Transforming Expert Musical Practice: Conceptualising, Structuring, and Executing Practice Mastery

Ana Murakawa

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Declaration

I, Ana Janaina Vitorino Murakawa, hereby declare that this submission is my own work and that it contains no material previously published or written by another person. All assistance and sources used in this thesis have been properly referenced. This thesis contains no material that has been accepted for the award of a higher degree from any other institution.

Ethical approval has been granted for the study presented in this thesis from The University Human Ethics Committee, project number 2017/727 (Appendix A). Participants were required to read an information statement and sign a consent form. Informed consent was given individually prior to the collection of data.

Signed: ___________________________________________ Date: __31/03/2019___
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Abstract

Practice has the potential to transform a musician’s expertise by elevating technical and musical limitations to full competence, allowing a musician to play masterfully at a professional level (based on Ericsson, Krampe, & Tesch-Römer, 1993; Johnston, 2002; Sloboda, Davidson, Howe, & Moore, 1996). While the research literature underlines some pedagogical and psychological principles on how to practise, there is a need to identify strategies, inspirations, thoughts, and artistic behaviours that will lead to practice mastery and excellence in performance (Cervino, Laws, Lettberg, & Lisboa, 2011). To date, most of the studies related to effective practice have been conducted with students in higher education (Hallam, 2001). This research aims to evaluate how professional performers conceptualise and approach practice, and to observe how they are able to make practice theory meaningful.

Six performance experts participated in an interview regarding practice. The interviews explored how the participants address and structure practice, how they handle obstacles, and how they prepare for performances. The participants discussed the importance of mental preparation, and unanimously described the value of mental practice in the learning of new works. For these performers, practice was never the ultimate objective, only a means to achieve progress in performance and to convey to an audience the delivery of art.

This study aims to redefine existing practice concepts by appraising musicians and pedagogues of current expert approaches and demonstrating how these are implemented. It will identify how knowledge of theory needs to be enacted to experience expert practice.
mastery. These findings will benefit and advance pre-professional performers in their pursuit of excellence in performance as they prepare for the music profession.

*Keywords: Practice, mental practice, deliberate practice, problem solving, metacognition.*
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1 Introduction

The notion that *practice makes perfect* has been a catalyst in propelling musicians and other professionals to consider practice as the medium that elevates performance and aids the processes of artistic decision making and excellence (Johnston, 2002; Stewart & Williamon, 2008). Although research suggests that practice is necessary for musicians to refine talent and technical domain of their instruments, there remains a need to unveil what practice concepts and applications are the most efficient and effective in the pursuit of performance excellence (Miksza, 2007).

Musicians instinctively assume that repetition is the means by which to achieve the betterment of technique and musical performance (Dounis, 2005). However, repetition alone not only does not lead to improvement, it can be detrimental if approached erroneously (Chaffin & Imreh, 2001; Sloboda et al., 1996). Research in the field of psychology has concluded that in order to achieve success in performance and expertise in any determined field, ten years of intense preparation is necessary. This idea, known as the “ten thousand hours” rule, states that practice must be deliberate, mindful, intentional, goal-oriented, and solution-directed (Ericsson et al., 1993; Kageyama, 2017; Sloboda et al., 1996).

Although essential, recent studies have determined that deliberate practice is not the only factor determining high-performance outcome and that quantity of practice might not be correlated with quality of performance (Macnamara, Hambrick, & Oswald, 2014; Meinz & Hambrick, 2010; Williamon & Valentine, 2000).
Despite researchers’ growing attention on practice and learning, there is still a need to characterise what strategies, thoughts, and artistic behaviours are the most fruitful in preparation for performance and the betterment of artistic skills. In the current literature, there are only few studies that have observed practice behaviours of professional performers (Cervino et al., 2011; Duke, Simmons, & Cash, 2009; Gerle, 1983; Lisboa, Demos, & Chaffin, 2018; Miksza, 2007). This study will investigate how professional performers conceptualise and approach practice, and how these participants make the theoretical principles of practice meaningful. This study will also examine the determining factors that constitute masterful practice, and how it can be replicated for excellence in performance, seeking to understand the process of practice in its entirety, from the first steps to performance level.
2 Literature Review

Musicians, athletes, dancers, and other professionals hold the belief that practice is essential for achieving peak performance, after all, *practice makes perfect*. Practice is therefore the pathway that removes performers from a place of incapacity and propels them towards mastery (Flesch & Martens, 1930). It is a necessary exercise for musicians to improve their skills and the technical domain of their instruments, simultaneously developing their processes of artistic decision making and excellence (Johnston, 2002; Stewart & Williamon, 2008). A great part of a musician’s life is dedicated to the betterment of their craft, and throughout history, it is possible to observe the growing attention of musicians to the concept of practice itself. Since Carl Czerny’s accounts of his lessons with Beethoven (Czerny, 1970), and Leopold Mozart’s treatise on the fundamental principles of violin playing (Mozart, 1985), performers have enquired about practice mastery and sought answers to the question of how to practise.

