicates the question number and the question as it appears in the questionnaire. The results of these questions will be presented graphically in the order they appear in the table.

Question no.	Item in the Questionnaire
2	Do you practice with a parent at home?
3	At the end of each piano lesson, do you know exactly what to do and how to practice?
4	Do you like practicing?
7	Do you think that your teacher explains how to practice or shows you how to do it?
8	Do you find practicing
9	Do you think of other things while you are practicing?

Table 4.20: Close-ended questions

As can be seen from the figure 4.8, most of the participants (32%) sometimes practice with a parent at home. Only 8% always practice with a parent at home, and 24% often do so. However, 20% indicated that they seldom do, and 16% noted they never get assistance with their practice.

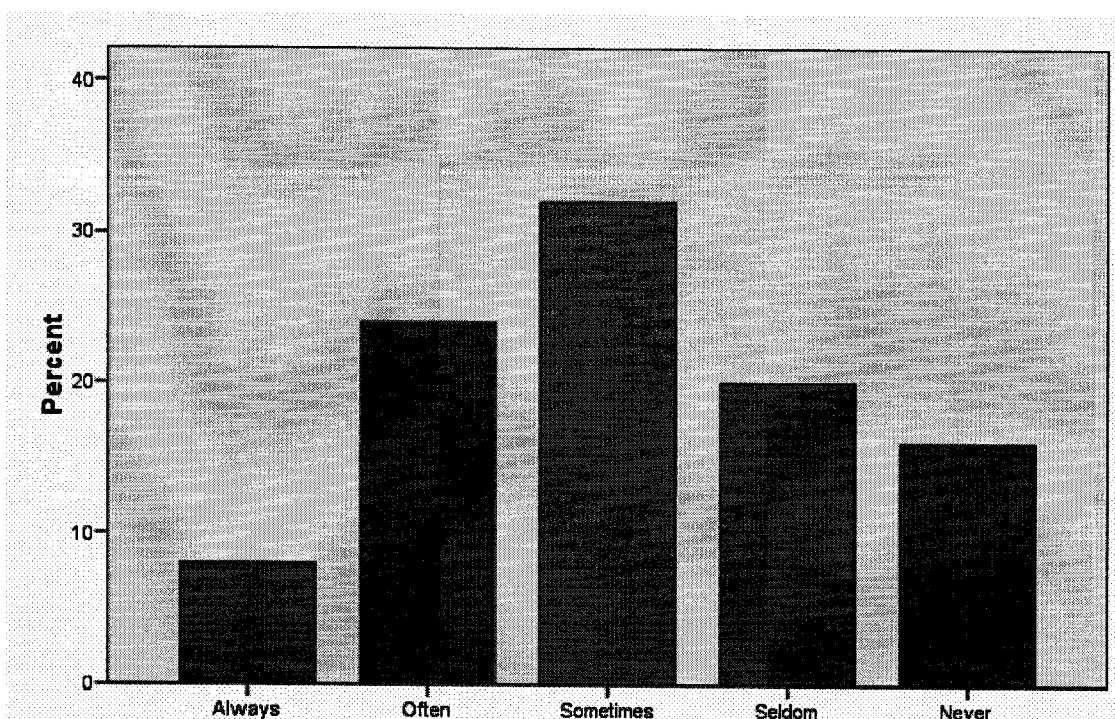


Figure 4.8: Practice with a parent at home

Participants were asked if, at the end of each piano lesson, they know exactly how to practice. Results showed that 26% always and 36% often know exactly what to do, and how to practice, 34% know sometimes, and only 4% seldom know. Interestingly, none of the participants chose never as an answer.

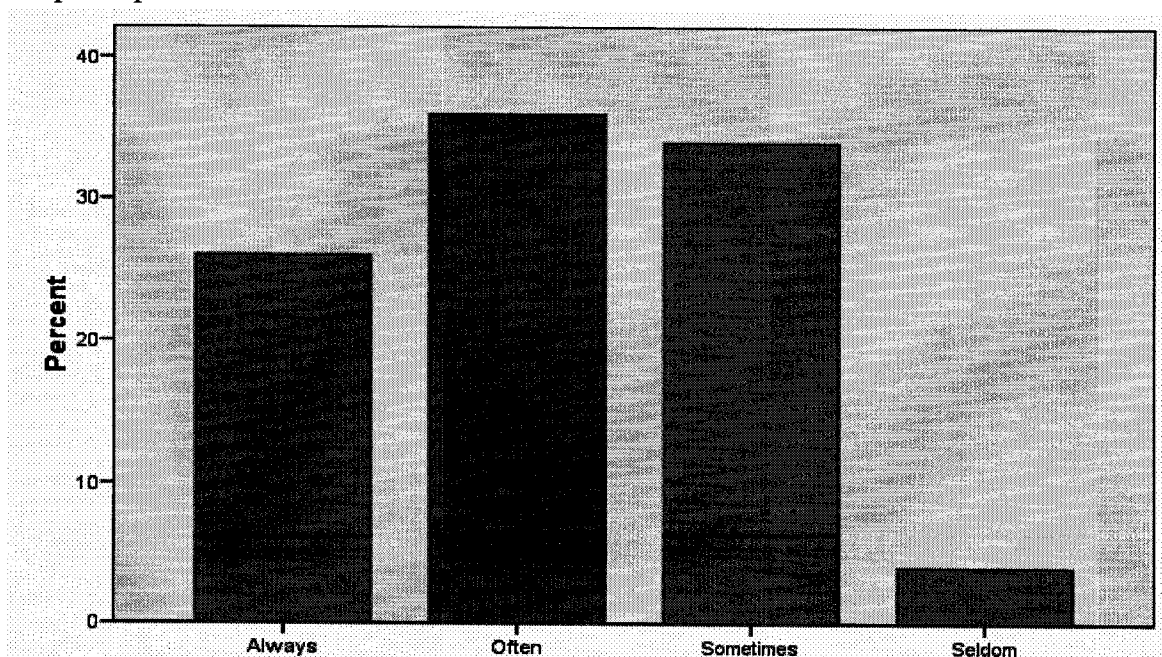


Figure 4.9: Knowing how to practice after each lesson

Participants were asked if they liked practicing. Surprisingly, the majority of participants (46%) say they sometimes like practicing, followed by often (24%), and always (18%). Very small numbers of students indicated that they never (8%) or seldom (4%) like practicing.

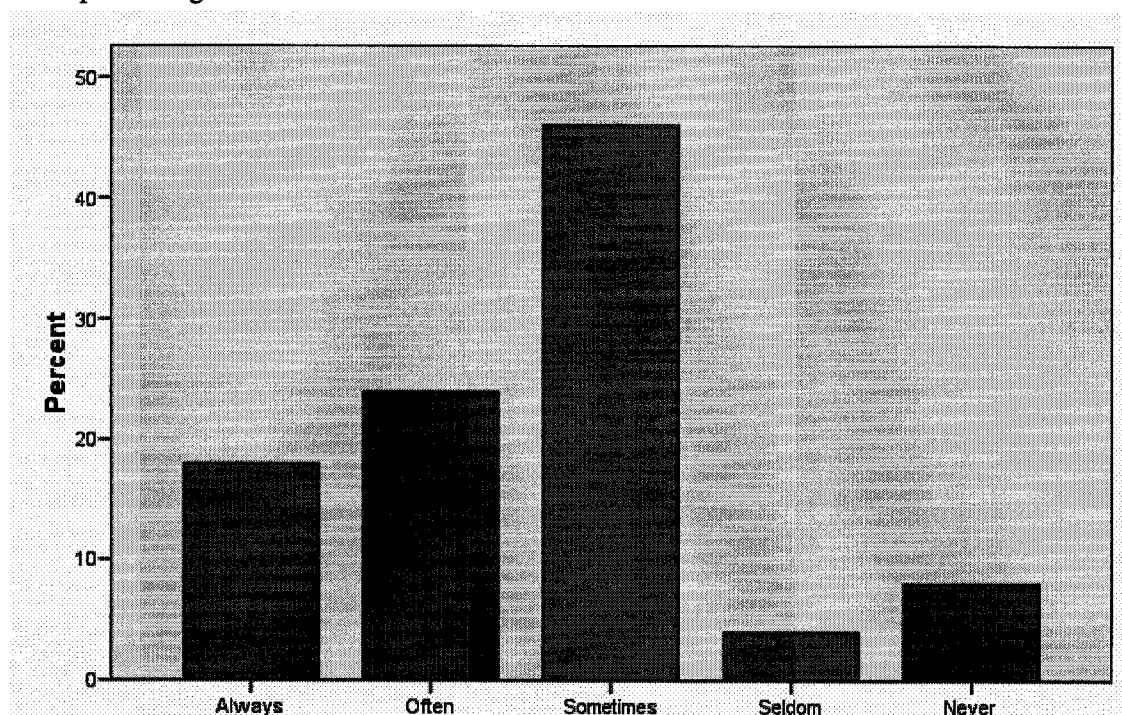


Figure 4.10: Liking practicing

Participants were asked if they think that their teachers explain to them how to practice. The majority (62%) think that their teachers always explain to them how to practice, followed by often (32%), and sometimes (6%). None of the students choose seldom or never as an answer.

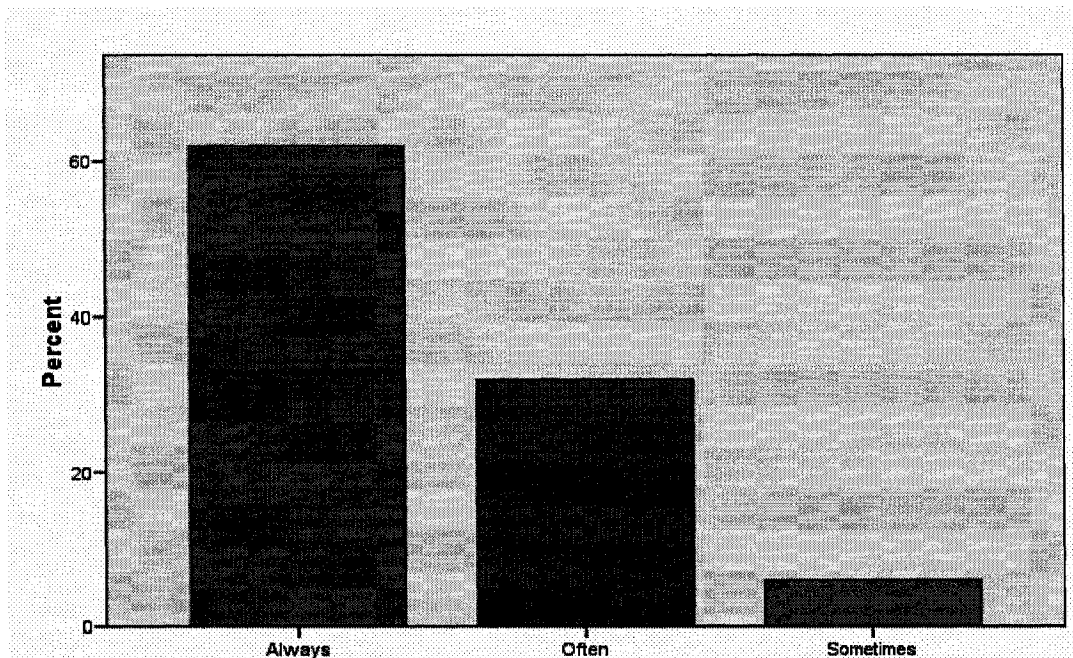


Figure 4.11: Whether teachers explain to students how to practice

Participants' perceptions of how they find practicing were also explored. They were given the following options to choose from: boring, confusing, interesting, tiring, other (specify). The largest percentage of participants (40%) thought that practicing was interesting, followed by other (34%), tiring (16%), confusing (6%), and boring (4%).

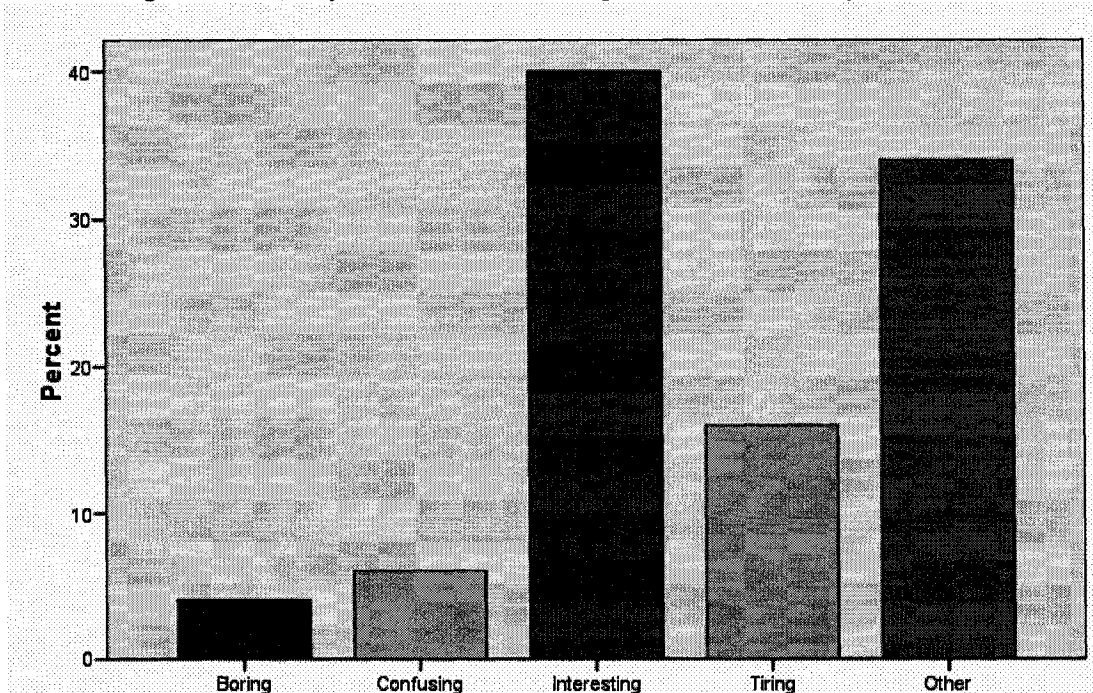


Figure 4.12: How participants find practicing

When a participant chose other for an answer, she or he had to specify what they were thinking of. More than a quarter of the participants (27.8%) who chose other as a response thought that practicing is sometimes fun and other times boring; 16.7% of participants perceived it as fun; 11.1% indicated that it is in between interesting and confusing. Six students gave individual answers, which represents 5.6% for each answer of the sample. One participant thought that practicing is annoying. Another participant said that practicing is in between fun and interesting. One participant thought that practicing is just ok; while another said that depending on the piece, it could be boring, tiring, or interesting. One student mentioned that practicing is helpful, and another did not know how he or she felt about practicing.

Percent	Other- Specify
27.80%	sometimes fun and other times boring
16.70%	fun
11.10%	between interesting and confusing
5.60%	annoying
5.60%	between fun and interesting
5.60%	ok
5.60%	depends on the piece
5.60%	helpful
5.60%	Don't know

Table 4.21: Participants' own thoughts on how they find practicing

When it came to the question of whether participants think of other things while they were practicing, 36% of participants sometimes think of other things while they are practicing, followed by seldom (22%), often (20%), never (12%), and always (10%) respectively.

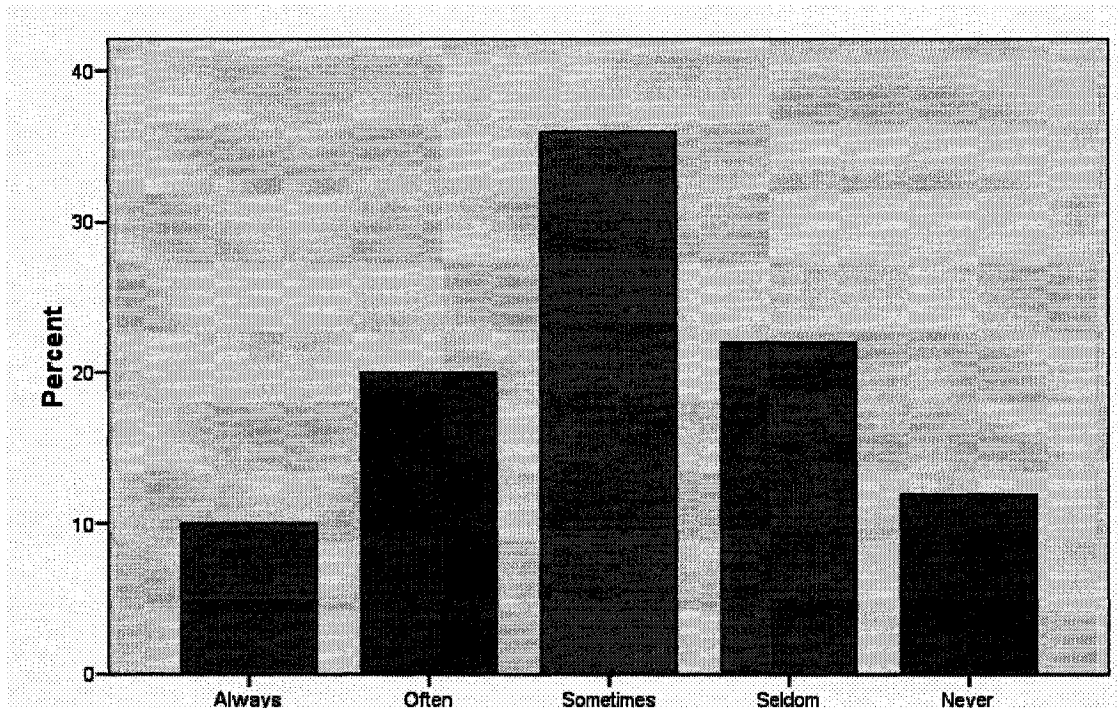


Figure 4.13: Do participants think of other things while practicing

Participants who chose options from 1 to 4 (always, often, sometimes, and seldom) were asked to specify what kind of things they think of. The largest number think of playing outside (36%), followed by watching TV (21%), school (18%) food (15%), homework (15%), and things to do after practicing (12%).

What Participants think of while practicing	Frequency	Percent
Wondering about the dog's barking	1	3
Reading a book	1	3
Animals	1	3
What my teacher thinks of how I play	1	3
Fun things that I did	1	3
Treats	1	3
Future plans	1	3
Walk the dog	1	3
Think about what happened during the day	1	3
Horse riding	1	3
Weekends	1	3
Waiting to be done practicing	1	3
Interesting things that I saw (bird)	1	3
Going outside	1	3
Thinking about recital	1	3
Travelling	1	3
Listening to music (You tube)	1	3
Scary concerts that might come up	1	3
Memories	2	6
Don't know what	2	6
Think about things that happened during the day	2	6
Random things	2	6
Practicing	2	6
Things to do the next day	2	6
Sports	3	9
Things happening in the room where I practice	3	9
Friends	3	9
Things I will do after practicing	4	12
Homework/projects	5	15
Food	5	15
School (activities, stories)	6	18
Watching TV	7	21
Playing (outside, on pc, card games, with my pet)	12	36

Table 4.22: List of things participants think of while practicing

In conclusion, this chapter presented the results of participants' use of their practice strategies, their interests in general practice strategies, and general views on practicing. These results will be further discussed and interpreted in the following chapter.

CHAPTER FIVE

Discussion and Conclusion

This discussion of the interpretation and evaluation of the results obtained from the data analysis gives primary emphasis to the relationship between these findings and the literature on piano practice. The first section groups the main results of the study into three parts: 1) participants' use of practice strategies 2) participants' interests and 3) general views on practicing. The second section states the study's conclusion, outlines its contribution to the field, and proposes further research questions.

5.1 Participants' use of practice strategies

This part of the questionnaire explored participants' perceptions of their use of practice strategies, and the findings were organized according to Jørgensen's model: planning and preparation; execution of practice; evaluation; and metastrategies. The number of strategies in each category depended on frequency with which they were addressed in the literature. At the end of each category, a table sums up the data, indicating which strategies were applied or not applied.

5.1.1 Planning and preparation

This category deals with strategies that revolve around activity selection and organization, setting goals, and time management.

Selection and organization of activities

The pedagogy and research literature on organizing the practice session emphasizes the importance of warming up and stretching. This should be followed by playing simple finger exercises (such as five-finger patterns), before embarking on repertoire or scales, in order to prevent piano related health injuries (Bruser, 1997; Clark, 1973; Hu, 1999). Moreover,

teachers acknowledge that scales are complex. They should be part of the practice sessions and done on a regular basis (Ahrens and Atkinson, 1955; Hall, 1989; Johnston and Sutton, 2000), but not necessarily as a “warm-up” exercise. So even though practicing scales is an important strategy that should be incorporated in the home practice session, caution should be used about when they should be done. Many teachers encourage students to do repertory work such as analyzing the piece before playing, because they believe it contributes to efficient learning and increases the excitement of practicing (Clark, 1992; Freymuth, 1995; Hinson, 2000).

Twelve strategies related to the selection and organization of activities were examined. Of these strategies, the majority of participants seem to use three: they follow the points written in their practice notebook (78%); they review pieces they already know (62%), and more participants begin their practice sessions by playing scales than pieces: 64% responded negatively to “I start my practicing by playing pieces first and then I play scales,” and 48% responded positively to “I do my scales at the beginning of my practice session.” On the other hand, the majority of participants noted that they do not use several preparatory strategies such as warming up before sitting and playing on the piano (84%); or naming the notes of their pieces before playing them (86%). Most of participants do not mark their music (68%), and do not practice with silent fingers over the keys (72%) or play with eyes closed (76%). Moreover, the highest percentages of participants (54%) do not include sight reading in every practice session or play finger exercises (48%).

Thus the findings indicate that the majority of participants warm up by playing scales and do not include mental preparation before they start physical interaction with the instrument (ghosting, naming all notes, marking music). This would suggest that there is a need to reinforce the importance of warming up with short simple exercises and employing

repertory strategies in order to effectively prepare for the physical demands of a practice session. Furthermore, students should receive more encouragement to become more mentally involved in various components of the home practice session. For example, teachers could ask students to incorporate strategies such as playing with silent fingers over the keys or playing with their eyes closed as part of their repetitions when practicing a certain piece. Then teachers could follow this up by asking their students how they felt about applying these strategies so that students become familiar with preparatory work at the practice session and learn to appreciate its usefulness.

Not Applied	Applied
I stretch before sitting at the piano (exercise)	I follow the points written in my practice notebook
I start my practicing by playing finger exercises before I play my pieces	I review pieces that I already know in every practice session
I start my practicing by playing pieces first and then I play scales	I do my scales at the beginning of my practice session
I do sight reading in every practice session	
(During my practice session, I use a pencil to mark my music (dynamics, fingering, circle errors, etc.)	
I practice with silent fingers over the keys (ghosting)	
I name all the notes before practicing my piece	
I practice with eyes closed	

Table 5.1: Results of activity selection and organization strategies

Setting goals

Many teachers advocate goals for every practice session (Baker-Jordan, 2004; Faber and Faber, 1996; Moss, 1989; Powell, 1988; Westney, 2003). Moreover, researchers noted that expert musicians often set goals when they practice, since this leads to more constructive and

efficient work (Barry, 1992; Coffman, 1990; Miklawszewski, 1989; Nielson, 1999; Hallam, 1995).

Two goal-setting strategies were explored. The largest number of participants (46%) do not set themselves goals at every practice session, and 70% of them indicate that the way they knew their practice session was over was when they had completed everything that their teacher had asked them to do. This finding suggests that participants rely solely on a list of things to do and not on an objective to attain or specific improvement that they wish to achieve. Therefore, it is important to involve students in setting goals for every practice session so that they become more aware of task accomplishment in practicing at home. This could be done through reinforcing the use of practice charts or assignment books, which identify the goals for every practice and details about techniques of home practice. This is especially important since the present study indicated that the majority of participants do not use practice charts.

Not Applied	Applied
I give myself goals at every practice session.	I know my practice is over when I have done all the things my teacher has asked me to do.

Table 5.2: Results of setting goals strategies

Time management

Researchers noted that advanced pianists increase their practice time according to the complexity of the pieces (Gruson, 1981; McPherson and McCormick, 1999). Moreover, teachers usually remind students to spend more time practicing when an event is coming such as exams, recitals, etc. Five strategies that represented time management were analyzed. A very high percentage of participants (92%) seem to be aware of and acknowledge spending more time practicing when an important event (exam, performance, recital, etc)

was coming up. Moreover, most of the participants (64%) are willing to practice everyday if they could. However, when choosing between practicing and doing other things, a higher percentage of participants prefer sports and other activities (56%) and going out with friends (46%) to practicing the piano. These findings indicate that in general, participants do not mind practicing whenever they have the time. However, most of these participants seem to link practicing to work and repetition (as will be shown in section 5.3), and therefore would rather skip practicing if they have other entertaining activities.

Many teachers and researchers stress the importance of practicing when the body is relaxed and the mind is active, in order to make better use of practice time and avoid mindless repetition (Kaplan, 2004; Kong, 2001; Moss, 1989; Powell, 1988). When this strategy was explored in the questionnaire, only half of the sample seem to practice at times in the day when they are focused. This finding is especially important because many participants also admitted that they are not mentally engaged during their home practice sessions, which might relate to the fact that they practice at times in the day when their concentration is low due to feeling tired, possibly contributing to daydreaming or thinking of other things while playing the piano. It is therefore important for teachers and parents to consider establishing a practice schedule or routine that takes into account a time where the child feels fresh and more willing to put in good practice time instead of just doing mechanical repetitions.

Not Applied	Applied
I make sure I practice before going out with my friends	I practice more when an important event is coming (exam, performance, recital, etc)
I would rather practice than do other activities (soccer, hockey, swimming, skiing, etc.)	I practice at times in the day when I am most focused
	I practice everyday if I can

Table 5.3: Results of time management strategies

5.1.2 Execution of practice

This category includes strategies used for rehearsal (mental “non-playing” versus playing strategies), distribution of practice over time, and preparing for a public performance.

Rehearsal Strategies

Rehearsal strategies are widely mentioned in the literature. For example, many teachers encourage focusing on one aspect at a time, giving it full attention until it is mastered (Johnston and Sutton, 2000; Suzuki, 1973; Thiem, 2006). Researchers also highlighted the importance of repeating certain complex sections until they are learned, and repeating longer sections (Gruson, 1981; Hu, 1999; McPherson and McCormick, 1999). In addition, several teachers stress the importance of playing with correct fingerings (Ahrens and Atkinson, 1955; Broughton, 1956; Clark, 1992, Hall, 1989; Newman, 1956); use of mental practice (Clark, 1992; Freymuth, 1995; Hinson, 2000); maintaining steady tempo (Ahrens and Atkinson, 1955; Finn and Morris, 1998; Hugh, 2006; Moss, 1989; Newman, 1956; Powell, 1988), and counting out loud (Bastien, 1985; Hall, 1989; Hugh, 2006; Newman, 1956; Schaum, 1996).

The researcher ascertained that the majority of participants employ the following strategies: playing through pieces from beginning to end several times without stopping

(68%), repeating something until they knew it very well (62%), checking their fingering (72%) and key signature (64%). Many participants try to fix one thing at a time (44%) and check their hand position (44%) while practicing. On the other hand, the participants do not use several strategies that were highly recommended in the literature, such as mental practice, maintaining steady tempo and counting out loud. For example, it seemed that the largest number of participants do not include mental practice strategies as part of their practice session, such as practicing away from the piano (46%), looking at the music carefully (48%), and clapping and counting the rhythm of every pieces before playing it (48%). Moreover, the majority of participants do not mark difficult spots in each piece before playing (74%). Some students noted that their teachers marked their music for them, so they did not see the need to do it or go through it themselves at home. The majority also indicated that they do not count out loud (72%), use the metronome (62%), or say the name of notes while playing (84%). These answers were not surprising since the majority noted that they do not enjoy using these strategies, and therefore try to avoid them during their home practice. Moreover, the majority do not consider the speed indicated on the score, but rather stay with the speed dictated by their teachers, which is most often a slower tempo. Finally, the researcher found that most students check the key signature but not the time signature, even though these concepts usually appear next to each other in the score. Perhaps it is easier for these participants to get away with not looking at the time signature more than key signature!

These findings indicate that participants tend to apply straightforward effortless practice strategies such as going through a certain bar or a piece till it improves, paying attention to general things while playing (fingering, hand position, and key signature). Perhaps participants think that strategies like counting out loud, using the metronome, clapping the

rhythm of every piece are redundant, take too much time and lead to the same result as constant repetition. They may think they achieve the same outcome without going through such a long process. Consequently, students may not be convinced of the benefits of such strategies and the impact they might have on their progress rate.

This requires further consideration from teachers. Accordingly, teachers could try to point out the advantages of using such strategies and compare the results of applying time consuming strategies versus straightforward ones over a period of time, to make sure that students understand and are convinced by their experience.

Not Applied	Applied
I use practice charts	I try to fix one thing at a time when I'm practicing
I practice away from the piano (I play in my head, on a table, etc.).	I play through the whole piece from beginning to end several times during my practice session.
I look at the music carefully before I start	I pay attention to fingering when I practice a piece or scales.
I mark difficult spots in each piece with a pencil before playing.	I check my hand position while I'm practicing
I practice the most difficult spots before I play the whole piece.	I repeat a difficult part until I know it very well
I always practice with the speed indicated in the music score.	I check the key signature(s) of every piece I practice
I count out loud when I'm practicing.	
I use the metronome a lot in my practice sessions	
I say out loud the name of the notes while I am practicing the piece.	
I check the time signature(s) of every piece I practice	
I clap and count the rhythm every piece before practicing it	

Table 5.4: Results of rehearsal strategies

Distribution of practice over time

The pedagogy literature emphasizes the essence of taking a break (Breth, 2004; Bruser, 1997; Clark, 1992; Hall, 1989; Westney, 2003) and practicing in small frequent practice sessions (Johnston and Sutton, 2000; Robilliard, 1967) in order that the body remain relaxed and the mind active during the practice sessions (Kaplan, 2004; Moss, 1989; Powell, 1988). An examination of how practice was distributed throughout the week showed that most participants (64%) practice for long uninterrupted sessions rather than a few shorter practice sessions a day. This finding contradicts what the literature recommends. Moreover, contrary to what teachers may think about students often practicing more on weekends when they have more time, more than half the sample (52%) indicated that they practice more on weekdays than weekends, before or after dinner or homework.

Not Applied	Applied
I usually have a few practice sessions every day	I practice all at once in one long session per day
I practice more on weekends than weekdays	

Table 5.5: Results of distribution of practice over time strategies

Preparing for a public performance

Performance is generally accompanied with fears of anxiety, stage fright, and memory slips, etc. (Jørgensen, 2004). Therefore, experienced performers incorporate imagining the perceptions of audience and performance setting during their practice as a psychological preparation. Accordingly, it would be important to imagine how the audience will perceive and react to one's playing. For the present study, one strategy that presented preparing for a public performance was examined. When preparing a piece for performance, most of the participants (62%) do not imagine themselves playing in front of an audience when they

practice. In order to clarify these results, the researcher conducted cross-tabulation analysis in order to examine whether this strategy was mainly used by younger participants.

		strat32			Total
		Negative	Positive	Neutral	
Age	7.0	4	0	0	4
	8.0	3	2	1	6
	9.0	11	6	2	19
	10.0	2	2	3	7
	11.0	8	0	1	9
	12.0	3	1	1	5
Total		31	11	8	50

Table 5.6: Participants' imagination within age groups

As can be seen from table 5.6, contrary to might have been expected, this strategy was not used at all by seven-year-olds, but was used extensively by eight year old participants, and then used less and less as participants got older. Confirming the findings regarding general views on practicing (section 5.3), it seems that from age 9 onwards, practice becomes more associated with work for a majority of students, and this kind of imaginative activity occurs less and less frequently.

Not Applied	Applied
I imagine myself playing in front of an audience when I practice	

Table 5.7: Results of preparing for a public performance strategies

5.1.3 Evaluation strategies

This category includes three types of strategies: aural and visual feedback, detecting errors as they happen and trying to fix them, and self-guided strategies.

Aural and visual feedback

Several approaches and method books encourage students to listen to recordings of the pieces being studied (Albergo et al., 2003; Bastien, 1985; Kaplan, 2004; Newman, 1950; Suzuki, 1973; Whiteside, 1997), and listen carefully to what they play (Enoch, 1977; Green,

2006; Lhevinne, 1972). Several method books also mention the importance of singing the melody while Practicing (Albergo et al., 2003; Bastien, 1985; Noona, 1973; Schaum, 1996). The researcher found that the majority (66%) listen carefully to their playing. However, more than half the sample (56%) indicated that they do not listen to recordings of the pieces that they are leaning. Listening to a recording of the pieces being studied to facilitate the learning process for students is highly recommended by some teachers. This aspect could be further reinforced in the piano studio by direct teacher encouragement and linking the listening to several tasks or games that could motivate student to listen

Not Applied	Applied
I listen to recordings of the pieces that I am learning.	I listen carefully to my playing while I am practicing.

Table 5.8: Results of aural and visual feedback strategies

Detecting Errors

Detecting and correcting errors is a key task during practice (Jørgensen, 2004). However, the time within which errors should be fixed seem to depend largely on the practice context (ex. sight reading, performance, working on sections). For practicing sight reading, Chang (2006) says that students should not use the

... stop-and-go practice in which a student stops and replays a section every time there is a mistake. If you make a mistake, always play through it; don't stop to correct it. Simply make a mental note of where the mistake was and play that section again later to see if the mistake repeats. (p.203)

This idea is reinforced by Johnston (2000), who emphasized the importance of continuing after making a mistake during an exam or a concert. Accordingly, in this study, three error-detecting strategies were examined. The majority of participants (70%) answered that they stop and correct errors when playing through a piece, rather than continuing the

performance. Moreover, half the sample (50%) noted that after they play through the piece, they then focus on the sections where they usually make errors. It seems, therefore, that participants are applying one of the recommended strategies, returning to sections where errors occur. However, they do not continue playing the piece when a mistake occurs. Further investigation is needed to better understand participants' reactions to performance errors. Why do students stop and correct errors? Do they find it difficult to continue? Do they repeat the error only once or twice? Do they repeat the problematic section many times? The best way for students aged 7 to 12 to tackle errors should be explored. Do they worry about some errors and ignore others? What kind of strategies could be used to prevent unnecessary errors? Would this require more use of mental strategies and analytical thinking before playing pieces? Teachers should pay special attention to the type of errors that may arise and provide specific clarification on how to address them, depending on the situation. For example, they could spend more time explaining to students specifically how to deal with errors when sight reading, or performing at a concert, exam, or recital. Such explanations may help students become more aware of the type of errors occurring, which may empower them to handle performance 'slips' effectively.

Not Applied	Applied
During my practice, I keep going in my piece even when I make a mistake	I stop and correct mistakes when I am practicing
	I practice the whole piece then I focus on sections where I usually make mistakes

Table 5.9: Results of detecting errors strategies

Self-guided strategies

Regardless of the specific strategies applied, self-guidance is important while practicing (Jørgensen, 2004). Authors of well-known method books recommended such strategies like

singing the melody out loud (Albergo et al., 2003; Bastien, 1985; Noona, 1973; Schaum, 1996) while playing and counting out loud in order to prevent errors (Bastien, 1985; Hall, 1989; Hugh, 2006; Newman. 1956; Schaum, 1996). Two strategies that presented self-guidance were analyzed in this study, but participants did not seem to apply these strategies. For example, 58% of participants do not sing the melody out loud as they were playing their pieces. Moreover, 84% do not count out loud in order to prevent mistakes. It is possible that students may perceive singing the melody out loud as embarrassing and childish. Furthermore, they may find counting out loud hard since it requires a complex cognitive coordination. Therefore, the easy way out is to avoid using such strategies no matter how beneficial they might be. This issue raises the importance of incorporating “self teaching” into the practice session when the teacher is absent. Accordingly, during their practice sessions, students could be more involved in assigning themselves different tasks for their practice sessions, then monitoring and evaluating themselves. Such involvement may motivate students to take a more active role in practicing and build a gradual independence through their learning experience.

Not Applied	Applied
I sing the melody out loud as I am practicing my pieces	
I count out loud so I won't make mistakes	

Table 5.10: Results of self-guided strategies

5.1.4 Metastrategies

Few studies have examined the use of metastrategies. Metacognition refers to reasoning about one's own thinking, and metastrategies include knowledge (general, specific, and relational), and the control and regulation of strategies. Jørgensen (2004) strongly believes that every musician, whether beginner or professional, must learn how to control,

regulate, and exploit the application of individual metastrategies, as shown in his individual practice strategies model (p. 86). According to Hallam (2001) and Leon-Guerrero (2004), several advanced musicians utilize metastrategies extensively during their practice but there is little research examining young musicians' use of metastrategies. However, music development studies have identified that the employment of metastrategies, which requires critical thinking skills, usually occurs when the child is more advanced in age, (Piaget, 1952; Swanwick and Tillman, 1986). In this study, 11 metastrategies (general, specific, and relational knowledge, control and regulation) were examined.

General Knowledge

Contrary to what researchers and teachers expect, metastrategies were employed by these young participants. It was interesting to find that all strategies identified in the literature were applied by the participants. For example, more than half the sample (54%) seemed to be aware that they need to work more on hard parts than sections they knew better.

Specific Knowledge

The majority of participants are aware that when they begin playing a new piece they use strategies such as playing slowly (76%), and playing hands separately (76%). Half of the participants also try to incorporate the playing of pieces, technique and sight reading during the practice session.

Relational knowledge

When it came to differentiating ways of practicing different skills, many participants seemed to know that they have to practice various tasks differently. For example, the largest number of participants (48%) noted that they use different steps for practicing sight reading, scales, and pieces. Confirming this, more than half the sample (59%) also answered that they

follow different steps when sight reading than when they are preparing a piece for performance.

Control and Regulation of strategies

Many participants (48%) seemed to be aware of how their practicing was going in general, and 44% recognize that if things are not going well, they need to change the techniques they are using at home. The majority of participants (70%) also expressed their willingness to do anything that could contribute to their playing improvement. For example, 62% would try different things to fix problems or change techniques such as playing at a slower tempo, using the metronome, or playing hands separately, if they had to. In addition, 84% of participants acknowledged that practicing improves their piano playing. This fits with the large number of definitions from the open-ended questions that clearly relate practicing to improvement in piano playing (section 5.3).

These findings raise two main points. First, while professional musicians are able to utilize metastrategies and identify how they process music and benefit from systematic, rational, and automatic mental processing, researchers indicate that novices lack the ability to coordinate these skills. Studies have suggested that young students' cognitive ability is not very well developed, and therefore they do not utilize more complex approaches like metastrategies. Further, it has been suggested that children's cognitive development goes through transformation stages over time; these stages are marked by the way they organize their perceptions and the strategies they use to construct their understanding of the world around them, moving from random to more rational and systematic ways of thinking (Bloom, 1956; Child Development Institute, 2006; Myers, 2000; Piaget, 1952; Swanwick, 1988). This notion is also supported by Piaget, and in music education, by Swanwick and Tillman (1986), who posited that students start applying metastrategies when they are around the age

of 15. Nevertheless, the findings of this study indicated otherwise, and therefore require further investigation as to how students perceive and apply metastrategies. It seems that, in the context of piano practice, students' cognitive processing may not be entirely correlated with age. Rather, the proper exposure to these strategies and support in using them may facilitate their use at any age. It might also be related to the apprenticeship approach in piano teaching, where the student imitates the teacher, which could contribute to early usage of metastrategies. This idea reinforces that of Jørgensen, who suggested that beginning students should learn how to control, regulate, and exploit the application of individual metastrategies, which could help them to better understand the employment of such strategies and incorporate more critical analysis in their home practice. The second point surrounded students' willingness to alter their use of strategies even if it requires the use of those strategies they do not like in order to improve their piano playing. Such a promising finding demonstrates students' eagerness to improve. Therefore, it suggests that students may not like to use strategies because they do not understand why it is beneficial. This urges teachers to provide students with more information and positive reinforcement on the employment of various strategies.

Not Applied	Applied
	I work more on the hard sections in my piece than the sections that I know
	I always start practicing new pieces slowly
	Every time I learn a new piece, I play hands separately
	In every practice session, I do repertoire, technique, and sight-reading
	I follow different steps for sight reading than performance
	I follow different steps for practicing: sight reading, pieces, scales
	I think about whether or not my practicing is going well
	I know when my practicing improves my piano playing
	I always practice the same way even if my playing is not improving
	I will try everything to make my playing improve
	I try different ways to fix a problem in a piece

Table 5.11: Results of metastrategies

This study also examined the relationship between the parental involvement aspect and the participants' use of practice strategies. The researcher analyzed whether parents' help leads to an increased use of practice strategies. Surprisingly, a very low correlation coefficient of $-.013$ indicated that more parental help did not increase the number of strategies employed. The fact that parents are sitting with the child and helping or supervising their practice did not have an effect on the number of strategies being applied. Teachers may need to devote more time and effort to making the nature of practice strategies and their importance clear to parents in order to ensure that these strategies have a stronger presence at the home practice.

The correlation between student level and the number of strategies utilized was also analyzed. It might be assumed that as students get older and play more advanced repertoire, they would employ more effective strategies. However, the results indicated that the playing level and number of practice strategies had a low correlation coefficient of $.27$, which leads to the conclusion that the use of effective strategies may not be linked to age and/or level, but rather to the way students acquire knowledge, how they learn these strategies, and apply them at home. In addition, it seems that the way students think about practicing and how they manage their thoughts should be considered, as these may play an integral role in understanding the core of practicing and its effective strategies.

In summary, it seems that some recommended strategies were used, while many were not. Participants did use some strategies, such as practicing slowly, playing hands separately, paying attention to fingering, checking hand position while playing, repeating a certain bar until they know it very well, and fixing one aspect at a time. On the other hand, the majority of participants did not apply many of the suggested strategies at their practice sessions, especially the ones that were extensively promoted in the literature, such as setting goals,

warming up and stretching, counting out loud, applying mental practice strategies, using practice charts, highlighting specific problems and difficult spots in a piece, concentrating, listening to recordings of the pieces being studied, and singing the melody while practicing. However, the use of metastrategies by these young participants was surprising. This study showed that there is a difference between what the literature advocates as effective practice strategies and what young students actually do, but participants do seem to be utilizing critical thinking and are aware of their progress and advancement through learning the piano. This unexpected finding is worth investigating.

5.2 Participants' interest in practice strategies

Even though many piano teachers and pedagogues believe that students dislike practicing, the majority of participants in this study indicated otherwise. Specifically, 88% of participants answered that they enjoy practicing. Furthermore, many participants (40%) find practicing interesting, and 16.7% of the participants who chose "other" to the question "Do you find practicing interesting, tiring, boring, confusing, other?" responded that they think practicing is fun.

Practicing with parents was generally perceived as interesting since 64% of the participants responded that they practiced with parents sometimes, often or always. This finding was surprising since the majority of teachers and parents think that children do not like to be supervised while practicing at home. This result looks promising: if as children enjoy having their parents help them practice, teachers can reinforce the importance of parental involvement in order to create a more productive and efficient home practice session. The researcher further explored whether the participants' interest in practicing with parents differed between age groups, and it is clear that the number of neutral and negative

responses increases from about the age of 10, and by 12, there were no positive responses to the question. Before the age of eight, children do not have a clear opinion—they can not easily conceptualize how they feel about their parent's help. By eight they are old enough to appreciate it: positive perceptions increase at the age of eight and nine and then start declining as students get older. This finding confirms the literature highlighting the important role parents have in motivating practice in the early stages of learning and helping students continuously with their daily practice routines so they become independent practicers. However, the kind of help should change with age (Chang, 2006). As students start developing their own self-regulation and independence, they seem to prefer practice the piano on their own. Such findings should be considered by parents and teachers so they can shape the kind of guidance and assistance that will increase the efficiency of practice yet keep students motivated.

Participants' interests were further investigated by asking them which of the general strategies they enjoyed. Findings indicated that most of the participants really liked reviewing pieces they already knew (68%). They also liked practicing with their eyes closed (59.6%), listening to music recordings (51.1%), practicing scales (44.7%), and practicing with parents (34.8%). Participants seemed to like to play pieces that they are familiar with, perhaps because this provides them with comfort, pride, and mastery of the musical aspects learned. Also reviewing pieces does not require as much mental effort as when learning a new piece. They also seemed to enjoy creative, mysterious, and challenging tasks that involve speed, discovery, and change such as playing with their eyes closed. In addition, they enjoy playing scales, which gives them freedom to play fast.