It is clear that practice is indispensable in order to learn, refine, and maintain musical competence (Coffman, 1990; Duke et al., 2009). However, there remains a the need in current times to uncover what constitutes good practice and what concepts are the most efficient and effective in the pursuit of excellence in performance (Miksza, 2007). With modern life becoming ever busier, it is also crucial to determine how a musician can make the best use of his or her practice time (Gerle, 1983). What then is the link that connects the incapacity to achieve and carry out a skill proficiently with the mastery of practice and performance?
Most musicians believe that the answer to this problem lies in repetition. Performers carry out numerous repetitions every day of scales, etudes, concertos, passages, chamber music materials, etc. However, this idea is deceptive and misleading. Novice performers are able to benefit enormously from repetition, while a certain degree of automation and familiarity with the instrument is still under development (Hallam, 2001). However, for more advanced performers, “the result of such monotonous and arid study is usually worthless” (Dounis, 2005). It is unlikely that repetition alone will bring to a musician the results they expected to achieve from this task. Mastery of an instrument, art, and technique comes from a combination of many different cognitions (Altenmüller, Wiesendanger, & Kesselring, 2006). Practice demands the full focus and attention of a musician in order to be successful. “The true technical training of the violinist is not merely a training of the arm and the fingers but, principally, a training of the brain and the memory” (Dounis, 2005). Besides, the frequent repetition of a passage does not allow for a musician to bring forward the music and the conveyance of art. Practice approached purely from a technical and repetitive angle becomes a technical task and music goes beyond being a mechanical endeavour (Flesch & Martens, 1930).

While some performers practice instinctively, others find it necessary to structure practice (Miksza, 2007). When structuring a practice session, it is valuable for a musician to consider what they intend to accomplish each and every day (Arney, 2006; Klickstein, 2009). Ivan Galamian, a prominent violinist and pedagogue from the twentieth century, suggests that practice should be organised into three categories:
1) “Building time”: During this time, it is relevant for a learner to prepare in order to overcome technical challenges and develop performance technique. It is useless to make use of repetition without focus. A player should anticipate the action with the mind and then proceed to master the physical motion. Attention should be given to the fact that the technical work should not be devoid of musical intention.

2) “Interpreting time”: The focus of this category is to develop expressiveness and musicianship. A learner is expected to have mastered a piece technically, but still needs to devote attention to the expressive and artistic side of the piece.

3) “Performing time”: The culmination of the work. A performer should aim to play without interruptions, play with an accompanist, and perform runs-through of pieces that have already been technically mastered. A musician should practice with the intention to automatise performance and should devote time every day for imaginary performances (Galamian, 1964; Koob, 1986).

2.1 Mental Preparation

2.1.1 Understanding the Musical Context

Some other pedagogues advise that prior to learning a piece, a musician should comprehensively study the composer and all the contextual aspects of that time period, in order to seek a deep understanding of the composer’s intentions and in a way to bring to life aspects of the music that cannot be notated. Prominent violinist Mischa Elman stated: “Before I even take up my violin, I study a piece thoroughly in score. I read and reread it until I am at home with the composer’s thought, and its musical balance and proportion.”
It is only possible for a musician to build a plausible and convincing interpretation of a work after becoming familiar with the composer and their style (Applebaum, 1972).

2.1.2 Visualisation and Imagery

“One reason we can change our brains simply by imagining is that, from a neuroscientific point of view, imagining an act and doing it are not as different as they sound.” (Doidge, 2007, p. 203)

Visualisation is a function of the brain that involves picturing and imagining a movement that is to take place prior to any physical action, the “covert of imaginary rehearsal of a skill without muscular movement or sound” (Coffman, 1990). This is a common practice technique amongst athletes, and a recommended procedure by musicians, researchers, and pedagogues. In music, mental practice may assist musicians to perform previously unknown music by the creation of an audible and motor image (Highben & Palmer, 2004). It is in the brain, “the ultimate control centre,” (Gerle, 1983) that every motion and idea applied into performing originates.

Some researchers indicate that it is important that visualisation techniques are applied at the early stages of learning, as a way to aid musicians to develop an accurate representation of the works of music as a whole and an accurate internal aural model (Hallam, 2001). Visualisation has the potential to be an effective tool to improve performance, however, in order to obtain this result, the mind has to have a clear and full depiction of the music, the tone, and the interpretation (Onay, 2016). Performers are advised to focus on the sounds and phrases of music during practice, rather than on the
physical motions that will create the sound, and the objectives of practice should be
continuously analysed and matched to the objectives of performance (Highben & Palmer,
2004). It is also valuable for a musician not to focus purely on the physical aspects of an
instrument technique, as this propensity often ignores that what is of supreme importance
is the mental control over the physical motions (Galamian, 1964).

Studies on sports psychology along with a few studies on music and cognition, suggest
that a combination of physical practice and visualisation techniques might lead to higher
achievements in performance (Altenmüller et al., 2006; Ansbach, 1989; Ay, Halawehe, &
Al-Taieb, 2013; Barry & Hallam, 2002; Coffman, 1990; Eckert, 1989; Grouios, 1992;
McHugh-Grifa, 2011; Ross, 1985; Williamson & Valentine, 2000). The reason for these
results lies in the fact that imagining a movement and physically doing the same motion
is not as different as it might appear (Doidge, 2007). The neurons responsible for
movement instructions are still fired and strengthened during visualisation, causing a
physical change in the body only through mind commands, which increases the strength
in muscles whenever they are physically engaged. Visualisation therefore, intensifies
concentration and enhances the connections between the brain and the body (Doidge,
2007). A physical motion, when practised mentally, releases small electrical charges,
which are later on assimilated with the muscles and nerves in the body even in the absence
of physical motion (Gerle, 1983).

Visualisation develops physical changes in the body. A study on the strength increase
from the motor program (Yue & Cole, 1992) examined three groups of participants
focusing on the strengthening of a finger muscle: subjects in group one had to perform
the exercises physically, subjects in group two had to imagine doing the same exercises, and subjects in group three were the control group and did not perform any activities. Both groups of active participants performed a series of exercises, five days a week for four weeks. The group of participants that performed the exercises physically had a muscular strength increase of 30%. The participants who mentally performed the same exercises, with the same number of repetitions and rests, and instructed to keep imagining a voice shouting “harder, harder…” gained a 22% increase in muscular strength (Yue & Cole, 1992, p. 1116). This is possible due to the fact that motor neurons are activated and strengthened during the visualisation of exercises (Doidge, 2007).

In an investigation of the effectiveness of mental practice in improving the performance of college trombonists (Ross, 1985), participants who practised combining physical and mental rehearsals improved substantially, at a rate of 25%, over other participants practising purely physically or mentally. This combination has a great power to enhance performance. Despite the prominence of studies on imagery and mental rehearsal, this technique is rarely mentioned in studies of effective musical practice by collegiate level musicians (Miksza & Tan, 2015).

Many master performers seem to agree that mental alertness and the good ordering of the mind, are the keynotes of technical control. Renowned violinist Jascha Heifetz is known to have advocated the use of mental imagery as a way to enhance musicianship and to acquire proficiency on the violin. When asked what is necessary to develop a pristine violin technique, Heifetz stated that “mastery of the technique of the violin is not so much of a mechanical accomplishment as it is of mental nature […] [on mastery] one
accomplishes this through his mental faculties more than through his mechanical abilities” (Martens, 1919, pp. 85, 86). Sharing the same vision, legendary pianist Arthur Rubinstein, claimed that mental practice not only enhanced his technical skills, but it also contributed to his musical discoveries, stating “when I sit in Paris in a café surrounded by people, I don’t sit casually – I go over a certain sonata in my head and discover new things all the time” (Klickstein, 2009, p. 34). For these performers, this connection between the mental imagery and the physical action has to be a focus point for those seeking to achieve practice proficiency (Galamian, 1964).

2.1.3 Metacognition and Learning how to Learn

Metacognition is defined as the capacity to “think about one’s own thoughts” (Hallam, 2001). Musicians have the capacity to learn how to learn and this ability seems to lead to improvements in performance excellence for emerging artists and expert performers (Hallam, 2001). Metacognition makes it possible for musicians to understand the music, identify the difficulties and possible obstacles in a piece, and to devise appropriate solutions to rectify the problems and optimise performance (Colombo & Antonietti, 2017; Kuhn, 2000).

Some musicians have an intuitive approach to practice, while others are systematic (Hallam, 2001). Novices might benefit from the use of repetition at the early stages of learning, as a level of familiarisation and automaticity is still under development. Most prominent performers are notably knowledgeable in their fields of expertise and devise a series of approaches to overcome difficulties in practice. This knowledge propels the musicians to recognise obstacles quickly and to plan and formulate solutions in a more efficient way (Hallam, 2001).
2.2 Physical Preparation

2.2.1 Deliberate Practice

Deliberate practice is a concept that conveys the idea that practice must be mindful, intentional, goal-directed, solution-oriented, and that ten thousand hours of such practice behaviour and intense preparation will lead to expertise (Davidson, Faulkner, & McPherson, 2009; Ericsson et al., 1993; Sloboda et al., 1996). Deliberate practice requires, concentration and motivation to attend and enact tasks, and is supported by research on self-regulation (Zimmerman, 1996). It is necessary that the structure and design of practice account for the previous knowledge of the performer. Furthermore, players seeking to improve need to receive immediate feedback and be able to perform the same or similar tasks repeatedly. Once those conditions are met, practice will improve the accuracy and performance of cognitive, perceptual, and motor tasks (Ericsson et al., 1993). Consequently, repetition alone is not a guarantee of progress in the practice room and can hinder a performer’s progress if approached incorrectly (Sloboda et al., 1996). Masterful performance does not automatically develop from extensive experience, general education, and domain-related knowledge. It requires the mapping of a system where one is able to monitor, plan, and analyse performance (Anders Ericsson, 2008; Zimmerman, 1996).

Although essential, some studies debate the degree of importance of deliberate practice and propose that deliberate practice might not be the only determining factor that accounts for differences in performance levels between experts and novices, as suggested by Ericsson and his team (Hallam, 2001; Sloboda et al., 1996). Deliberate practice cannot lead to expertise alone and will not be sufficient to overcome limitations due to basic
abilities (Macnamara et al., 2014; Meinz & Hambrick, 2010; Williamon & Valentine, 2000). A performer’s progress has to account for individual variations, such as age and general intelligence level (Macnamara et al., 2014). Meinz and Hambrick (2010) found that working memory capacity positively predicted pianists’ performance in a sight-reading task, above and beyond deliberate practice. There is no interchange between working memory and deliberate practice, which indicates that working memory is as important of a predictor of performance as the ten thousand hours of practice (Meinz & Hambrick, 2010). Deliberate practice also does not address why some performers seem to have a steady progress in practice, while others might practice for numerous hours and do not have the same degree of accomplishment and a tangible development in technique and musicality (Levitin, 2006).

2.2.2 Practice Quantity and Quality

Although research has shown that the total amount of time spent on practice is a strong factor that determines progress in the practice room (Miksza & Tan, 2015), practice should not be measured in minutes and hours, as the amount of time spent playing is not necessarily an indicator of how much improvement one is capable of achieving in a learning session (Miksza, 2007) and that quantity of practice is not related to quality of performance (Williamon & Valentine, 2000).

Some studies question the reliability of the retrospective reports regarding the amount of practice and the accumulation of the ten thousand hours argued by Ericsson and his peers (1993). Miksza (2007) reported that players usually overestimate how much time they have spent on practice, by counting activities such as setting up the instruments, setting up the music, tuning, and other off-task efforts. Therefore, the volume of practice might
be unreliable as a predictor of practice excellence. When considering practice time, both extremes need to be observed. For a player who practices too little, it will be difficult to achieve a sense of mastery and concrete accomplishments. For a player who is already practising at a regular pace for a considerable number of hours, the profit from such time investment will probably be minimal, due to the assumption that relative gains get smaller as skill and effort increase (Krampe & Ericsson, 1995, p. 87).