The number of strategies that participants like compared to the number they dislike is significant. Results indicated that the majority of participants do not like most of the general

strategies listed in part two of the questionnaire. For example, participants indicated that they do not like counting out loud (68%), practicing slowly (64%), marking their music (60.9%), practicing sight reading (54.3%), singing the melody (52%), using practice charts (51.2%), practicing with the metronome (48.9%), stopping and correcting mistakes while practicing (48%), and doing clapping or tapping rhythm exercises (46%). The high percentage of negative perceptions towards counting out loud, practicing slowly, marking music, and doing sight reading could be related to various aspects. One could be the complexity of the tasks themselves. Schlaug, Norton, Overy, and Winner, 2005 state in their article *Effects of Music Training on the Child's Brain and Cognitive Development*:

...musicians acquire and continuously practice a variety of complex motor, auditory, and multimodal skills (e.g., translating visually perceived musical symbols into motor commands while simultaneously monitoring instrumental output and receiving multisensory feedback) (pp.219-230).

In addition, the need for cognitive coordination and control of thinking processes may also contribute to negative perceptions of these strategies. It may be that this kind of coordination were not fully developed for many of the participants within this age range, creating a sense of frustration when engaging in activities such as counting out loud, practicing slowly, etc. Alternatively, students may feel that these strategies constrain their abilities and hold them back.

Another factor could be that young students are more energetic and get to lean more towards doing things that allow them to feel active and excited. This interpretation confirms that of Jacobson (2006), author of *Professional Piano Teaching*, who noted that “because children are active and tend to run rather than walk, it is understandable that beginning

students often play their pieces too fast. Fast pieces sound more exciting. Counting pieces aloud during the early learning stages has a slowing influence” (p.98).

Another factor could be related to their mental engagement during the home practice. The majority of participants indicated that they think of other things while practicing and most of the strategies that were negatively perceived (counting out loud, sight reading, practicing slowly, etc.) require attention and concentration, which may not facilitate the thinking of other activities (e.g., homework, sports, playing outside).

The negative perception towards most of these strategies may not be a direct threat at the beginning of the students’ learning process, when their motivation is enhanced by external factors such as parents’ support or excitement of learning a new activity. However, it could play a major role as students get older and the external motivators are no longer effective. Strategies that students enjoy, such as reviewing pieces, practicing with eyes closed, listening to music recordings, practicing scales and working with parents, are therefore important, and should be reinforced both in the piano lesson and at home in order to increase students’ level of involvement and internal motivation during their practice sessions.

5.3 General views on practicing

Many participants were asked to define piano practice. These definitions provided by participants were not to be compared to an “ideal” definition on piano practice. Rather, the goal was to explore participants’ perceptions of this daily activity to see if there were any trends or similarities within each age group. Accordingly, it was interesting to observe that patterns did emerge. For example, seven-year-old participants defined practice in terms of playing pieces only. Eight-year-olds mentioned playing pieces but they also included the physical motion, and the interaction with the instrument (pressing keys, making sounds, putting your hands on the piano). Participants aged 9 linked practice with homework in their

definitions and stressed the importance of improvement rather than purely playing songs and pieces. In addition, the idea of repetition was first brought up by children of this age group, as well as things they do as part of their practice (scales, chords, sight reading). Similarly, the ten-year-olds mentioned improvement, homework, reviewing old things, and interacting with the piano (motion and pressing keys) but they also began to refer to developing automaticity (helps in learning more about the piano). Such a definition indicates that they are now aware that the more they play piano, the more familiar and comfortable they felt interacting with the instrument. The eleven-year-old participants continued to define practice in terms of homework, improvement and automaticity. The idea of repetitions appears again in this age group. One practice definition, elicited from a 12-year-old participant, defined practice as a time for becoming creative. Interestingly, this person did not include automaticity or doing homework in the definition. While the small sample size of each age group does not provide us with conclusive findings, the results provide general insights on how these participants relate to the nature of practice, and how they truly understand its underlying concepts.

In the literature, little has been written about the definition of piano practice. There seems to be an underlying assumption that everyone knows what piano practicing is. The existing literature primarily deals with the importance of practicing and how to practice certain aspects of a piece but it does not necessarily provide further explanation. Consequently, it is not a surprise to discover that participants of all ages had varied and often vague ideas about practice.

The study also provided good insight into the home practice situation. The researcher found that the majority of participants (94%) acknowledged that their teachers always or often explain to them or demonstrate how to practice and that they follow the steps their teachers wrote down for them (78%). Moreover, a very high percentage of participants

(96%) noted that most of the time they know what they have to do after they leave their piano lessons. More than half the sample (56%) noted that they practice with their parents at home. However, it was also interesting to see that many participants (56%) admitted that they were not mentally engaged during their home practice sessions.

These findings raise many questions, specifically about how the child integrates information at the lesson, and then applies it at home. They may also point to a role for parents in guiding and supporting their children during the home practice. Moreover, they could be related to how well teachers communicate the importance of these strategies at the lesson, as well as these strategies are included and reinforced in the method books.

5.4 Conclusion

The present study involved 50 young piano students between the ages of 7 to 12. Its objective was to understand how young students perceived practicing, what they think they do at their practice sessions, and how interested they are in what they do. This exploration was achieved with a questionnaire based on the main strategies recommended in the pedagogical and research literatures.

The two main findings of the study are the evolution of the concept of practicing and the reliance on a small number of strategies. Generally, the understanding of what practice is changed as the age of the participants increased. Older participants defined practice in terms of work, and felt that it led to improvement, while younger participants mostly associated practice with playing pieces. This variation in definition was consistent with the literature. The many ideas associated with the term “practice” reinforce the notion that many goals can be related to practice.

The second finding was that the participants employed few strategies. This indicates a divergence between what the literature advocates for effective practice sessions and what young students actually do. There could be several reasons for this disparity, including the resource material used (e.g., method books), the communication of ideas at the lesson, and the students' cognitive abilities.

Some piano method books contain effective practice strategies. Nevertheless, the majority of these method books share the same serious limitation: they do not clarify the benefits of or reasoning behind practice strategies. Moreover, most of the method books do not constantly reinforce the use of strategies throughout the various levels. The lack of explanation and consistency may lead students to forget to incorporate such strategies in the home practice. It is therefore important to further investigate how teaching materials introduce, define, apply, and reinforce various practice strategies and how much students learn about strategies from method books.

Similarly, teachers may explain the strategy itself but not to the extent of describing the context in which it should be applied, communicating the importance and benefits of using it and consistently reminding the student about its use. This may confuse students about when and how to apply strategies, or why they should be applied. If students lack information on the reasons behind a certain strategy, and are not convinced of the benefits it will bring, then they will not employ it. Piano teachers need to understand and recognize how students acquire, retain, and apply recommended practice strategies. Having students' perceptions in mind may help teachers know when and how to introduce a new practice strategy to achieve a certain objective. One aspect that could be considered is videotaping and observing the students' home practice session in order to better understand how they have perceived and applied strategies taught at the lesson. Teachers could then design specific teaching strategies

that will allow students recognize the nature of practice and how to apply various practice strategies at home.

Another important aspect is the relationship between parental involvement and the participants' use of practice strategies. This study indicated that parents' help did not influence the number of strategies being used. The fact that parents are sitting with the child and supervising their practice did not have an impact on the number of strategies being applied may indicate a need for teachers to devote more time and effort clarifying the nature of practice strategies and their importance to the parents in order to ensure that these strategies have a stronger presence at home. This is especially important as younger children seem to enjoy having their parents help them with practicing. Teachers can reinforce the importance of parental involvement in order to create a more productive and efficient home practice session.

This study showed that the use of effective strategies may not be linked to age and/or level, but rather to the way students learned and applied these strategies. In addition, it seems the way students think about practicing and how they manage their thoughts should be considered as it may play an integral role in understanding the core of practicing and its effective strategies. Accordingly, students tend to apply straightforward effortless practice strategies such as repeating a certain bar or piece till it improves, and paying attention to general things while playing (fingering, hand position, and key signature). On the other hand, students may perceive that strategies like counting out loud, using the metronome and clapping the rhythm of every piece are redundant, take time, and lead to the same result as constant repetition. They think they can achieve the same outcome without going through a long process. Teachers need to clarify the advantages of using such strategies and compare

the results of applying time-consuming strategies versus straightforward ones over a period of time.

The study also showed that students seem to be able to control, regulate, and exploit the application of individual metastrategies during their practice. This reinforces the notion that students' cognitive processing may not be correlated with age, as some researchers have suggested, but that proper exposure to these strategies and support in using them may facilitate their use at any age. Further investigation is needed into the way students perceive and apply metastrategies in order to help them to better understand their use and incorporate more critical analysis in their home practice.

Nonetheless, the present study had three main limitations and the results should be considered carefully. The study involved a small number of participants and was restricted to ten piano studios in the Ottawa region. In addition, examining the cognitive reasoning that led to the participants' answers was not one of the study's objectives. Caution should be exercised, therefore, before generalizing broadly from its findings.

5.4.1 Future research

The aim of this thesis was to present insights into young students' perceptions, hoping that this would lead to a better understanding of how to teach and learn effective practice strategies. This type of investigation was needed, since most research on practice does not examine the perceptions of music students, who need to practice regularly. Using this study as a starting point, further research could deepen this exploration and understanding of practice strategies. First, it is essential to follow up on this work by confirming students' perceptions through comparing their answers to what they really do when they practice at home, which could provide a clearer picture of their learning cycle. It would also be important to observe the teaching setting at the piano studio and ask teachers

to complete a similar questionnaire in order to examine how much emphasis they place on each of the practice strategies presented.

To conclude, the present study was an exploratory journey into the minds of young piano students to learn how they perceive the concept of practicing and the manipulation of strategies during their daily practice. Its main objective was therefore achieved, learning students' conceptualization of why, when, and how to practice at home; exploring their personalized way of defining practice; and establishing their liking or disliking of certain practice strategies. These findings highlight the importance of an in-depth analysis into such strategies to discover what would further engage the minds of these young pianists. They reinforce the significance of understanding practice by acknowledging its complexity and variability, especially among young piano students, and emphasizing that it requires more attention and consideration from parents and teachers. The study could certainly help in developing customized and appropriate tools to make students' practicing more fully conscious, rather than simply mindless or mechanical repetition.

References

- Agnes, M. E. (Ed). (2004). *Webster's new world college dictionary* (4th ed.). USA: IDG Books Worldwide, Inc.
- Ahrens, C. & Atkinson, G. (1955). *For piano teachers*. Canada: The Frederick Harris Music Co. Limited.
- Albergo, C., Kolar, J. M., & Mrozinski, M. (2003). *Celebrate piano!*. Mississauga, ON: Frederick Harris Music.
- Baker-Jordan, M. (2004). *Practical piano pedagogy: The definitive text for piano teachers and pedagogy students*. USA: Warner Bros.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Barber, K. (Ed.). (2004). *The Canadian Oxford dictionary* (2nd ed.). Toronto: Oxford University Press.
- Barker, B. (2002). Slow and hands alone are integral to the learning of any piece. *Keyboard Companion*, 13(1), 10.
- Barry, N. (1992). The effects of practice strategies, individual differences in cognitive style, and gender upon technical accuracy and musicality of student instrumental performance. *Psychology of Music*, 20, 112-123.
- Barry, H. N. (2000). *Behind closed doors: What really goes on in the practice room*. LA: The Southern Chapter of the College Music Society.
- Barry, N. H., & Hallam, S. (2002). Practice. In R. P. Parncutt & G. E. McPherson (Eds.), *The science and psychology of music performance* (pp. 31-46). New York: Oxford University Press.

- Bastien, J. W. (1988). *How to teach piano successfully*. San Diego, CA: N.A. Kjos Music Co.
- Bastien, J. W. (1995). *Bastien piano basics*. San Diego: Neil A. Kjos Music.
- Bernstein, S. (1981). *With your own two hands: Self-discovery through music*. New York: Schirmer Books.
- Berr, B. (1995). Transformational practice techniques for piano. *American Music Teacher*, 44(5), 13.
- Breth, N.O. (2004). *The piano student's guide to effective practicing*. USA: Hal Leonard Corp.
- Breth, N.O. (2007). *The parent's guide to effective practicing*. USA: Hal Leonard Corp.
- Bronson, M. (2000). *Self-regulation in early childhood*. New York: The Guilford Press.
- Broughton, J. (1956). *Success in piano teaching*. New York: Vantage Press.
- Bruser, M. (1997). *The art of practicing: A guide to making music from the heart*. New York: Bell Tower.
- Clark, F. (1992). *Questions and answers: A practical advice for piano teachers*. Northfield: The Instrumentalist.
- Clark, F., & Goss, L. (2000). *The music tree: A plan for musical growth at the piano*. Miami, FL: Summy-Birchard Music.
- Chang, C. (2004). Fundamentals of piano practice. Last retrieved July 30, 2007, from <http://www.pianofundamentals.com/>
- Chappell, J. (1996). The piano: It's present and future. *Piano & Keyboard Magazine*. Last retrieved April 18, 2006, from www.jeffreychappell.com/kb_piano.htm

Child Development Institute. Stages of intellectual development in children and teenagers
Last retrieved December, 10 2006, from: www.childdevelopmentinfo/piaget/shtml

Coffman, D. D. (1990). Effects of mental practice, physical practice, and knowledge of results on piano performance. *Journal of Research in Music Education*, 38(3), 187-196.

Crock, W. (2006). Efficient and effective practice: Helping children learn. *American Suzuki Journal*, 34(1), 31-33.

Daniel, L. S. (2001). Self-assessment in performance. *British Journal of Music Education*, 18, 215-226.

Davidson, J., & Borthwick, S. J. (2002). Family dynamics and family scripts: A case study of musical development. *Psychology of Music*, 30, 121-136.

Desrochers, A., Comeau, G., Jardaneh, N., & Greens-Demers, I. (2006). L'élaboration d'une échelle pour mesurer la motivation chez les jeunes élèves en piano. *Recherche en éducation musicale*, 24, 13-33.

Donnat, O. (1996). *Les amateurs : enquête sur les activités artistiques des français*. Paris: Ministère de la culture, Département des études et de la prospective.

Enoch, Y. (1977). Teaching skills: How to practice. In Y. Enoch & J. Luke (Eds.), *Creative piano teaching* (pp.104-116). U.S.A: Stipes Publishing Company.

Ericsson, K. A., Krampe, R. T., & Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 100(3), 363-406.

Ericsson, K. A., & Lehmann, A.C. (1996). Expert and exception performance: Evidence of maximal adaptation to task constraints. *Annual Review of Psychology*, 47, 273-305.

Faber, N., & Faber, R. (1996). *Piano adventures: A basic piano method*. Fort Lauderdale, FL: The FJH Music Co.

- Finn, C., & Morris, E. (1998). *Beanstalk's basics for piano*. Florence, KY: The Willis Music Company.
- Fletcher, L. (1977-1985). *The Leila Fletcher piano course*. Buffalo, NY: Montgomery Music.
- Freymuth, M. (1999). *Mental practice and imagery for musicians: A practical guide for optimizing practice time, enhancing performance, and preventing injury*. Colorado: Integrated Musician's Press.
- Geiersbach, F. (2000). Musical thinking in instrumental practice: An investigation of practice strategies used by experienced musicians. *Dissertation Abstracts International*. (UMI No. 9976723).
- Gorard, S. (2001). *Quantitative methods in educational research: The role of numbers made easy*. London: Continuum.
- Gover, D. (1988). *David Carr Glover method for piano*. Miami: Belwin-Mills.
- Green, E. (2006). *Practicing successfully: A master class in the musical art*. Chicago: GIA Publications, Inc.
- Gruson, L. (1981). What distinguish competence? An investigation of piano practicing. *Dissertation Abstract International*.
- Gruson, L. M. (1988). Rehearsal skill and musical competence: Does practice make perfect? In J.A. Sloboda (Ed.), *Generative processes in music: The psychology of performance, improvisation and composition* (pp. 91-112). Oxford: Clarendon Press.
- Hall, P. (1989). *Piano Time*. London: Oxford University Press.
- Hallam, S. (1995). Professional musicians approaches to the learning and interpretation of music. *Psychology of Music*, 23, 111-128.
- Hallam, S. (1995a). Professional musicians' orientations to practice: Implications for teaching. *Psychology of Music*, 12(1), 3-19.

- Hallam, S. (1998). *Instrumental teaching: A practical guide to better teaching and learning*. Oxford: Heinemann.
- Hallam, S. (1998a). The predictors of achievement and drop out rate in instrumental tuition. *Psychology of Music*, 26, 116-132.
- Hallam, S. (2001). The development of metacognition in musicians: Implications for education. *British Journal of Music Education*, 18 (1), 27-39.
- Hanberry, M. (2004). Effects of practice strategies, metronome use, meter, hand, and musical function on dual-staved piano performance accuracy and practice time usage of undergraduate non- keyboard music majors. *Dissertation Abstracts International*. (UMI No. 3136174).
- Henerson, M. et al. (1987). *How to measure attitudes* (2nd ed.). USA: Sage Publications.
- Hinson, M. (2000). Does practice make perfect? *American Music Teacher*, 50(2), 40-41.
- Hu, S. C. (1999). How to practice in an efficient way. *Dissertation Abstracts International*. (UMI No. 1395655).
- Jacobson, J. M. (2006). *Professional piano teaching: A comprehensive piano pedagogy textbook for teaching elementary-level students*. Sherman Oaks, CA: Alfred Pub. Co.
- Johnston, P. (2002). *The practice revolution*. Australia: PracticeSpot Press.
- Johnston, P. & Sutton, D. (2000). *Not until you've done your practice*. Australia: Future Perfect.
- Johnston, P. (2002a). The practice revolution. Last retrieved June, 10, 2007, from <http://www.practicerevolution.com/>.
- Johnston, P. (2007). *Practiceopedia*. Australia: PracticeSpot Press.

- Johnson, B. & Christensen, L. (2004). *Educational research: Quantitative, qualitative, and mixed approaches*. Boston; Toronto: Pearson.
- Jørgensen, H. (1997). Time for practicing?. Higher level music students' use of time for instrumental practicing. In H. Jørgensen & A. C. Lehmann (Eds.), *Does practice make perfect? Current theory and research on instrumental music practice* (pp. 123-139). Oslo: Norges Musikkhøgskole.
- Jørgensen, H. (2004). Strategies for individual practice. In A. A. Williamon (Ed.), *Musical excellence: Strategies and techniques to enhance performance* (pp. 86-103). New York: Oxford University Press.
- Kaplan, B. (2004). *Practicing for artistic success: The musician's guide to self-empowerment*. New York: Perception Development Technique.
- Kong, N. (2001). University students' views on piano practicing: A survey of piano majors at the University of Oklahoma. *Dissertation Abstract International*. (UMI No. 3004878).
- Kostka, M. (2002). Practice expectations and attitudes: A survey of college-level music teachers and students. *Journal of Research in Music Education*, 50(2), 145-154.
- Laerhoven, H. et al. (2004). A comparison of Likert scale and visual analogue scales as response options in children's questionnaires. *Taylor & Francis Online Journals*, 93(6), 830-835. Last retrieved December 8, 2006, from [http://taylorandfrancis.metapress.com/\(5uu2za55w34to555vaxny45\)/app/home/contribution.asp?referrer=parent&backto=issue,20,34;journal,39,135;linkingpublicationresults,1:101945,1](http://taylorandfrancis.metapress.com/(5uu2za55w34to555vaxny45)/app/home/contribution.asp?referrer=parent&backto=issue,20,34;journal,39,135;linkingpublicationresults,1:101945,1)
- Lhevinne, J. (1972). *Basic principles in pianoforte playing*. New York: Dover Publications.
- Leon-Guerrero, A. J. (2004). An examination of the self-regulating strategies used by adolescent instrumental musicians while practicing. *Dissertation Abstracts International*. (UMI No. 3132561).
- Maddux, J. (2002). Self-efficacy: The power of believing you can. In C.R. Snyder, S. J. Lopez (Eds.), *Handbook of positive psychology*. Oxford: Oxford University Press.

- Manturzevska, M. (1979). Results of psychology research on the process of music practicing and its effective shaping. *Council for Research in Music Education Bulletin*, 54, 59-61.
- Manturzevska, M. (1990). A biographical study of the life-span of development of professional musicians. *Psychology of Music*, 18, 112-139.
- Maynard, L. (2000). The role of repetition in the practice sessions of artists, teachers and their students. *Dissertation Abstracts International*. (UMI No. 9992866).
- McPherson, G. E., & McCormick, J. (1999). Motivational and self-regulated learning components of musical practice. *Bulletin of the Council for Research in Music Education*, 141, 98-102.
- McCormick, J., & McPherson, G. (2003). The role of self-efficacy in a musical performance examination: An exploratory structural equation analysis. *Psychology of Music*, 31, 37-51.
- McPherson, G. E., & Renwick, J. (2000). Self-regulation and musical practice: A longitudinal study. In C. Woods, G. B. Luck, R. Brochard, F. Seddon, and J.A. Sloboda (Eds.), *Proceedings of the Psychology of the Sixth International Conference on Music Perception and Cognition* (pp. 1-8). United Kingdom: Keele University, Department of Psychology.
- Miklaszewski, K. (1989). A case study of a pianist preparing a musical performance. *Psychology of Music*, 17(2), 95-109.
- Moss, E. (1989). *More than teaching: A manual of piano pedagogy*. Canada: Gordon V. Thompson Music.
- Music Teacher National Association. (2006). Member survey results. *American Music Teacher*, 83.
- Myers, D. G. (2004). The developing person. In D.G. Myers (Ed.), *Psychology* (pp. 1351-191). New York: Worth Publishers.

- Newman, W. (1956). *The pianist's problems: A modern approach to efficient practice and musical performance*. New York: Harper.
- Nielsen, S. (1999). Learning strategies in instrumental music practice. *British Journal of Music Education*, 16 (3), 275-291.
- Noona W., & Noona, C. (1973). *The pianist*. Dayton, Ohio: Heritage Music Press.
- O'Neil, A. (2003). Parent as home teacher of Suzuki cello, violin, and piano students: Observation and analysis of Suzuki method practice sessions. *Dissertation Abstracts International*. (UMI No. 3119251).
- O'Neil, S., & Sloboda, J. (1997). The effects of failure on children's ability to perform a musical test. *Psychology of Music*, 25, 18-34.
- Pace, R. (1979). *Music for piano*. Katonah, NY: Lee Roberts Music Publications.
- Pace, R. (1992, July/August). Productive practice. *Clavier*, 17-19.
- Palmer, W., Manus, M., & Vick Lethco, A. (1995). *Alfred's piano basic library*. Sherman Oaks, CA: Alfred Pub. Co.
- Pearce, E. (2002). How much hands-separate and slow practice do you assign, and when? *Keyboard Companion*, 13(1), 10.
- Pedrick, D. (1998, September). Effective practice makes successful performance. *Music Educators Journal*, 33-35.
- Permenter, C. (1997). A case study of practice techniques and their effectiveness in preparing a performance of the Schumann Piano Concerto in A Minor, Op. 54. *Dissertation Abstract International*. (UMI No. 9819729).
- Piaget, J. (1952). *The origins of intelligence in children*. New York: International University Press.

- Powell, M. C. (1988). *Focus on Suzuki piano*. Secaucus, N.J.: Suzuki Method International: Summy-Birchard.
- Robilliard, E. (1967). *The persistent pianist: A book for the late beginner and adult re-starter*. London: Oxford University Press.
- Ross, S. (1985). The effectiveness of mental practice in improving the performance of college trombonists. *Journal of Research in Music Education*, 33(4), 221-230.
- Rubin-Rabson, G. (1941). Studies in the psychology of memorizing piano music: A comparison of two forms of mental rehearsal and keyboard over learning. *Journal of Educational Psychology*, 32, 593-602.
- Schaum, J. (1996). *John W. Schaum piano course: Leading to mastery of the instrument*. New York: Belwin.
- Schlaug G, Norton A, Overy K, Winner E (2005). Effects of music training on brain and cognitive development. *Annals of the New York Academy of Sciences*, 1060, 219-230.
- Sitton, M. (1992). The pedagogy of practice. *American Music Teacher*, 41(5), 30-33, 89.
- Sloboda, J. A., & Howe, M. J. A. (1991). Biographical precursors of musical excellence: An interview study. *Psychology of Music*, 19, 3-21.
- Sloboda, J. A., Davidson, J. W., Howe, M. J. A., & Moore, D. G. (1996). The role of practice in the development of performing musicians. *British Journal of Psychology*, 87(2), 287-309.
- Sloboda, J. (1994). Music performance: Expression and the development of excellence. In R. A. Ailello & J.A. Sloboda (Eds.), *Musical perceptions* (pp. 152-167). New York: Oxford University Press.
- Sosniak, L. (1985). Learning to be a concert pianist. In B. S. Bloom (Ed.), *Developing talent in young people*. New York: Ballantine Books.

- SPSS, Inc. Statistical Package for the Social Sciences (SPSS). Last retrieved December 8, 2006, from <http://www.utexas.edu/its/sds/products/spsswin.html#description>
- Suzuki, S. (1978). *Suzuki piano school*. Tokyo: Zen-on Music Publishers; Princeton, N.J., Ill.: Summy-Birchard, Music.
- Swanwick, K. & Tillmann, J. (1986). The sequence of musical development: A study of children's composition. *British Journal of Music Education*, 3, 305-339.
- Taylor, D. (1946). *The secret of successful practice*. London: Bosworth & Co.
- The New Oxford American dictionary. Retrieved December 8, 2006, from <http://orbis.uottawa.ca/search/tThe+new+Oxford+American+dictionary/>
- The Concise Oxford English dictionary. Retrieved December 8, 2006, from <http://orbis.uottawa.ca/search/tThe+concise+Oxford+English+dictionary/tconcise+oxford+english+dictionary/1%2C1%2C2%2CB/2exact&FF=tconcise+oxford+english+dictionary&1%2C2%2C>
- Thompson, J. (1994). *John Thompson's modern course for piano*. Cincinnati: Willis Music Co.
- Thiem, B. (2006). Practicing strategies. *American Suzuki Journal*, 34(2), 32-34.
- Tuckman, B.W. (1999). *Conducting educational research*. Fort Worth, TX: Harcourt Brace College Publishers.
- Uszler, M. (1991). *The well-tempered keyboard teacher*. New York: Maxwell Macmillan International.
- Westney, W. (2003). Step by step: A guide to healthy practicing. In *The perfect wrong note: Learning to trust your musical self* (pp. 77-97). Cambridge: Amadeus Press.
- Whiteside, A. (1997). *Abby Whiteside on piano playing*. Portland, Or. : Amadeus Press.

Williamon, A., & Valentine, E. (2000). Quantity and quality of musical practice as predictors of performance quality. *British Journal of Psychology*, 91(3), 353-376.

Winn, W. & Snyder D. (1996). Cognitive perspectives in psychology. In D.H. Jonassen (Ed.) *Handbook of research for educational communications and technology* (pp. 112-142). New York: Simon & Schuster Macmillan.

Appendix A: Strategies' charts

Planning and preparation strategies

Activity selection and organization

Strategy	Teaching Literature	Research Literature
I start my practice by doing short simple exercises	(Bruser, 1997; Clark, 1973)	(Jørgensen's, 2004)
I start my practice with playing piece then my technique		
I start my practice by playing scales first then pieces		
I practice sight reading in every practice session		
I practice the same order in all my practice sessions		
I review pieces that I already know	(Schaum, 1996; Suzuki, 1978)	
I practice exercises to help me master the difficult spots in my piece	(Ahrens et al. 1955; Hall, 1989; Jarvis, 1960)	
I follow the points written in my practice notebook	(Faber and Faber, 1996; Hugh, 2006; Powell, 1988)	
I use a pencil/pen to mark my music (dynamics, fingers, etc)	(Clark, 1992; Freymuth, 1995; Hinson, 2000)	(Leon-Guerrero, 2004)
I stretch before sitting at the piano (exercise)	Bruser, 1997	
I look at my practice notebook before practicing		(Jørgensen's, 2004)
I study the music score before playing	(Clark, 1992; Enoch, 1977; Freymuth, 1995; Hinson, 2000; Hugh, 2006; Newman, 1956; Robilliard, 1967)	(Rubin-Rabson, 1941; Ross, 1985; Coffman, 1990)
I play with silent fingers before playing	(Freymuth, 2000)	
I think of other things while I'm practicing		(Leon-Guerrero, 2004)

Setting goals

Strategy	Teaching Literature	Research Literature
I always think of my goals that I want to do in my practice session	(Baker-Jordan, 2004; Faber and Faber, 1996; Moss, 1989; Powell, 1988; Westney, 2003)	(Barry, 1992; Miklawszewski, 1989; Nielson, 1999; Hallam, 1995)
I follow the notes that teacher asked me to do in my practice	(Baker-Jordan, 2004; Moss, 1989; Westney, 2003)	
I only move on in my practice when I complete one thing	(Thiem, 2006)	
I finish my practice when I do all the points written in my notebook		
I know my practice is over when I do all the things the teacher asked me		

Time management

Strategy	Teaching Literature	Research Literature
I practice more when an important event is coming (exam, performance, recital, etc)		(Hallam, 2001a; Lehmann & Ericsson, 1996)
I practice two or more time a day instead of one long session	(Johnston and Sutton, 2000; Robilliard, 1967)	
I practice all at once in one long session	(Bruser, 1997; Hall, 1989; Westney, 2003)	
I practice when I'm most concentrated	(Kaplan, 2004; Moss, 1989; Powell, 1988)	(Hu, 1999; Kong, 2001)
I make sure I practice before going out with my friends		(Jørgensen's, 2004)
I prefer to practice than do any other activity (sports, dance, etc)		
I practice everyday if I can		
I practice more than I did when I started learning the piano		
		(Sloboda et al., 1996)

Execution of practice strategies

Rehearsal strategies

Strategy	Teaching Literature	Research Literature
I practice the piece in my head a lot before I play it on the piano	(Clark, 1992; Freymuth, 1995; Hinson, 2000)	Coffman, 1990; Hu, 1999; Leon-Guerrero, 2004; Ross, 1985; Rubin-Rabson, 1941
I use practice charts	(Crock, 2006)	(Kong, 2001)
I try to fix one thing at a time when I'm practicing	(Thiem, 2006)	
I look at the music carefully before I start	(Clark, 1992; Freymuth, 1995; Hinson, 2000)	
I mark hard spots in each piece before playing	(Ahrens et al. 1955; Baker-Jordan, 2004; Hall, 1989; Thiem, 2006)	
I play through the whole piece several times		(Neilsen, 1997; Leon-Guerrero, 2004; Williamson & Valentine, 2000)
I practice hard spots then I play the whole piece	(Ahrens et al. 1955; Baker-Jordan, 2004; Hall, 1989; Thiem, 2006)	(Hallam, 1997b; Miklawszewski, 1989)
I start practicing the piece slowly before I play it faster	(Ahrens et al. 1955; Barker, 2002; Barr, 1995; Clark, 1992; Crock, 2006; Hall, 1989; Hinson, 2000; Moss, 1989; Pearce, 2002; Schaum, 1996; Thiem, 2006)	
I practice with different speeds (fast, slow)		
I always practice with the speed written at the music score		
I notice fingering before playing a piece	(Ahrens et al. 1955; Clark, 1992; Palmer et al., 1995; Hall, 1989)	
I practice hands separately first when learning any new piece	(Bastien, 1985)	(Gruson, 1981)
While practicing I count out loud	(Bastien, 1985; Hall, 1989; Pearce, 2002)	(Leon-Guerrero, 2004)
I check my hand position while I'm practicing	(Bastien, 1985; Finn and Morris, 1996; Hall, 1989)	
I practice with the metronome	(Ahrens et al. 1955; Moss, 1989)	
I repeat a difficult part until I know it very well	(Blum, 1982)	(Gruson, 1981)

Distribution of practice over time

Strategy	Teaching Literature	Research Literature
I take short breaks during my practice	(Breth, 2004; Bruser, 1997; Clark, 1992; Hall, 1989; Westney, 2003)	(Jørgensen, 2004)
I take long breaks during my practice		
I usually have many practice sessions every day	(Johnston and Sutton, 2000; Robilliard, 1967)	(Hu, 1999)
I usually practice a lot on some days		
I practice more on weekends than weekdays		
I usually do all my practice in one or two days a week		

Preparing for a public performance

Strategy	Teaching Literature	Research Literature
I imagine myself playing in front of audience when I practice		(Jørgensen, 2004)
I watch videos of my previous performances (recitals, concerts)		(Daniel, 2001)
I practice a lot more when I have a performance		(Hallam, 2001a)

Evaluation strategies

Aural and visual feedback

Strategy	Teaching Literature	Research Literature
I listen to recording of the pieces that I'm playing	(Suzuki, 1973; Kaplan, 2004)	
I video tape my practice sessions		
I listen carefully as I'm playing	(Enoch, 1977; Green, 2006; Lhevinne, 1972)	(Hu, 1999)

Detecting errors

Strategy	Teaching Literature	Research Literature
I stop and correct mistakes when I'm practicing (scales, pieces, etc)	(Chang, 2006; Johnston, 2000; Newman 1956)	(Jørgensen, 2004)
I keep going in my piece even when I make a mistake		
I will continue learning piano and taking lessons even if I make mistakes		
I practice the whole piece then I focus on sections where I usually make mistakes		

Self-guided strategies

Strategy	Teaching Literature	Research Literature
I count out loud so I won't make mistakes	(Bastien, 1985; Hall, 1989; Pearce, 2002)	(Jørgensen, 2004)
I sing the melody as I'm practicing my pieces	(Albergo et al., 2003; Bastien, 1985; Noona, 1978; Schaum, 1996)	
As I'm playing, I tell myself to change speeds in order not to make mistakes		

MetaStrategies

Knowledge about strategies

General knowledge

Strategy	Teaching Literature	Research Literature
I work more on hard sections in my piece than the sections that I know more	(Broughton, 1956; Newman, 1956)	(Gruson, 1981)

Specific knowledge

Strategy	Teaching Literature	Research Literature
I always start practicing any new piece slowly	(Ahrens et al. 1955; Barker, 2002; Berr, 1995; Clark, 1992, Crock, 2006; Hall, 1989; Hinson, 2000; Moss, 1989; Pearce, 2002; Schaum, 1996; Thiem, 2006)	(Hallam, 2001)
Every time I learn a new piece, I play hands separately		
I always practice with the metronome		

Relational knowledge

Strategy	Teaching Literature	Research Literature
I practice my pieces differently than my scales		(Hallam, 2001)
I practice my scales differently than sight reading		(Jørgensen, 2004)

Control and regulations of strategies

Control strategies

Strategy	Teaching Literature	Research Literature
I think if my practicing is going well	(Hugh, 2006)	(Hallam, 2001)
I know if my practicing makes me improve		
I know if my practice make me a better piano player		

Regulation strategies

Strategy	Teaching Literature	Research Literature
I always practice the same way even if I'm not getting better	(Barry & Hallam, 2002)	Neilson (1999)
I try different ways to fix a problem in a piece (slow practice, use of metronome, hands separately)		
If practicing slowly is not working I use metronome instead		
I always try everything to make my playing better		

Appendix B: First draft of the questionnaire

First draft of the questionnaire *

1	I start my practice by doing short simple exercises
2	I start my practice with playing piece then my technique
3	I start my practice by playing scales first then pieces
4	I practice sight reading in every practice session
5	I practice the same order in all my practice sessions
6	I review pieces that I already know
7	I follow the points written in my practice notebook
8	I use a pencil/pen to mark my music (dynamics, fingers, etc)
9	I stretch before sitting at the piano (exercise)
10	I look at my practice notebook before practicing
11	I study the music score before playing
12	I play with silent fingers before playing
13	I always think of my goals that I want to do in my practice session
14	I follow the notes that teacher asked me to do in my practice
15	I only move on in my practice when I complete one thing
16	I finish my practice when I do all the points written in my notebook
17	I know my practice is over when I do all the things the teacher asked me to do
18	I always think of my goals that I want to do in my practice session
19	I practice more when an important event is coming (exam, performance, recital, etc)
20	I practice two or more time a day instead of one long session

21	I practice all at once in one long session
22	I practice when I'm most concentrated
23	I make sure I practice before going out with my friends
24	I prefer to practice than do any other activity (sports, dance, etc)
25	I practice everyday if I can
26	I practice whenever I can
27	I practice more than I did when I started learning the piano
28	I practice the piece in my head a lot before I play it on the piano
29	I use practice charts
30	I try to fix one thing at a time when I'm practicing
31	I look at the music carefully before I start
32	I mark hard spots in each piece before playing
33	I play through the whole piece several times
34	I practice hard spots then I play the whole piece
35	I start practicing the piece slowly before I play it faster
36	I practice with different speeds (fast, slow)
37	I always practice with the speed written at the music score
38	I notice fingering before playing a piece
39	I practice hands separately first when learning any new piece
40	While practicing I count out loud
41	I check my hand position while I'm practicing
42	I practice with the metronome

43	I repeat a difficult part until I know it very well
44	I take short breaks during my practice
45	I take long breaks during my practice
46	I usually have many practice sessions every day
47	I usually practice a lot on some days
48	I practice more on weekends than weekdays
49	I usually do all my practice in one or two days a week
50	I imagine myself playing in front of audience when I practice
51	I watch videos of my previous performances (recitals, concerts)
52	I practice a lot more when I have a performance
53	I listen to recording of the pieces that I'm playing
54	I video tape my practice sessions
55	I listen carefully as I'm playing
56	I stop and correct mistakes when I'm practicing (scales, pieces, etc)
57	I keep going in my piece even when I make a mistake
58	I will continue learning piano and taking lessons even if I make mistakes
59	I practice the whole piece then I focus on sections where I usually make mistakes
60	I count out loud so I won't make mistakes
61	I sing the melody as I'm practicing my pieces
62	As I'm playing, I tell myself to change speeds in order not to make mistakes
63	I work more on hard sections in my piece than the sections that I know more
64	I always start practicing any new piece slowly

65	Every time I learn a new piece, I play hands separately
66	I always practice with the metronome
67	I practice my pieces differently than my scales
68	I practice my scales differently than sight reading
69	I think if my practicing is going well
70	I know if my practicing makes me improve
71	I know if my practice make me a better piano player
72	I always practice the same way even if I'm not getting better
73	I try different ways to fix a problem in a piece (slow practice, use of metronome, hands separately)
74	If practicing slowly is not working I use metronome instead
75	I always try everything to make my playing better
76	If practicing slowly is not working I use metronome instead

*** These strategies appeared in part one and two of the questionnaire**

Appendix C: Part three of the questionnaire

Part three of the questionnaire: general views on practicing

1	What method book are you using	
2	Do you practice with your parents at home	<ul style="list-style-type: none"> • Never • Seldom • Sometimes • Often • Always
3	Do you get out of the piano lesson knowing exactly what to do and how to practice	<ul style="list-style-type: none"> • Yes • No
4	Do you like practicing	<ul style="list-style-type: none"> • Yes • No
5	How long do you usually practice?	
6	How many days a week do you practice?	
7	Do you feel that the teacher explains to you how to practice	<ul style="list-style-type: none"> • Yes • No
8	Do you find practicing	<ul style="list-style-type: none"> • Boring • Confusing • Interesting • Tiring

Appendix D: Teachers' evaluation of the questionnaire

Teacher #1

Young Piano Students' Perceptions of their Practice Strategies

		very poor	acceptable	good	Very good	Excellent
1	I start my practice by doing short simple exercises Comment: at the piano or body warm ups?	1	2	3	*	5
2	I start my practice with playing pieces then my technique Comment: what is "technique?"	*	2	3	4	5
3	I start my practice by playing scales first then pieces Comment:	1	2	3	4	*
4	I practice sight reading in every practice session Comment:	1	2	*	4	5
5	I practice the same order in all my practice sessions Comment:	*	2	3	4	5
6	I review pieces that I already know Comment: perhaps add "a few times/week or at every practice"	1	2	3	4	*

7	I follow the points written in my practice notebook Comment:	1	2	3	4	*
8	I use a pencil/pen to mark my music (dynamics, fingers, etc) Comment:	1	2	3	4	*
9	I stretch before sitting at the piano (exercise) Comment: maybe this question could be with questions 1-2??	1	2	3	4	*
10	I look at my practice notebook before practicing Comment:	1	2	3	4	*
11	I study the music score before playing Comment:	1	2	*	4	5
12	I play with silent fingers before playing Comment:	1	2	*	4	5
13	I always think of my goals that I want to do in my practice session Comment: "I give myself goals at every practice session"???	1	2	3	*	5

14	I follow the notes that the teacher asked me to do in my practice.. Maybe I follow my teacher's suggestions in my practice?	1	2	3	4	*
15	I only move on in my practice when I complete one thing Comment:	1	2	3	*	5
16	I finish my practice when I do all the points written in my notebook Comment:	1	2	3	*	5
17	I know my practice is over when I do all the things the teacher asked me to do Comment:	1	2	3	*	5
18	I always think of my goals that I want to do in my practice session Comment: same as question 13?	1	2	3	4	*
19	I practice more when an important event is coming (exam, performance, recital, etc) Comment:	1	2	3	4	*
20	I practice two or more time a day instead of one long session Comment:	1	2	3	4	*
21	I practice all at once in one long session Comment:	1	*	3	4	5

22	I practice when I'm most concentrated Comment: I plan my practices for times in the day when I am most concentrated???	1	2	3	*	5
23	I make sure I practice before going out with my friends Comment:	1	2	3	*	5
24	I prefer to practice than do any other activity (sports, dance, etc) Comment: "activities"???	1	2	*	4	5
25	I practice everyday if I can Comment:	1	2	*	4	5
26	I practice whenever I can Comment:	1	2	3	4	*
27	I practice more than I did when I started learning the piano Comment:	1	2	3	4	*
28	I practice the piece in my head a lot before I play it on the piano Comment:	1	*	3	4	5
29	I use practice charts Comment: perhaps this question could be	1	2	3	4	*

	put at the beginning because it has to do with methodology???					
30	I try to fix one thing at a time when I'm practicing Comment:	1	2	3	4	*
31	I look at the music carefully before I start Comment:	1	2	*	4	5
32	I mark hard spots in each piece before playing Comment:	1	2	3	4	*
33	I play through the whole piece several times Comment:	1	2	3	*	5
34	I practice hard spots then I play the whole piece Comment:	1	2	3	4	*
35	I start practicing the piece slowly before I play it faster Comment:	1	2	3	4	*
36	I practice with different speeds (fast, slow) Comment:	1	2	3	4	*
37	I always practice with the speed written at the music score Comment: 'in' instead of 'at'???	*	2	3	4	5

38	I notice fingering before playing a piece Comment:	1	2	3	4	5
39	I practice hands separately first when learning any new piece Comment:	1	2	*	4	5
40	While practicing I count out loud Comment: ‘while practicing, I count out loud’???	1	2	3	*	5
41	I check my hand position while I’m practicing Comment:	1	2	3	*	5
42	I practice with the metronome Comment:	1	2	3	*	5
43	I repeat a difficult part until I know it very well Comment:	1	2	3	*	5
44	I take short breaks during my practice Comment:	1	2	3	*	5
45	I take long breaks during my practice Comment:	*	2	3	4	5
46	I usually have many practice sessions every day Comment:	*	2	3	4	5

47	I usually practice a lot on some days Comment: I usually practice a lot on some days”..I am not sure if it is a lot or a lot??	1	2	3	4	*
48	I practice more on weekends than weekdays Comment:	1	2	3	*	5
49	I usually do all my practice in one or two days a Week Comment:	1	*	3	4	5
50	I imagine myself playing in front of an audience when I practice Comment:	1	2	3	*	5
51	I watch videos of my previous performances (recitals, concerts) Comment:	*	2	3	4	5
52	I practice a lot more when I have a performance Comment: same question as 19?	1	2	3	4	*
53	I listen to a recording of the pieces that I’m playing Comment:	1	2	3	*	5
54	I video tape my practice sessions Comment:	*	2	3	4	5

55	I listen carefully as I'm playing Comment:	1	2	3	4	*
56	I stop and correct mistakes when I'm practicing (scales, pieces, etc) Comment:	1	2	3	4	*
57	I keep going in my piece even when I make a mistake Comment:	1	2	3	*	5
58	I will continue learning piano and taking lessons even if I make mistakes Comment:	1	2	3	4	*
59	I practice the whole piece then I focus on sections where I usually make mistakes Comment:	1	2	3	4	*
60	I count out loud so I won't make mistakes Comment:	1	2	3	*	5
61	I sing the melody as I'm practicing my pieces Comment:	1	2	*	4	5
62	As I'm playing, I tell myself to change speeds in order not to make mistakes Comment:	1	2	3	*	5

63	I work more on hard sections in my piece than the sections that I know more Comment:	1	2	3	*	5
64	I always start practicing any new piece slowly Comment:	1	2	3	4	*
65	Every time I learn a new piece, I play hands separately Comment: same question as 39?	1	2	*	4	5
66	I always practice with the metronome Comment:	1	*	3	4	5
67	I practice my pieces differently than my scales Comment:	*	2	3	4	5
68	I practice my scales differently than sight reading Comment:	1	2	3	4	*
69	I think if my practicing is going well Comment: "I know if my practicing is going well"??	1	2	3	4	*
70	I know if my practicing makes me improve Comment: "I know my practicing makes me improve"??	1	2	3	4	*

71	I know if my practice make me a better piano player Comment: ‘I know my practice makes me a better piano player’??	1	2	3	4	*
	I always practice the same way even if I’m not getting better Comment:	*	2	3	4	5
73	I try different ways to fix a problem in a piece (slow practice, use of metronome, hands separately) Comment:	1	2	3	4	*
74	If practicing slowly is not working I use metronome instead Comment:	1	2	3	4	*
75	I always try everything to make my playing better Comment:	1	2	3	4	*
76	I always practice the same way even if I’m not getting better Comment:	*	2	3	4	5

Any comments/suggestions about this last section?

1	What method book are you using	Various, Faber, music tree, suzuki
2	Do you practice with your parents at home	<ul style="list-style-type: none"> • Never • Seldom • Sometimes • Often • Always
3	Do you get out of the piano lesson knowing exactly what to do and how to practice	<ul style="list-style-type: none"> • Yes • No
4	Do you like practicing	<ul style="list-style-type: none"> • Yes • No
5	How long do you usually practice?	1 hour
6	How many days a week do you practice?	4 times
7	Do you feel that the teacher explains to you how to practice	<ul style="list-style-type: none"> • Yes • No
8	Do you find practicing	<ul style="list-style-type: none"> • Boring • Confusing • Interesting • Tiring

Teacher #2

Young Piano Students' Perceptions of their Practice Strategies

		very poor	acceptabl e	good	Very good	Excellent
1	I start my practice by doing short simple exercises Comment:	1	2	3	4	5
2	I start my practice with playing pieces then my technique Comment:	1	2	3	4	5
3	I start my practice by playing scales first then pieces Comment:	1	2	3	4	5
4	I practice sight reading in every practice session Comment:	1	2	3	4	5
5	I practice the same order in all my practice sessions Comment:	1	2	3	4	5
6	I review pieces that I already know Comment:	1	2	3	4	5

7	I follow the points written in my practice notebook Comment:	1	2	3	4	5
8	I use a pencil/pen to mark my music (dynamics, fingers, etc) Comment:	1	2	3	4	5
9	I stretch before sitting at the piano (exercise) Comment:	1	2	3	4	5
10	I look at my practice notebook before practicing Comment:	1	2	3	4	5
11	I study the music score before playing Comment:	1	2	3	4	5
12	I play with silent fingers before playing Comment:	1	2	3	4	5
13	I always think of my goals that I want to do in my practice session Comment: "achieve" may be better than "do"	1	2	3	4	5
14	I follow the notes that the teacher asked me to do in my practice Comment:	1	2	3	4	5

15	I only move on in my practice when I complete one thing Comment:	1	2	3	4	5
16	I finish my practice when I do all the points written in my notebook Comment:	1	2	3	4	5
17	I know my practice is over when I do all the things the teacher asked me to do Comment:	1	2	3	4	5
18	I always think of my goals that I want to do in my practice session Comment : same as #13???	1	2	3	4	5
19	I practice more when an important event is coming (exam, performance, recital, etc) Comment:	1	2	3	4	5
20	I practice two or more time a day instead of one long session Comment: “times”, not “time”??	1	2	3	4	5
21	I practice all at once in one long session Comment:	1	2	3	4	5

22	I practice when I'm most concentrated Comment: do you mean "I practice best when I'm concentrating", or "I practice when I can concentrate the best"??	1	2	3	4	5
23	I make sure I practice before going out with my friends Comment:	1	2	3	4	5
24	I prefer to practice than do any other activity (sports, dance, etc) Comment:	1	2	3	4	5
25	I practice everyday if I can Comment: "every day" separate words	1	2	3	4	5
26	I practice whenever I can Comment:	1	2	3	4	5
27	I practice more than I did when I started learning the piano Comment:	1	2	3	4	5
28	I practice the piece in my head a lot before I play it on the piano Comment:	1	2	3	4	5

29	I use practice charts Comment:	1	2	3	4	5
30	I try to fix one thing at a time when I'm practicing Comment:	1	2	3	4	5
31	I look at the music carefully before I start Comment:	1	2	3	4	5
32	I mark hard spots in each piece before playing Comment:	1	2	3	4	5
33	I play through the whole piece several times Comment:	1	2	3	4	5
34	I practice hard spots then I play the whole piece Comment:	1	2	3	4	5
35	I start practicing the piece slowly before I play it faster Comment:	1	2	3	4	5
36	I practice with different speeds (fast, slow) Comment:	1	2	3	4	5
37	I always practice with the speed written at the music score Comment:	1	2	3	4	5

38	I notice fingering before playing a piece Comment:	1	2	3	4	5
39	I practice hands separately first when learning any new piece Comment:	1	2	3	4	5
40	While practicing I count out loud Comment:	1	2	3	4	5
41	I check my hand position while I'm practicing Comment:	1	2	3	4	5
42	I practice with the metronome Comment: do you mean all the time, or when directed by the teacher?	1	2	3	4	5
43	I repeat a difficult part until I know it very well Comment:	1	2	3	4	5
44	I take short breaks during my practice Comment:	1	2	3	4	5
45	I take long breaks during my practice Comment:	1	2	3	4	5
46	I usually have many practice sessions every day Comment:	1	2	3	4	5

47	I usually practice a lot on some days Comment:	1	2	3	4	5
48	I practice more on weekends than weekdays Comment:	1	2	3	4	5
49	I usually do all my practice in one or two days a week Comment:	1	2	3	4	5
50	I imagine myself playing in front of an audience when I practice Comment:	1	2	3	4	5
51	I watch videos of my previous performances (recitals, concerts) Comment:	1	2	3	4	5
52	I practice a lot more when I have a performance Comment:	1	2	3	4	5
53	I listen to a recording of the pieces that I'm playing Comment:	1	2	3	4	5
54	I video tape my practice sessions Comment:	1	2	3	4	5

55	I listen carefully as I'm playing Comment:	1	2	3	4	5
56	I stop and correct mistakes when I'm practicing (scales, pieces, etc) Comment:	1	2	3	4	5
57	I keep going in my piece even when I make a mistake Comment:	1	2	3	4	5
58	I will continue learning piano and taking lessons even if I make mistakes Comment:	1	2	3	4	5
59	I practice the whole piece then I focus on sections where I usually make mistakes Comment:	1	2	3	4	5
60	I count out loud so I won't make mistakes Comment:	1	2	3	4	5
61	I sing the melody as I'm practicing my pieces Comment:	1	2	3	4	5
62	As I'm playing, I tell myself to change speeds in order not to make mistakes Comment:	1	2	3	4	5

63	I work more on hard sections in my piece than the sections that I know more Comment:	1	2	3	4	5
64	I always start practicing any new piece slowly Comment:	1	2	3	4	5
65	Every time I learn a new piece, I play hands separately Comment: Isn't that the same as #39?	1	2	3	4	5
66	I always practice with the metronome Comment:	1	2	3	4	5
67	I practice my pieces differently than my scales Comment:	1	2	3	4	5
68	I practice my scales differently than sight reading Comment:	1	2	3	4	5
69	I think if my practicing is going well Comment: better to say " I think of whether or not my practice is going well"	1	2	3	4	5
70	I know if my practicing makes me improve Comment:same as #69	1	2	3	4	5

71	I know if my practice make me a better piano player Comment: better to say "I know that..."	1	2	3	4	5
72	I always practice the same way even if I'm not getting better Comment:	1	2	3	4	5
73	I try different ways to fix a problem in a piece (slow practice, use of metronome, hands separately) Comment:	1	2	3	4	5
74	If practicing slowly is not working I use metronome instead Comment:	1	2	3	4	5
75	I always try everything to make my playing better Comment:	1	2	3	4	5
76	I always practice the same way even if I'm not getting better Comment: same as #72	1	2	3	4	5

Any comments/suggestions about this last section? good

1	What method book are you using	
2	Do you practice with your parents at home	<ul style="list-style-type: none"> • Never • Seldom • Sometimes • Often • Always
3	Do you get out of the piano lesson knowing exactly what to do and how to practice	<ul style="list-style-type: none"> • Yes • No
4	Do you like practicing	<ul style="list-style-type: none"> • Yes • No
5	How long do you usually practice?	
6	How many days a week do you practice?	
7	Do you feel that the teacher explains to you how to practice	<ul style="list-style-type: none"> • Yes • No
8	Do you find practicing	<ul style="list-style-type: none"> • Boring • Confusing • Interesting • Tiring

Teacher #3

Young Piano Students' Perceptions of their Practice Strategies

		very poor	Fair/acceptable	good	Very good	Excellent
1	I start my practice by doing short simple exercises Comment: (stretching or technique)	1	2	3	4	5
2	I start my practice by playing pieces then I play my technique Comment: by playing...then I play	1	2	3	4	5
3	I start my practice by playing scales first then I play my pieces Comment:	1	2	3	4	5
4	I practice sight reading in every practice session Comment:	1	2	3	4	5
5	I practice the same order in all my practices sessions Comment: practices instead of practice session	1	2	3	4	5
6	I review pieces that I already know Comment:	1	2	3	4	5

7	I follow the points written in my practice notebook Comment:	1	2	3	4	5
8	I use a pencil/pen to mark my music (dynamics, fingers, etc) Comment: during my practice?	1	2	3	4	5
9	I stretch before sitting at the piano (exercise) Comment:	1	2	3	4	5
10	I look at my practice notebook before practicing Comment:	1	2	3	4	5
11	I study the music score before playing or practicing Comment: do you want to distinguish between playing and practicing?	1	2	3	4	5
12	I play with silent fingers before playing Comment: same as previous question?	1	2	3	4	5
13	I always think of my goals that I want to do in my practice session Comment:	1	2	3	4	5

14	I follow the notes that the teacher asked me to do in my practice Comment:	1	2	3	4	5
15	I only move on to a new activity in my practice when I complete one thing Comment: to a new activity?	1	2	3	4	5
16	I'm finish my practice when I have done all the points written in my notebook Comment: I put my suggestions in bold	1	2	3	4	5
17	I know my practice is over when I do all the things the teacher has asked me to do Comment:	1	2	3	4	5
18	I always think of my goals that I want to do in my practice session Comment:	1	2	3	4	5
19	I practice more when an important event is coming (exam, performance, recital, etc) Comment:	1	2	3	4	5
20	I practice two or more times a day instead of one long session Comment:	1	2	3	4	5

21	I practice all at once in one long session Comment: in a day or during the week	1	2	3	4	5
22	I practice when I'm most concentrated Comment:	1	2	3	4	5
23	I make sure I practice before going out with my friends Comment:	1	2	3	4	5
24	I prefer to practice than do any other activity (sports, dance, etc) Comment:	1	2	3	4	5
25	I practice everyday, if I can Comment:	1	2	3	4	5
26	I practice whenever I can Comment:	1	2	3	4	5
27	I practice more than I did when I started learning the piano Comment:	1	2	3	4	5
28	I practice the piece in my head a lot before I play it on the piano Comment:	1	2	3	4	5
29	I use practice charts Comment:	1	2	3	4	5

30	I try to fix one thing at a time when I'm practicing Comment:	1	2	3	4	5
31	I look at the music carefully before I start practicing Comment:	1	2	3	4	5
32	I mark hard spots in each piece before playing Comment:	1	2	3	4	5
33	I play through the whole piece several times Comment: during my practice	1	2	3	4	5
34	I practice hard spots then I play the whole piece Comment: I practice the hard spots before I play the whole piece	1	2	3	4	5
35	I start practicing the piece slowly before I play it faster Comment:	1	2	3	4	5
36	I practice with different speeds (fast, slow) Comment:	1	2	3	4	5
37	I always practice with the speed written on the music score Comment: on?	1	2	3	4	5
38	I notice fingering before playing a piece Comment:	1	2	3	4	5

39	I practice hands separately first when learning any new piece Comment:	1	2	3	4	5
40	While practicing I count out loud Comment:	1	2	3	4	5
41	I check my hand position while I'm practicing Comment:	1	2	3	4	5
42	I practice with the metronome Comment:	1	2	3	4	5
43	I repeat a difficult part until I know it very well Comment:	1	2	3	4	5
44	I take short breaks during my practice Comment:	1	2	3	4	5
45	I take long breaks during my practice Comment:	1	2	3	4	5
46	I usually have many practice sessions every day Comment:	1	2	3	4	5
47	I usually practice a lot on some days Comment:	1	2	3	4	5
48	I practice more on weekends than weekdays Comment:	1	2	3	4	5

49	I usually do all my practice in one or two days Comment: during the week.	1	2	3	4	5
50	I imagine myself playing in front of an audience when I practice Comment:	1	2	3	4	5
51	I watch videos of my previous performances (recitals, concerts) Comment:	1	2	3	4	5
52	I practice a lot more when I have a performance Comment:	1	2	3	4	5
53	I listen to a recording(s) of the pieces that I'm playing Comment: (s) more than one recording	1	2	3	4	5
54	I video tape my practice sessions Comment:	1	2	3	4	5
55	I listen carefully as I'm playing Comment:	1	2	3	4	5
56	I stop and correct mistakes when I'm practicing (scales, pieces, etc) Comment:	1	2	3	4	5

57	I keep going while I'm playing my piece even when I make a mistake Comment: while I'm playing?	1	2	3	4	5
58	I will continue learning piano and taking lessons even if I make mistakes Comment:	1	2	3	4	5
59	I practice the whole piece then I focus on sections where I usually make mistakes Comment:	1	2	3	4	5
60	I count out loud so I won't make mistakes Comment:	1	2	3	4	5
61	I sing the melody as I'm practicing my pieces Comment:	1	2	3	4	5
62	As I'm playing, I tell myself to change speeds in order not to make mistakes Comment:	1	2	3	4	5
63	I work more on hard sections in my piece than the sections that I know better Comment:	1	2	3	4	5

64	I always start practicing any new piece slowly Comment: I always start practicing new pieces slowly.	1	2	3	4	5
65	Every time I learn a new piece, I play hands separately Comment:	1	2	3	4	5
66	I always practice with the metronome Comment:	1	2	3	4	5
67	I practice my pieces differently than my scales Comment: scales or technique	1	2	3	4	5
68	I practice my scales differently than sight reading Comment:	1	2	3	4	5
69	I think about if my practicing is going well Comment: while I'm practicing?	1	2	3	4	5
70	I know if my practicing makes me improve Comment: Is this specifically during each piece or a general reflection about their practicing.	1	2	3	4	5
71	I know if my practice make me a better piano player Comment:	1	2	3	4	5

72	I always practice the same way even if I'm not getting better Comment:	1	2	3	4	5
73	I try different ways to fix a problem in a piece (slow practice, use of metronome, hands separately) Comment:	1	2	3	4	5
74	If practicing slowly is not working I use a metronome instead Comment:	1	2	3	4	5
75	I always try everything to make my playing better Comment:	1	2	3	4	5
76	I always practice the same way even if I'm not getting better Comment:	1	2	3	4	5

Any comments/suggestions about this last section? I like this section.....

1	What method book are you using They might not know the name of it..???	
2	Do you practice with your parents at home	<ul style="list-style-type: none"> • Never • Seldom • Sometimes • Often • Always
3	Do you get out of the piano lesson knowing exactly what to do and how to practice	<ul style="list-style-type: none"> • Yes • No
4	Do you like practicing	<ul style="list-style-type: none"> • Yes • No
5	How long do you usually practice?	
6	How many days a week do you practice?	
7	Do you feel that the teacher explains to you how to practice	<ul style="list-style-type: none"> • Yes • No
8	Do you find practicing	<ul style="list-style-type: none"> • Boring • Confusing • Interesting • Tiring

Teacher #4

Young Piano Students' Perceptions of their Practice Strategies

		very poor	acceptable	good	Very good	Excellent
1	I start my practice by doing short simple exercises Comment: finger exercises? (technique?) or body exercise??	1	2	3	4	5
2	I start my practice with playing pieces then my technique Comment: then I play scales?	1	2	3	4	5
3	I start my practice by playing scales first then pieces Comment:	1	2	3	4	5
4	I practice sight reading in every practice session Comment:	1	2	3	4	5
5	I practice the same order in all my practice sessions Comment:	1	2	3	4	5
6	I review pieces that I already know Comment: in each practice session? One a week?	1	2	3	4	5

7	I follow the points written in my practice notebook Comment: should question 10 come earlier?	1	2	3	4	5
8	I use a pencil/pen to mark my music (dynamics, fingers, etc) Comment:	1	2	3	4	5
9	I stretch before sitting at the piano (exercise) Comment:	1	2	3	4	5
10	I look at my practice notebook before practicing Comment:	1	2	3	4	5
11	I study the music score before playing Comment:	1	2	3	4	5
12	I play with silent fingers before playing Comment:	1	2	3	4	5
13	I always think of my goals that I want to do in my practice session Comment: OR I always think of my goals in my practice session	1	2	3	4	5
14	I follow the notes that the teacher asked me to do in my practice Comment:	1	2	3	4	5

15	I only move on in my practice when I complete one thing Comment: define complete?	1	2	3	4	5
16	I finish my practice when I do all the points written in my notebook Comment: I consider my practice finished after I've done....	1	2	3	4	5
17	I know my practice is over when I do all the things the teacher asked me to do Comment:	1	2	3	4	5
18	I always think of my goals that I want to do in my practice session Comment:repeat of question 13	1	2	3	4	5
19	I practice more when an important event is coming (exam, performance, recital, etc) Comment:	1	2	3	4	5
20	I practice two or more time a day instead of one long session Comment: insert after question 46?	1	2	3	4	5
21	I practice all at once in one long session Comment: insert after question 47?	1	2	3	4	5

22	I practice when I'm most concentrated Comment:	1	2	3	4	5
23	I make sure I practice before going out with my friends Comment:	1	2	3	4	5
24	I prefer to practice than do any other activity (sports, dance, etc) Comment:	1	2	3	4	5
25	I practice everyday if I can Comment:	1	2	3	4	5
26	I practice whenever I can Comment:	1	2	3	4	5
27	I practice more than I did when I started learning the piano Comment:	1	2	3	4	5
28	I practice the piece in my head a lot before I play it on the piano Comment:	1	2	3	4	5
29	I use practice charts Comment:	1	2	3	4	5

30	I try to fix one thing at a time when I'm practicing Comment:	1	2	3	4	5
31	I look at the music carefully before I start Comment:	1	2	3	4	5
32	I mark hard spots in each piece before playing Comment:	1	2	3	4	5
33	I play through the whole piece several times Comment:	1	2	3	4	5
34	I practice hard spots then I play the whole piece Comment: before?	1	2	3	4	5
35	I start practicing the piece slowly before I play it faster Comment:	1	2	3	4	5
36	I practice with different speeds (fast, slow) Comment:	1	2	3	4	5
37	I always practice with the speed written at the music score Comment:	1	2	3	4	5
38	I notice fingering before playing a piece Comment:	1	2	3	4	5

39	I practice hands separately first when learning any new piece Comment:	1	2	3	4	5
40	While practicing I count out loud Comment:	1	2	3	4	5
41	I check my hand position while I'm practicing Comment:	1	2	3	4	5
42	I practice with the metronome Comment:	1	2	3	4	5
43	I repeat a difficult part until I know it very well Comment:	1	2	3	4	5
44	I take short breaks during my practice Comment:	1	2	3	4	5
45	I take long breaks during my practice Comment:	1	2	3	4	5
46	I usually have many practice sessions every day Comment:	1	2	3	4	5
47	I usually practice a lot on some days Comment:	1	2	3	4	5
48	I practice more on weekends than weekdays Comment:	1	2	3	4	5

49	I usually do all my practice in one or two days a Week Comment:	1	2	3	4	5
50	I imagine myself playing in front of an audience when I practice Comment:	1	2	3	4	5
51	I watch videos of my previous performances (recitals, concerts) Comment:	1	2	3	4	5
52	I practice a lot more when I have a performance Comment: very much like question 19	1	2	3	4	5
53	I listen to a recording of the pieces that I'm playing Comment:	1	2	3	4	5
54	I video tape my practice sessions Comment:	1	2	3	4	5
55	I listen carefully as I'm playing Comment:	1	2	3	4	5
56	I stop and correct mistakes when I'm practicing (scales, pieces, etc) Comment:	1	2	3	4	5

57	I keep going in my piece even when I make a mistake Comment:	1	2	3	4	5
58	I will continue learning piano and taking lessons even if I make mistakes Comment:	1	2	3	4	5
59	I practice the whole piece then I focus on sections where I usually make mistakes Comment:	1	2	3	4	5
60	I count out loud so I won't make mistakes Comment:	1	2	3	4	5
61	I sing the melody as I'm practicing my pieces Comment:	1	2	3	4	5
62	As I'm playing, I tell myself to change speeds in order not to make mistakes Comment:	1	2	3	4	5
63	I work more on hard sections in my piece than the sections that I know more Comment:	1	2	3	4	5
64	I always start practicing any new piece slowly Comment:	1	2	3	4	5

65	Every time I learn a new piece, I play hands separately Comment:	1	2	3	4	5
66	I always practice with the metronome Comment:	1	2	3	4	5
67	I practice my pieces differently than my scales Comment:	1	2	3	4	5
68	I practice my scales differently than sight reading Comment: and how do you practice sight reading? What do you look for?	1	2	3	4	5
69	I think if my practicing is going well Comment:	1	2	3	4	5
70	I know if my practicing makes me improve Comment:	1	2	3	4	5
71	I know if my practice make me a better piano player Comment: or I know that my practice makes me a better piano player	1	2	3	4	5
72	I always practice the same way even if I'm not getting better Comment: improving? My playing?	1	2	3	4	5

73	I try different ways to fix a problem in a piece (slow practice, use of metronome, hands separately) Comment:	1	2	3	4	5
74	If practicing slowly is not working I use metronome instead Comment:	1	2	3	4	5
75	I always try everything to make my playing better Comment:	1	2	3	4	5
76	I always practice the same way even if I'm not getting better Comment:	1	2	3	4	5

*** All questions are good I don't think I would delete any of them**

Any comments/suggestions about this last section? All questions are good

1	What method book are you using	
2	Do you practice with your parents at home	<ul style="list-style-type: none"> • Never • Seldom • Sometimes • Often • Always
3	Do you get out of the piano lesson knowing exactly what to do and how to practice	<ul style="list-style-type: none"> • Yes • No
	Comment: at the end of each...do you know?	
4	Do you like practicing	<ul style="list-style-type: none"> • Yes • No
5	How long do you usually practice?	
6	How many days a week do you practice?	
7	Do you feel that the teacher explains to you how to practice	<ul style="list-style-type: none"> • Yes • No
8	Do you find practicing	<ul style="list-style-type: none"> • Boring • Confusing • Interesting • Tiring

Appendix E: The process of testing the preliminary questionnaire

Original strategy	Changes after teachers' comments	Changes after students' feedback
I start my practice by doing short simple exercises	I start my practice by playing finger exercises (technique) then I play my pieces	I start my practicing by playing finger exercises before I play my pieces.
I start my practice with playing pieces then my technique	I start my practice by playing pieces first and then I play scales	I start my practicing by playing pieces first and then I play scales.
I start my practice by playing scales first then pieces	No change	I do my scales at the beginning of my practice session.
I practice sight reading in every practice session	No change	I do sight reading in every practice session.
I practice the same order in all my practice sessions	No change	Delete
I review pieces that I already know	I review pieces that I already know in every practice session	No change
I follow the points written in my practice notebook	No change	No change
	Addition: I follow the points that my parent(s) set in each practice session	Delete
I use a pencil/pen to mark my music (dynamics, fingers, etc)	I use a pencil/pen to mark my music (dynamics, fingers, etc) during my practice	During my practice session, I use a pencil to mark my music (dynamics, fingering, circle errors, etc.)
I stretch before sitting at the piano (exercise)	I stretch before sitting at the piano	No change.
I look at my practice notebook before practicing	I look at my practice notebook before I start to practice	Delete
I study the music score before playing	I look at the music carefully before I start	I look at the music carefully before I start practicing.
I play with silent fingers before playing	No change	I practice with silent fingers over the keys (ghosting).
I always think of my goals that I want to do in my practice session	I always give myself goals at every practice session	I give myself goals at every practice session.

Original strategy	Changes after teachers' comments	Changes after students' feedback
I follow the notes that the teacher asked me to do in my practice	I follow my teacher's suggestions in my practice	Delete
I only move on in my practice when I complete one thing	I only move to a new activity once I perfect the previous activity (practice a section, doing the requested number of repetitions, etc)	Delete
I finish my practice when I do all the points written in my notebook	I consider my practice finished after I've done all the points written in my notebook	Delete
I know my practice is over when I do all the things the teacher asked me to do	I know my practice is over when I do all the things the teacher has asked me to do	I know my practice is over when I have done all the things my teacher has asked me to do.
I practice more when an important event is coming (exam, performance, recital, etc)	No change	No change
I practice two or more time a day instead of one long session	No change	Delete
I practice all at once in one long session	No change	I practice all at once in one long session per day.
I practice when I'm most concentrated	I practice at times in the day when I am most concentrated	I practice at times in the day when I am most focused.
I make sure I practice before going out with my friends	No change	No change
I prefer to practice than do any other activity (sports, dance, etc)	No change	I would rather practice than do other activities (soccer, hockey, swimming, skiing, etc.).
I practice everyday if I can	No change	No change
I practice whenever I can	No change	Delete
I practice more than I did when I started learning the piano	No change	Delete

Original strategy	Changes after teachers' comments	Changes after students' comments
I practice the piece in my head a lot before I play it on the piano	No change	I practice away from the piano (I play in my head, on a table, etc.).
I use practice charts	No change	No change
I try to fix one thing at a time when I'm practicing	No change	No change
I look at the music carefully before I start	I look at the music carefully before I start practicing	No change
I mark hard spots in each piece before playing	No change	I mark difficult spots in each piece with a pencil before playing.
I play through the whole piece several times	I play through the whole piece several times during my practice	I play through the whole piece from beginning to end several times during my practice session
I practice hard spots then I play the whole piece	I practice hard spots before I play the whole piece	I practice hard spots before I play the whole piece
I start practicing the piece slowly before I play it faster	No change	Delete
I practice with different speeds (fast, slow)	No change	Delete
I always practice with the speed written at the music	I always practice with the speed written in the music score	I always practice with the speed indicated in the music score.
I notice fingering before playing a piece	No change	I pay attention to fingering when I practice a piece or scales.
I practice hands separately first when learning any new piece	No change	Every time I learn a new piece, I play hands separately.
While practicing I count out loud	No change	I count out loud when I am practicing.
I check my hand position while I'm practicing	No change	I check my hand position while I am Practicing
I practice with the metronome	delete	delete
I repeat a difficult part until I know it very well	No change	No change
I take short breaks during my practice	No change	delete

Original strategy	Changes after teachers' comments	Changes after students' feedback
I take long breaks during my practice	No change	Delete
I usually have many practice sessions every day	No change	I usually have a few practice sessions every day.
I usually practice a lot on some days	No change	Delete
I practice more on weekends than weekdays	No change	No change
I usually do all my practice in one or two days a week	No change	Delete
I imagine myself playing in front of an audience when I practice	No change	No change
I watch videos of my previous performances (recitals, concerts)	No change	Delete
I practice a lot more when I have a performance	I practice more when an important event is coming (exam, performance, recital, etc)	No change
I listen to a recording of the pieces that I'm playing	No change	I listen to recordings of the pieces that I am learning.
I video tape my practice sessions	Delete	Delete
I listen carefully as I'm playing	I listen carefully while I'm practicing	I listen carefully to my playing while I am practicing.
I stop and correct mistakes when I'm practicing (scales, pieces, etc)	No change	I stop and correct mistakes when I am practicing.
I keep going in my piece even when I make a mistake	I keep going in my piece even when I make a mistake while I'm playing	No change
I will continue learning piano and taking lessons even if I make mistakes	No change	During my practice, I keep going in my piece even when I make a mistake.
I practice the whole piece then I focus on sections where I usually make mistakes	No change	No change

Original strategy	Changes after teachers' comments	Changes after students' feedback
I count out loud so I won't make mistakes	No change	No change
I sing the melody as I'm practicing my pieces	No change	I sing the melody out loud as I am practicing my pieces.
As I'm playing, I tell myself to change speeds in order not to make mistakes	No change	Delete
I work more on hard sections in my piece than the sections that I know more	I work more on hard sections in my piece than the sections that I know better	No change
I always start practicing any new piece slowly	I always start practicing new pieces slowly	No change
Every time I learn a new piece, I play hands separately	No change	No change
I always practice with the metronome	I use the metronome a lot in my practice session	I use the metronome a lot in my practice session
I practice my pieces differently than my scales	I practice my pieces differently than my scales/technique	delete
I practice my scales differently than sight reading	I practice my scales in a different way than sight reading	I follow different steps for sight reading than when I prepare a piece for performance.
I think if my practicing is going well	I think if whether or not my practicing is going well	I think about whether or not my practicing is going well.
I know if my practicing makes me improve	I know if my practicing makes me improve in piano playing	I know when my practicing improves my piano playing.
I know if my practice make me a better piano player	I can tell if my practice makes me a better piano player	delete
I always practice the same way even if I'm not getting better	I always practice the same way even if my playing is not improving	No change

Original strategy	Changes after teachers' comments	Changes after students' comments
I try different ways to fix a problem in a piece (slow practice, use of metronome, hands separately)	No change	I try different ways to fix a problem in a piece (practicing slowly, use of metronome, hands separately).
If practicing slowly is not working I use metronome instead	No change	Delete
I always try everything to make my playing better	I will try everything to make my playing improve	No change
		Addition: I follow different steps for Practicing each of the following: sight reading, pieces, scales.
		In every practice session, I do repertoire, technique, and sight-reading.
		I check the key signature(s) of every piece I practice
		I clap and count the rhythm of every piece before Practicing it
		I practice with eyes closed
		I check the time signature(s) of every piece I practice
		I name all the notes before Practicing my piece

Appendix F: Part two of the questionnaire

Part two of the questionnaire: general strategies

Strategy. No	Item in the questionnaire
1	Practicing sight reading
2	Practicing scales
3	Practicing with a slow tempo
4	Using a pencil to mark my music
5	Practicing with the metronome
6	Counting out loud while practicing
7	Listening to music recordings
8	Singing the melody while practicing a piece
9	Using practice charts
10	Stopping and correcting mistakes while practicing
11	Clapping or tapping rhythm exercises
12	Reviewing pieces that I already know
13	Having my parents help me with practicing
14	Practicing with eyes closed

Appendix G: Final draft of the questionnaire

Student Questionnaire



Young Piano Students' Perceptions of their Practice Strategies

GENERAL INFORMATION

Child's Name	
Child's Age	
Child's Level	
Date	
Parent's or Guardian's Name	
Piano Teacher's Name	

PART 1

Instructions

You have been learning to play the piano for some time now. I am interested in knowing about your practising.

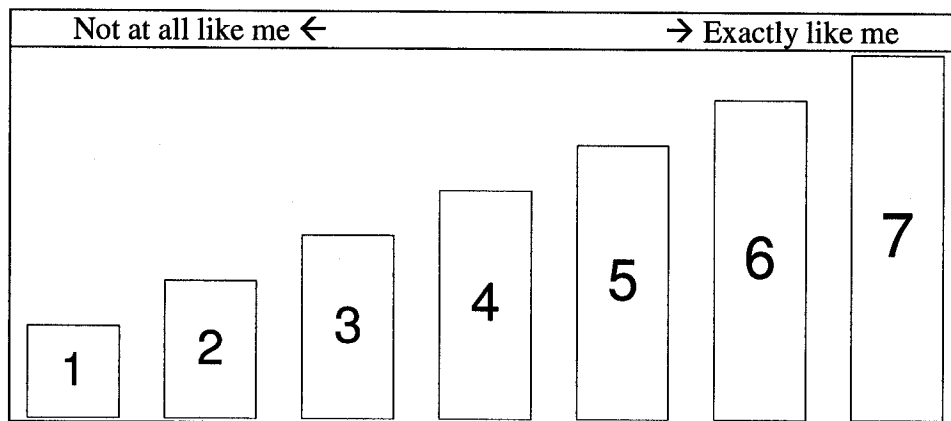
Here is what we are going to do today:

- I will present you statements about practising.
- You tell me how much each of the statements describes what you think or how you feel.
- Ask yourself if this statement describes you "exactly", "not at all" or "somewhere in between."

To give your answer, choose one of the towers shown below.

- If the statement describes you exactly, circle the highest tower.
- If the statement does not describe you at all, circle the smallest tower.
- If the statement describes you to some degree, circle a tower somewhere in between.

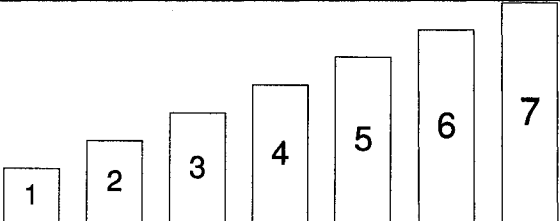
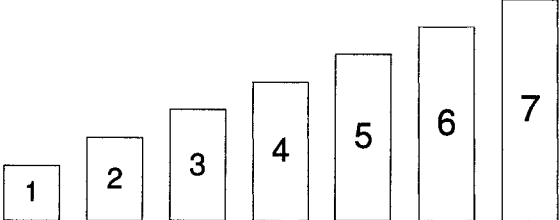
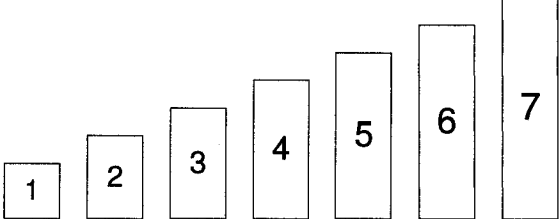
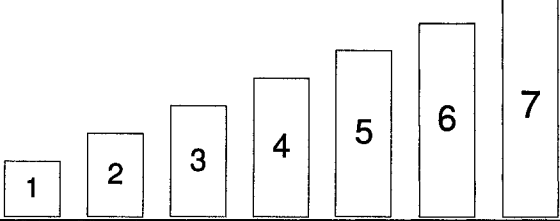
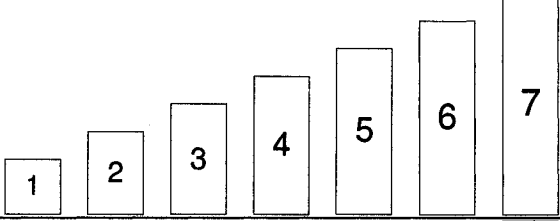
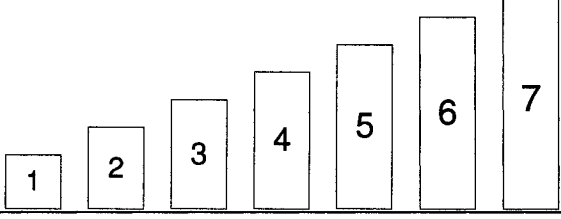
Example: I watch TV.

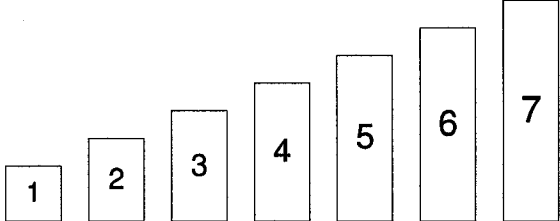
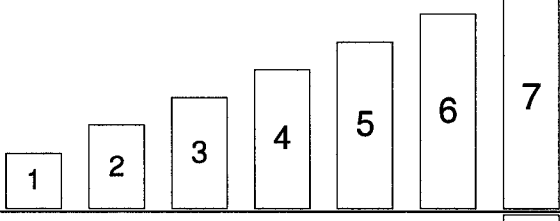
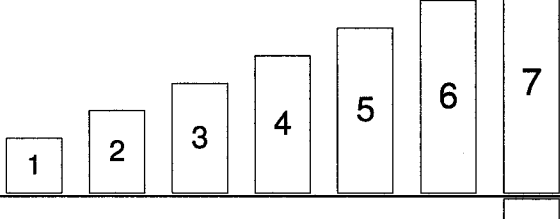
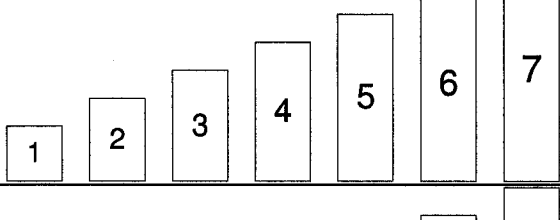
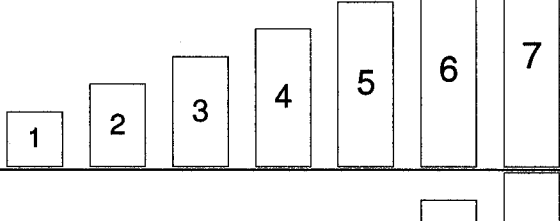
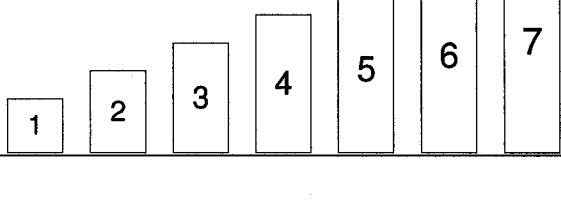


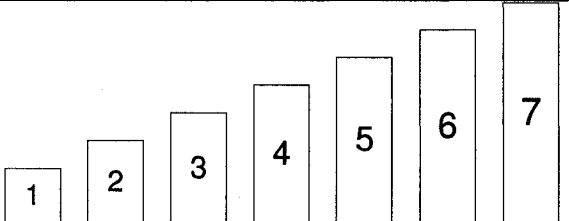
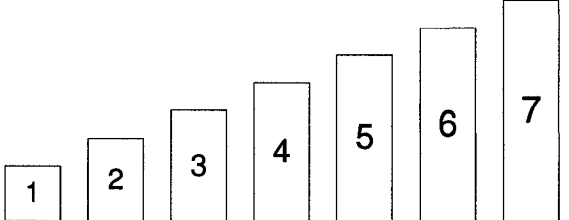
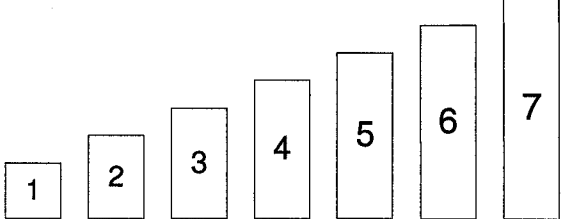
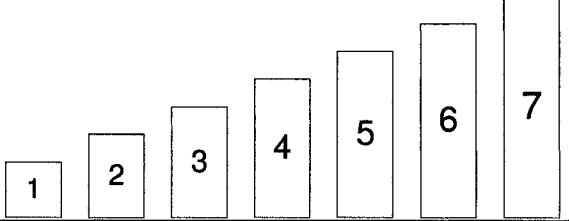
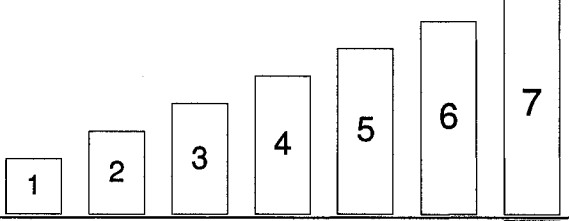
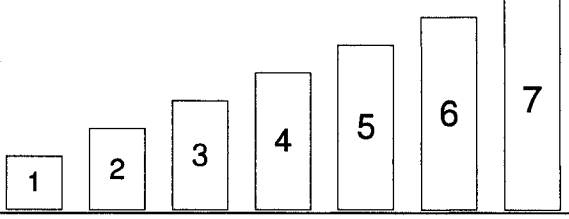
Do you understand what we are going to do? OK... let's start.

		Not at all like me ← → Exactly like me
1	I stretch before sitting at the piano.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
2	I use practice charts.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
3	I start my practising by playing finger exercises before I play my pieces.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
4	I start my practising by playing pieces first and then I play scales.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
5	I do sight reading in every practice session.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
6	I follow the points written in my practice notebook.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>

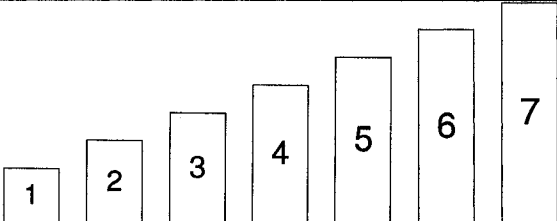
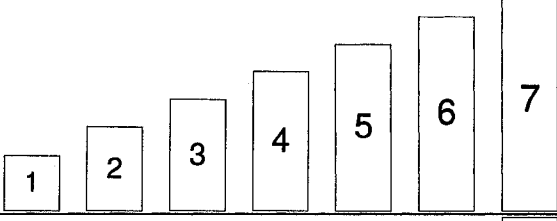
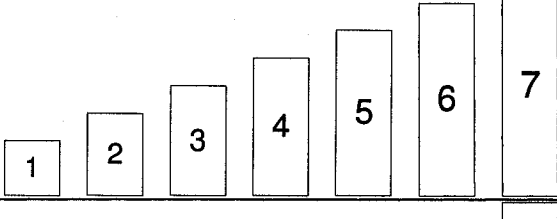
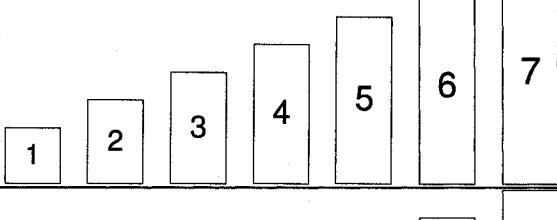
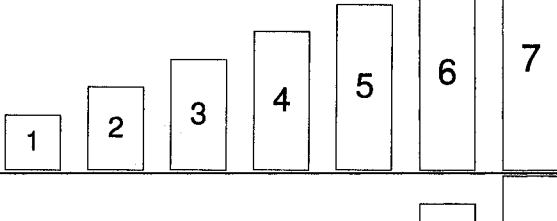
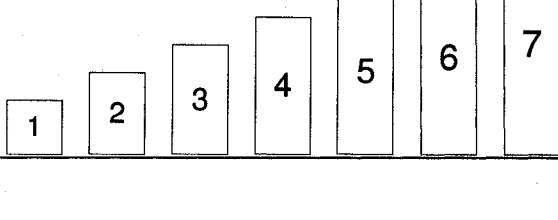
		Not at all like me ← → Exactly like me
7	I review pieces that I already know in every practice session.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
8	I do my scales at the beginning of my practice session.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
9	During my practice session, I use a pencil to mark my music (dynamics, fingering, circle errors, etc.)	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
10	I practice with silent fingers over the keys (ghosting).	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
11	I give myself goals at every practice session.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
12	I know my practice is over when I have done all the things my teacher has asked me to do.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>

		Not at all like me ← → Exactly like me
13	I practice more when an important event is coming (exam, performance, recital, etc).	
14	I practice at times in the day when I am most focused.	
15	I make sure I practice before going out with my friends	
16	I would rather practice than do other activities (soccer, hockey, swimming, skiing, etc.).	
17	I practice every day if I can.	
18	I practice away from the piano (I play in my head, on a table, etc.).	