According to the violinist and pedagogue Leopold Auer, practice should represent the utmost concentration of the mind and musician. It is better to play fully focused for a small period of time than to practise numerous hours without proper concentration and mindfulness (Martens, 1919). The brain should be constantly as active as the fingers, and often times during warm up sessions, it is the brain that needs to be warmed up, not the fingers (Rostal, 2004, pp. 136, 137). Maintaining active concentration throughout several hours of studies demands high levels of energy and brain power. It can easily lead to automatic and mechanical practice, which can be harmful without appropriate concentration. These pedagogues believe that there is no virtue in practising for extended amounts of hours daily just for the sake of the activity. Through practice one acquires habits, and through careless practice, bad and undesirable habits can be cemented. In this case, “no practice is less harmful than bad and careless practice” (Rostal, 2004, p. 136).

Famous pedagogue Carl Flesch constructed a specific system and advocated that practice should be divided into one-hour for the purposes of the betterment of general technique, one-and-a-half hours for applied technique, one-and-a-half hours of pure music, focusing on performances (Flesch & Martens, 1930). Flesch’s model should be taken as a
recommendation but may not apply to all musicians at all levels. In order to keep the mind fresh and alert throughout the entire practice session, it is recommended that performers mix the material and not dwell too long on a single item or passage (Galamian, 1964).

2.2.3 Practice Challenges and Handling Errors

It is safe to assume that every musician will encounter obstacles and difficulties in practice and that these challenges will require a specific set of skills to be mastered. Some of these difficulties might be musical and artistic, while others might be in the technical domain (Klickstein, 2009). Oftentimes, complex problems are the cause for anxiety and delay of progress, but they can often be solved by the application of lateral thinking strategies. Working on these problems by focusing intelligently and seeking solutions, enables a performer to arrive at the next level of competency (Klickstein, 2009). In support of this, pedagogue and violinist Max Rostal states that “intelligent practice is based upon an accurate diagnosis, namely observing precisely the point where the difficulty exists for any individual” (Rostal, 2004, p. 133).

In a study on the characteristics of practice behaviour and the retention of performance skills (Duke et al., 2009), 17 graduate and undergraduate piano majors. were asked to learn a three-measure passage from Dmitri Shostakovich’s Concerto No. 1 for Piano, Trumpet and String Orchestra, Op. 35. The participants had the freedom to practise for as long as they deemed necessary until they perceived the work was learned and they were able to play the piece at concert tempo. Once the piece was learned, the participants were then asked to return on the following day to play these measures for 15 consecutive times in a row while being recorded. The practice was analysed and of the 17 participants, three performers were exceptionally more accurate than the other subjects in the study. The top
ranked pianists practised for the same amount of time as the other participants, which lead to the conclusion that the strategies they devised to learn the piece were far superior in predicting practice success than the amount of time spent on practice (Duke et al., 2009). Top-ranked players were prudent in correcting errors immediately as they occurred, and thoughtful in playing problematic passages at a speed that facilitated accuracy. They focused on a single issue and then reapplied the remediated passaged back into context (Duke et al., 2009). It advisable for a player to work on one thing at a time and aim not to combine technical work with tone production work, for instance (Baillot, 1991). Some examples of strategies for handling errors in music include practice with different groups and rhythms to improve motor skill, double-stops for intonation, slow practice for cognition, and so on (Kim, 2008).

2.2.4 Slow Practice

Slow practice is necessary at the early stages of learning a piece as a way to enable the performer to learn motions correctly. However, the hazard of slow practice is that it can instil habits that are incoherent to the coordination required to play at concert speed (Whiteside, 1997). Violinist and pedagogue Gerle, suggests that a piece that is practised at a slower tempo, has different musical and technical demands than a piece played at performance tempo and that musicians should aim to play at performance speed even in early stages of learning (Gerle, 1983, p. 14).

Accomplished and experienced performers understand that slow practice has to be approached with a purpose and aim to achieve the final performance speed from the early stages of learning. Research on the practice behaviours of high school wind player (Miksza, 2007) reveals that that the less skilled performers spent the total time of their
practice sessions gradually increasing speed and accuracy of passages, whereas the more competent participants reached performance tempo more rapidly and worked on finer aspects of musicality (Miksza, 2007). The research therefore suggests a combination of slow and performance-speed practice, from the early stages of performance. The importance of rest in practice has also been seen as helpful and this will be discussed below.

2.2.5 Interleaved Practice and Rest

Interleaved Practice suggests the idea of alternation between the material and content being studied. Instead of practising an “ABC” passage as AAA BBB CCC, the practice should be carried as ABC BAC CBA, and so on and so forth, in order to increase discriminability and awareness in the brain. Research results attest that interleaved practice can more than double scores in tests of mathematics students who apply such strategy, with a variation of 78% versus 38% (Taylor & Rohrer, 2010). Instead of practising one hour of scales in a row, this concept suggests that alternating between repertoire and technique might be an effective strategy to progress in practice.