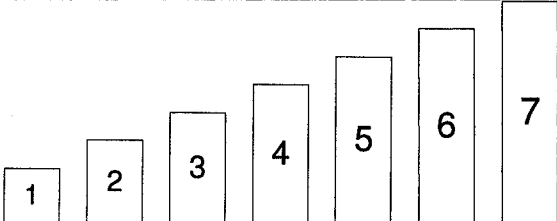
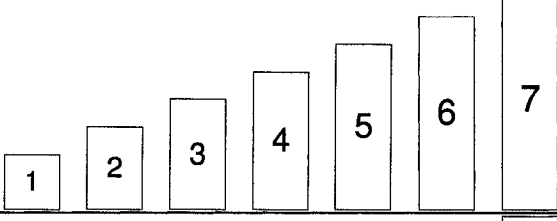
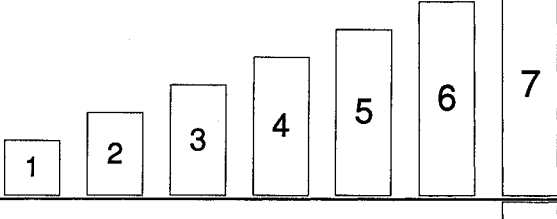
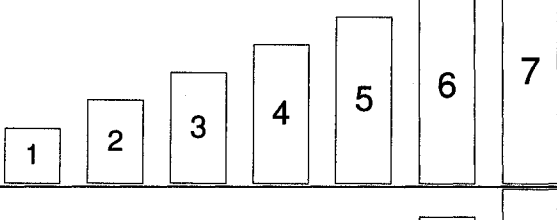
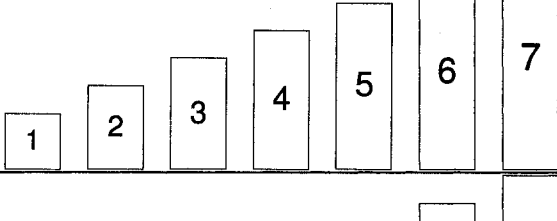
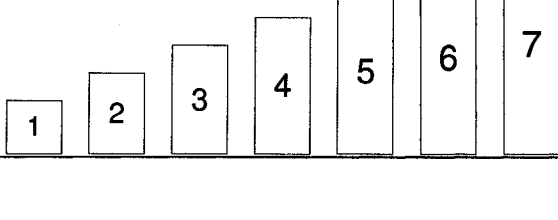
		Not at all like me ← → Exactly like me
19	I try to fix one thing at a time when I am practising.	
20	I look at the music carefully before I start practising.	
21	I mark difficult spots in each piece with a pencil before playing.	
22	I play through the whole piece from beginning to end several times during my practice session.	
23	I practice the most difficult spots before I play the whole piece.	
24	I always practice with the speed indicated in the music score.	

		Not at all like me ← → Exactly like me
25	I pay attention to fingering when I practice a piece or scales.	
26	I count out loud when I am practising.	
27	I check my hand position while I am practising.	
28	I use the metronome a lot in my practice sessions.	
29	I say out loud the name of the notes while I am practising the piece.	
30	I repeat a difficult part until I know it very well.	

		Not at all like me ← → Exactly like me
31	I usually have a few practice sessions every day.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
32	I imagine myself playing in front of an audience when I practice.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
33	I practice more on weekends than weekdays.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
34	I practice all at once in one long session per day.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
35	I listen to recordings of the pieces that I am learning.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
36	I sing the melody out loud as I am practising my pieces.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>

		Not at all like me ← → Exactly like me
37	I stop and correct mistakes when I am practising.	
38	During my practice, I keep going in my piece even when I make a mistake.	
39	I practice the whole piece then I focus on sections where I usually make mistakes.	
40	I count out loud so I won't make mistakes.	
41	I listen carefully to my playing while I am practising.	
42	I work more on the hard sections in my piece than the sections that I know better.	

		Not at all like me ← → Exactly like me
43	I always start practising new pieces slowly.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
44	I name all the notes before practising my piece	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
45	I check the time signature(s) of every piece I practice	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
46	I practice with eyes closed	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
47	I clap and count the rhythm of every piece before practising it	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
48	Every time I learn a new piece, I play hands separately.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>

		Not at all like me ← → Exactly like me
49	I think about whether or not my practising is going well.	
50	I follow different steps for sight reading than when I prepare a piece for performance.	
51	I know when my practising improves my piano playing.	
52	I check the key signature(s) of every piece I practice	
53	I always practice the same way even if my playing is not improving.	
54	I follow different steps for practising each of the following: sight reading, pieces, scales.	

		Not at all like me ← → Exactly like me
55	In every practice session, I do repertoire, technique, and sight-reading.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
56	I try different ways to fix a problem in a piece (practising slowly, use of metronome, hands separately).	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>
57	I will try everything to make my playing improve.	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>

PART 2

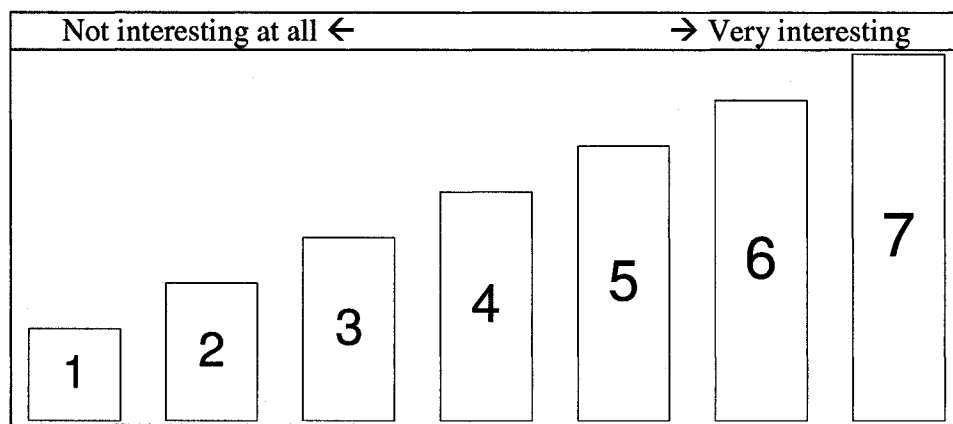
Instructions

Now we will turn to something different. In this section, what I would like to know is how interesting these different things are to you.

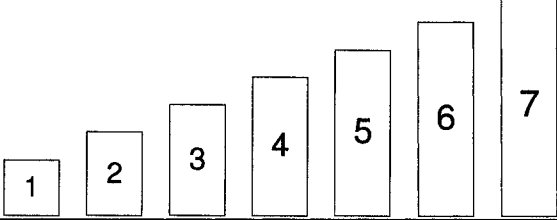
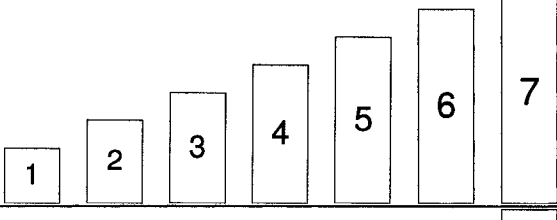
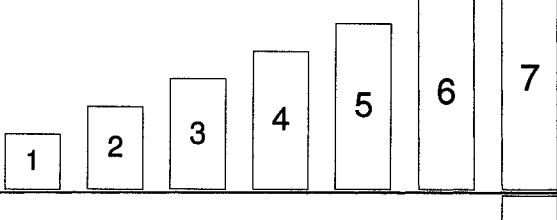
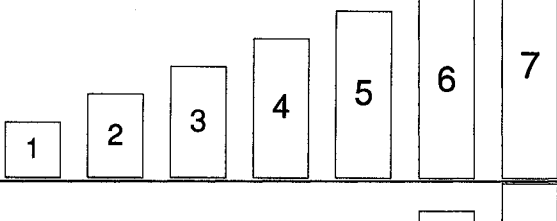
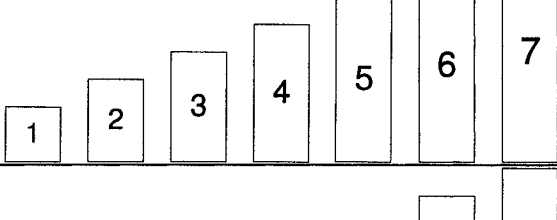
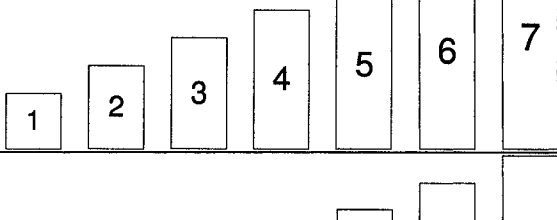
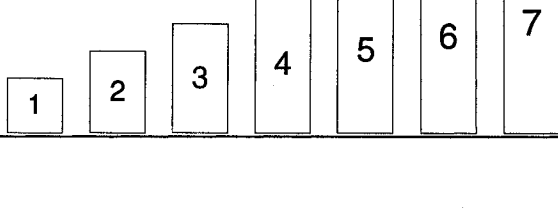
To give your answer, choose one of the towers shown below.

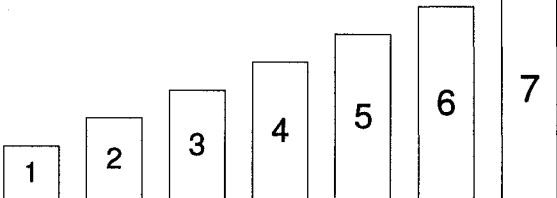
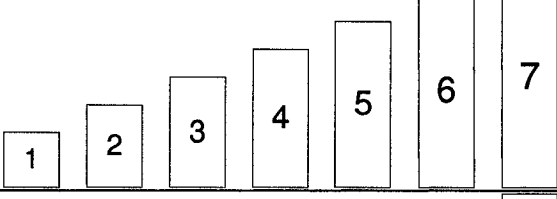
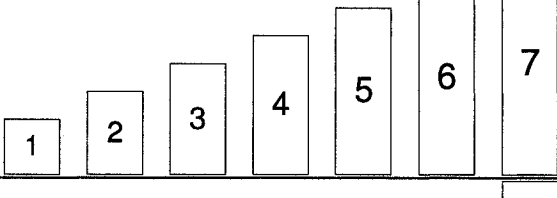
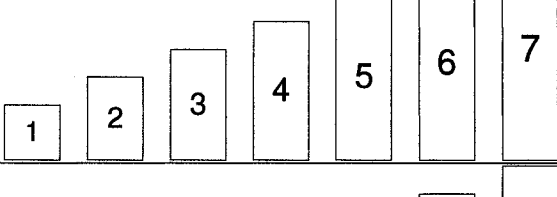
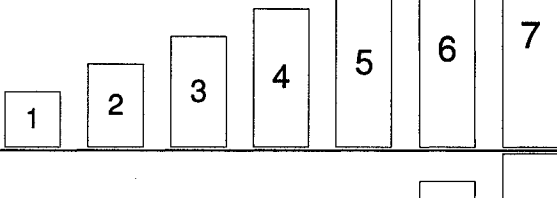
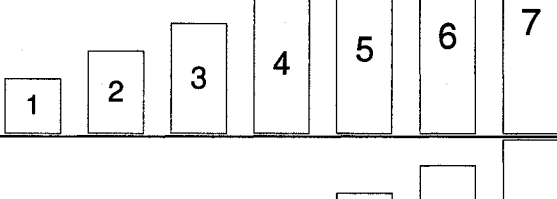
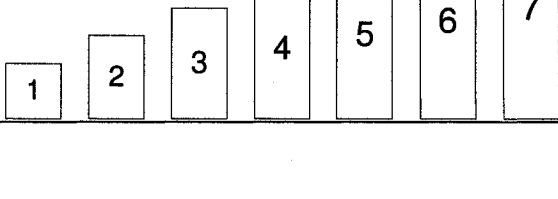
- If the statement is very interesting to you, circle the highest tower.
- If the statement isn't interesting at all, circle the smallest tower.
- If the statement is interesting to some degree, circle a tower somewhere in between.

Example: Doing homework



Do you understand what we are going to do? OK. Let's start

		Not interesting at all ← → Very interesting
1	Practising sight reading	
2	Practising scales	
3	Practising with a slow tempo	
4	Using a pencil to mark my music	
5	Practising with the metronome	
6	Counting out loud while practising	
7	Listening to music recordings	

		Not interesting at all ← → Very interesting
8	Singing the melody while practising a piece	
9	Using practice charts	
10	Stopping and correcting mistakes while practising	
11	Clapping or tapping rhythm exercises	
12	Reviewing pieces that I already know	
13	Having my parents help me with practising	
14	Practising with eyes closed	

PART 3

Instructions

To finish, I would like to ask you a few questions. Please circle the response that best describes what you think.

1	What method book are you using?	
2	Do you practice with a parent at home?	<ul style="list-style-type: none"> • Always • Often • Sometimes • Seldom • Never
3	At the end of each piano lesson, do you know exactly what to do and how to practice?	<ul style="list-style-type: none"> • Always • Often • Sometimes • Seldom • Never
4	Do you like practising?	<ul style="list-style-type: none"> • Always • Often • Sometimes • Seldom • Never
5	How long do you usually practice?	
6	How many days a week do you usually practice?	
7	Do you think that your teacher explains to you how to practice or shows you how to do it?	<ul style="list-style-type: none"> • Always • Often • Sometimes • Seldom • Never
8	Do you find practising	<ul style="list-style-type: none"> • Boring • Confusing • Interesting • Tiring • Other:.....
9	Do you think of other things while you are practising?	<ul style="list-style-type: none"> • Always • Often • Sometimes • Seldom • Never <p>If (1-4) Please specify:.....</p>
10	If a friend of yours came and asked you, what is piano practicing? What would you say?	

You are done. Good work ☺
Thank you for taking this time to help us with our research.

Appendix H: Ethics committee approval



Université d'Ottawa University of Ottawa

Service de subventions de recherche et d'éthologie Research Grants and Ethics Services

January 31, 2007

Gilles Comeau
Department of Music
University of Ottawa
gcomeau@uottawa.ca

Nisreen Jardaneh
Department of Music
University of Ottawa

Re: Young Piano Students' Perceptions of their Practice Strategies (File # 01-07-21)

Dear Professor Comeau and Mrs. Jardaneh,

You will find enclosed the Social Sciences and Humanities Research Ethics Board (SSH REB) Certification for your research project. This phase of the CIIM project involves interviews with teachers and school administrators, as well as in-class observations.

During the course of the study, any modifications to the protocol or forms may not be initiated without prior written approval from the REB. You must also promptly notify the REB of any adverse events that may occur.

This certificate of ethical clearance is valid until January 31, 2008. Please submit an annual status report to the Protocol Officer in January 2008 to either close the file or request a renewal of ethics approval. This document can be found at:
http://www.rges.uottawa.ca/ethics/application_dwn.asp

If you have any questions, please do not hesitate to contact me at extension 1787.

Sincerely yours,

Catherine Paquet
Protocol Officer for Ethics in Research
For Richard Clément, Chair of the SSH REB

550, rue Cumberland 550 Cumberland Street
Ottawa (Ontario) K1N 6N5 Canada Ottawa, Ontario K1N 6N5 Canada
(613) 562-5841 • Téléc./Fax (613) 562-5338
<http://www.uottawa.ca/services/research/rge/index.html>



Université d'Ottawa University of Ottawa

Service de subventions de recherche et d'éthologie Research Grants and Ethics Services

SOCIAL SCIENCES AND HUMANITIES RESEARCH ETHICS BOARD

CERTIFICATION OF ETHICAL APPROVAL

This is to certify that the University of Ottawa Social Sciences and Humanities Research Ethics Board (REB) has examined the application for ethical approval for the research project **Young Piano Students' Perceptions of their Practice Strategies (File # 01-07-21)** submitted by Nasreen Jardaneh and supervised by Gilles Comeau of the Department of Music. The members of the REB found that the research project met appropriate ethical standards as outlined in the Tri-Council Policy Statement and in the Procedures of the University of Ottawa Research Ethics Boards, and accordingly gave the research project a Category Ia (Approval).

This certification is valid for one year from the date indicated below.

Catherine Paquet
Protocol Officer for Ethics in Research
For the Chair of the Social Sciences and Humanities REB
Richard Clément

January 31, 2007

Date

550, rue Cumberland 550 Cumberland Street
Ottawa (Ontario) K1N 6N5 Canada Ottawa, Ontario K1N 6N5 Canada
(613) 562-5841 • Téléc./Fax (613) 562-5338
<http://www.uottawa.ca/services/research/rge/index.html>

Appendix I: Consent form for piano teachers



Université d'Ottawa • University of Ottawa

Faculté des arts
Musique

Faculty of Arts
Music

CONSENT FORM FOR PIANO TEACHERS

I, _____, confirm that I have read and understood the information presented in the introductory letter about the project.

- ☐ I agree to let my students participate in this research project provided s/he and her/his parents or tutor also express their agreement.
- ☐ I do not agree to let my students participate in this research project

Date	
Piano Teacher's Name	
Piano Teacher's Signature	
Piano Teacher's Phone Number	
Piano Teacher's Email	

Optional

If you would like to receive a summary of the results
please let us know where we can send you a report

Address :	City :	Postal Code:
-----------	--------	--------------

50, rue Université C.P. 450, Succ. A
Ottawa (Ontario) K1N 6N5 Canada

50 University St., P.O. Box 450, Stn. A
Ottawa, Ontario K1N 6N5 Canada

1 + (613) 562-5733 • Téléc./Fax (613) 562-5140

Appendix J: Invitation letter to parents



Université d'Ottawa • University of Ottawa

Faculté des arts
Musique

Faculty of Arts
Music

Young Piano Students Perceptions of their Practice Strategies

Dear parents or guardians,

I'm writing to you today as a member of the Piano Pedagogy Research Laboratory at the University of Ottawa. The goal of this laboratory is to explore new and better ways to help children learn to play the piano and enjoy this activity. As we pursue this goal, we investigate a variety of topics that are related to piano studies. These include: ways to structure a piano practice, how to avoid muscular tension during practice and recitals, etc.

Currently, I'm working on a research project that focuses on young piano students' perceptions of their practice strategies. So far, I have constructed the preliminary version of this questionnaire and would like to verify how children respond to it. I'm writing to ask if you would agree to let your children participate in this research project.

Objective. The objective of the present project is to examine 7 to 12 year-old young piano students' perceptions of their practice strategies through using a questionnaire.

What the children will be asked to do. The project will be carried out as an interview with the children. The interview requires approximately 30 minutes. This interview will be broken down into two parts. In the first part, your child will be shown different practice strategies one might use. Then, s/he will be asked to indicate how much each of these strategies s/he thinks that s/he uses. S/he will indicate her/his response by selecting a digit on a 7-point scale. To make this activity more concrete, increasing digits will be graphically illustrated by towers of increasing heights. The smallest tower means that "the statement does not describe me at all", whereas the tallest tower means that "the statement describes me perfectly". In the second part of the interview, your child will be asked to rate the same strategies on how interesting they are (e.g., working with a metronome).

In either part of the interview, none of the questions are intended to be embarrassing to the child and no judgment will be made on her/his devotion to piano studies. There is no right or wrong answer to these questions. I'm simply inviting each child to express her/his opinions.

50, rue Université C.P. 450, Succ. A
Ottawa (Ontario) K1N 6N5 Canada

50 University St., P.O. Box 450, Stn. A
Ottawa, Ontario K1N 6N5 Canada

1 + (613) 562-5733 • Téléc./Fax (613) 562-5140

Where will the interviews be carried out. The interviews will be carried out at the Piano Pedagogy Research Laboratory. The interviewer will contact parents by phone and make the necessary arrangements regarding the date and time of the interview.

Voluntary participation, anonymity and confidentiality. Your child should participate in this project only if s/he wants to. After indicating his / her interest in this project, your child may decide not answer every question or stop the interview at any time. All information provided by your child will remain strictly anonymous and confidential. Only authorized members of the Piano Pedagogy Research Laboratory will have access to the data provided by the children. When I report the results of this project, only group averages will be presented. No information about individuals will ever be made public. Please note that the data collected will be kept for 5 years. Paper documents will be locked in a filing cabinet and electronic files will be password protected and no one will have access to it except myself and my supervisor. After 5 years, the documents will be shredded and electronic files will be deleted.

How to obtain a copy of the results. I would be pleased to share the results of this project with you. All you need to do to receive a summary of the results is provide me with your name and complete address. For any additional information regarding this project, do not hesitate to contact me. My phone number and email address are provided below.

Your consent and that of your child. If you agree to let your child participate in this project, may I ask you to read, fill out and sign the consent form joined to this letter. Even after signing this form you are not bound to anything. This form just indicates that you agree to let your child/children participate in the project. The parents' consent is also required and the child is free to withdraw at any time without providing any justification.

If you have any questions regarding the ethical conduct of this study, you may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 159, (613) 562-5841 or ethics@uottawa.ca

I do hope you will find this project interesting and I thank you in advance for considering this request for participation.

Sincerely,

Nisreen Jardaneh,

Piano Pedagogy Research Laboratory
University of Ottawa

Professor Gilles Comeau
Piano Pedagogy Research Laboratory

Telephone : 562-5800 ext. 3483
Email: gcomeau@uottawa.ca

Appendix K: Consent forms for parents and students



Université d'Ottawa • University of Ottawa

Faculté des arts
Musique

Faculty of Arts
Music

Young Piano Students Perceptions of their Practice Strategies

CONSENT FORM FOR PARENTS OR GUARDIANS

I, _____, confirm that I have read and understood the information presented in the introductory letter about the project and I have discussed this project with my child to make sure s/he was interested in participating.

- ☐ I agree to let my child participate in this research project
- ☐ I do not agree to let my child participate in this research project

Child's Name :

Parent's or Guardian's Name :

Parent's or Guardian's Signature:

Date :

Parent's or Guardian's Phone Number:

Email:

Piano Teacher's Name :

Optional

I would like to receive a summary of the results of this project
at the following address :

Address :

City :

Postal Code:

50, rue Université C.P. 450, Succ. A
Ottawa (Ontario) K1N 6N5 Canada

50 University St., P.O. Box 450, Stn. A
Ottawa, Ontario K1N 6N5 Canada

1 + (613) 562-5733 • Téléc./Fax (613) 562-5140



Université d'Ottawa • University of Ottawa

Faculté des arts
Musique

Faculty of Arts
Music

Young Piano Students Perceptions of their Practice Strategies

CONSENT FORM FOR THE PIANO STUDENT

This questionnaire is not for evaluating your work. There is no right or wrong answer to these questions. What I am interested in is to know what you think about piano practicing. Whatever you will answer is confidential. No one will have a look at it except me.

It is entirely up to you to decide to participate or not in my project. You are not obligated to help me.

Do you accept to participate in this project? YES ____ NO ____

Child's Signature: _____ Date: _____

50, rue Université C.P. 450, Succ. A
Ottawa (Ontario) K1N 6N5 Canada

50 University St., P.O. Box 450, Stn. A
Ottawa, Ontario K1N 6N5 Canada

T + (613) 562-5733 • Téléc./Fax (613) 562-5140

Appendix L: Coding scheme

Coding Protocol for Data Entry

No.	Label	Information	Codes
1	ID	Identity of respondent	Enter number
2	Gender	Gender of the child	1=F; 2=M
3	Age	Age of the child in years	Enter number
4	Grade	Latest grade level of the child	Enter level number
5	* Strat.	Use of strategies	Enter digit
6	** Int.	Interest in using some strategies	Enter digit
5	Perc01	Name of method book	1- Suzuki 2- MYC 3- RCM 4- Thomspson 5- Piano Adventures 6- Music Tree 7- Don't use method book 8- Conservatory Canada 9- Alfred 10- A.B.C
8	Perc02	Practice with a parent at home?	1- Always 2- Often 3- Sometimes 11- Seldom 12- Never
9	Perc03	At the end of each piano lesson, do you know exactly what to do and how to practice?	1- Always 2- Often 3- Sometimes 4- Seldom 5- Never
10	Perc04	Do you like practicing	1- Always 2- Often 3- Sometimes 4- Seldom 5- Never
11	Perc05	Practice: how many days a week	Enter number
12	Perc06	Practice: how many minutes per session	Enter number

13	Perc07	Does the teacher explain how to practice ?	1- Always 2- Often 3- Sometimes 4- Seldom 5- Never
14	Perc08	Do you find Practicing	1- Boring 2- Confusing 3- Interesting 4- Tiring 5- Other: (specify)....
15	Perc09	Do you think of other things while you are Practicing?	1- Always 2- Often 3- Sometimes 4- Seldom 5- Never From (1-4): Specify
16	Perc10	Define piano practicing	Enter as typed by participant

* Coding no.5 presents the 57 strategies in part one of the questionnaire

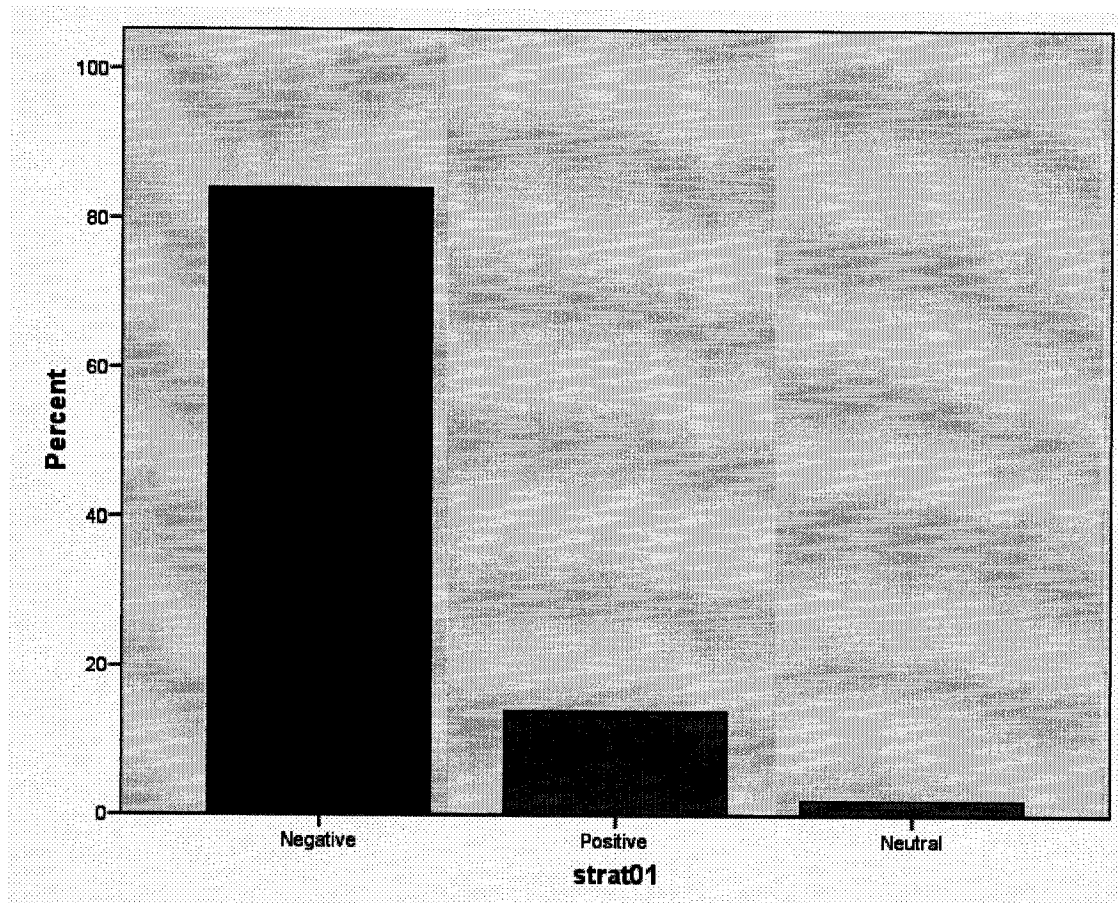
** Coding no.6 presents the 14 general strategies in part two of the questionnaire

Appendix M: SPSS results on the use of practice strategies

I stretch before sitting at the piano

strat01

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	42	84.0	84.0	84.0
	Positive	7	14.0	14.0	98.0
	Neutral	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

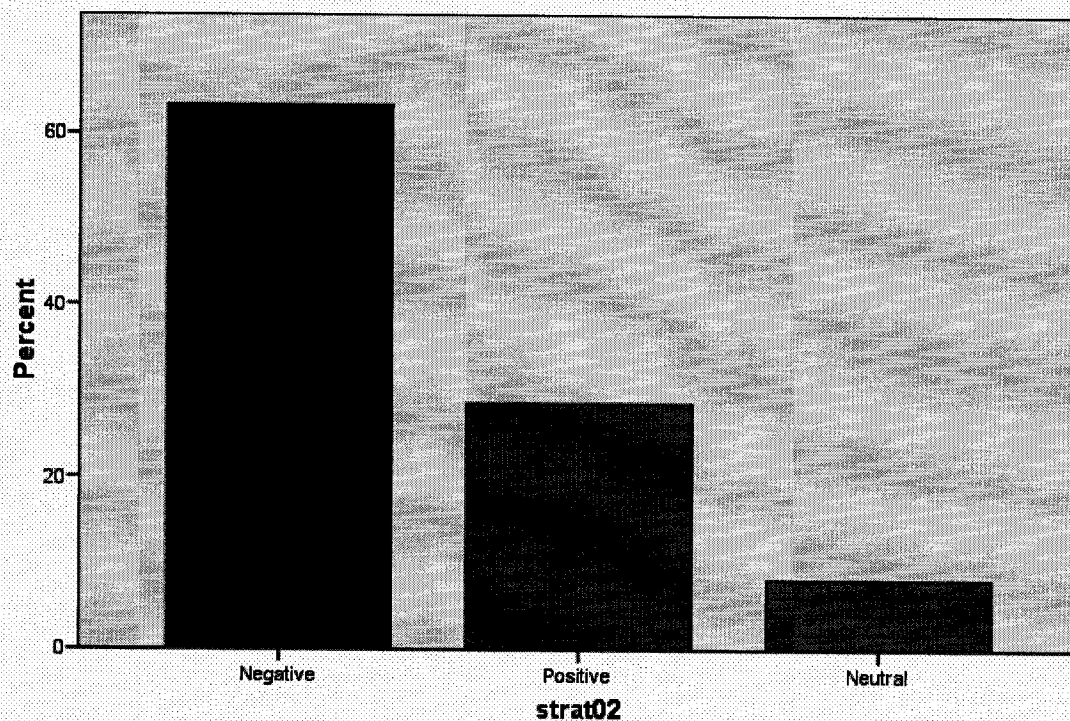


I use practice charts

strat02

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	31	62.0	63.3	63.3
	Positive	14	28.0	28.6	91.8
	Neutral	4	8.0	8.2	100.0
	Total	49	98.0	100.0	
Missing	System	1	2.0		
Total		50	100.0		

strat02

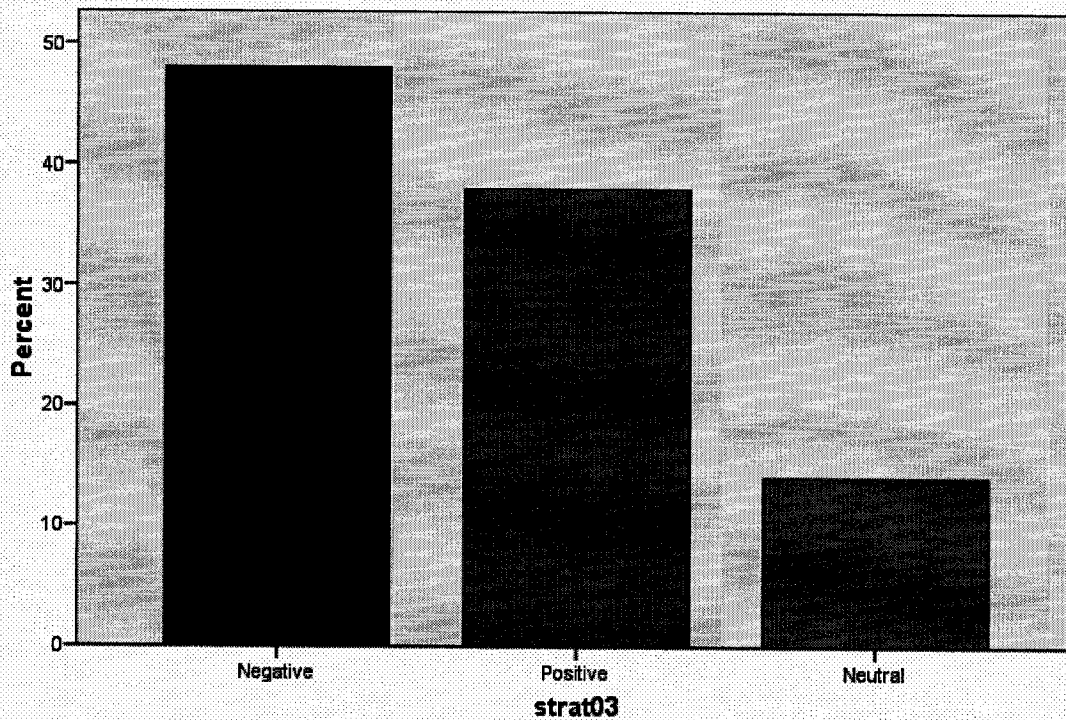


I start my practicing by playing finger exercises before I play my pieces

strat03

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	24	48.0	48.0	48.0
	Positive	19	38.0	38.0	86.0
	Neutral	7	14.0	14.0	100.0
	Total	50	100.0	100.0	

strat03

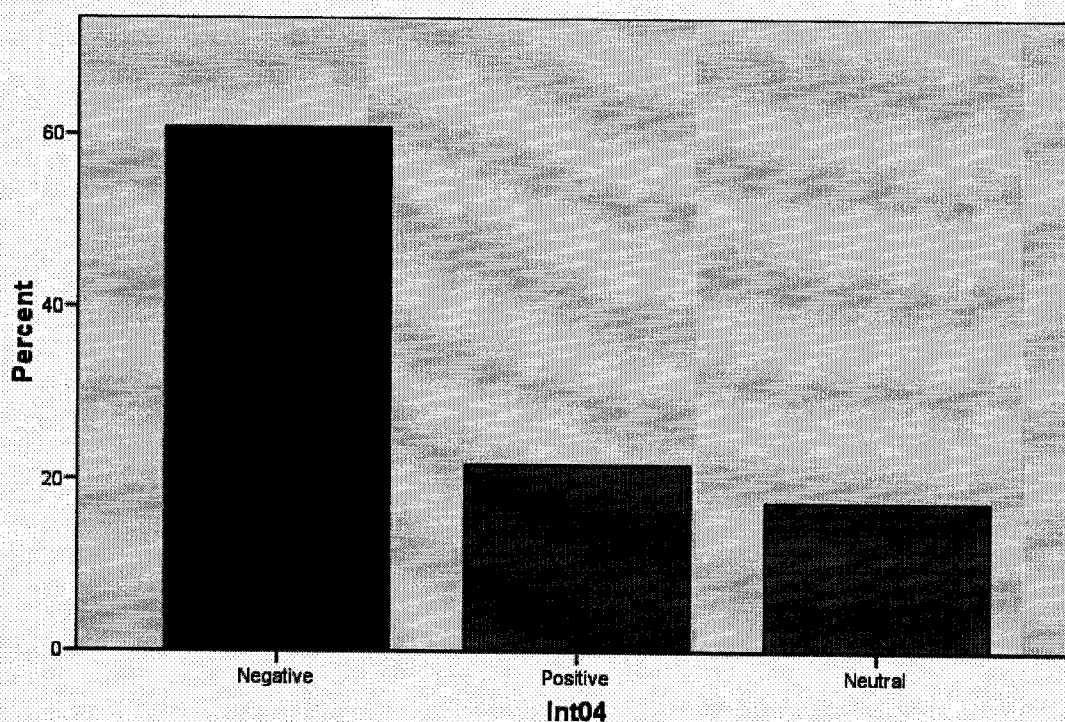


I start my practicing by playing pieces first and then I play scales

strat04

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	32	64.0	64.0	64.0
	Positive	15	30.0	30.0	94.0
	Neutral	3	6.0	6.0	100.0
	Total	50	100.0	100.0	

Int04

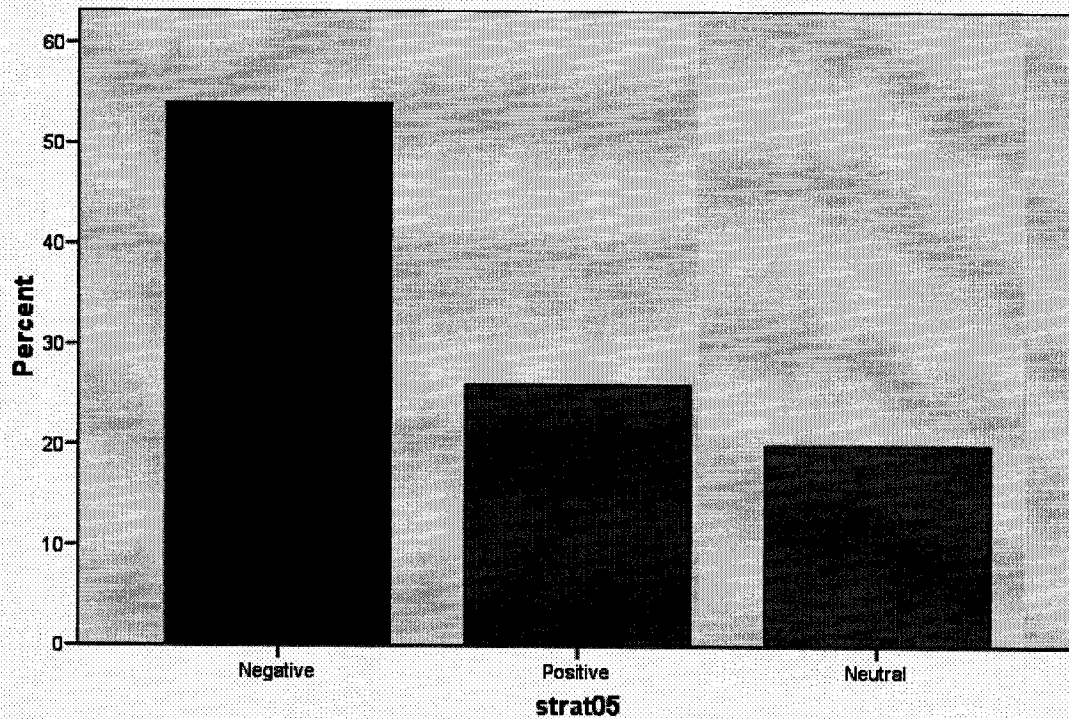


I do sight reading in every practice session

strat05

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	27	54.0	54.0	54.0
	Positive	13	26.0	26.0	80.0
	Neutral	10	20.0	20.0	100.0
	Total	50	100.0	100.0	

strat05

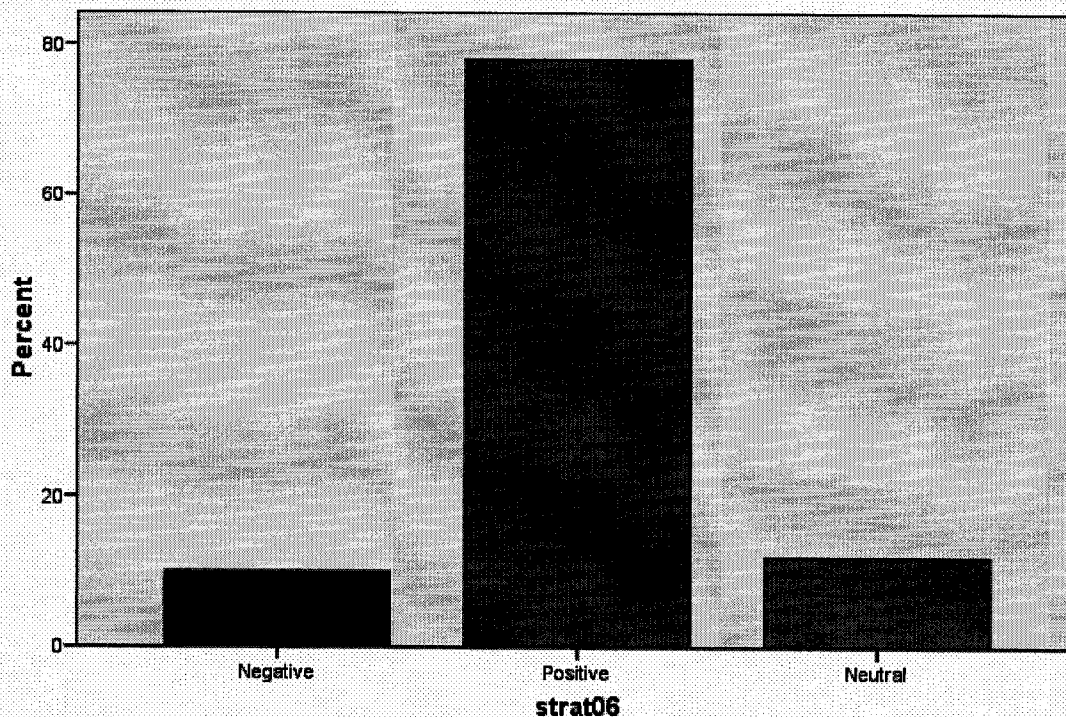


I follow the points written in my practice notebook

strat06

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	5	10.0	10.0	10.0
	Positive	39	78.0	78.0	88.0
	Neutral	6	12.0	12.0	100.0
	Total	50	100.0	100.0	

strat06

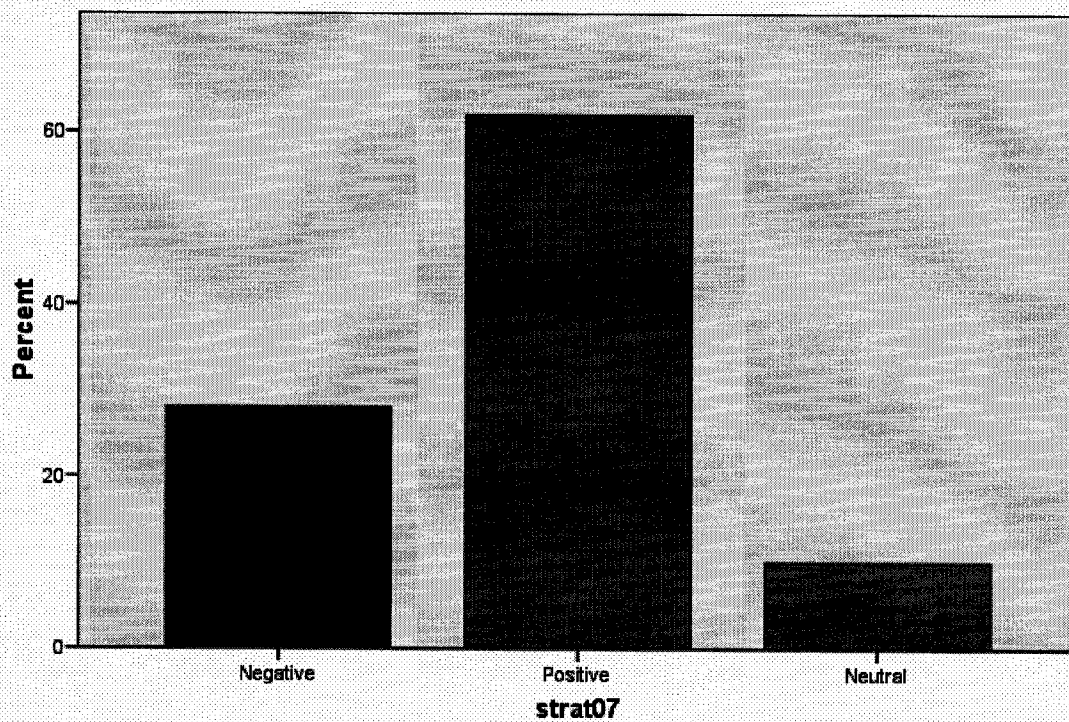


I review pieces that I already know in every practice session

strat07

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	14	28.0	28.0	28.0
	Positive	31	62.0	62.0	90.0
	Neutral	5	10.0	10.0	100.0
	Total	50	100.0	100.0	