Practice that is distributed over time is generally more efficient for learning rather than massed practice, where a performer might pack as many hours of practice as possible before a lesson or performance (Barry & Hallam, 2002; Klickstein, 2009; Taylor & Rohrer, 2010). Violinist David Oistrakh exemplifies his practice habits thus: “start off in the morning; put the violin away; practice in the afternoon; put it away; practice at night; put it away; practice before bedtime” (Klickstein, 2009, p. 11). Oistrakh’s preference is supported by studies on memory. This type of spacing in practice allows the brain to build stronger connections, as the learning process is not over once practice stops. The Memory
consolidation period takes place four to six hours following practice and neural connections responsible for the reinforcement of new memories are still active (Cash, 2009). In a study on distributed practice and procedural memory consolidation in musicians' skill learning (Simmons, 2012), it is also possible to observe that sleep-based consolidation, where musicians have at least twenty-four hours in between practice and recall sessions, has been shown to enhance motor skill memory significantly, and consequently, performance (Simmons, 2012). Therefore, practice that is distributed in multiple sessions and interleaved has better potential for faster progress than crammed practice.

### 2.3 Self-talk and Anxiety

Positive self-talk can be a performance-enhancing strategy. Studies in sports psychology indicate that motivational self-talk increases progress in performances, as it also increases self-efficacy (Hatzigeorgiadis, Zourbanos, Goltsios, & Theodorakis, 2008). In music, positive self-talk is indicated as a strategy to mitigate performance anxiety (Clark, Lisboa, & Williamon, 2014). An investigation into musicians’ thoughts and perceptions during performance showed that participants who considered their performances to be successful reported focusing their self-talk on the music and the continuation of the piece, while participants who felt that their performances were lacking reported thinking about past errors and how the performance was not as good as it could have been (Clark et al., 2014).

A positive performance outcome is often linked to the sentiment of being fully prepared and a positive mindset (Clark et al., 2014). Clark also reports that less successful players attributed their performance outcome to external factors, such as the quality of the instruments used to perform, the lack of time to prepare, or the feeling of not being in
control. This is congruent with research on anxiety and performance. High personal standards combined with perception of low personal control are strongly correlated with debilitating performance anxiety and a poor performance outcome (Jones & Hanton, 2001). Focusing on other people’s expectations of performances has the potential to increase anxiety levels to debilitating levels (Jones & Hanton, 2001).

2.4 Mindset and Grit

Practice requires effort; it demands high levels of commitment and daily motivation needs to be fuelled by a higher purpose (Evans & McPherson, 2015). To maintain high levels of focus and attention, a performer needs to acknowledge that music constitutes a major facet of their lives and is connected to their personalities (Evans & McPherson, 2015). Musical identity enables musicians to maximise self-regulation and promotes grit. Grit is the “perseverance and passion for long-term goals” (Duckworth, Peterson, Matthews, & Kelly, 2007). A performer who is ‘gritty’ is determined to progress and to achieve higher levels of performance, by exerting endurance, effort, intensity, and persistence towards personal goals (Duckworth et al., 2007). Miksza (2015) has demonstrated that grit is essential as a source motivation, and the “strongest predictor of practice efficiency” (Miksza & Tan, 2015, p. 174). Individuals who possess grit are more likely to achieve excellence in their field of choice than individuals who are purely talented (Duckworth et al., 2007).

2.5 Music and Cognition

Excellence in music performance is known to be an outcome of a combination of different cognitions (Altenmüller et al., 2006). There is however growing attention from elite musicians and music researchers to the areas of psychology and cognitive neuroscience.
(Stewart & Williamon, 2008). On investigations in music memorisation through studies on cello, singing, and piano playing (Chaffin & Imreh, 2001; Ginsborg & Chaffin, 2011; Imreh & Chaffin, 1997; Lisboa, 2008), researchers concluded that performers utilise a map and a series of landmarks that informs them of what music comes next and how it needs to be executed. These landmarks are referred to as performance cues, and they appear in one’s thoughts during performance as a way to direct the attention of musicians to technical difficulties, interpretation, and expressive gestures (Chaffin & Logan, 2006; Ginsborg & Chaffin, 2011, p. 1 ). Musicians regard these performance cues as a means to ensure that the musical outcome matches their planned and practised interpretations, as it enables a performer to consciously monitor physical movements and to adapt if necessary. Focusing on technical cues can limit a performer’s musical capacities, at the same time that interpretative cues permits a performer creative freedom but is still limited. A combination of expressive cues and musical structure enables a performer to achieve excellence in performance and connect with an audience (Chaffin & Logan, 2006, p. 127).

2.6 Muscle Memory, Repetition, and the Mind

Learning implies that an individual is able to acquire, refine and retain new memories. (Cash, 2009). Through observations in neuroscience, it is possible to dissect a concept popularly named muscle memory, where musicians are able to automate body movements by the use of repetition. When a person repeats a motion correctly, the body “memorises” the movement and playing becomes less effortful (Coyle, 2009). It is possible to observe that throughout history that some pedagogues have recommended the avoidance of incorrect repetition. German pianist and pedagogue Karl Leimer suggested that a performer needs to practise correctly and avoid mistakes from the outset (Leimer, 1972). Consequently, it is important for music teachers to provide detailed and accurate feedback
for students, as if incapable of discerning between good and bad musical practice, students may wrongfully myelinate their brain axons (Walter & Walter, 2015).

Repetitive practice can be tedious and in order to avoid the learning of errors, it is advisable that practice should be accompanied by variety, challenging enough to entice one’s mind stay active (Flesch & Martens, 1930; Green, Galamian, & Gingold, 1993). When practice is too repetitive, a musician can easily fall into a mindless state, which can be “mind numbing, and unproductive” (Menuhin, 1996). Although playing free of mistakes might be an objective for some performers and pedagogues, Duke and his peers point out that this goal is unrealistic (Duke et al., 2009). It is almost unavoidable to make mistakes when learning a new piece, or concept. However, skilful learners have the capacity to observe where the difficulties reside and to address those difficulties in a way that is not detrimental for the cementation of new brain pathways (Duke et al., 2009).