strat07

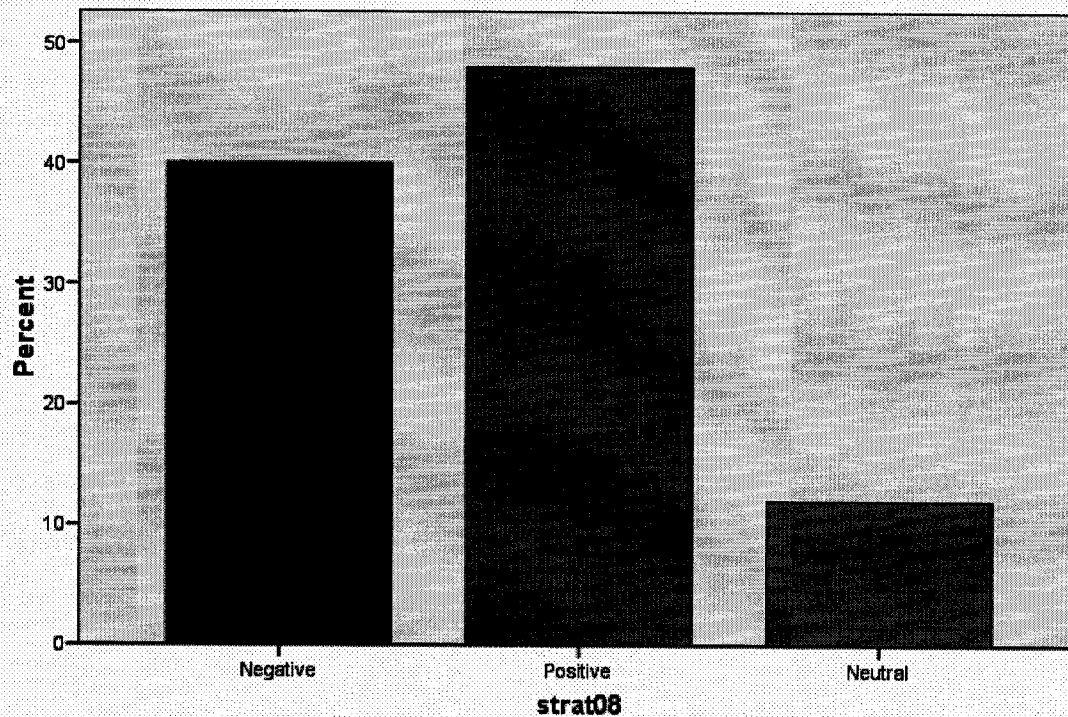


I do my scales at the beginning of my practice session

strat08

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	20	40.0	40.0	40.0
	Positive	24	48.0	48.0	88.0
	Neutral	6	12.0	12.0	100.0
	Total	50	100.0	100.0	

strat08

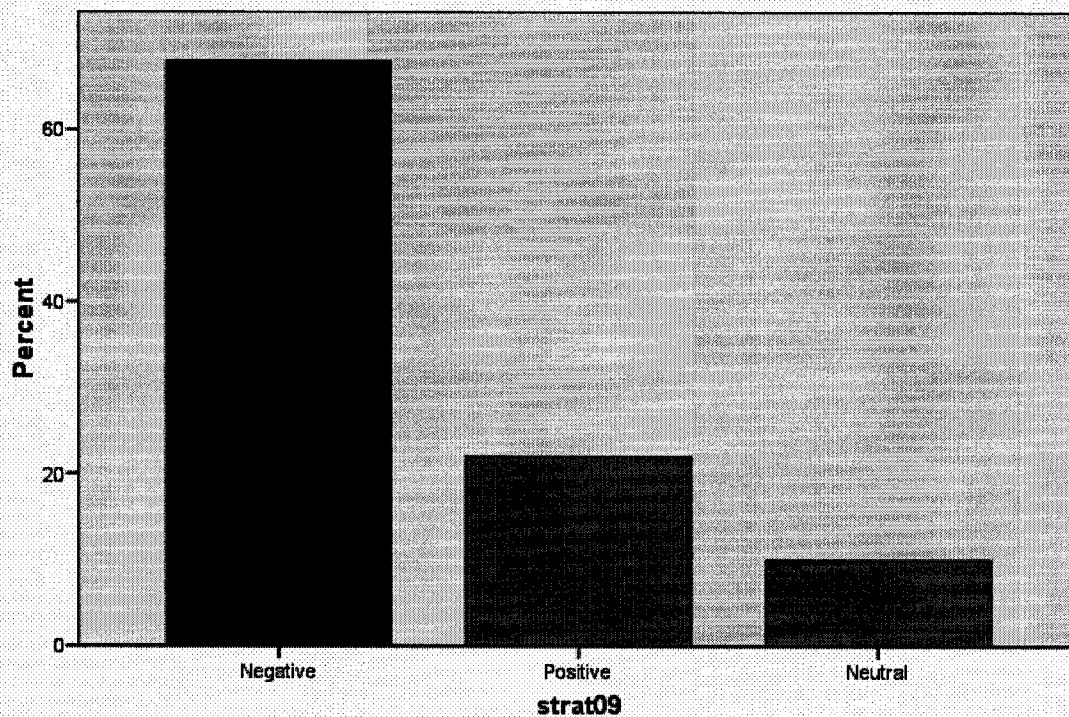


During my practice session, I use a pencil to mark my music (dynamics, fingering, circle errors, etc)

strat09

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	34	68.0	68.0	68.0
	Positive	11	22.0	22.0	90.0
	Neutral	5	10.0	10.0	100.0
	Total	50	100.0	100.0	

strat09



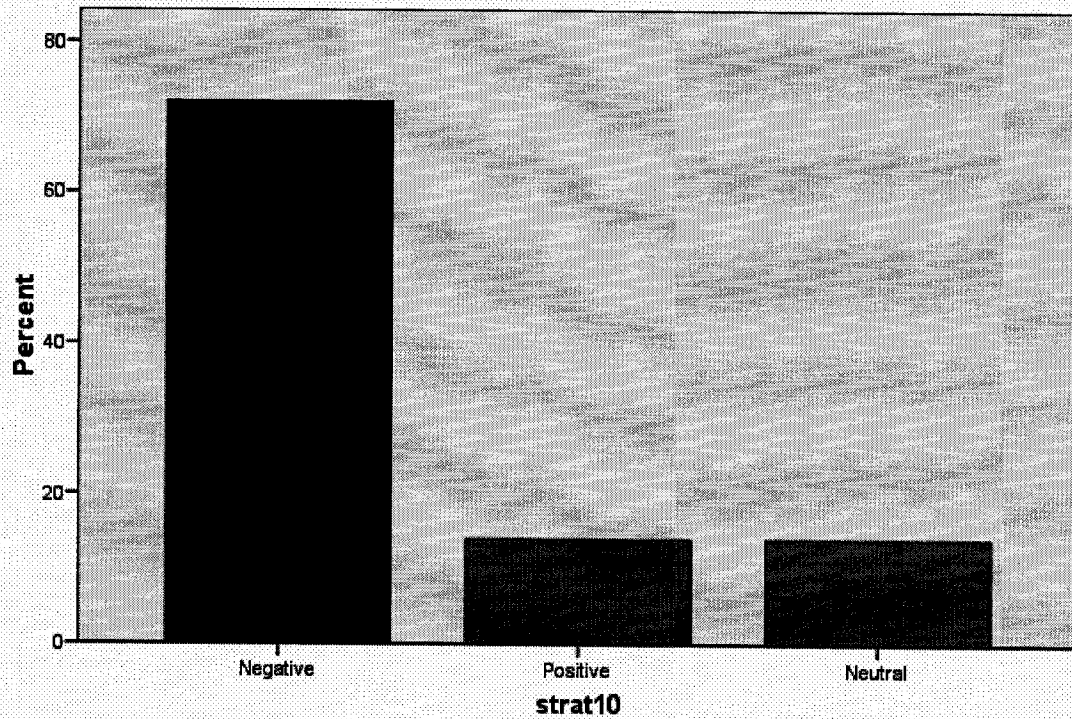
I practice with silent fingers over the keys (ghosting)

strat10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	36	72.0	72.0	72.0
	Positive	7	14.0	14.0	86.0
	Neutral	7	14.0	14.0	100.0
	Total	50	100.0	100.0	

Int12

strat10

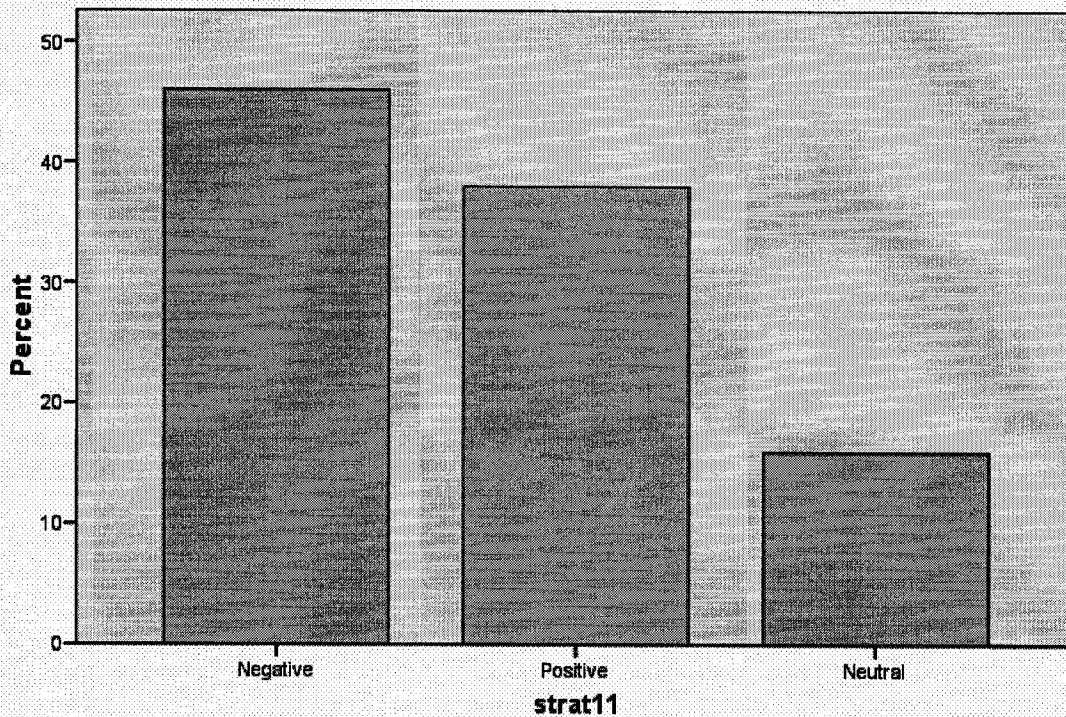


I give myself goals at every practice session

strat11

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	23	46.0	46.0	46.0
	Positive	19	38.0	38.0	84.0
	Neutral	8	16.0	16.0	100.0
	Total	50	100.0	100.0	

strat11

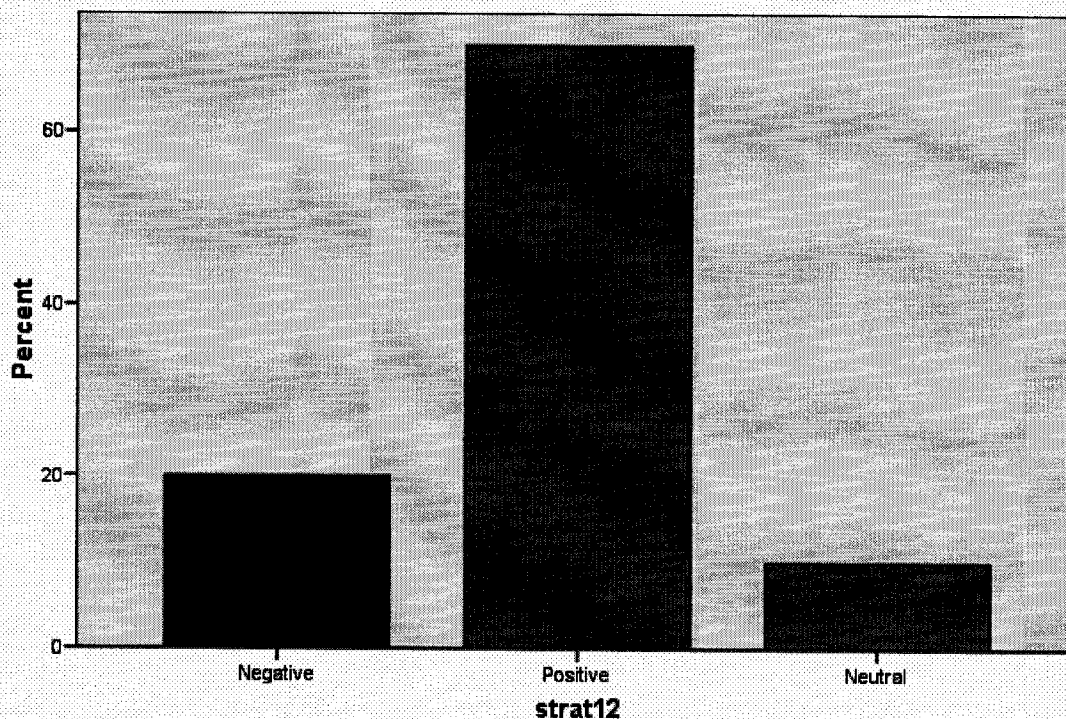


I know my practice is over when I have done all the things my teacher has asked me to do

strat12

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	10	20.0	20.0	20.0
	Positive	35	70.0	70.0	90.0
	Neutral	5	10.0	10.0	100.0
	Total	50	100.0	100.0	

strat12

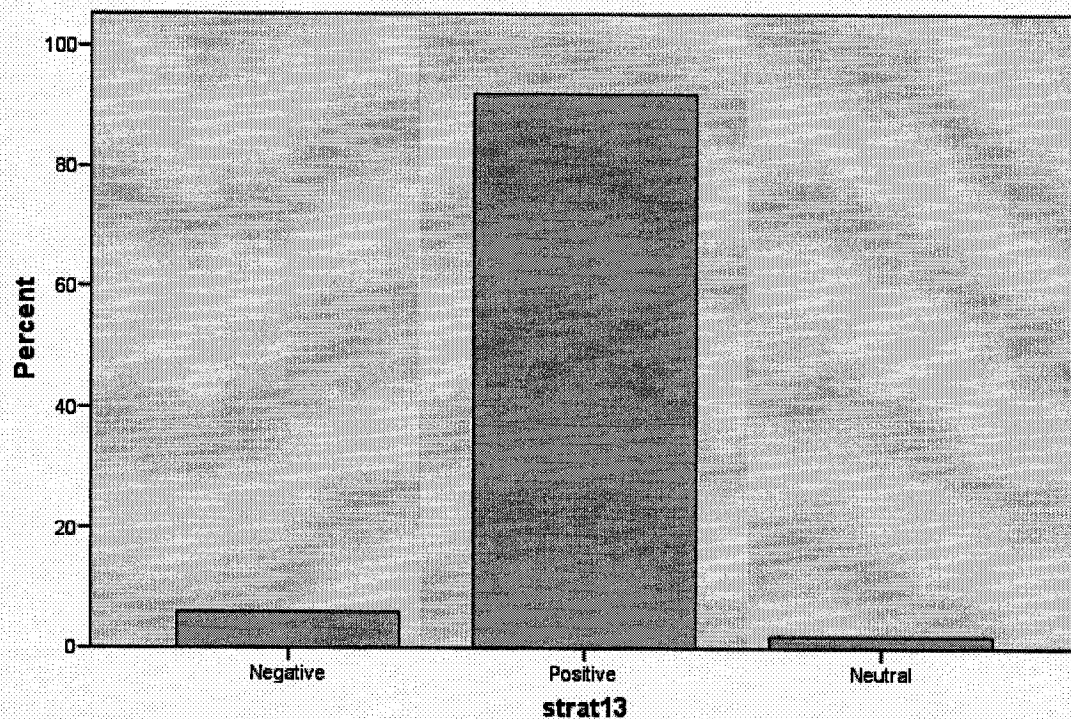


I practice more when an important event is coming (exam, performance, recital, etc)

strat13

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	3	6.0	6.0	6.0
	Positive	46	92.0	92.0	98.0
	Neutral	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

strat13

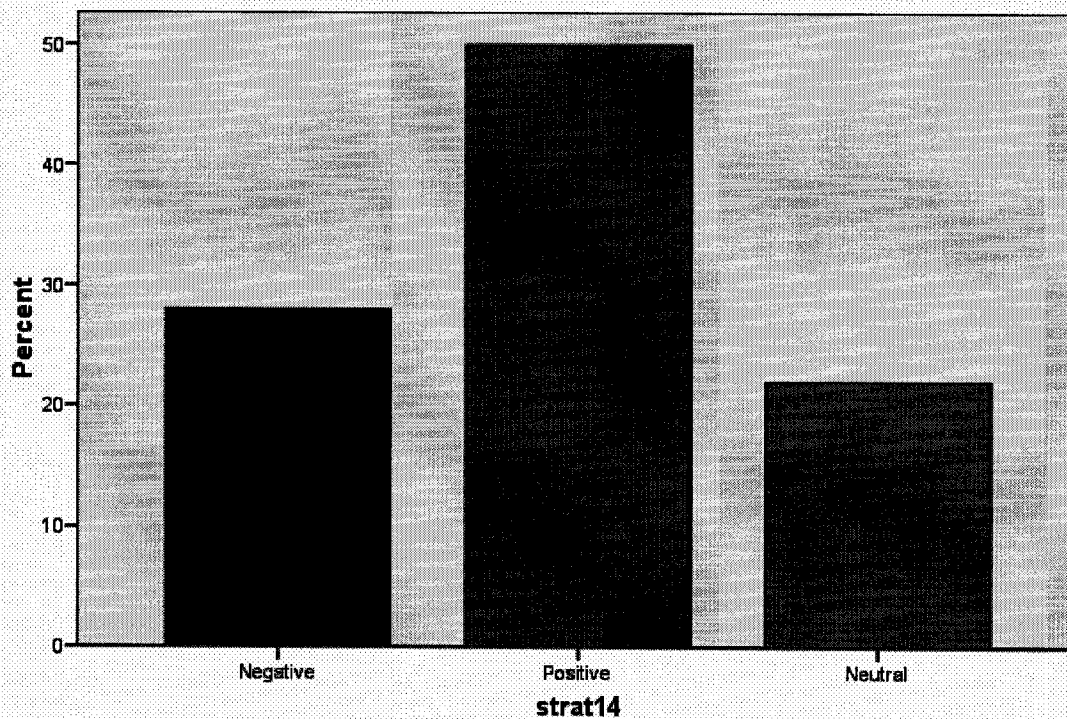


I practice at times in the day when I am most focused

strat14

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	14	28.0	28.0	28.0
	Positive	25	50.0	50.0	78.0
	Neutral	11	22.0	22.0	100.0
	Total	50	100.0	100.0	

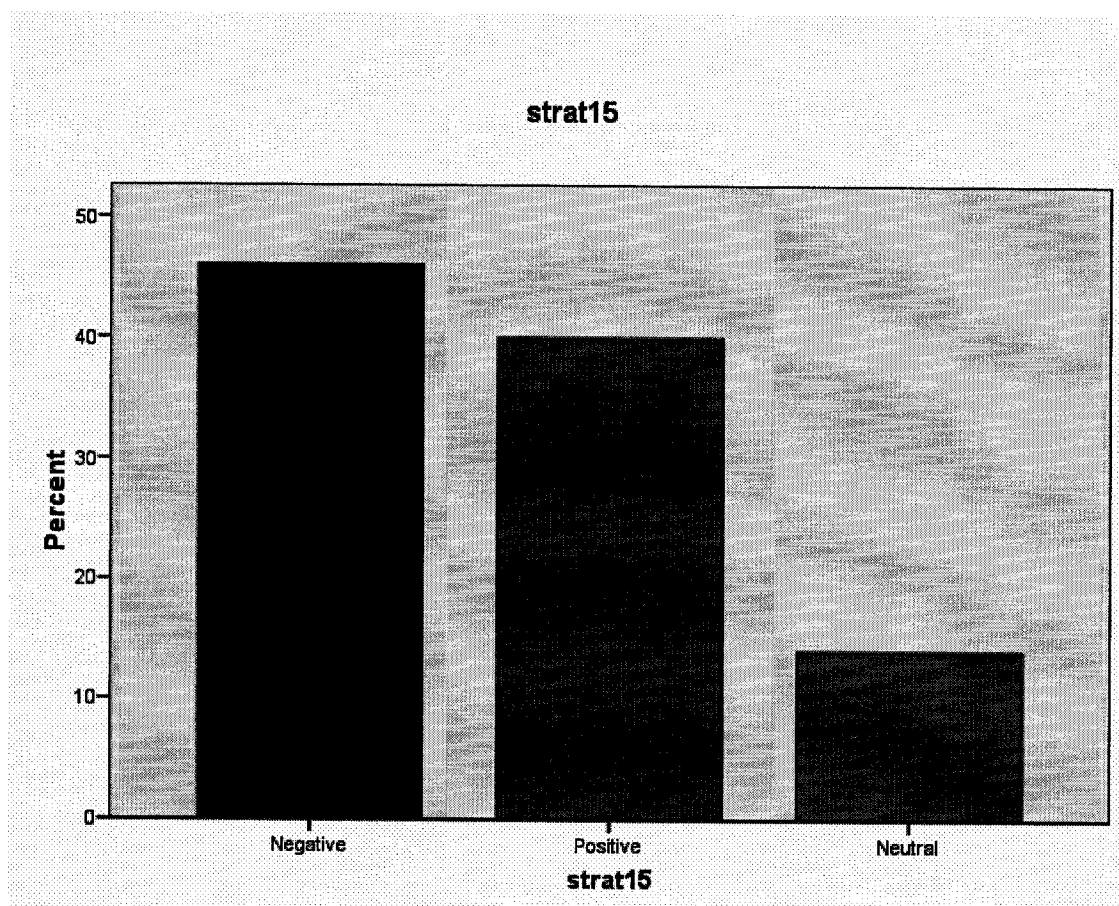
strat14



I make sure I practice before going out with my friends

strat15

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	23	46.0	46.0	46.0
	Positive	20	40.0	40.0	86.0
	Neutral	7	14.0	14.0	100.0
	Total	50	100.0	100.0	

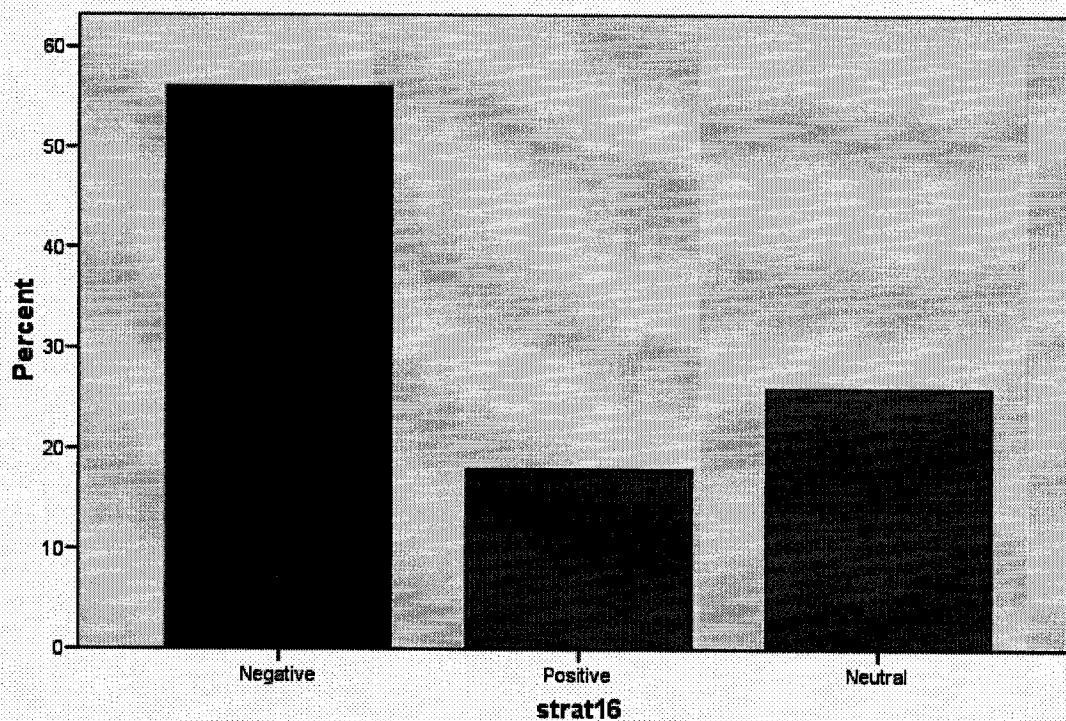


I would rather practice than do other activities (soccer, hockey, swimming, skiing, etc.)

strat16

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	28	56.0	56.0	56.0
	Positive	9	18.0	18.0	74.0
	Neutral	13	26.0	26.0	100.0
	Total	50	100.0	100.0	

strat16

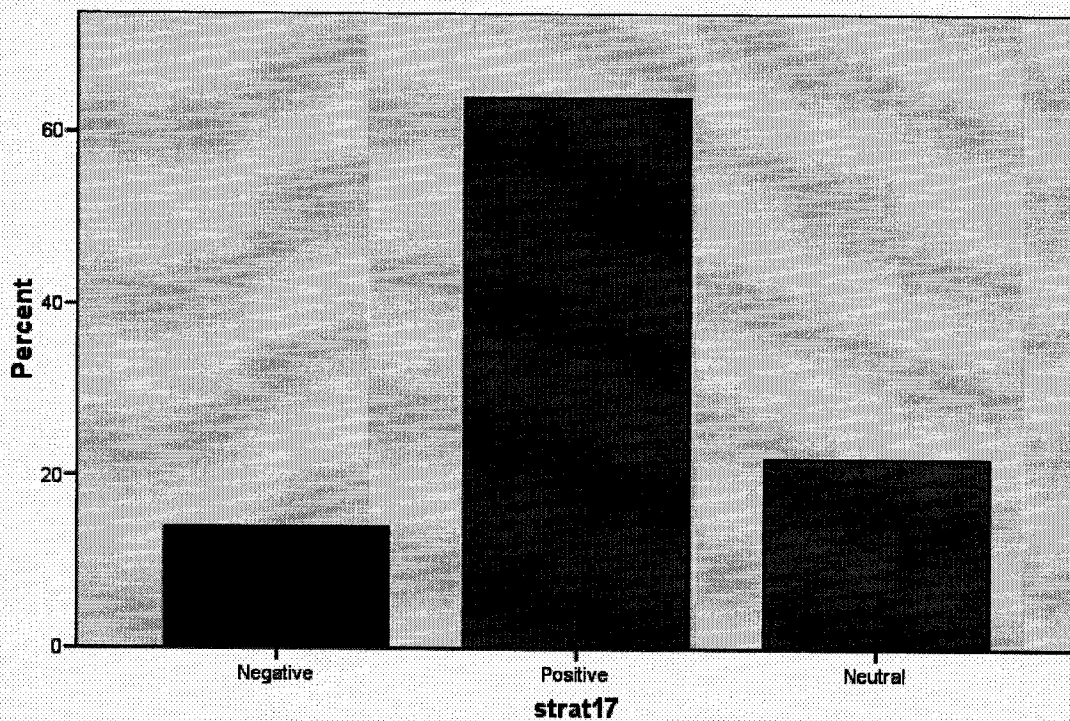


I practice every day if I can

strat17

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	7	14.0	14.0	14.0
	Positive	32	64.0	64.0	78.0
	Neutral	11	22.0	22.0	100.0
	Total	50	100.0	100.0	

strat17

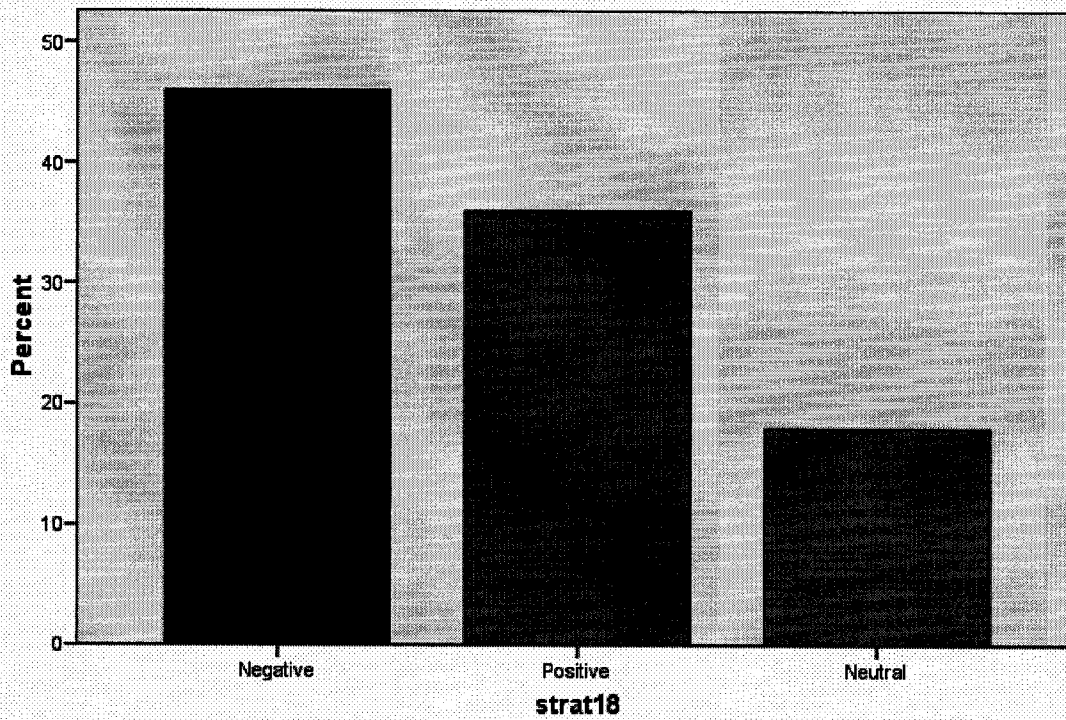


I practice away from the piano (I play in my head, on a table, etc.)

strat18

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	23	46.0	46.0	46.0
	Positive	18	36.0	36.0	82.0
	Neutral	9	18.0	18.0	100.0
	Total	50	100.0	100.0	

strat18

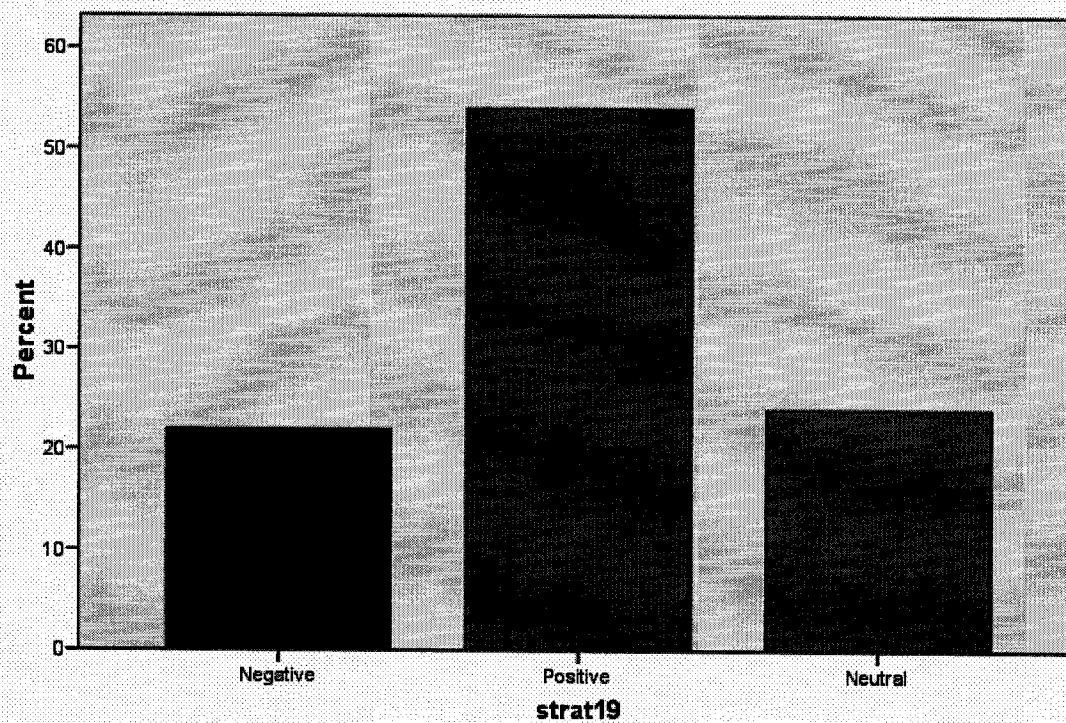


I try to fix one thing at a time when I am practicing

strat19

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	11	22.0	22.0	22.0
	Positive	27	54.0	54.0	76.0
	Neutral	12	24.0	24.0	100.0
	Total	50	100.0	100.0	

strat19

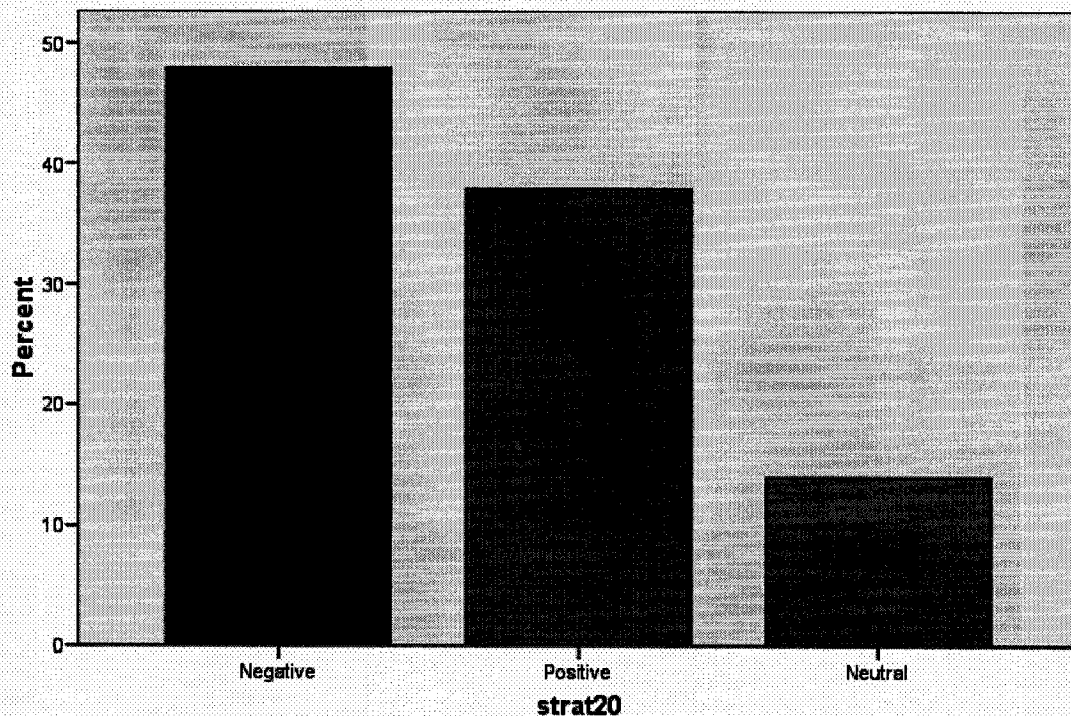


I look at the music carefully before I start practicing

strat20

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	24	48.0	48.0	48.0
	Positive	19	38.0	38.0	86.0
	Neutral	7	14.0	14.0	100.0
	Total	50	100.0	100.0	

strat20

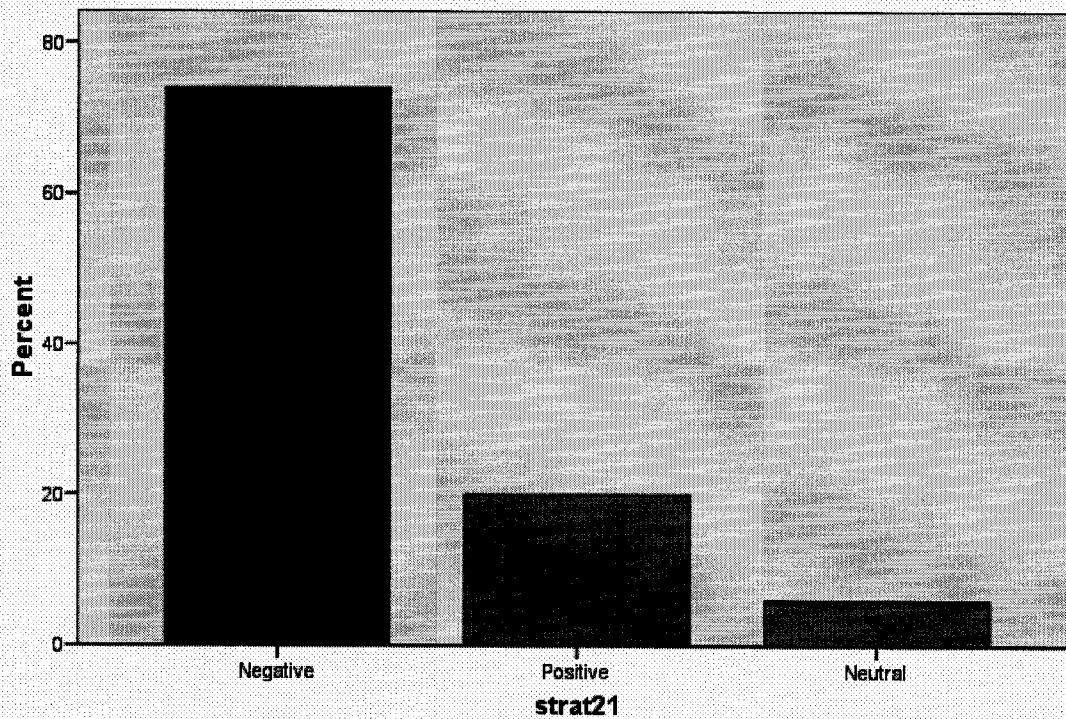


I mark difficult spots in each piece with a pencil before playing

strat21

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	37	74.0	74.0	74.0
	Positive	10	20.0	20.0	94.0
	Neutral	3	6.0	6.0	100.0
	Total	50	100.0	100.0	

strat21

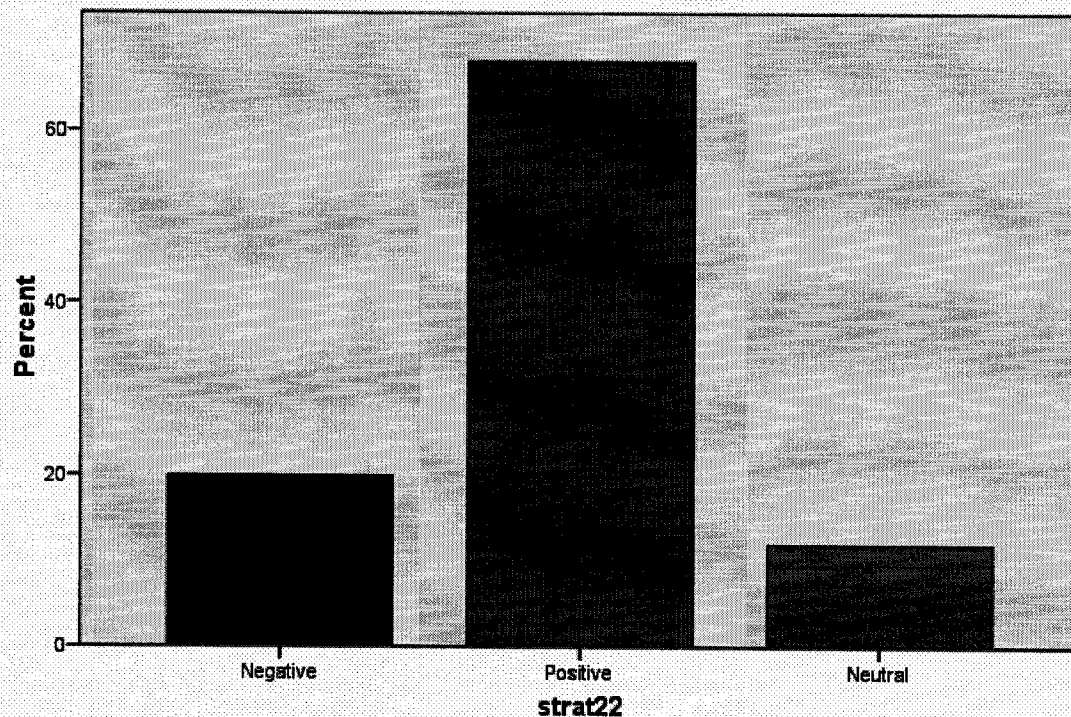


I play through the whole piece from beginning to end several times during my practice session

strat22

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	10	20.0	20.0	20.0
	Positive	34	68.0	68.0	88.0
	Neutral	6	12.0	12.0	100.0
	Total	50	100.0	100.0	

strat22

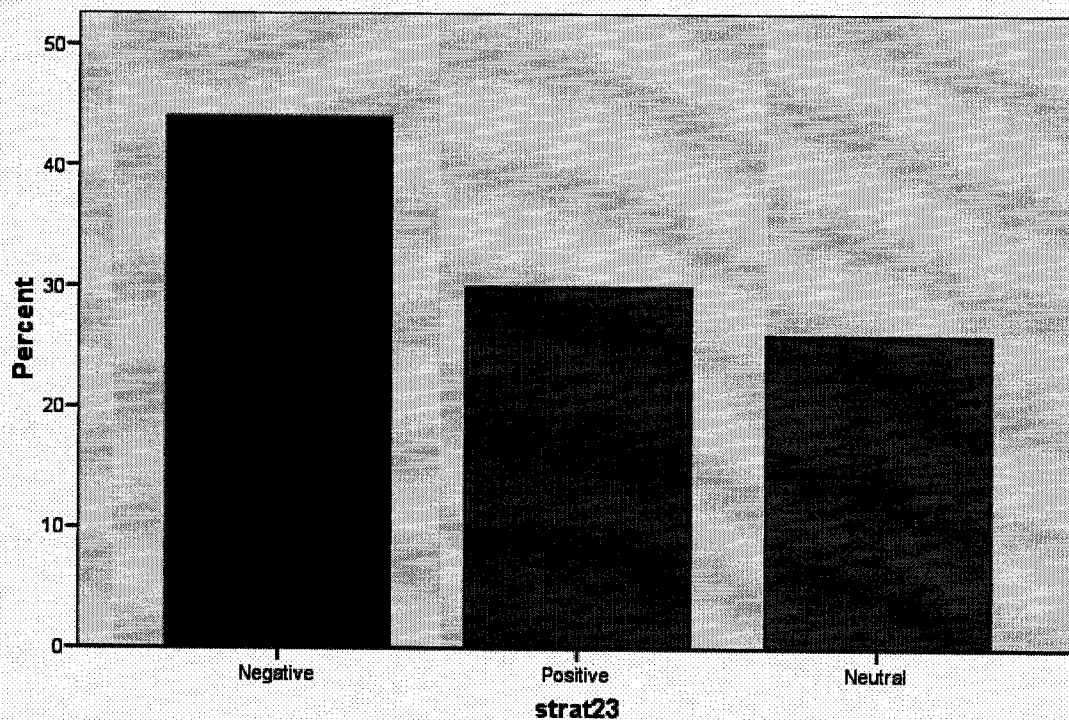


I practice the most difficult spots before I play the whole piece

strat23

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	22	44.0	44.0	44.0
	Positive	15	30.0	30.0	74.0
	Neutral	13	26.0	26.0	100.0
	Total	50	100.0	100.0	