2.7 Attentional Focus

A study on the automaticity of complex motor skill and learning as a function of attentional focus, suggests that internal focus can disrupt movement while external focus allows for a natural operation of the motor system (Wulf, McNevin, & Shea, 2001). This concept, called the constrained actions hypothesis, suggests that an individual can perform with more efficiency by concentrating on the outcome and effects of movements, rather than on how to produce the movements themselves (Duke, Cash, & Allen, 2011).

2.8 Teaching Practice Strategies

Students often rely on music teachers to obtain feedback, guidance, and strategies on how to improve. Research revealed that while 100 percent of teachers claimed to discuss
practice strategies with their students, only 41 percent of the students reported having such discussions with their teachers. Students report that they know what needs to be practised after lessons, but do not know how to practise and how their study is going to unfold throughout the week (Kostka, 2002). Teachers often request students to practise for a certain number of hours whereas it would be more beneficial for teachers to request students to report on their musical achievements and practice aspirations (Barry & McArthur, 1994). In addition, practice instruction given by music teachers is not always consistent and coherent with the current research on learning and practice strategies (Barry & McArthur, 1994).

Music students commonly attend a one-hour weekly instrumental lesson with the purpose to obtain constructive feedback from their teachers. Considering that a week contains one hundred and sixty-eight hours, one weekly encounter is equivalent to 0.3 percent of the weekly time of students. This number is minimal and students have the responsibility of learning by themselves (Johnston, 2002).

A teacher should aim to use lesson time as a way to teach students how to practise, and to approach problematic passages together, demonstrating how the student can overcome obstacles and how they can continue the work on their own, thus creating independence from the teacher (Paris & Paris, 2001). It is valuable for educators to always have in mind that the highest goal of a teacher should be to instruct a student to become independent and self-sufficient. The teacher has to impress on his or her students that practice is a continuation of the lesson, and that in the absence of the teacher, the student has to ask questions, seek solutions and supervise his or her own work (Galamian, 1964).
In order to make self-learning effective, a student should plan and prepare to practise, execute the plan, and be able to constantly evaluate the outcome of such endeavour (Jorgensen, 2004). The use of a practice diary is highly recommend, as it serves as a visual cue to remind performers of recurring issues and to keep a record of progress, which can serve as a tool to explore what practice strategies are more effective for each individual (Kim, 2008).

2.9 Modelling

It is extremely common for young players to outsource musical interpretation from other artists by listening to and studying recordings. Prominent violinist Jascha Heifetz, suggests that a true artist cannot exist simply by imitating other performers (Martens, 1919). When listening to a great artist performing, a student should not seek to mimic phrases, fingerings and other expressive peculiarities, as every performer has different physical capacities and life experiences that should generate different musical outcomes. A player needs to develop his or her own voice, and trying to emulate the expressions and interpretations of others will prevent them from attaining the best possible results. Although a performer can benefit from the experience of others, music is still an introspective endeavour. “As to the niceties of art, they must come from within. You can make a musician but not an artist” (Heifetz, as cited in Martens, 1919, p. 88).

With modern technology, videos and recordings are widely available at all times. Recordings can therefore restrain the development of a musician and aspiring artist, by diminishing the true creative capacities for interpretation that are fruit of a thorough study of the score and the composer’s intentions. A better strategy would be to listen to other
works of the same composer to get a feeling for the overall style of a piece and that time period (Galamian, 1964). In contrast, research on the role of listening to recordings as a mean of mastery through imitation, shows that this strategy does not restrain the development of musicians and aspiring artists. While listening to recordings can influence a musician’s perception of a piece, the shift in interpretation is individual-specific (Lisboa, Williamon, Zicari, & Eiholzer, 2005).

2.10 Preparing for Performance

Practice is a self-contained endeavour, and the transition between the many hours of individual practice to the social event of a concert setting can be a challenge (Davidson, 2002). This transition requires confidence, positive thinking, a positive attitude and trust; the musician should aim to avoid the focus on the self and focus on the music instead (Kee, 1993). In order to get ready for such a paramount task, pedagogues suggest that it is beneficial to practise the enactment of performance, always considering the music (Green et al., 1993). It is prudent that a player attempt a full-scale performance in tempo, and with all musical interpretations of work when a new piece is showing satisfactory progress, but long before it is finished (Gerle, 1983). A good tool to and route for this type of practice is making use of self-recordings. This way the player is able to not only perform the work, but also listen and provide self-feedback once the performance is over (Klickstein, 2009).

Celebrated violinist Ivan Galamian sheds light on the fact that technical mastery is a mechanism that serves artistic interpretation and that it is worthless if an artist does not understand the meaning of the music and is unable to convey such meaning to an audience (Galamian, 1964). Empirical studies with professional musicians support the idea that
Artistry is at the core of music practice and that technique assists the music making process (Chaffin, Lisboa, Logan, & Begosh, 2010; Lisboa et al., 2018). A player needs to be imaginative and add personal emotional connections in order to make a musical rendition worthy of listeners. A player needs to master the music efficiently and perform artistically, so artistic expression should be front and centre at each stage of the learning process (Klickstein, 2009; Lisboa et al., 2018).

Yehudi Menuhin shares a similar vision and suggests that a musician is in charge of bringing to life music that only exists in notated form. In order to transform such notation, composed decades or maybe even centuries ago, into beautiful pieces of art a player has to assume a position “as messenger and bearer of our cultural heritage [which] is a great responsibility” (Menuhin, 1996).