strat23

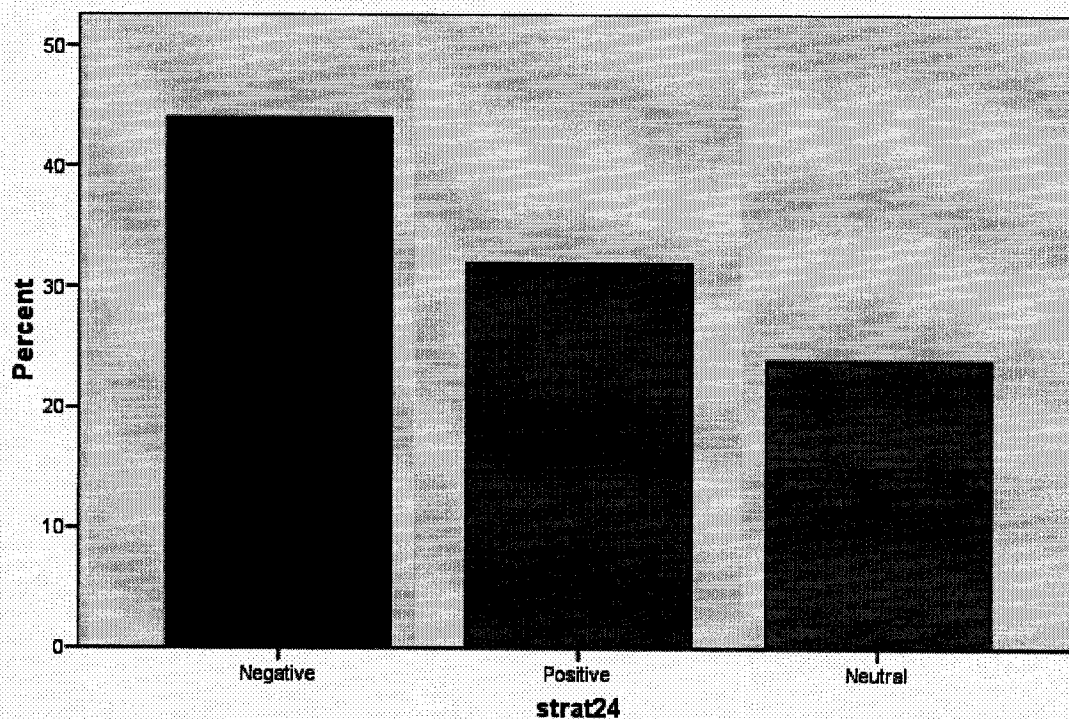


I always practice with the speed indicated in the music score

strat24

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	22	44.0	44.0	44.0
	Positive	16	32.0	32.0	76.0
	Neutral	12	24.0	24.0	100.0
	Total	50	100.0	100.0	

strat24

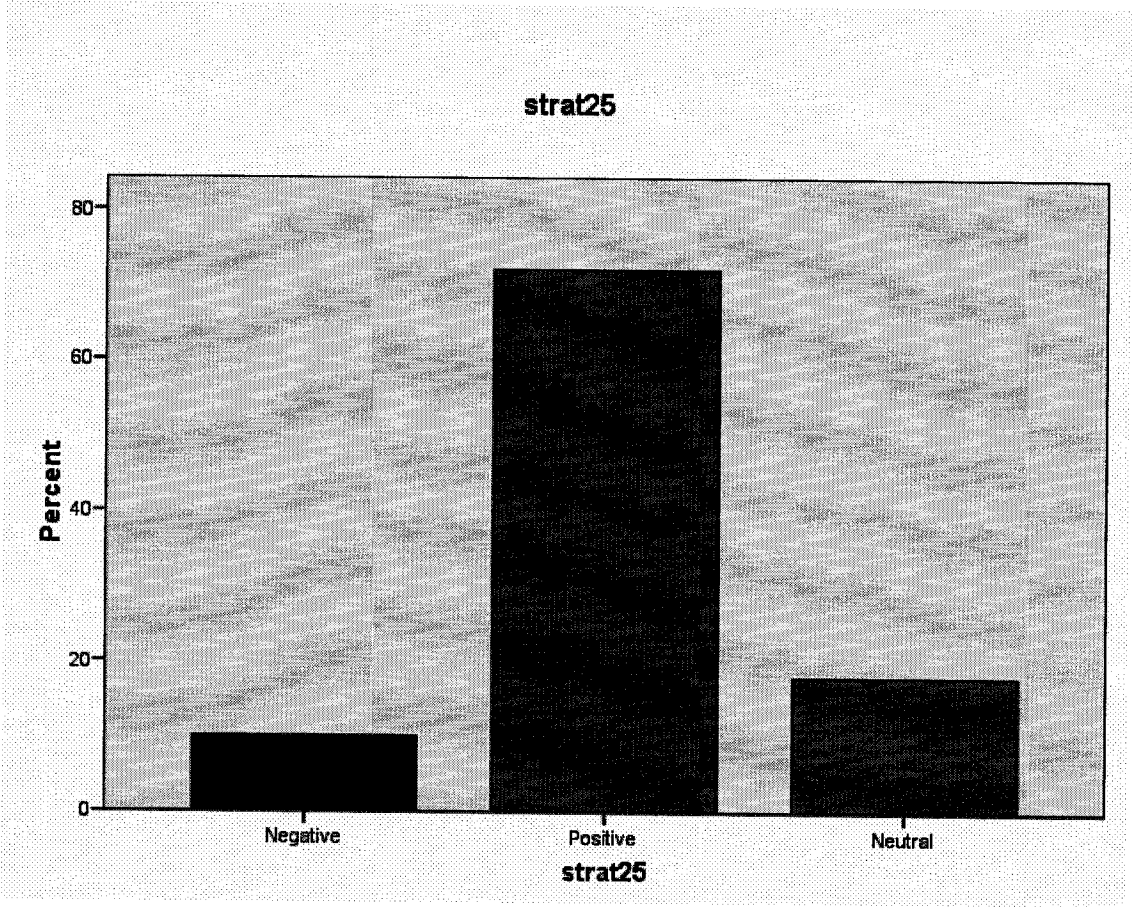


I pay attention to fingering when I practice a piece or scales

strat25

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	5	10.0	10.0	10.0
	Positive	36	72.0	72.0	82.0
	Neutral	9	18.0	18.0	100.0
	Total	50	100.0	100.0	

strat25

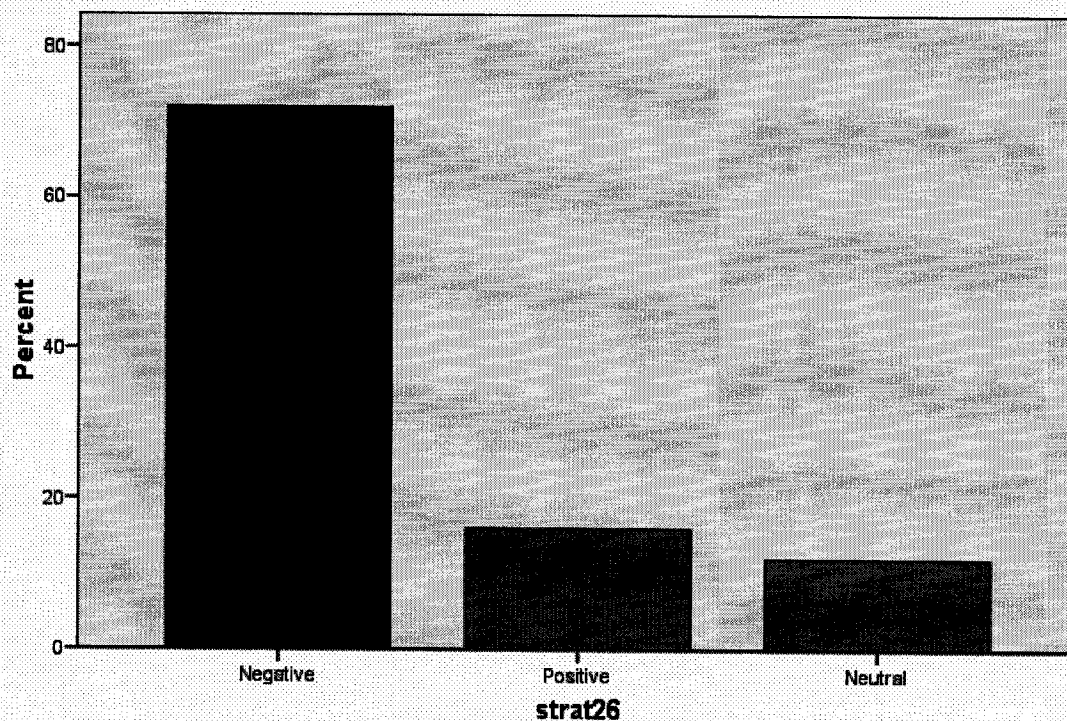


I count out loud when I am practicing

strat26

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	36	72.0	72.0	72.0
	Positive	8	16.0	16.0	88.0
	Neutral	6	12.0	12.0	100.0
	Total	50	100.0	100.0	

strat26

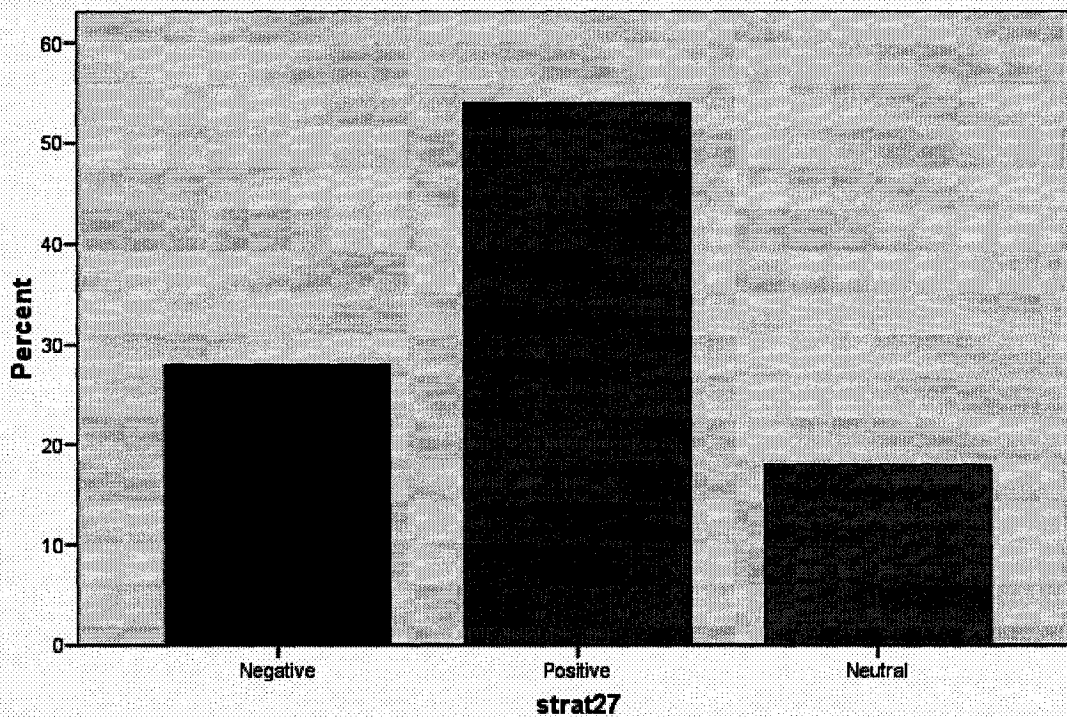


I check my hand position while I am practicing

strat27

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	14	28.0	28.0	28.0
	Positive	27	54.0	54.0	82.0
	Neutral	9	18.0	18.0	100.0
	Total	50	100.0	100.0	

strat27

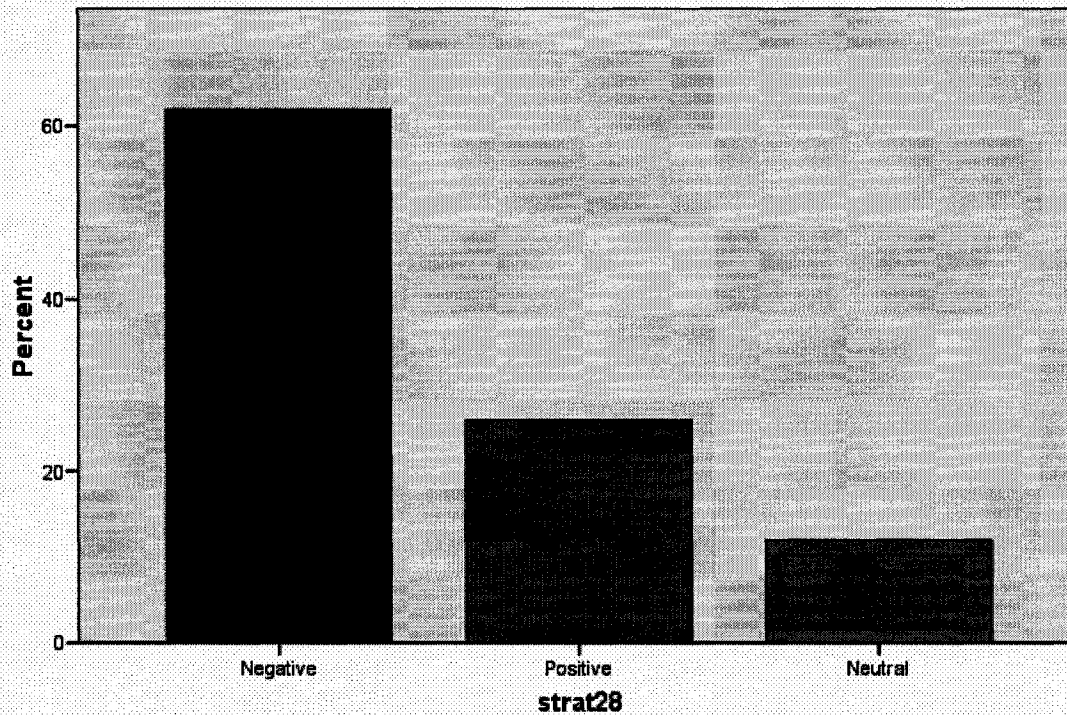


I use the metronome a lot in my practice sessions

strat28

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	31	62.0	62.0	62.0
	Positive	13	26.0	26.0	88.0
	Neutral	6	12.0	12.0	100.0
	Total	50	100.0	100.0	

strat28

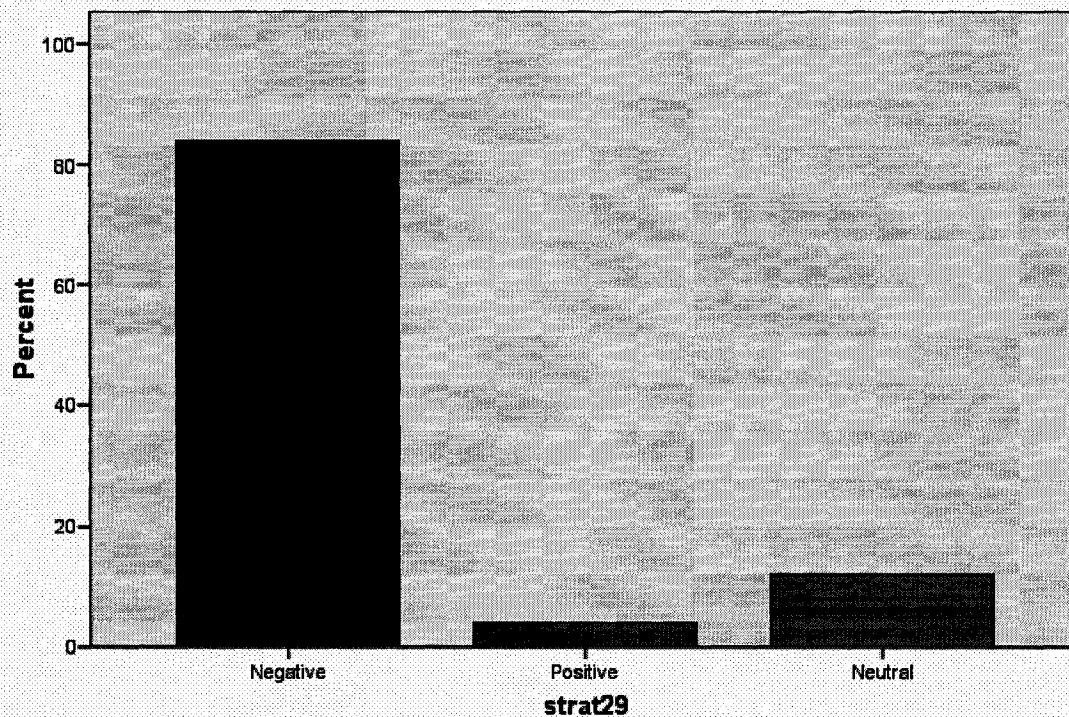


I say out loud the name of the notes while I am practicing the piece

strat29

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	42	84.0	84.0	84.0
	Positive	2	4.0	4.0	88.0
	Neutral	6	12.0	12.0	100.0
	Total	50	100.0	100.0	

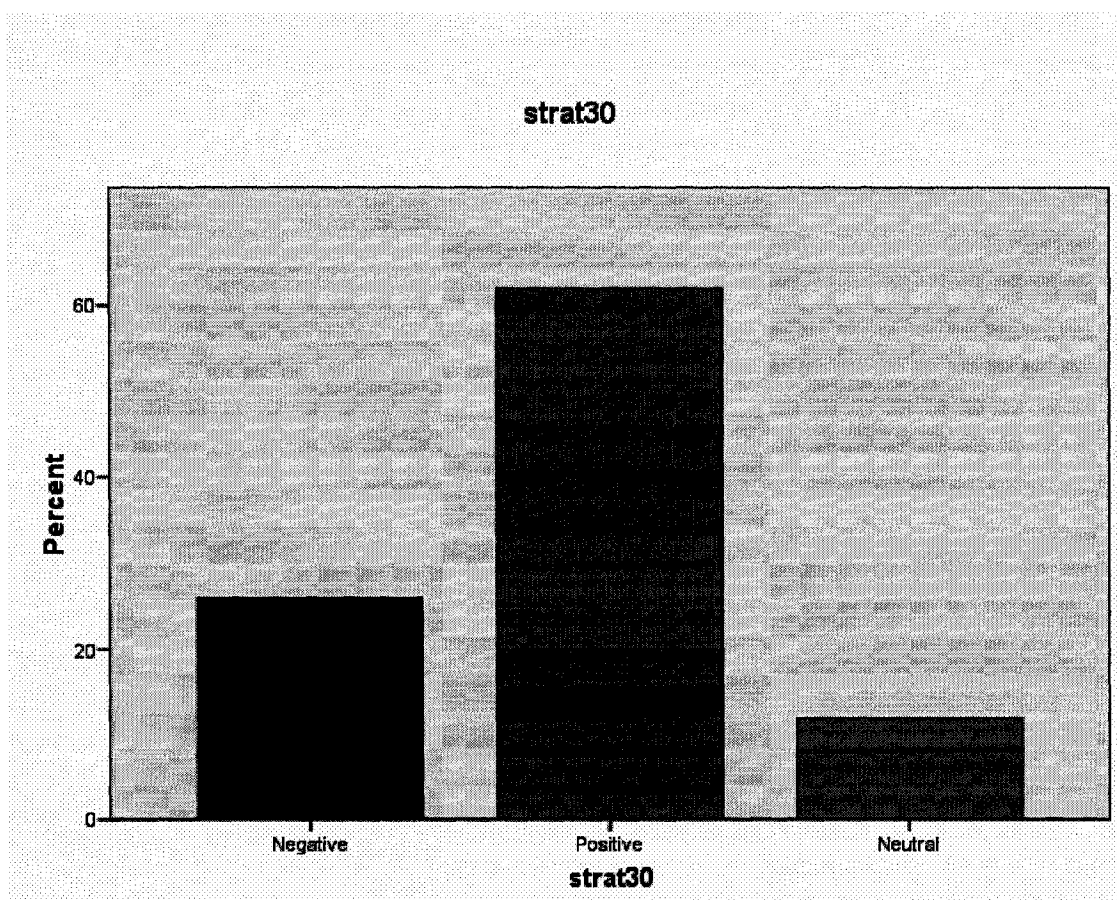
strat29



I repeat a difficult part until I know it very well

strat30

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	13	26.0	26.0	26.0
	Positive	31	62.0	62.0	88.0
	Neutral	6	12.0	12.0	100.0
	Total	50	100.0	100.0	

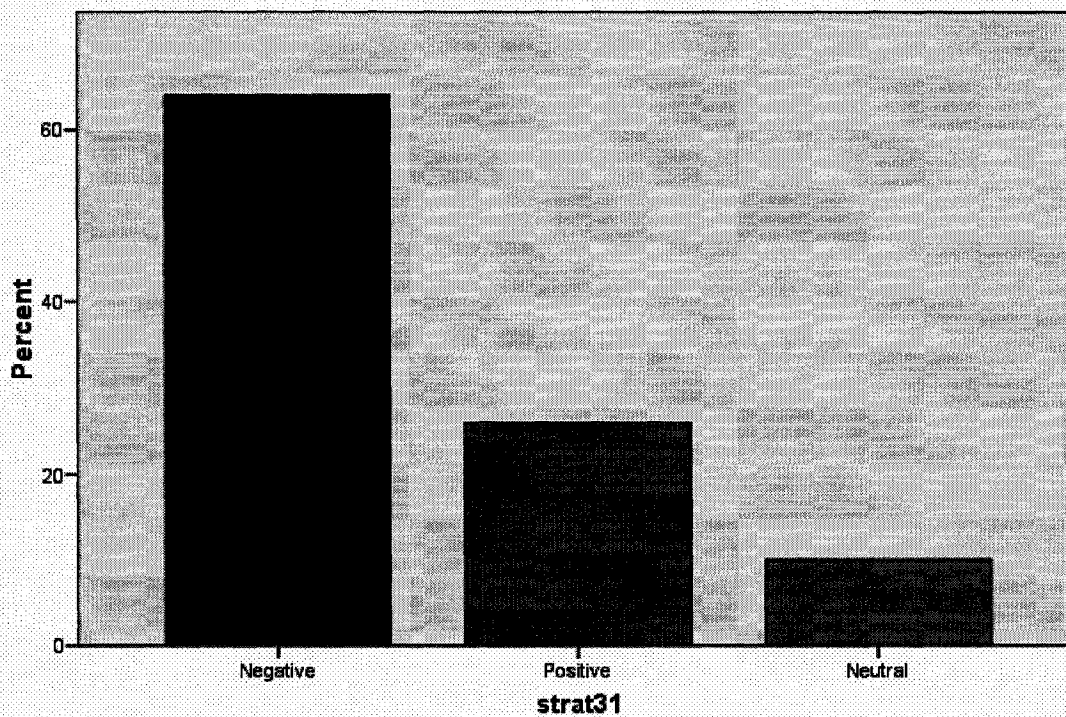


I usually have a few practice sessions every day

strat31

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	32	64.0	64.0	64.0
	Positive	13	26.0	26.0	90.0
	Neutral	5	10.0	10.0	100.0
	Total	50	100.0	100.0	

strat31

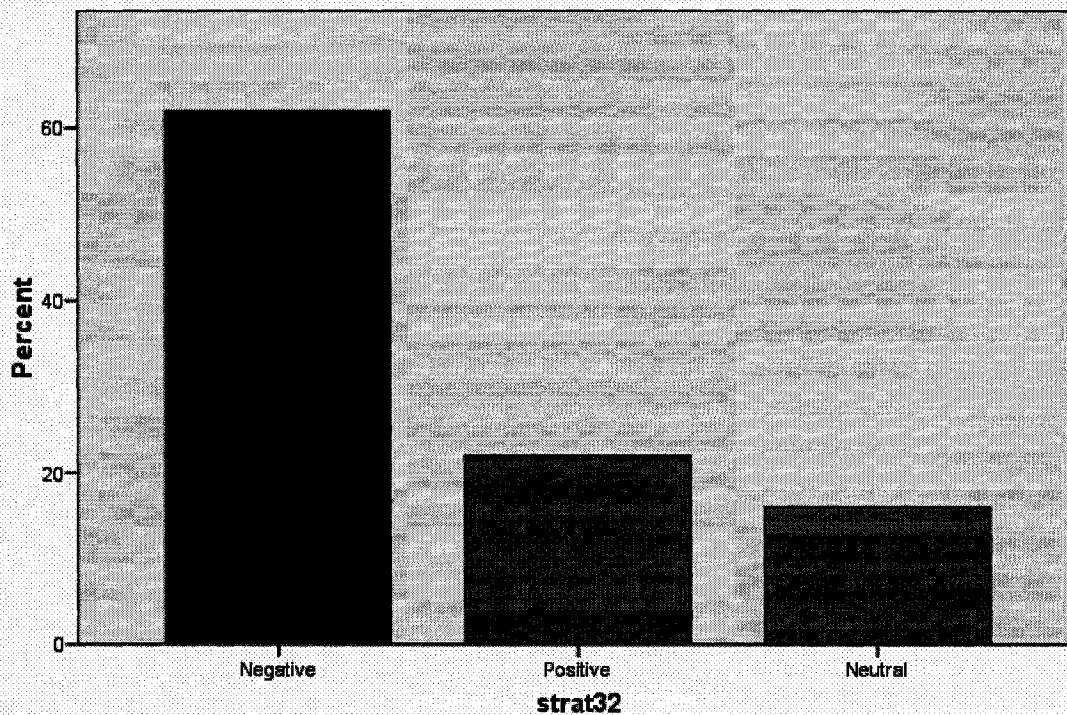


I imagine myself playing in front of an audience when I practice

strat32

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	31	62.0	62.0	62.0
	Positive	11	22.0	22.0	84.0
	Neutral	8	16.0	16.0	100.0
	Total	50	100.0	100.0	

strat32

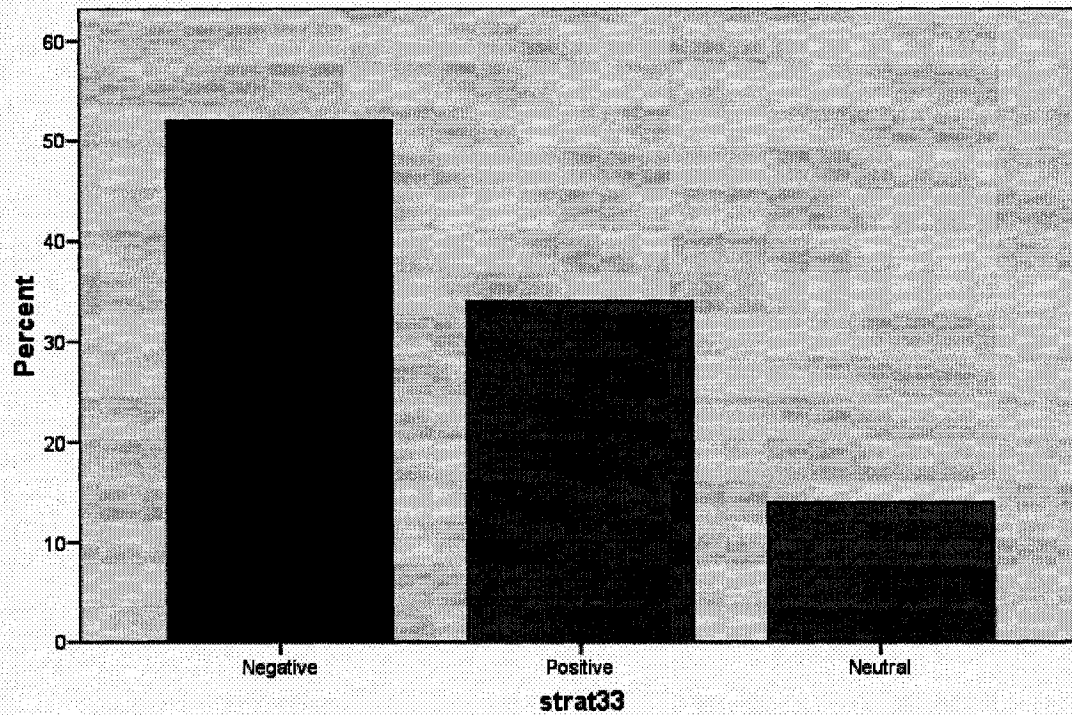


I practice more on weekends than weekdays

strat33

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	26	52.0	52.0	52.0
	Positive	17	34.0	34.0	86.0
	Neutral	7	14.0	14.0	100.0
	Total	50	100.0	100.0	

strat33

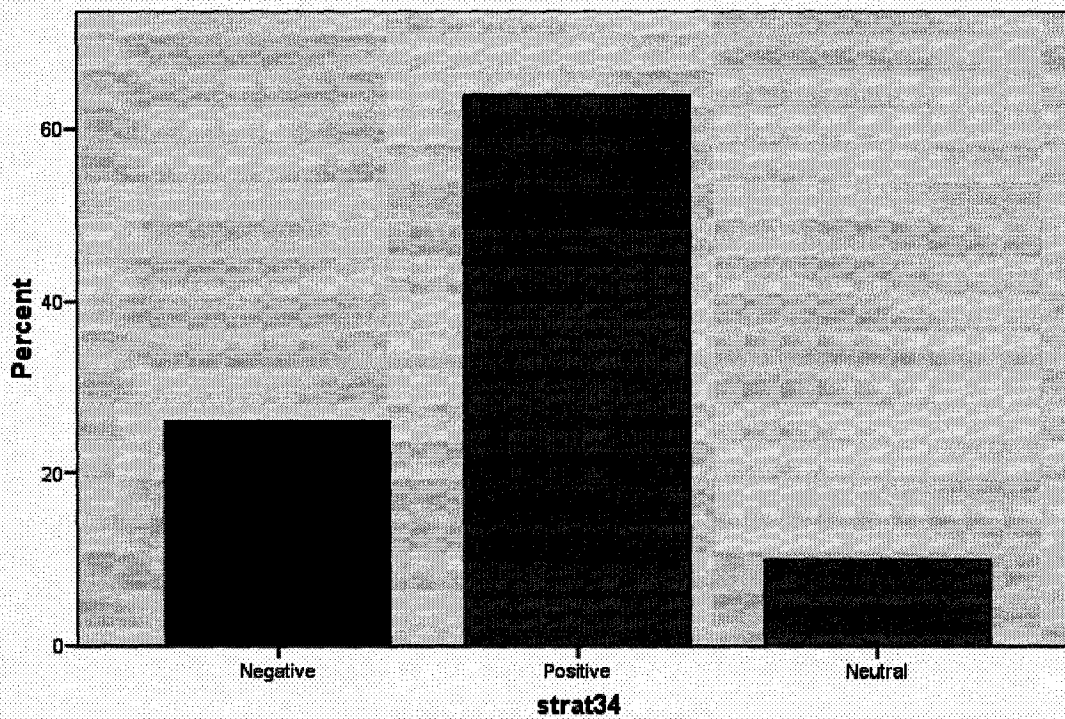


I practice all at once in one long session per day

strat34

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	13	26.0	26.0	26.0
	Positive	32	64.0	64.0	90.0
	Neutral	5	10.0	10.0	100.0
	Total	50	100.0	100.0	

strat34

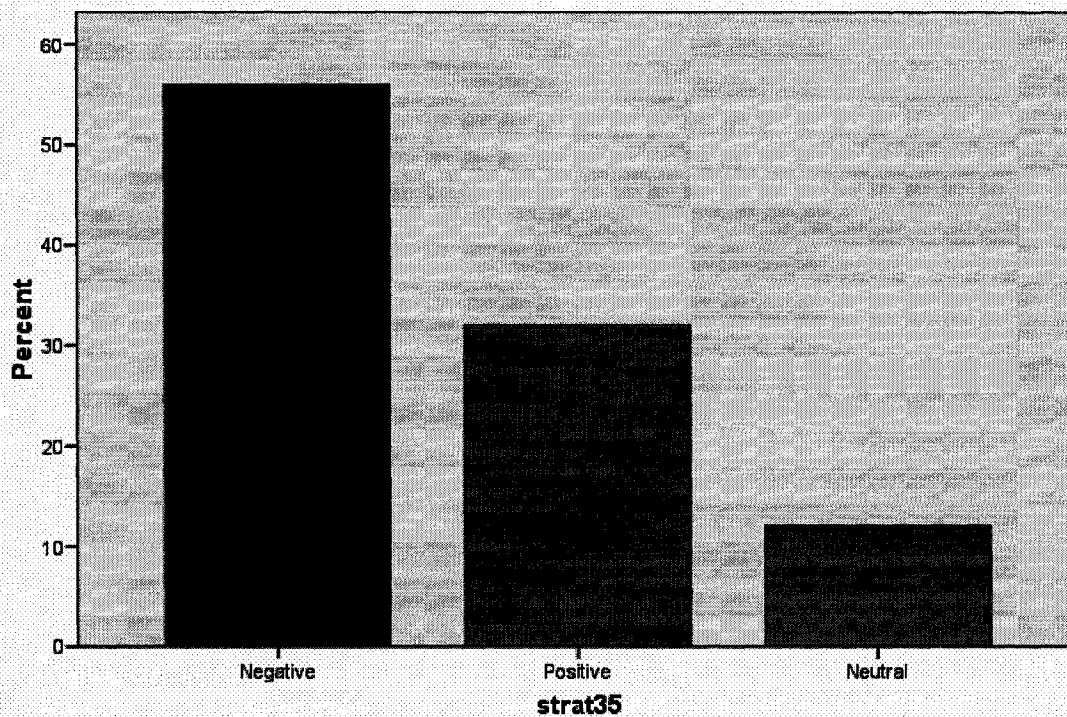


I listen to recordings of the pieces that I am learning

strat35

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	28	56.0	56.0	56.0
	Positive	16	32.0	32.0	88.0
	Neutral	6	12.0	12.0	100.0
	Total	50	100.0	100.0	

strat35

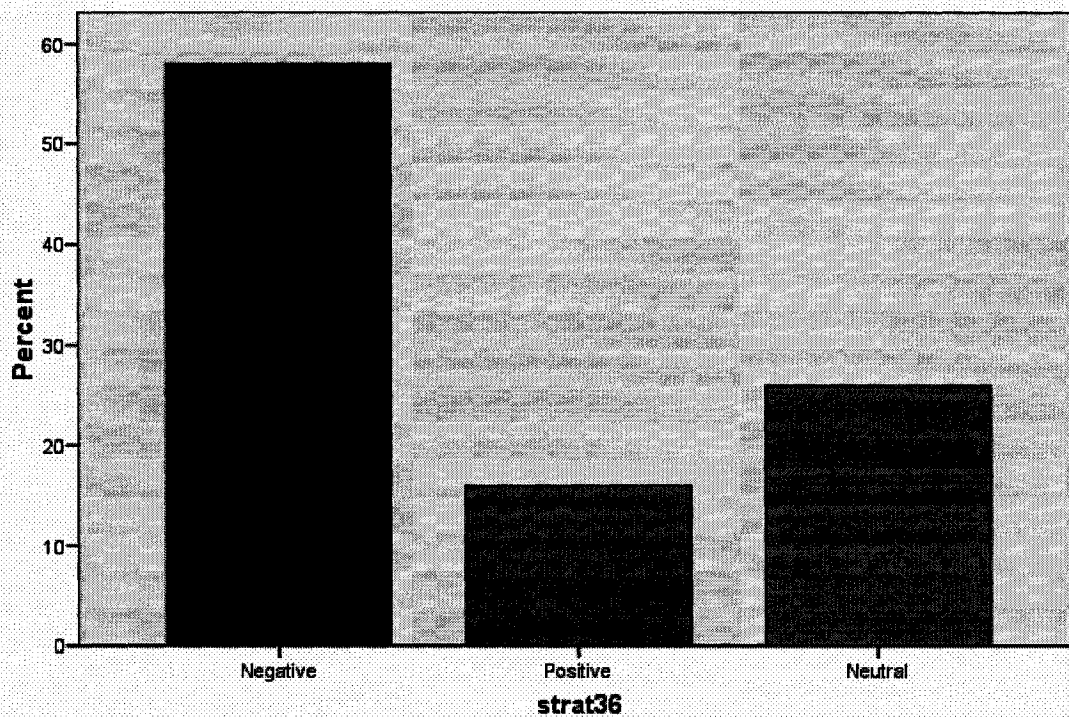


I sing the melody out loud as I am practicing my pieces

strat36

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	29	58.0	58.0	58.0
	Positive	8	16.0	16.0	74.0
	Neutral	13	26.0	26.0	100.0
	Total	50	100.0	100.0	

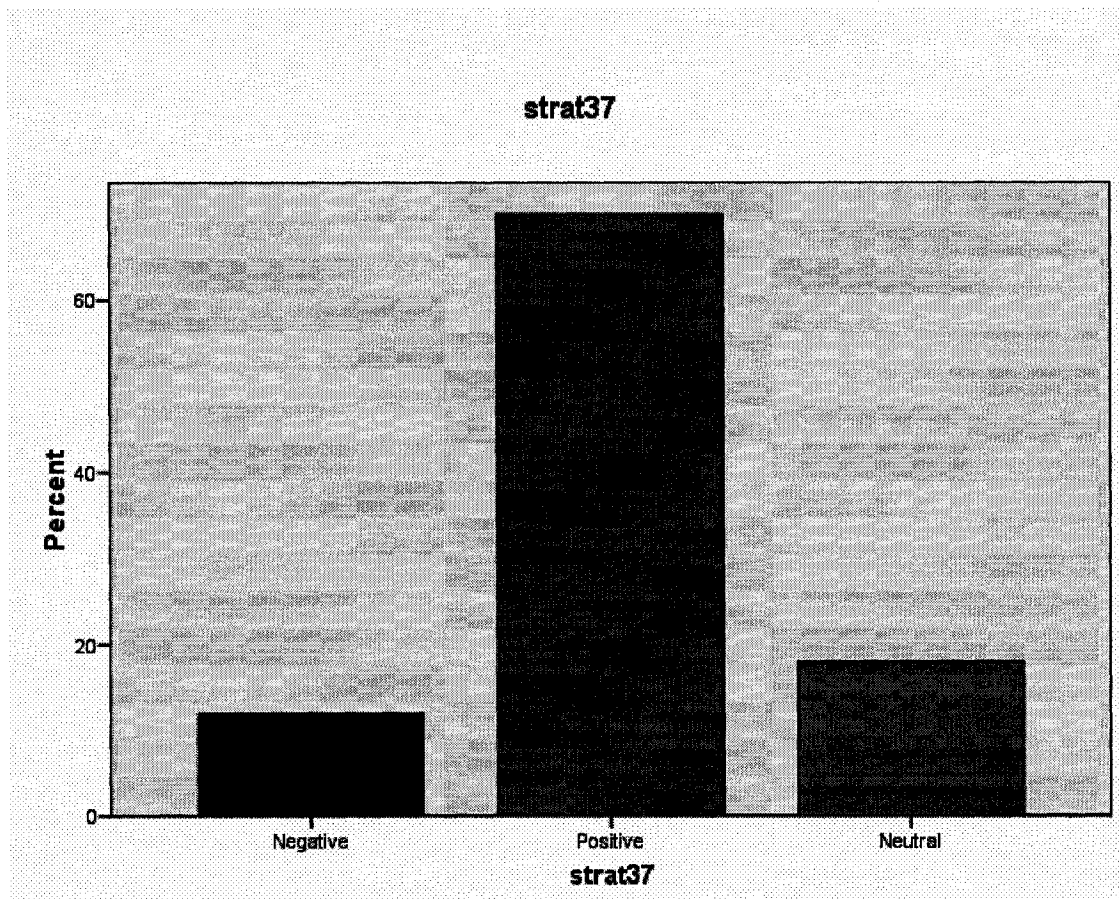
strat36



I stop and correct mistakes when I am practicing

strat37

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	6	12.0	12.0	12.0
	Positive	35	70.0	70.0	82.0
	Neutral	9	18.0	18.0	100.0
	Total	50	100.0	100.0	