2.11 Aim

The literature on practice provides insights on mental preparation, physical preparation and, performance preparation, through concepts such as deliberate practice, imagery, music and cognition, modelling, and others, seen above. While many of these topics were approached individually, there is a gap in knowledge of how these concepts are actively incorporated into the daily practice of professional musicians.

The aim of this study is to, therefore, investigate how professional performers conceptualise and approach practice, how they acquire knowledge and excellence through action, and to distil what can be translated into replicable methods for efficient practice.
3 Methods

3.1 Ethics

The University of Sydney Human Research Ethics Committee approved this project. Ethics documentation can be found in the Appendix A. All participants in this study received a Participant Information Statement (see Appendix C), signed a Participant Consent Form (see Appendix D), and have chosen to be identified for this research.

3.2 Study design

This study follows the standard qualitative content analysis (based on Hsieh & Shannon, 2005). Interviews and qualitative research were seen as the first crucial step to understand how professional performers conceptualise and act on practice, as it gains direct information from the study participants without imposing a preconceived theoretical bias (based on Hsieh & Shannon, 2005).

3.3 Participants

Six field experts with different backgrounds and expertise took part in this study. One participant is Brazilian, four are Americans, and one is Norwegian (Table 1). The varied demographics, experience, and their levels of expertise were essential for this study to avoid cultural bias. Four participants have the violin as their primary instrument, while one participant is a violist and another participant plays the oboe. All participants have been employed as full-time musicians and are leading experts in their professional
practice. Participants were a purposive sample of experts on practice, based on their reputable careers and work both as performers and professors.

Table 1: Participant Demographic

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Area of Expertise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alex Klein</td>
<td>Oboe section leader at Calgary Symphony</td>
<td>Music and Pedagogy</td>
</tr>
<tr>
<td>Richard Young</td>
<td>Former Violist of the Vermeer Quartet</td>
<td>Music and Pedagogy</td>
</tr>
<tr>
<td>Richard Roberts</td>
<td>Concertmaster at the Montreal Symphony</td>
<td>Music and Pedagogy</td>
</tr>
<tr>
<td>Charles Stegeman</td>
<td>Concertmaster at the Pittsburgh Opera</td>
<td>Music and Pedagogy</td>
</tr>
<tr>
<td>Noa Kageyama</td>
<td>Performance Psychologist at the Julliard School</td>
<td>Music and Psychology</td>
</tr>
<tr>
<td>Ole Bohn</td>
<td>Professor at the Sydney Conservatorium of Music</td>
<td>Music and Pedagogy</td>
</tr>
</tbody>
</table>

3.4 Recruitment

The initial contact was made via email. I collected the participants’ emails from their publicly available professional websites and from my personal contacts list. The participants received an official invitation letter, along with information about the research and its purpose, a Participant Information Statement, and a Participant Consent Form.

3.5 Procedure

Five of the participants were interviewed in person at different locations: four of them were interviewed in Brazil during a music festival/conference; one participant was interviewed at the Sydney Conservatorium of Music, in Australia; and one participant was interviewed online via Skype. The interviews were video recorded using an iPhone...
7 Plus and the recordings were used throughout the entire process of data analysis. The data from the interviews is stored in a secure and private data management centre provided by the University of Sydney. All participants chose to be identified in this research, gave their consent for the interviews before the collection of data, and allowed the interview to be recorded.

The interviews were semi-structured and followed a conventional approach to qualitative content analysis (Hsieh & Shannon, 2005). The questions were open-ended and elaborated in a way that allowed the participants to express their perspectives while ensuring that similar topics were covered by every participant. The interviews focused on the participants’ experience as professional musicians and their practice concepts in addition to observations of practice behaviours of their students. The participants were asked prompt questions regarding topics such as practice efficiency, mental practice, practice outcome, learning strategies, quantity and quality of practice, and were presented with the opportunity to play their instruments to illustrate and demonstrate their points whenever they found it necessary. Examples of prompt questions include: In your experience, what are the best strategies for learning and developing a new piece of music? Are there any specific combinations of techniques that make learning and practice more effective? Do you advocate mental practice? What amount of practice do you consider adequate on a daily basis?

The interview sessions lasted between 40 and 60 minutes. Some of the participants chose to add and elaborate on topics they found relevant for practising and learning. Questions were therefore formulated in response to the interviewees’ contributions. I allowed the
interviewees to express their opinions and when the conversation deviated too far from the original areas of research, I returned to the prompt questions in order to refocus the interview.

3.6 Analysis

All interviews were transcribed verbatim. Once all the transcriptions were ready, I proceeded to read and analyse the participants answers thoroughly, making notes of my impressions and thoughts (based on Hsieh & Shannon, 2005). I then continued this process by coding the data by identifying common key thoughts. I made a paper, visual representation of all the recurrent ideas to help in this process. The aim was to capture the key thoughts, and to code them into categories and clusters. Where the data crossed over more than one category, I either assigned it to the cluster with the most connection and relevance or assigned the same data to two or more clusters.

The thematic structure established by the interviewees included concepts such as preliminary practice, mental practice, deliberate practice, practising performance, and the role of the artist in the delivery of art. During the analysis process I often referred back to the recorded videos of the interviews, to ensure that the transcribed (verbatim) words represented the accurate meaning of the interviewee’s viewpoints. Once the over-arching categories were established, I developed a hierarchical structure with sub-categories to better represent tendencies and similarities amongst the participants.
4 Results

Participants were invited to share their perspectives and experiences on effective and efficient practice. This chapter groups the themes established by the interviewees’ responses and data analysis. The over-arching themes discussed by the participants include goal setting, mental practice, deliberate practice, mental barriers, understanding our brain, becoming your own teacher, problem solving and isolating problems, motivation, confidence, practising performance, and practising and the delivery of art.