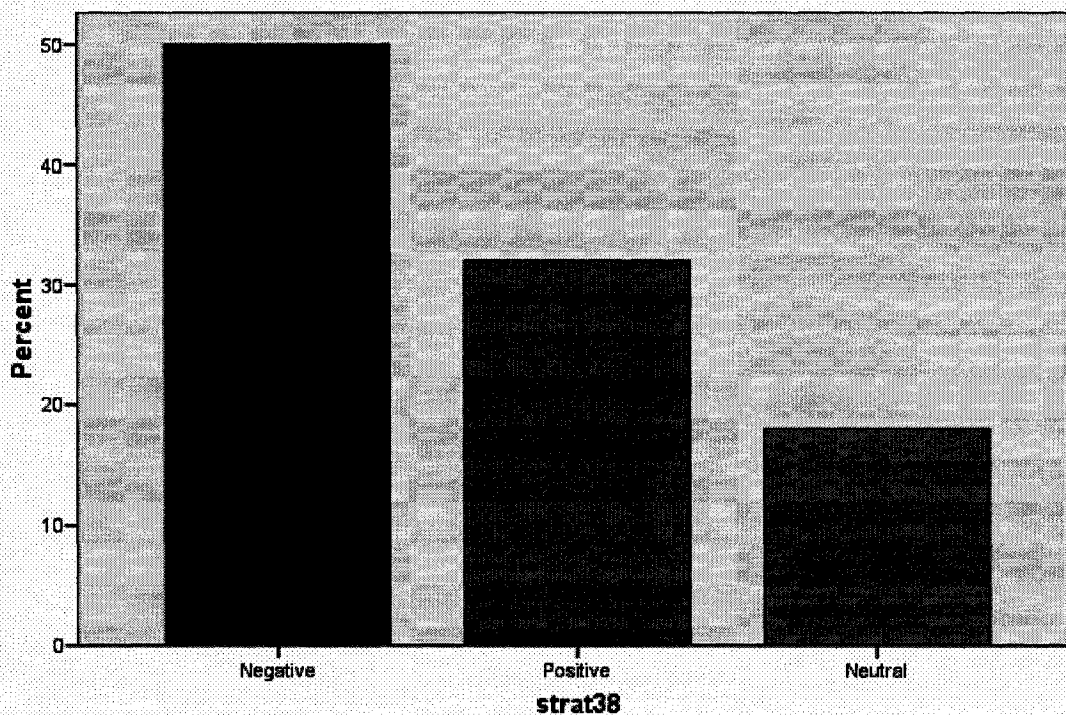


During my practice, I keep going in my piece even when I make a mistake

strat38

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	25	50.0	50.0	50.0
	Positive	16	32.0	32.0	82.0
	Neutral	9	18.0	18.0	100.0
	Total	50	100.0	100.0	

strat38

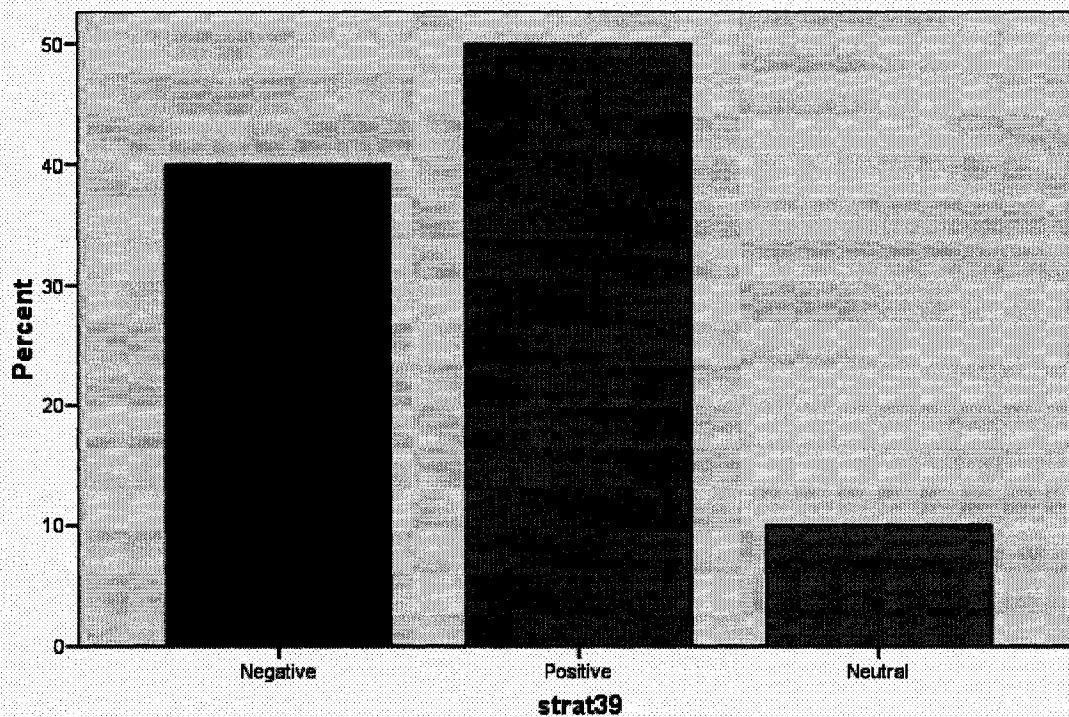


I practice the whole piece then I focus on sections where I usually make mistakes

strat39

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	20	40.0	40.0	40.0
	Positive	25	50.0	50.0	90.0
	Neutral	5	10.0	10.0	100.0
	Total	50	100.0	100.0	

strat39

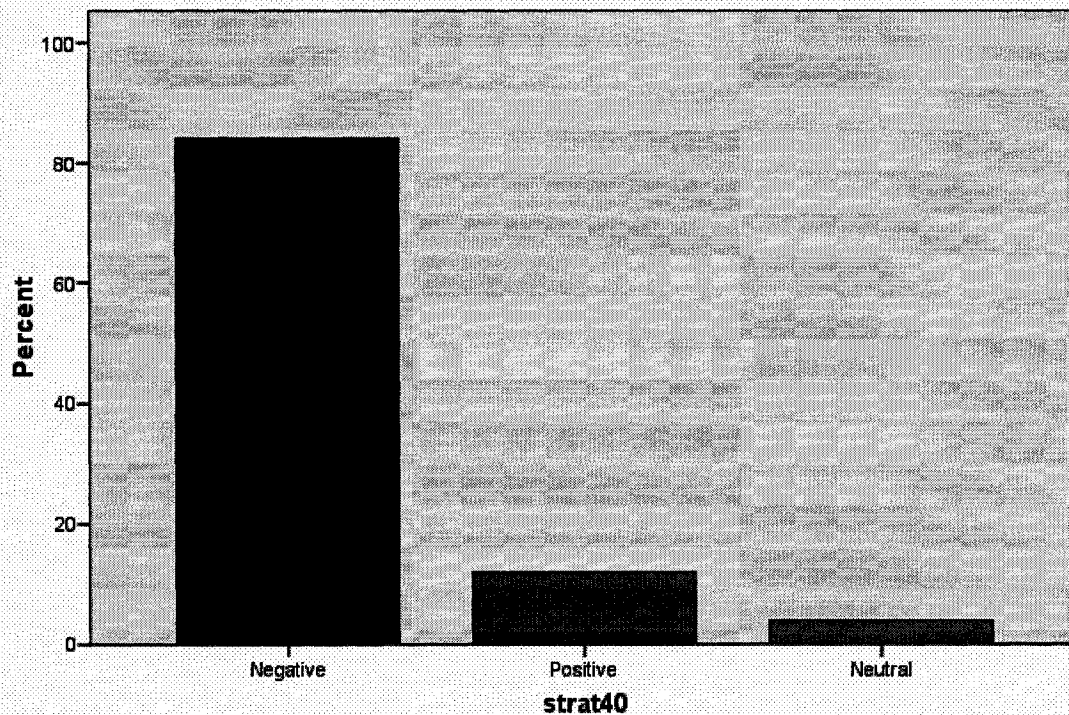


I count out loud so I won't make mistakes

strat40

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	42	84.0	84.0	84.0
	Positive	6	12.0	12.0	96.0
	Neutral	2	4.0	4.0	100.0
	Total	50	100.0	100.0	

strat40

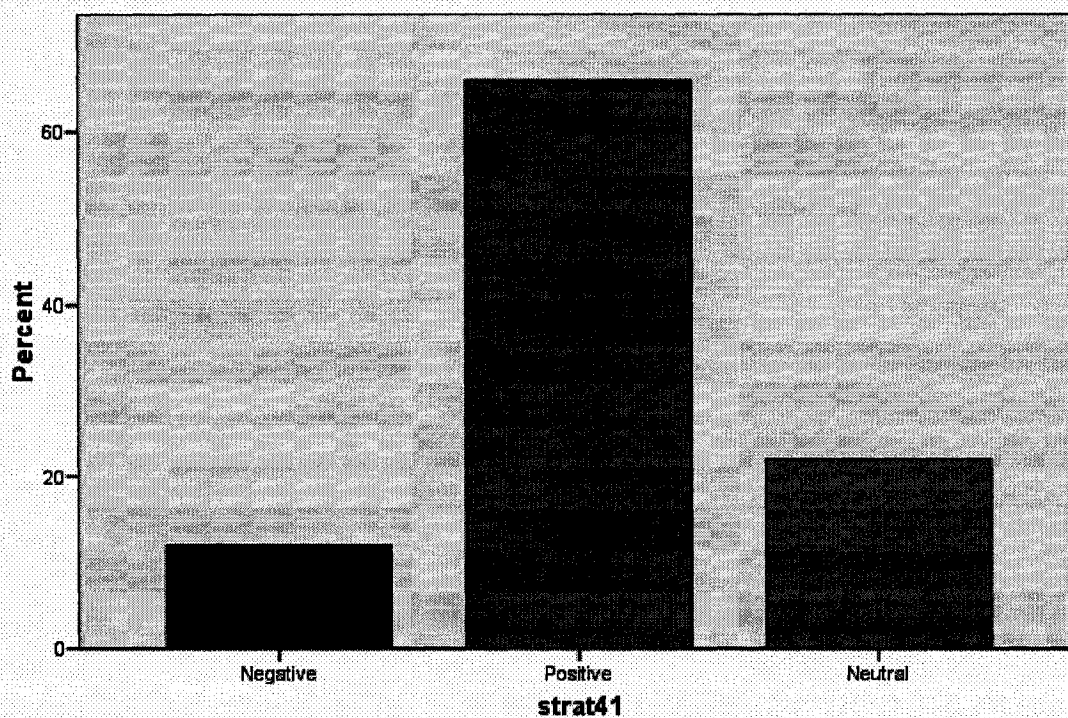


I listen carefully to my playing while I am practicing

strat41

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	6	12.0	12.0	12.0
	Positive	33	66.0	66.0	78.0
	Neutral	11	22.0	22.0	100.0
	Total	50	100.0	100.0	

strat41

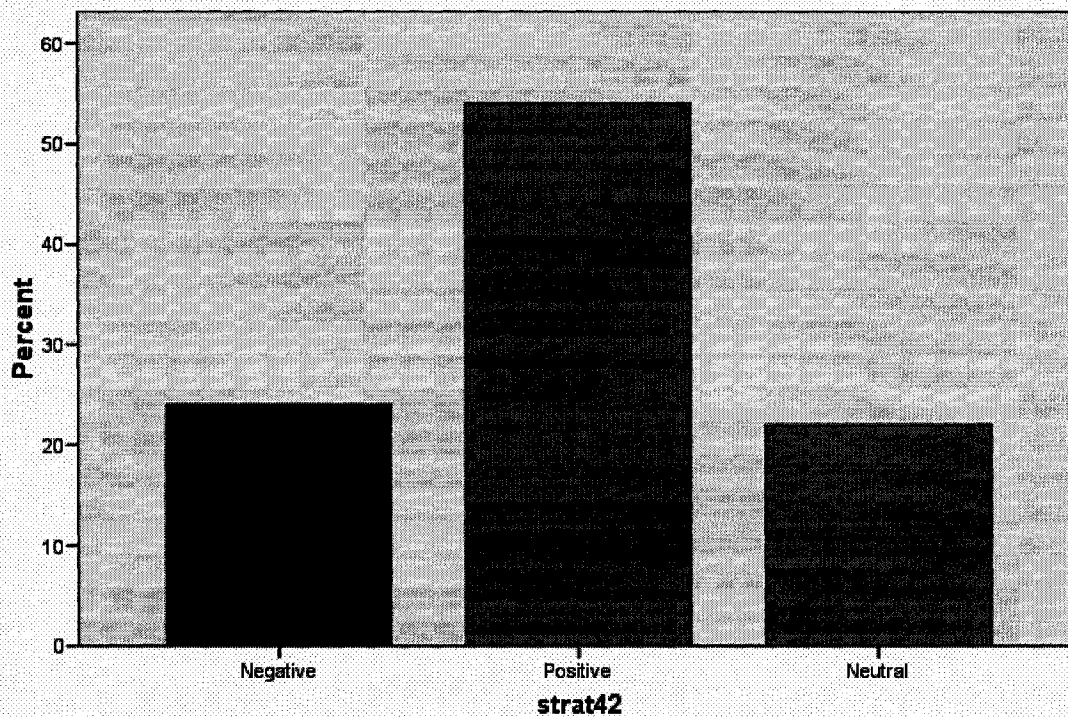


I work more on the hard sections in my piece than the sections that I know better

strat42

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	12	24.0	24.0	24.0
	Positive	27	54.0	54.0	78.0
	Neutral	11	22.0	22.0	100.0
	Total	50	100.0	100.0	

strat42

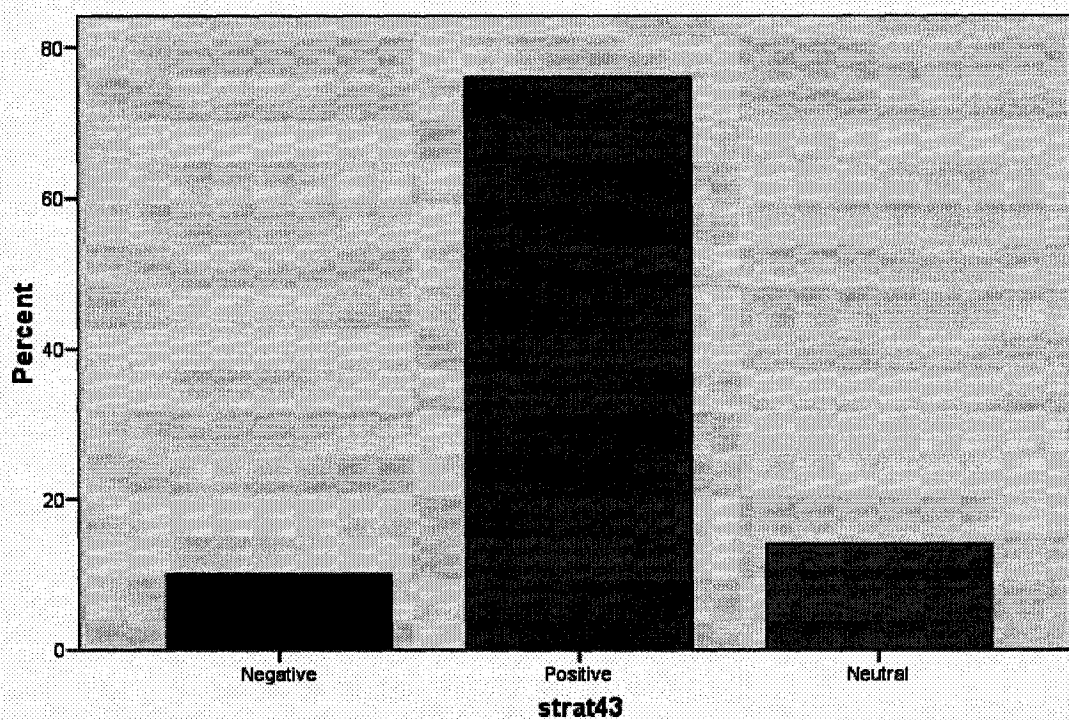


I always start practicing new pieces slowly

strat43

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	5	10.0	10.0	10.0
	Positive	38	76.0	76.0	86.0
	Neutral	7	14.0	14.0	100.0
	Total	50	100.0	100.0	

strat43

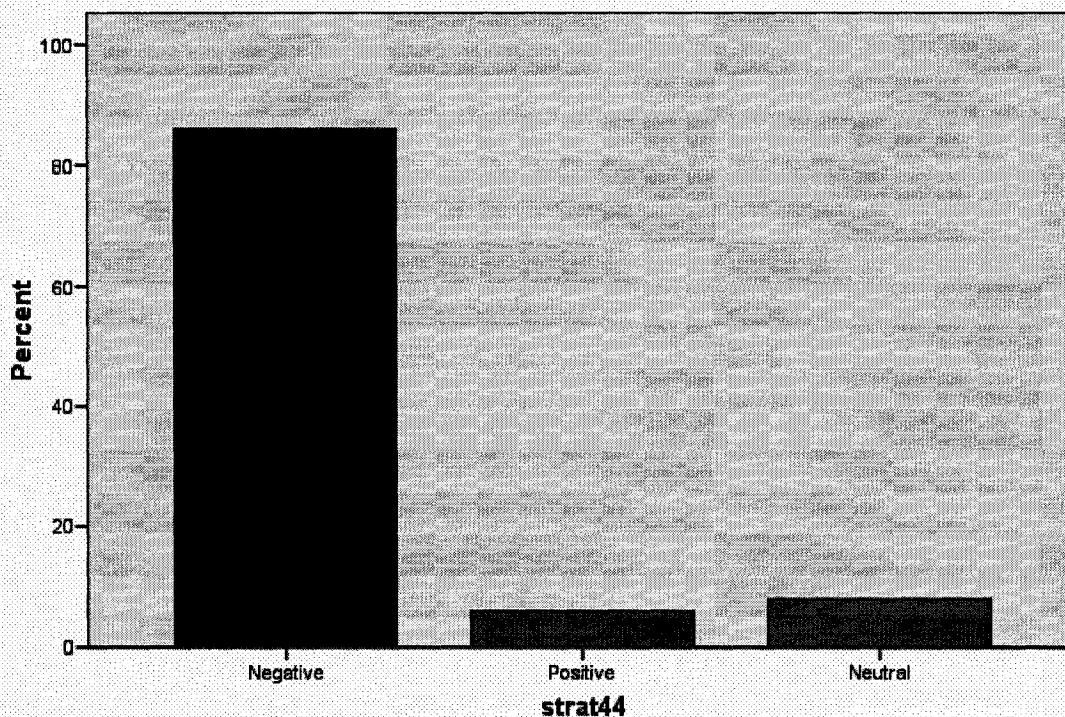


I name all the notes before practicing my piece

strat44

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	43	86.0	86.0	86.0
	Positive	3	6.0	6.0	92.0
	Neutral	4	8.0	8.0	100.0
	Total	50	100.0	100.0	

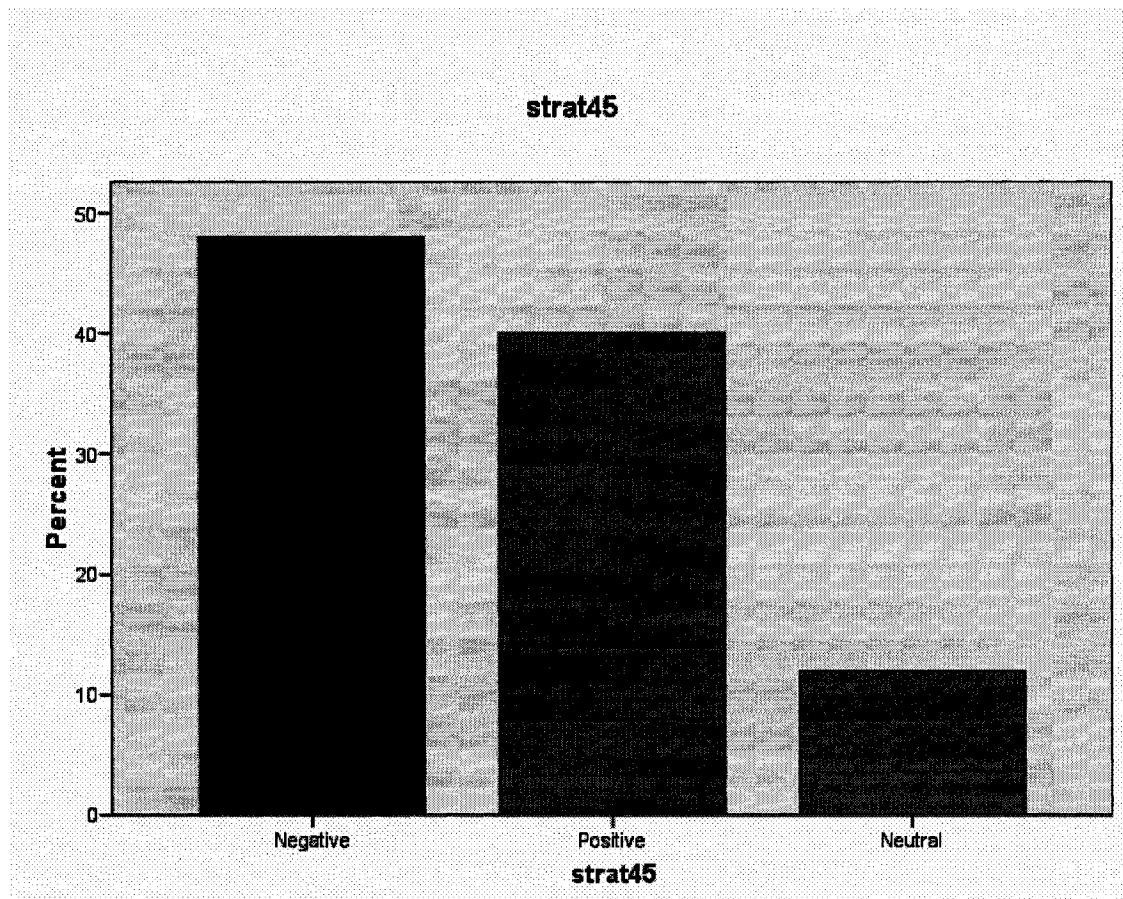
strat44



I check the time signature(s) of every piece I practice

strat45

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	24	48.0	48.0	48.0
	Positive	20	40.0	40.0	88.0
	Neutral	6	12.0	12.0	100.0
	Total	50	100.0	100.0	

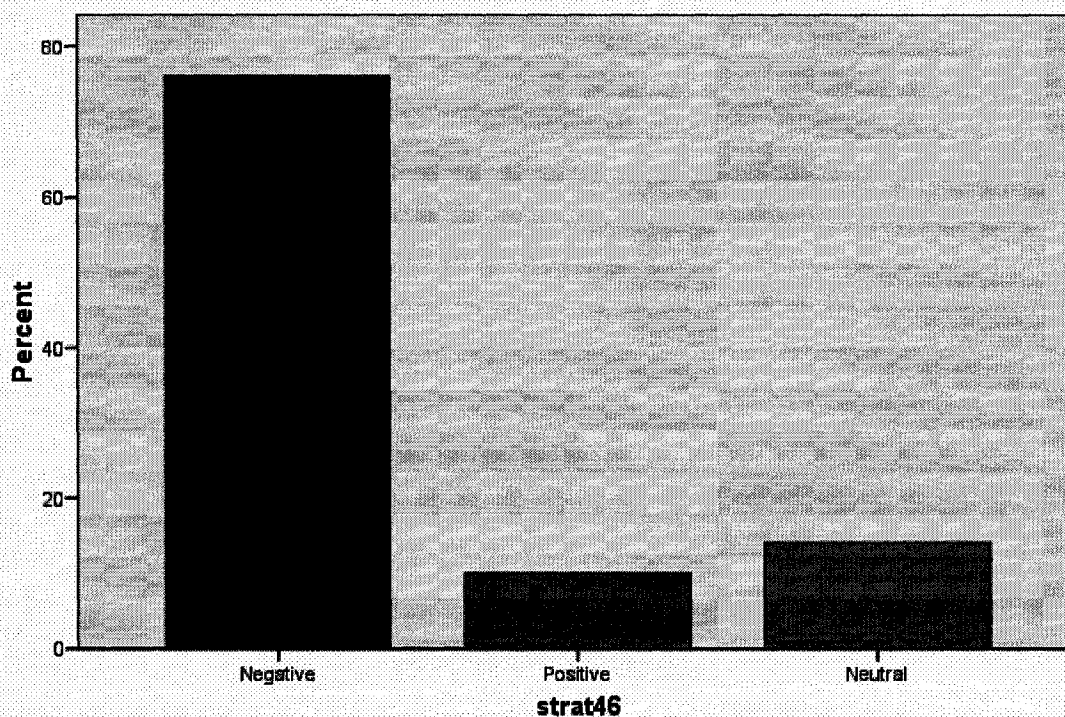


I practice with eyes closed

strat46

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	38	76.0	76.0	76.0
	Positive	5	10.0	10.0	86.0
	Neutral	7	14.0	14.0	100.0
	Total	50	100.0	100.0	

strat46

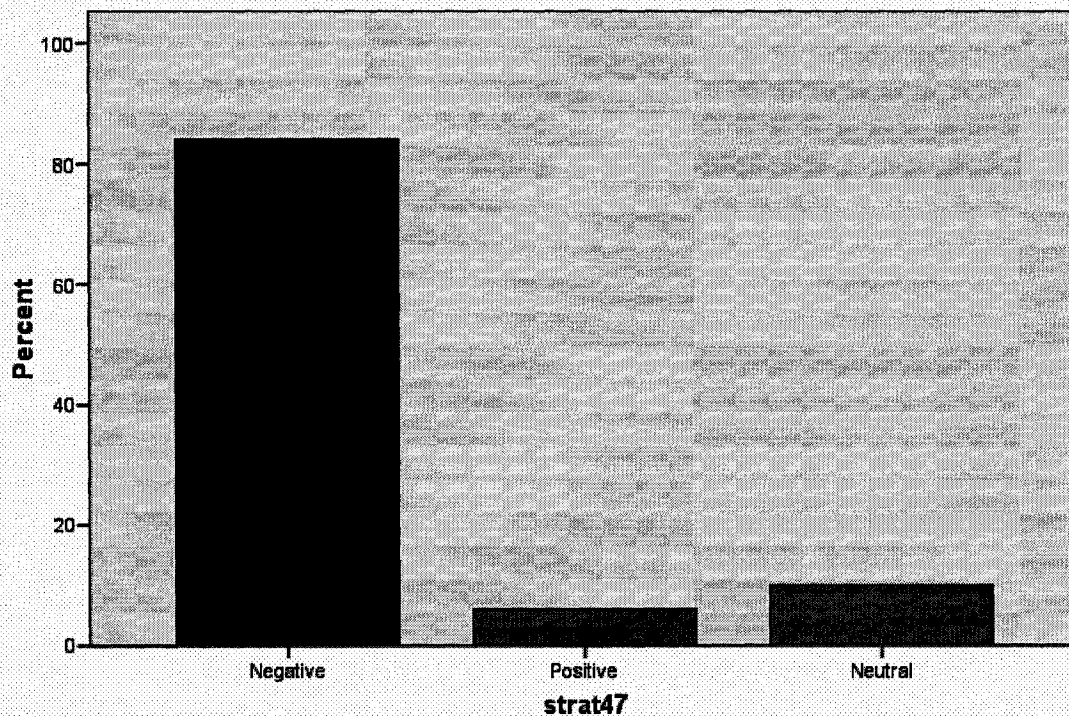


I clap and count the rhythm of every piece before practicing it

strat47

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	42	84.0	84.0	84.0
	Positive	3	6.0	6.0	90.0
	Neutral	5	10.0	10.0	100.0
	Total	50	100.0	100.0	

strat47

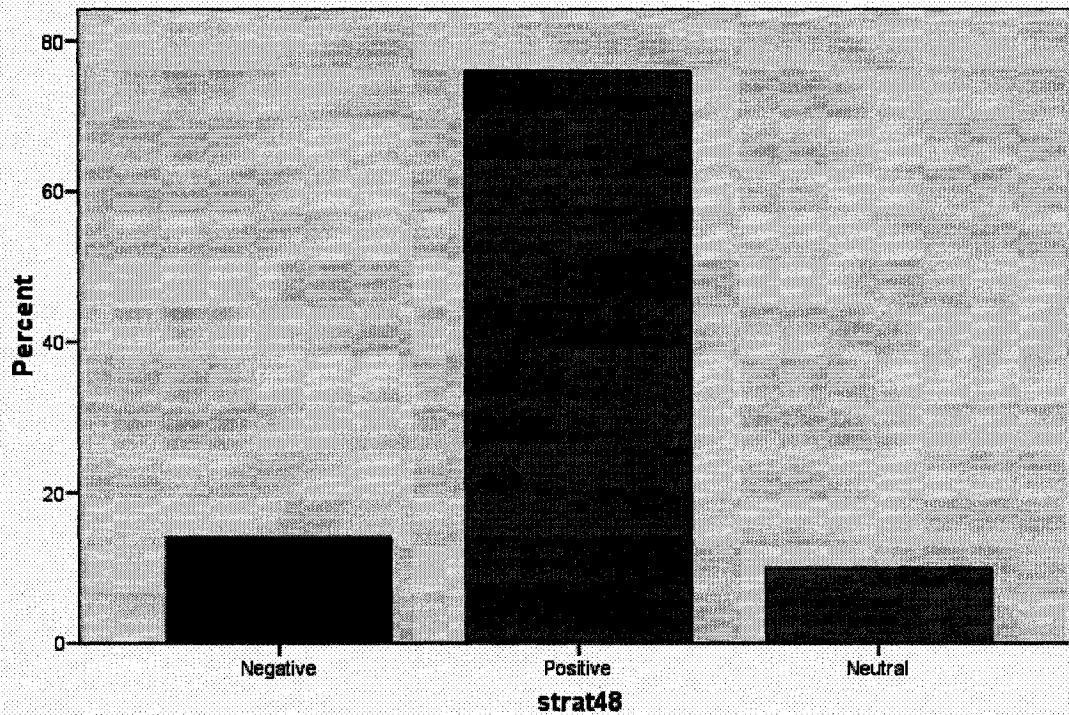


Every time I learn a new piece, I play hands separately

strat48

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	7	14.0	14.0	14.0
	Positive	38	76.0	76.0	90.0
	Neutral	5	10.0	10.0	100.0
	Total	50	100.0	100.0	

strat48

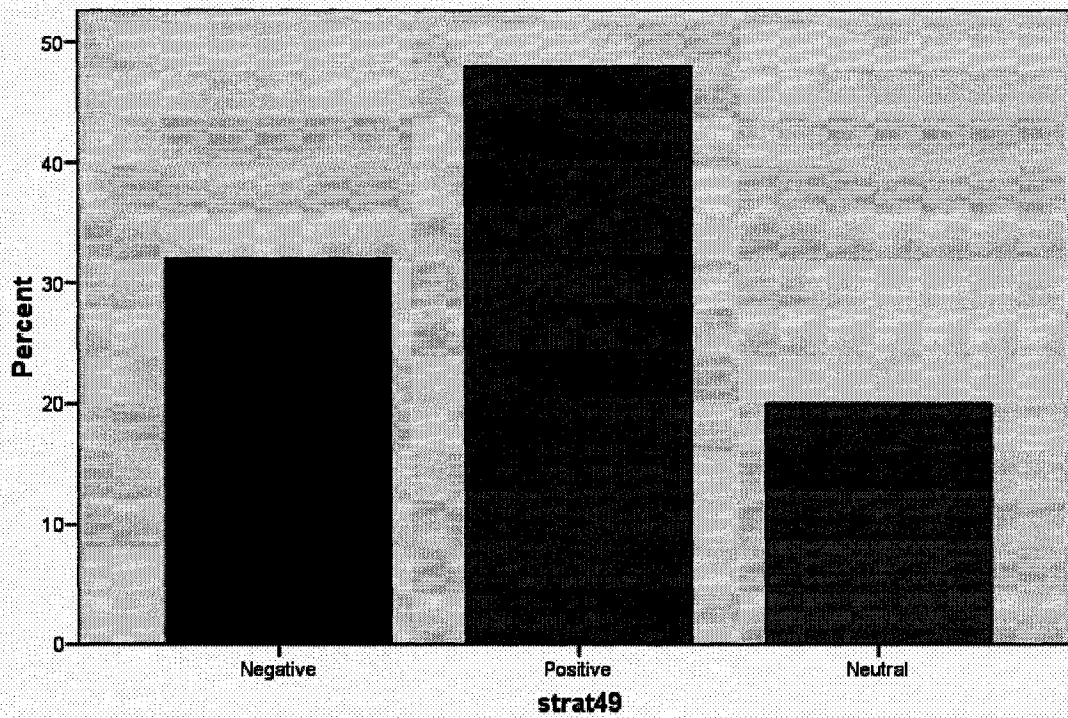


I think about whether or not my practicing is going well

strat49

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	16	32.0	32.0	32.0
	Positive	24	48.0	48.0	80.0
	Neutral	10	20.0	20.0	100.0
	Total	50	100.0	100.0	

strat49

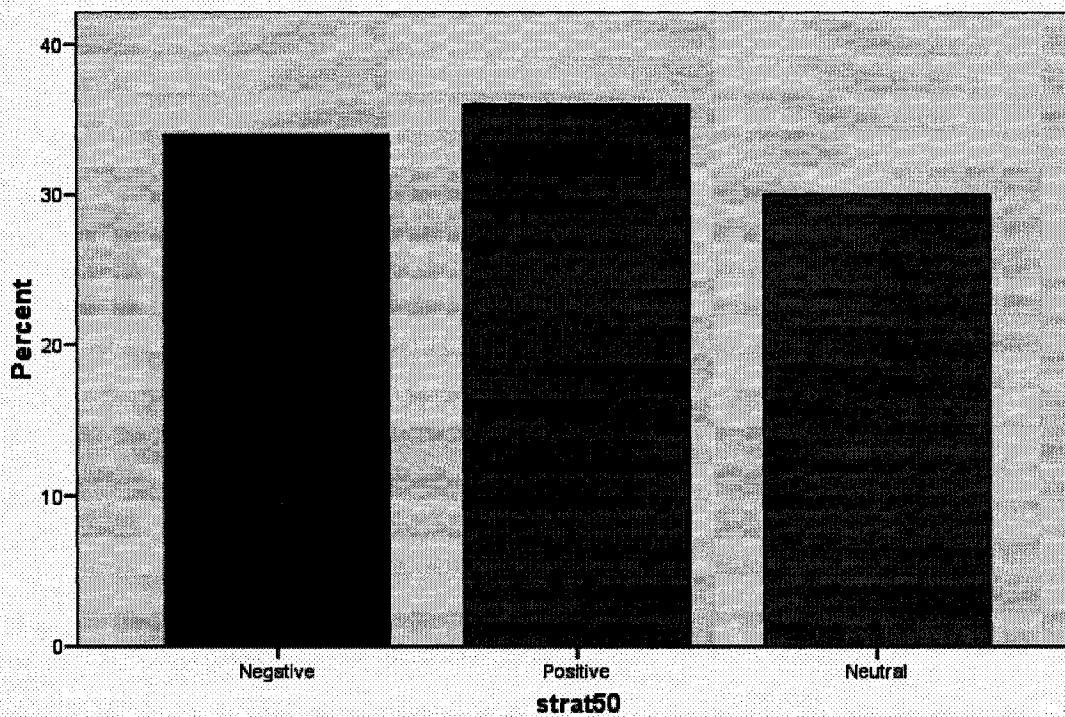


I follow different steps for sight reading than when I prepare a piece for performance

strat50

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	17	34.0	34.0	34.0
	Positive	18	36.0	36.0	70.0
	Neutral	15	30.0	30.0	100.0
	Total	50	100.0	100.0	

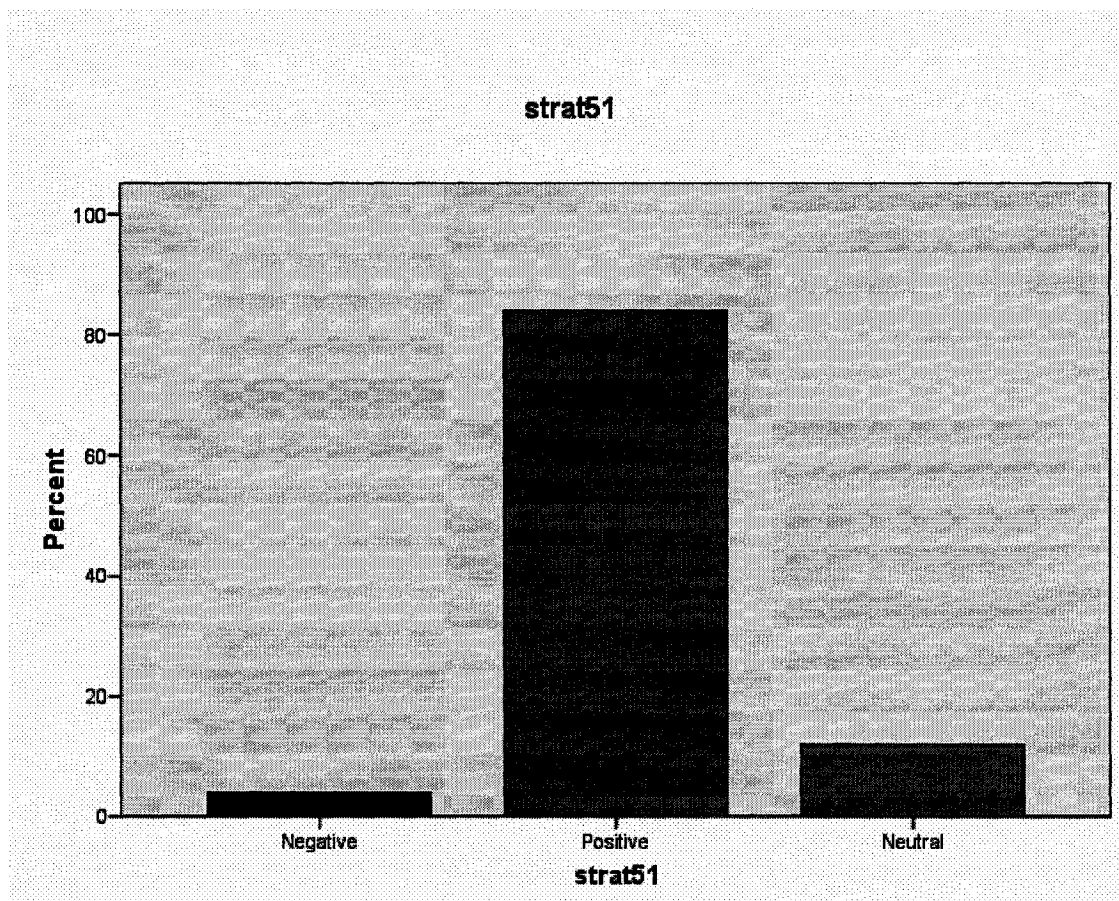
strat50



I know when my practicing improves my piano playing

strat51

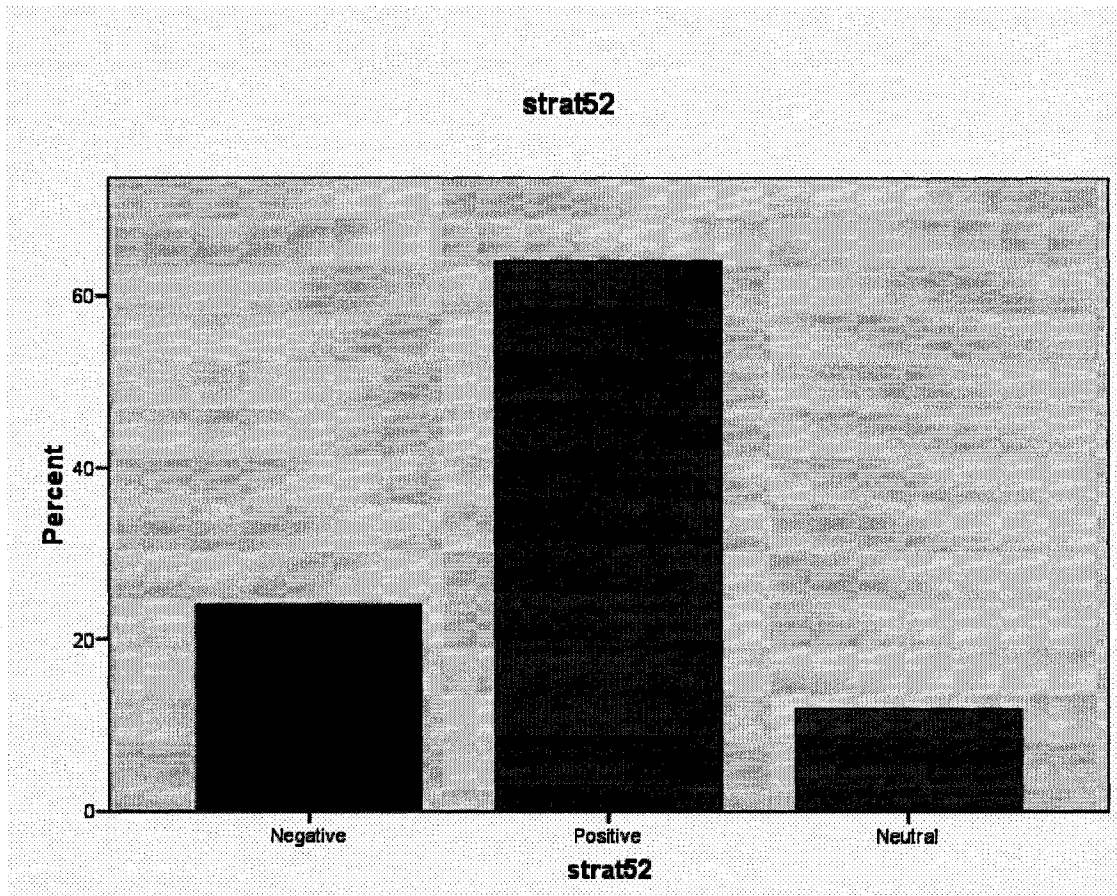
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	2	4.0	4.0	4.0
	Positive	42	84.0	84.0	88.0
	Neutral	6	12.0	12.0	100.0
	Total	50	100.0	100.0	



I check the key signature(s) of every piece I practice

strat52

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	12	24.0	24.0	24.0
	Positive	32	64.0	64.0	88.0
	Neutral	6	12.0	12.0	100.0
	Total	50	100.0	100.0	

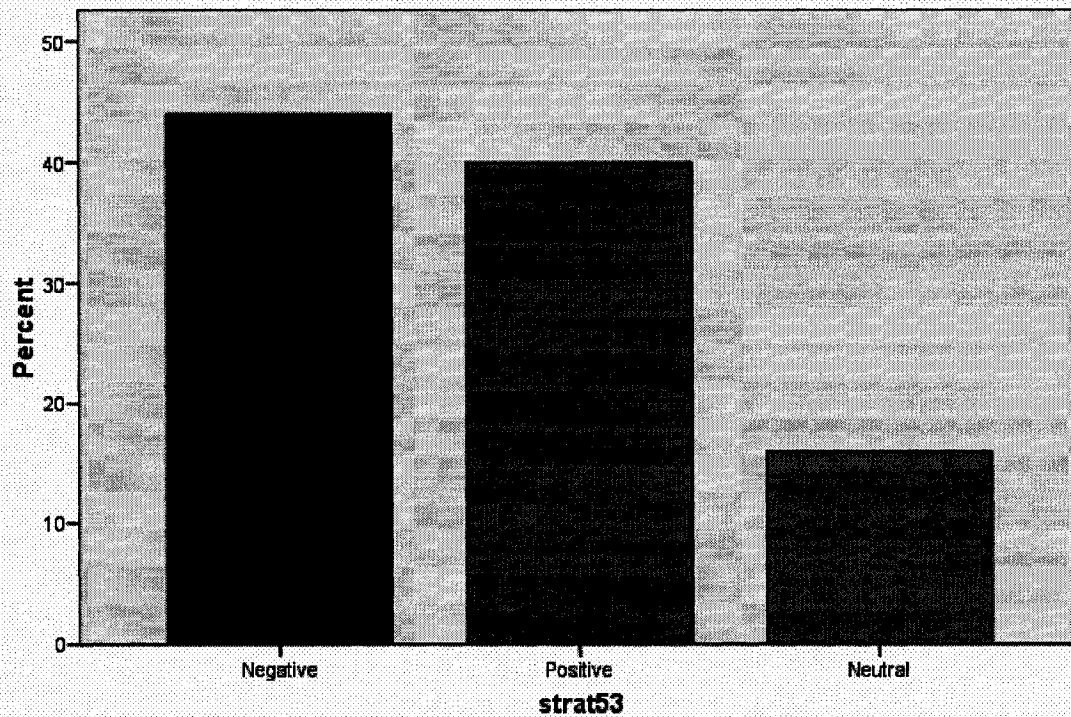


I always practice the same way even if my playing is not improving

strat53

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	22	44.0	44.0	44.0
	Positive	20	40.0	40.0	84.0
	Neutral	8	16.0	16.0	100.0
	Total	50	100.0	100.0	

strat53

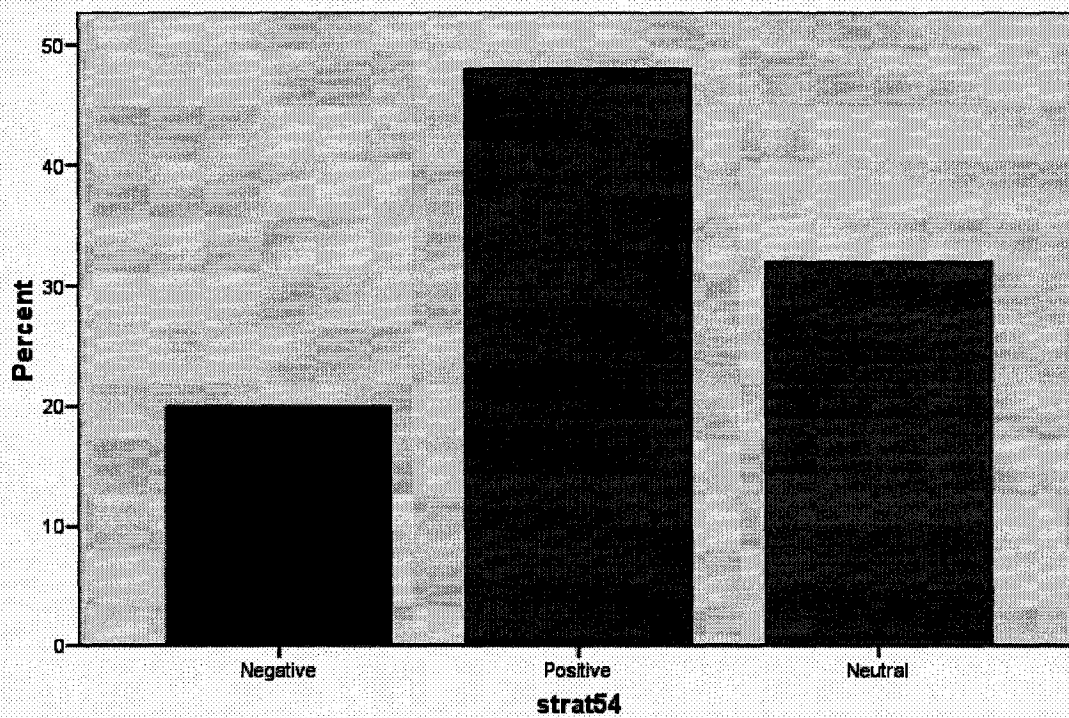


I follow different steps for practicing each of the following: sight reading, pieces, scales

strat54

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	10	20.0	20.0	20.0
	Positive	24	48.0	48.0	68.0
	Neutral	16	32.0	32.0	100.0
	Total	50	100.0	100.0	

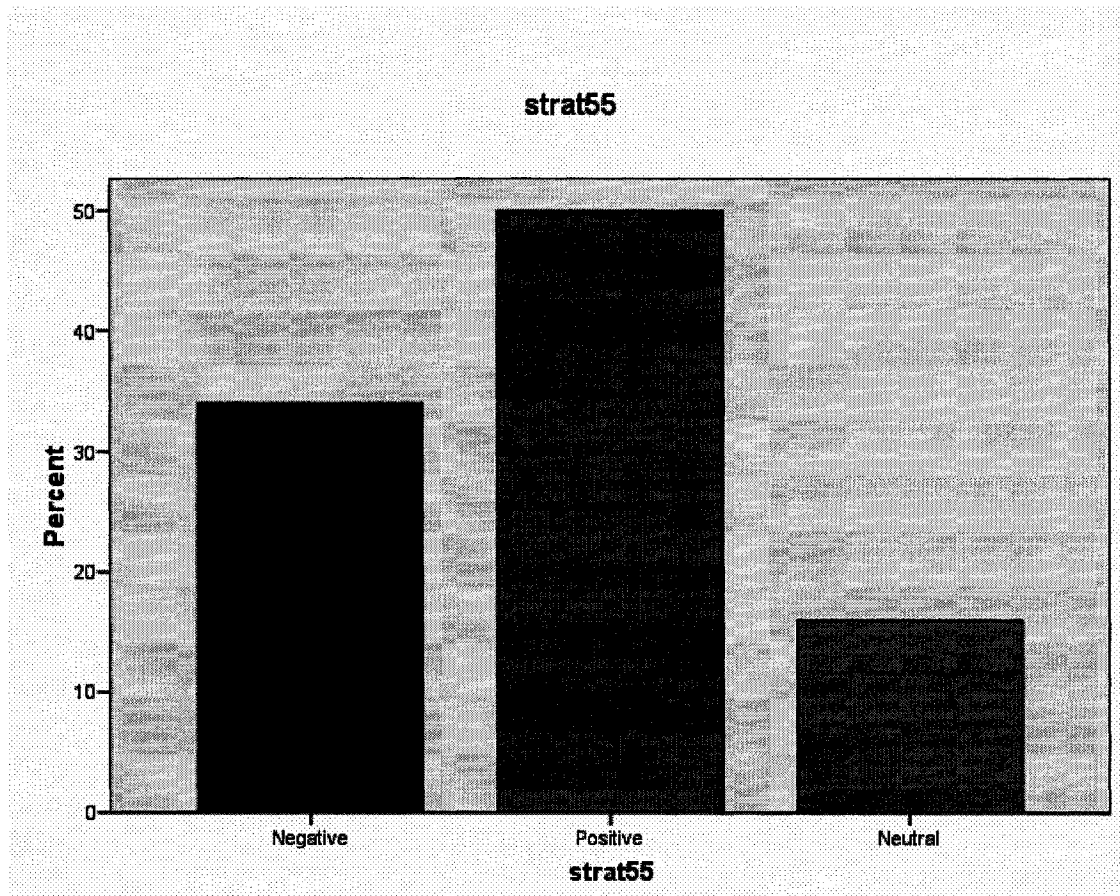
strat54



In every practice session, I do repertoire, technique, and sight-reading

strat55

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	17	34.0	34.0	34.0
	Positive	25	50.0	50.0	84.0
	Neutral	8	16.0	16.0	100.0
	Total	50	100.0	100.0	

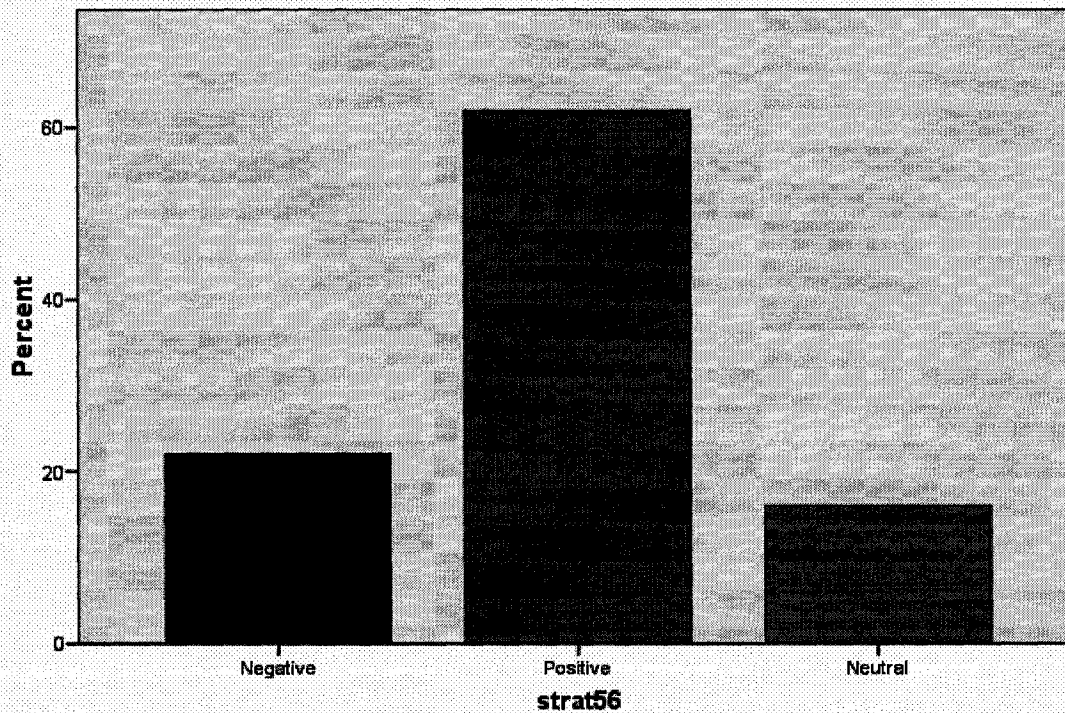


I try different ways to fix a problem in a piece (practicing slowly, use of metronome, hands separately)

strat56

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	11	22.0	22.0	22.0
	Positive	31	62.0	62.0	84.0
	Neutral	8	16.0	16.0	100.0
	Total	50	100.0	100.0	

strat56

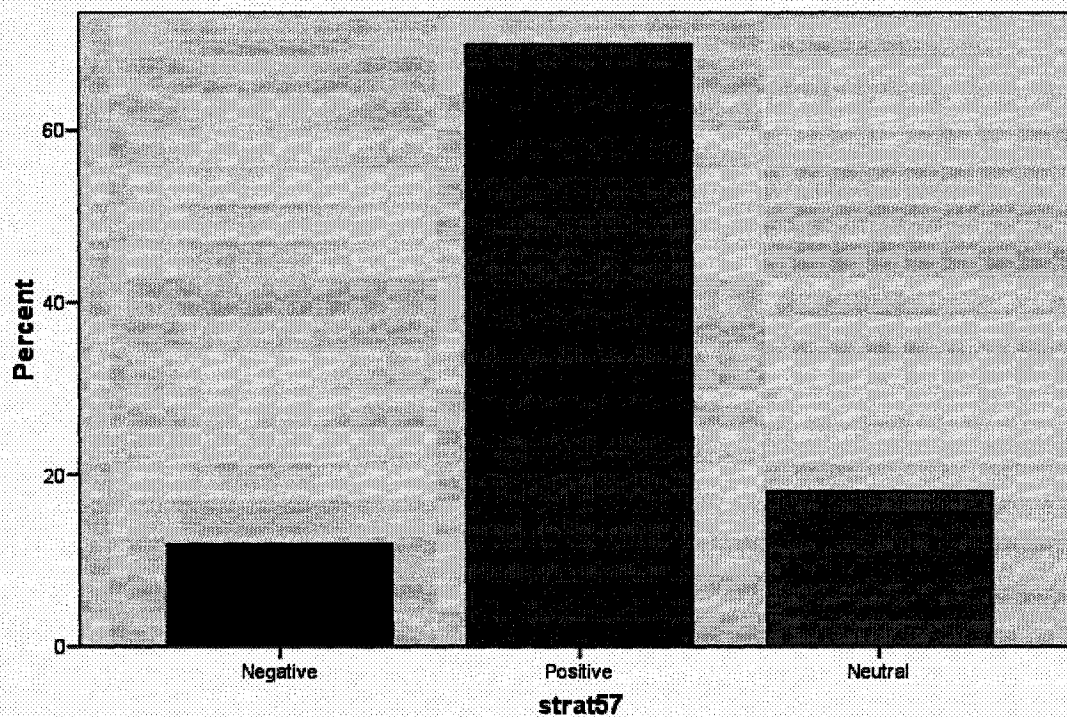


I will try everything to make my playing improve

strat57

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	6	12.0	12.0	12.0
	Positive	35	70.0	70.0	82.0
	Neutral	9	18.0	18.0	100.0
	Total	50	100.0	100.0	

strat57



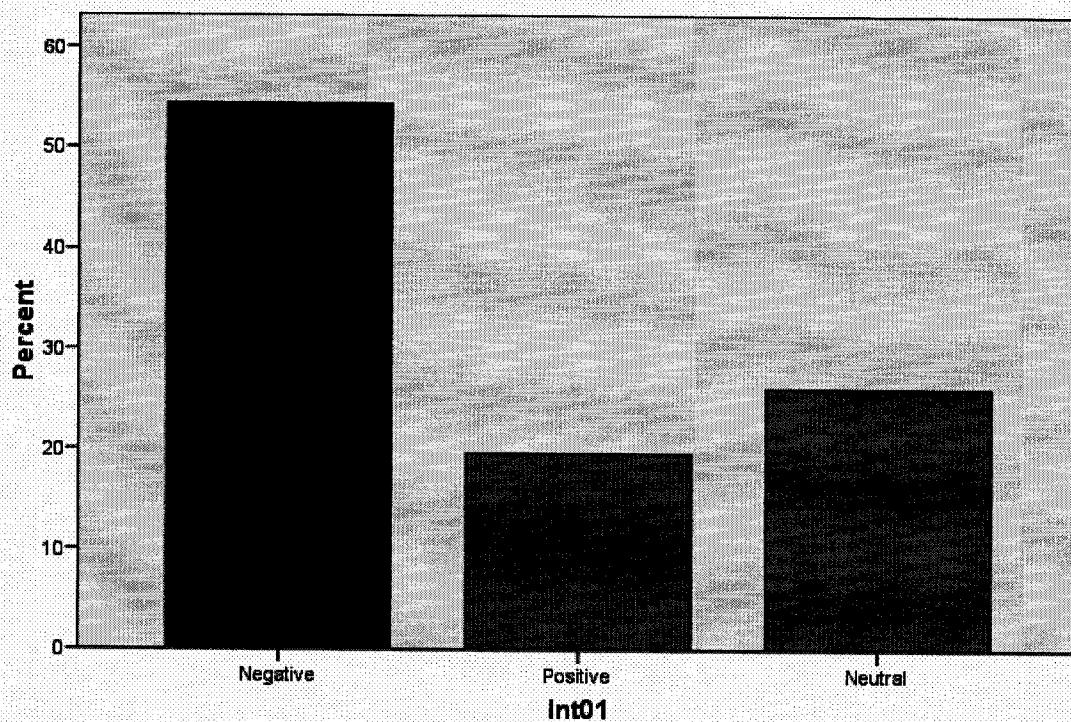
Appendix N: SPSS results on the interests in practice strategies

Practicing sight reading

Int01

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	25	50.0	54.3	54.3
	Positive	9	18.0	19.6	73.9
	Neutral	12	24.0	26.1	100.0
	Total	46	92.0	100.0	
Missing	System	4	8.0		
Total		50	100.0		

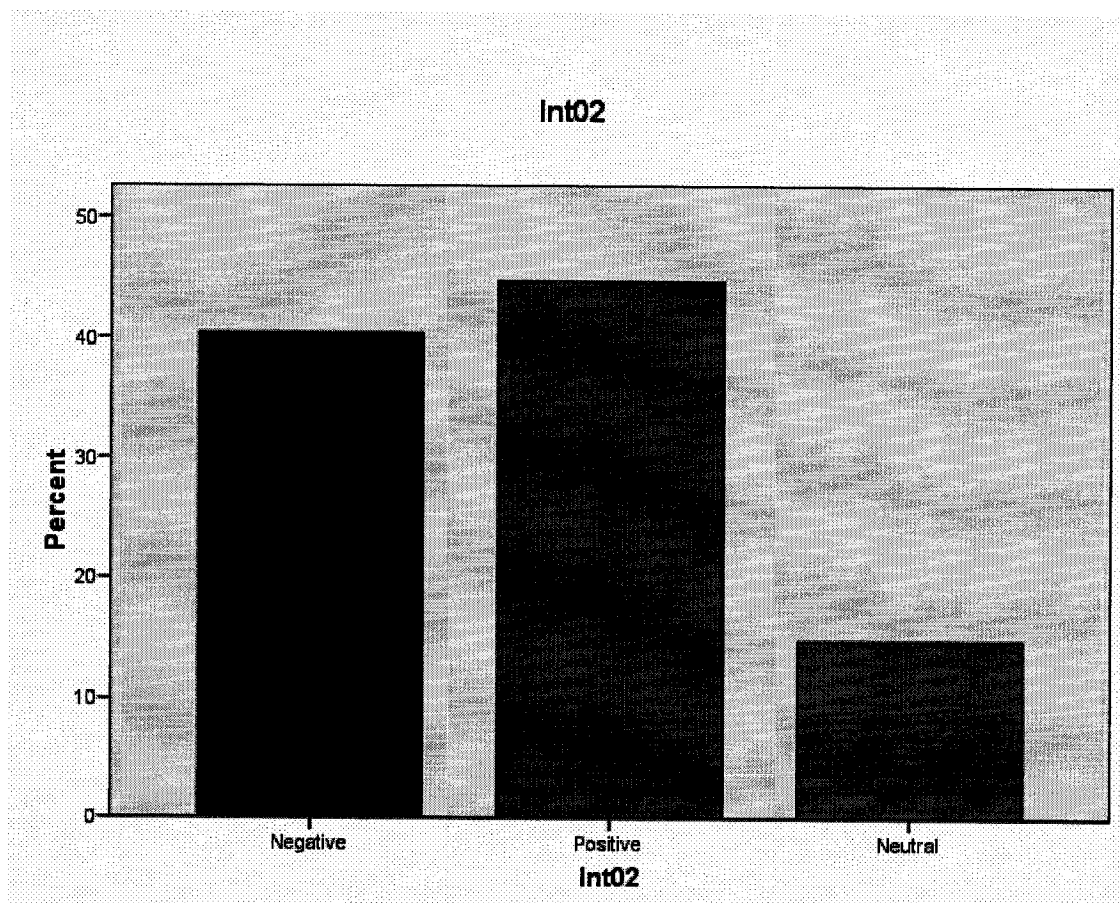
Int01



Practicing scales

Int02

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	19	38.0	40.4	40.4
	Positive	21	42.0	44.7	85.1
	Neutral	7	14.0	14.9	100.0
	Total	47	94.0	100.0	
Missing	System	3	6.0		
Total		50	100.0		

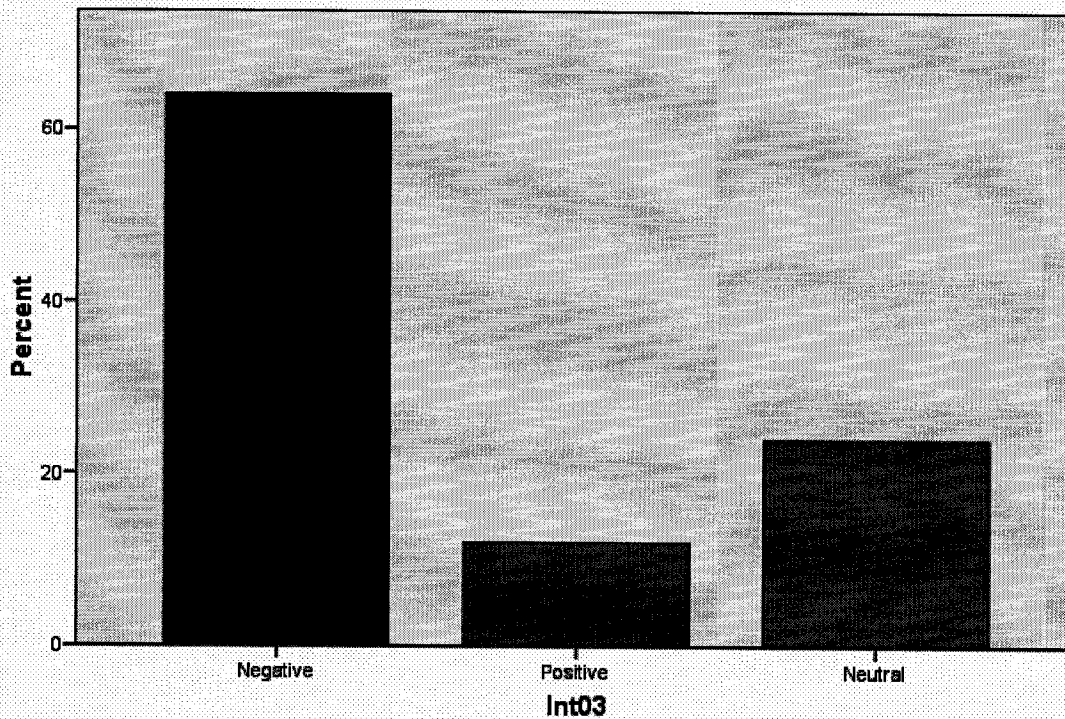


Practicing with a slow tempo

Int03

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	32	64.0	64.0	64.0
	Positive	6	12.0	12.0	76.0
	Neutral	12	24.0	24.0	100.0
	Total	50	100.0	100.0	

Int03

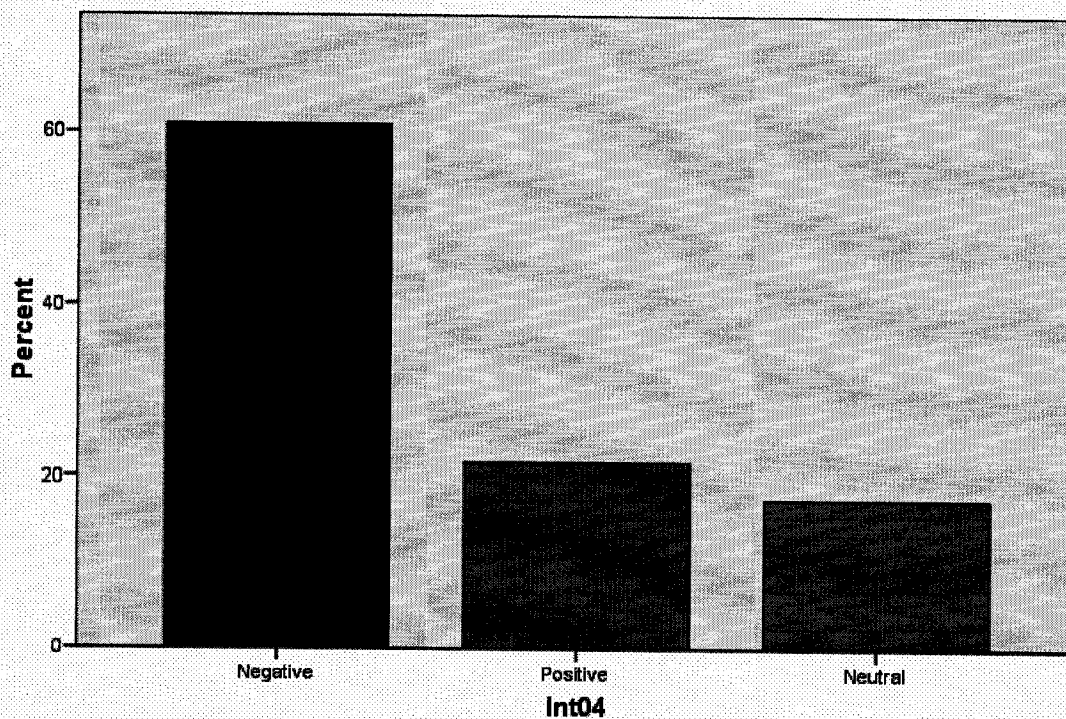


Using a pencil to mark my music

Int04

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	28	56.0	60.9	60.9
	Positive	10	20.0	21.7	82.6
	Neutral	8	16.0	17.4	100.0
	Total	46	92.0	100.0	
Missing	System	4	8.0		
Total		50	100.0		

Int04

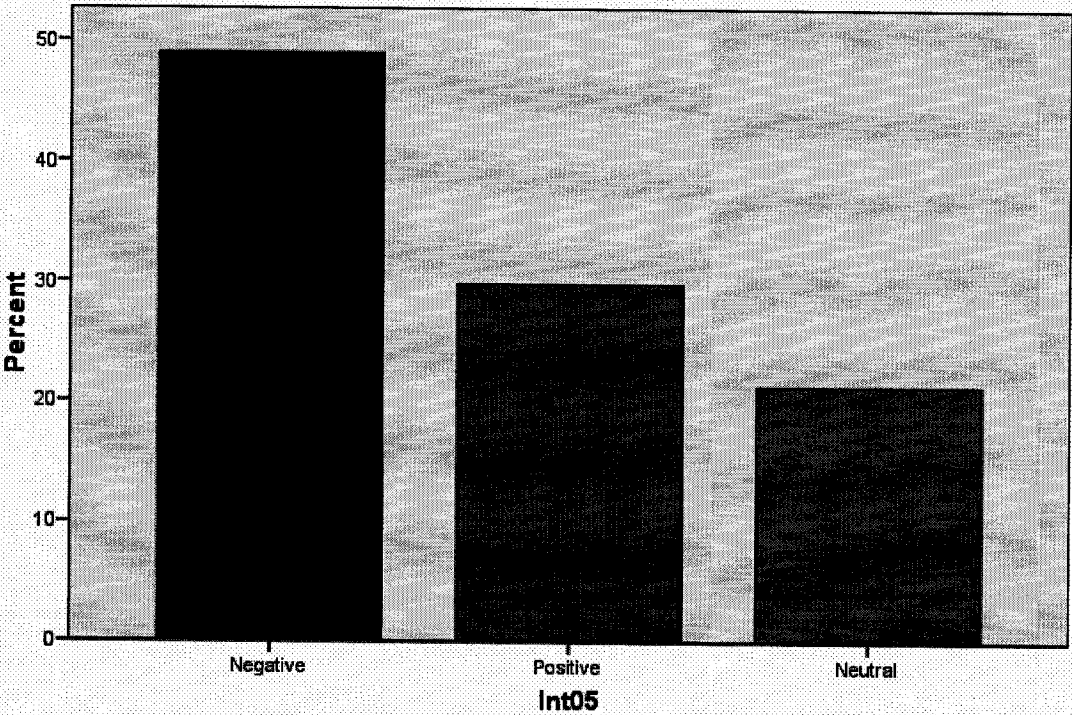


Practicing with the metronome

Int05

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	23	46.0	48.9	48.9
	Positive	14	28.0	29.8	78.7
	Neutral	10	20.0	21.3	100.0
	Total	47	94.0	100.0	
Missing	System	3	6.0		
Total		50	100.0		

Int05

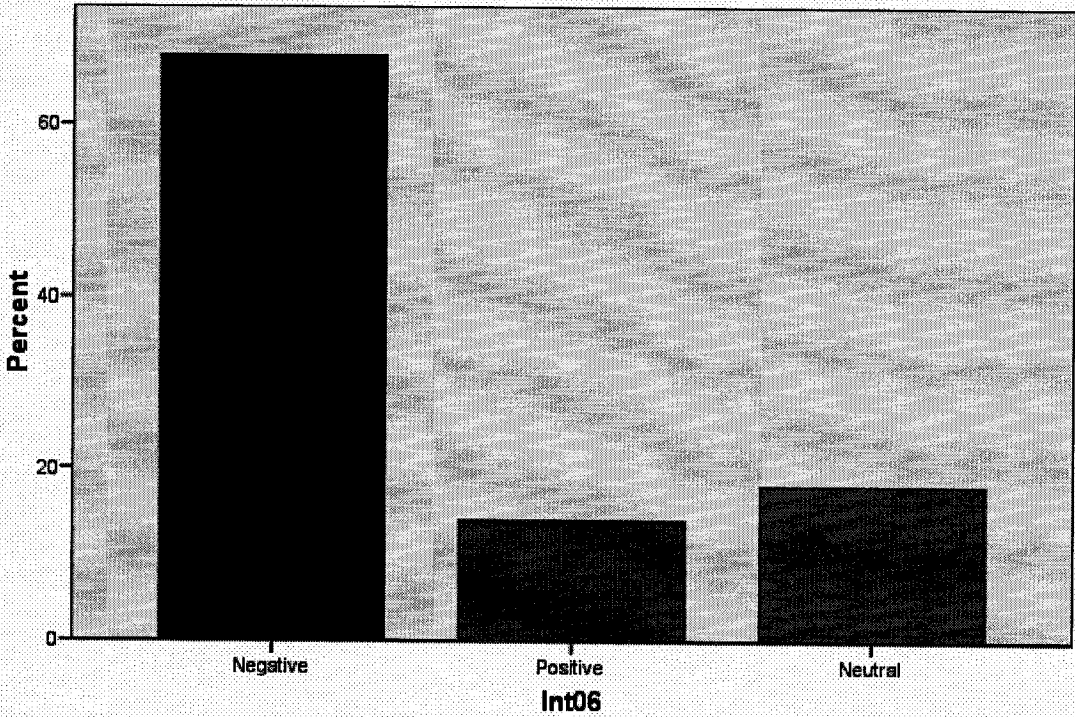


Counting out loud while practicing

Int06

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	34	68.0	68.0	68.0
	Positive	7	14.0	14.0	82.0
	Neutral	9	18.0	18.0	100.0
	Total	50	100.0	100.0	

Int06

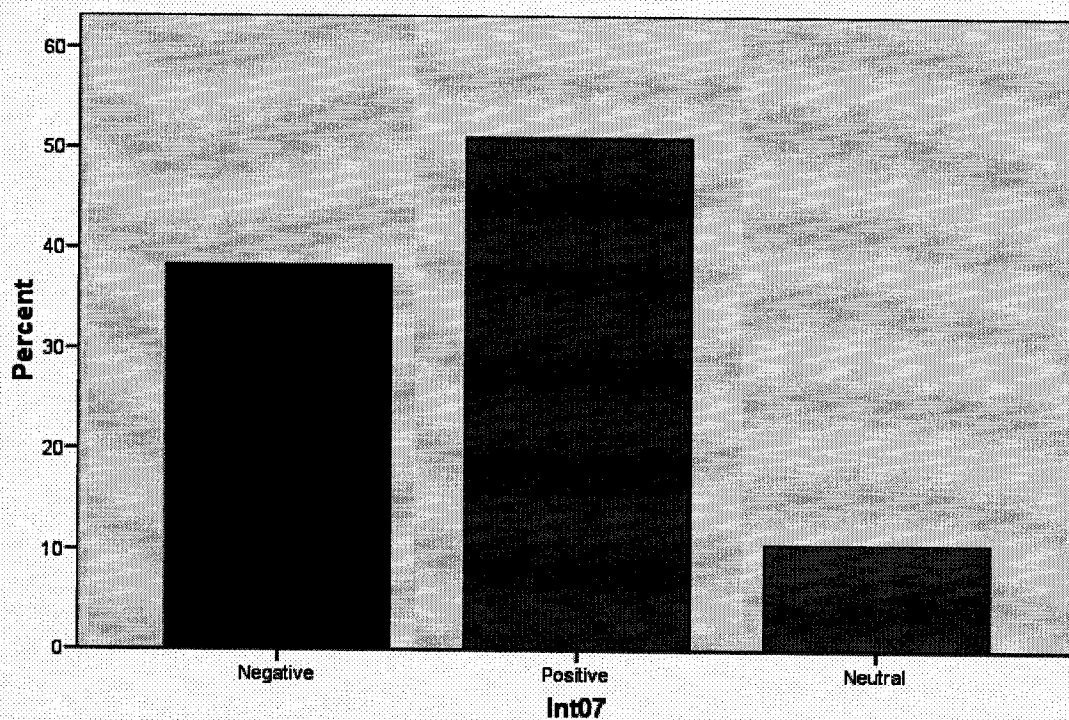


Listening to music recordings

Int07

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	18	36.0	38.3	38.3
	Positive	24	48.0	51.1	89.4
	Neutral	5	10.0	10.6	100.0
	Total	47	94.0	100.0	
Missing	System	3	6.0		
Total		50	100.0		

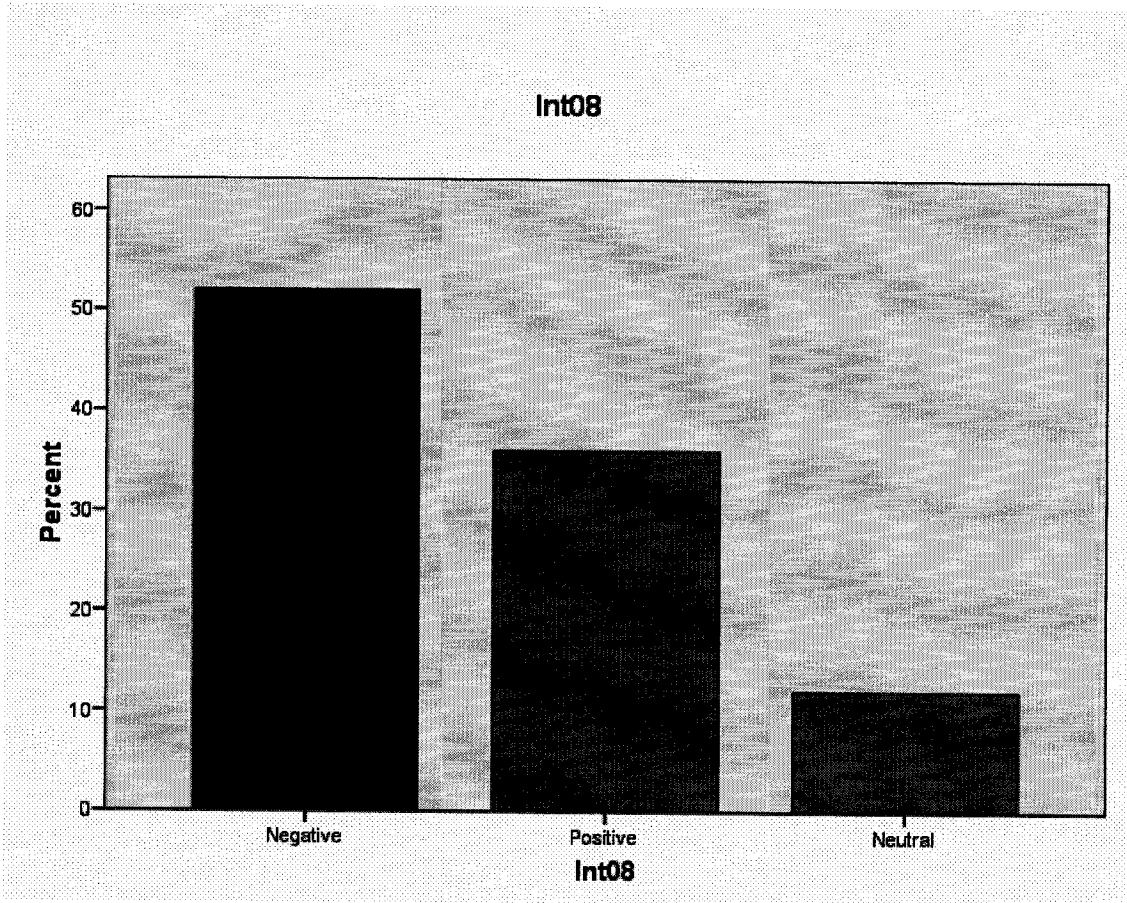
Int07



Singing the melody while practicing a piece

Int08

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	26	52.0	52.0	52.0
	Positive	18	36.0	36.0	88.0
	Neutral	6	12.0	12.0	100.0
	Total	50	100.0	100.0	

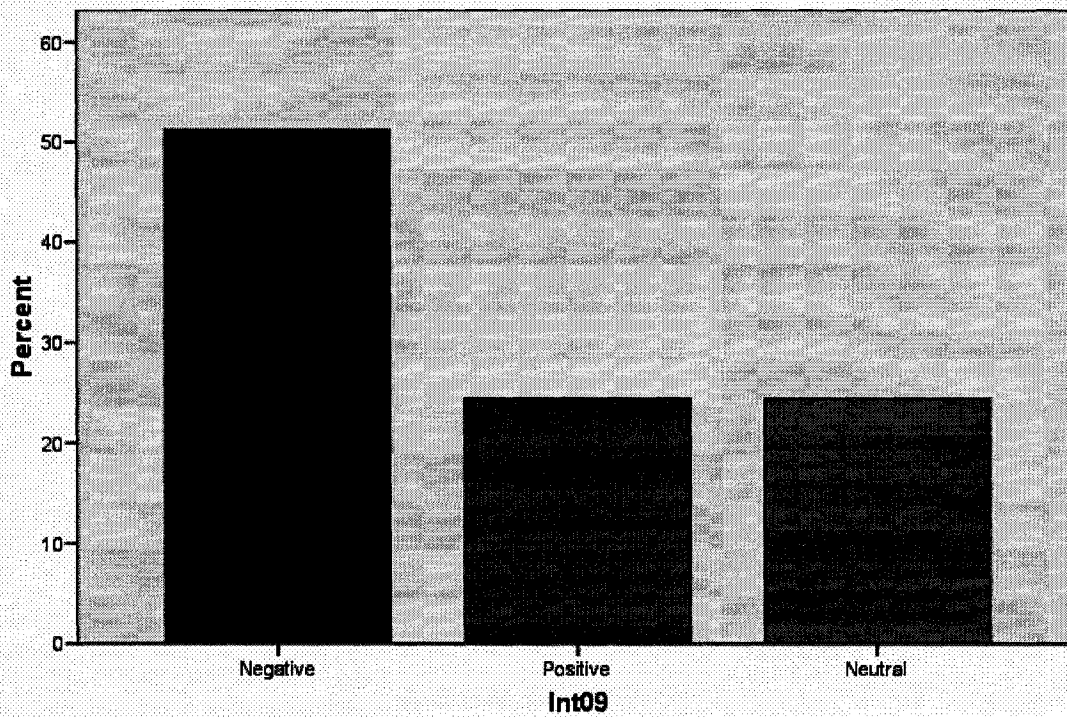


Using practice charts

Int09

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	21	42.0	51.2	51.2
	Positive	10	20.0	24.4	75.6
	Neutral	10	20.0	24.4	100.0
	Total	41	82.0	100.0	
Missing	System	9	18.0		
Total		50	100.0		

Int09

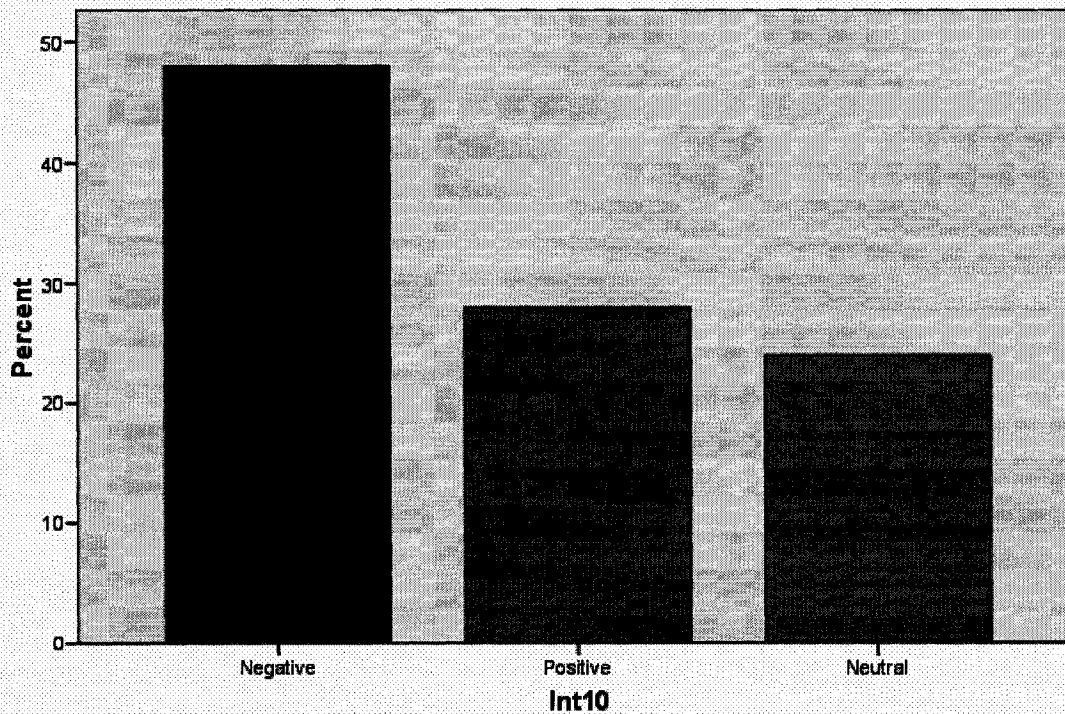


Stopping and correcting mistakes while practicing

Int10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	24	48.0	48.0	48.0
	Positive	14	28.0	28.0	76.0
	Neutral	12	24.0	24.0	100.0
	Total	50	100.0	100.0	

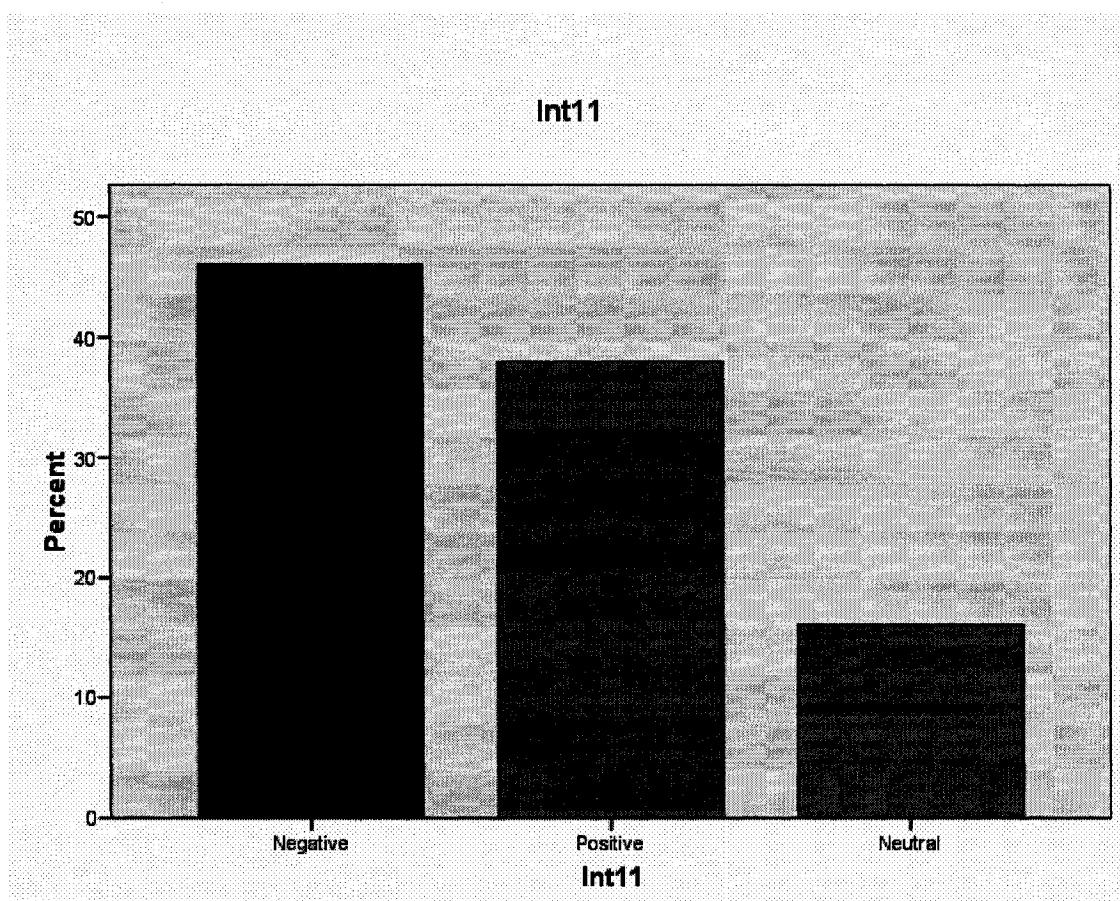
Int10



Clapping or tapping rhythm exercises

Int11

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	23	46.0	46.0	46.0
	Positive	19	38.0	38.0	84.0
	Neutral	8	16.0	16.0	100.0
	Total	50	100.0	100.0	

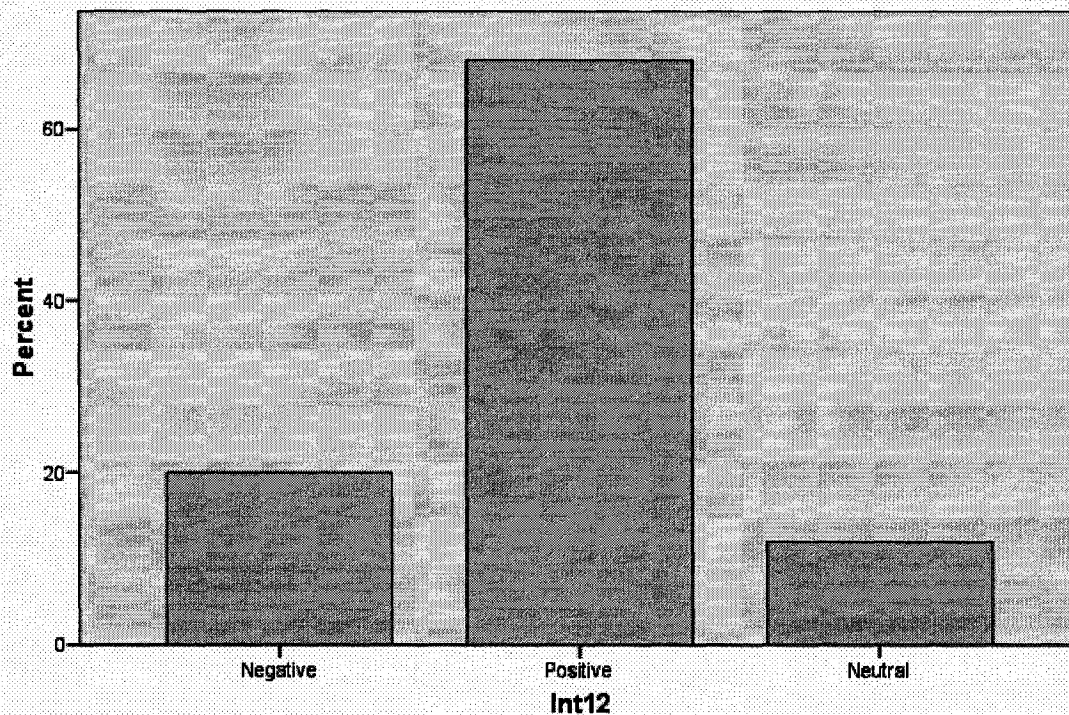


Reviewing pieces that I already know

Int12

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	10	20.0	20.0	20.0
	Positive	34	68.0	68.0	88.0
	Neutral	6	12.0	12.0	100.0
	Total	50	100.0	100.0	

Int12

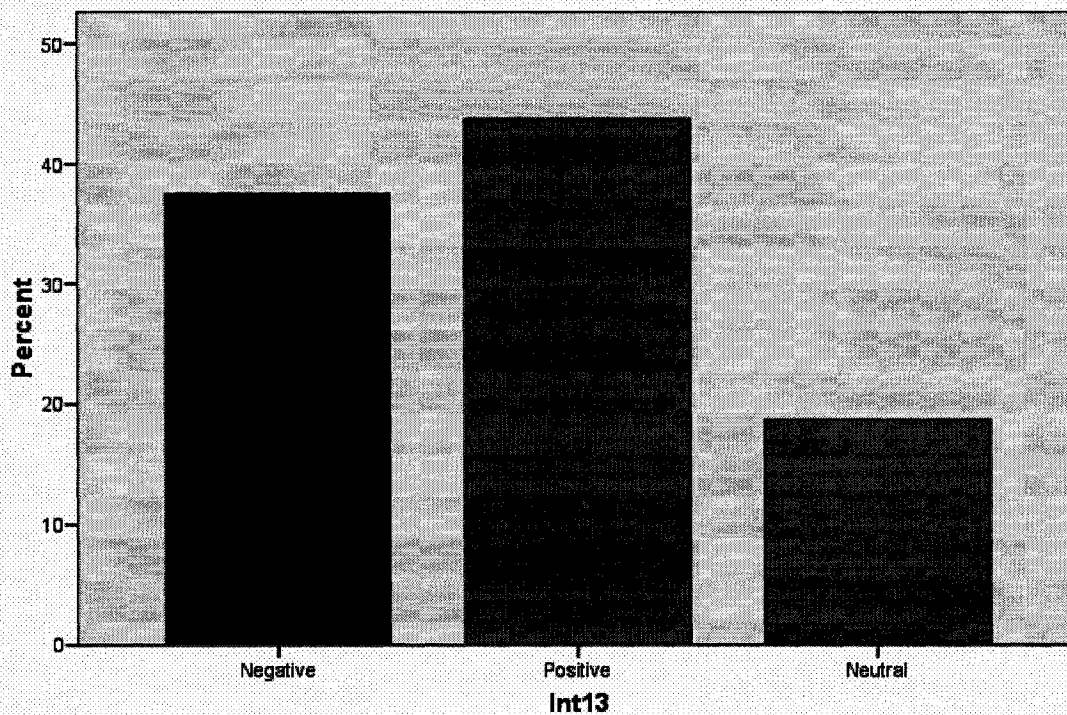


Having my parents help me with practicing

Int13

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	18	36.0	37.5	37.5
	Positive	21	42.0	43.8	81.3
	Neutral	9	18.0	18.8	100.0
	Total	48	96.0	100.0	
Missing	System	2	4.0		
Total		50	100.0		

Int13



Practicing with eyes closed

Int14

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Negative	14	28.0	29.8	29.8
	Positive	28	56.0	59.6	89.4
	Neutral	5	10.0	10.6	100.0
	Total	47	94.0	100.0	
Missing	System	3	6.0		
Total		50	100.0		

Int14