4.1 Mental Preparation - Before Touching the Instrument

4.1.1 Goal Setting

According to these participants, the first step to accomplishing an efficient practice session is the establishment of clear goals and a musical outcome. Professionals and students have to balance their learning between technical work, solo repertoire, chamber music and orchestral works, among other things. It is important to keep a practice log and ensure that one is making progress across all musicianship areas. The participants described their goal setting strategies in three categories that can be described as follows.

First, short-term goals, ‘what can I improve today?’ Second, ‘middle-term goals, ‘what musical events can I prepare myself for (e.g., recital, concert, or a competition)?’ Finally, and long-term goals, ‘what kind of musician do I want to become?’

4.1.1.1 Short-term Goals

According to the participants, setting a goal and scheduling practice is the first step to achieving success. All participants remarked on the importance of having a practice goal every day. Participants described devising a comprehensive schedule to frame their
practice sessions. For this cohort of experts, the first step included a clear vision of the step ahead, which often started with the very basics of music learning: the learning of rhythms, followed by the learning of the names of the notes. Following this basic note study, musicians would set aside time to understand and appreciate the musical marks, composer’s life and intentions, phrasings, bowings, and fingerings. This basic preparation enabled musicians to progress to a more detailed understanding of the music, having achieved their initial short-term goals. In a more advanced stage of learning, the goal of a practice session can be simply to learn just a few bars, or a phrase. It is important for musicians to have the feeling and perception of progress at each practice session.

“When I practice and when I encourage my students to practise I want to be goal oriented. I want to organise the practising in such a way that by the end of that practice day I am able to say ‘you know, I played something better by the end of the day than in the beginning of the day.’ Hopefully, it is more than just a few bars, but sometimes it is only that [. . .] look yourself in the mirror at the end of the day and say ‘well, at least that was better.’” (Young)

A few participants suggested that the learning process should start at the last page, or with those passages that are going to be more problematic and require more focus. Only after giving attention to the most challenge passages should a performer move towards the easier ones. This allows for the entire piece to be at the same level at all times, as everything should be growing and developing simultaneously. It is important to set a target time-frame for each page or passage.

“I go to the one [passage] that I see as more problematic and I try to get a scheme to deal with that. Once I deal with that, I have the self-esteem to get all the other lesser difficulty passages. I manage the big one, so now I can manage the rest as well.” (Klein)
“Look at the music, and you say based on what you know about your own playing, which page is going to make your life really difficult, which page is difficult but less hard, which page or pages are easy. The first thing I do is learn the last page, first.” (Stegeman)

### 4.1.1.2 Middle-term and Long-term Goals

These experts also saw beyond their current session. The middle-term and long-term goals were identified as goals that set strategies for the learning of particular pieces in preparation for a future performance, career goal, or for enjoyment. It is important that these goals are meaningful, so as to motivate the learning and time spent on the groundwork that needs to be done daily as a foundation for the playing of a big piece such as a concerto.

“Most of what we practice is long-term, because it involves a performance that sometimes is years ahead.” (Klein)

Here is where a player is learning, evaluating, and refining how to practise their instrument and devising tools and skills that will move these players towards their goals. If a player intends to work on a concerto that is known for having difficult technical passages in octaves, it would be wise to work on basic scales in octaves in anticipation of the challenge ahead (Kageyama). This enables musicians to focus on the next learning step and it facilitates the awareness of progress, which can propel one forward.

“Try to cultivate meaningful goals that are meaningful for their own sake, so it might be "oh I want to be able to play this concerto next year when I audition for this school, when I do this recital, or do this competition. I think if we really had that concerto because we love listening to it and we love hearing it, that would be a good reason for then say "Alright, well, in order to be able to play that concerto more easily I need to be able to do this, that, or the other thing, and so these
etudes that I don't ordinarily enjoy working on would help me get to that place, so I could play that more comfortably." (Kageyama)

The participants also found it important to set deadlines and, when possible, to prepare well in advance. When setting goals, a performer should have a clear image of when the piece needs to be concert-ready. In preparation for an upcoming performance, it is advisable for the musician to feel prepared in a time-frame that allows for contretemps.

“One little piece of advice for the scheduling is that the time you have to perform comes sooner than you think, so you should always make sure at least ten days before you have to play it, that it should be absolutely concert ready, because you might get sick in the last days, you might have to travel, your pianist cannot rehearse, there can be a lot of obstacles. Prepare at least ten days in advance to be absolutely sure.” (Bohn)

When applied systematically, these learning strategies inform future practice efficiency. Rather than practising in isolation, practice was seen as an ongoing exercise where each practice session informed the next. If a performer is practising a phrase making little or no progress, he should schedule this same phrase for the next practice session. In this manner, one can easily observe progress and plan the next step in learning a piece.

“The first thing you have to do is schedule when you are going to learn it and how much time you're going to need to do it […] I take fifteen minutes for my right hand, fifteen minutes for page three of the concerto, and then I need twenty minutes for the third page of a piece. If I get it [fixed] I'm done. If I don't, I write down what I didn't get and that's for the next day.” (Stegeman)

4.1.2 Beyond the Notes

Deciphering the score, investigating and studying it in its totality is one of the first and very essential steps of practice. The participants found it important to understand the
musical and historical context of a score, to build a relationship with the composer’s intentions, and to honour it. For this cohort, the interpretation of a piece and the musical outcome should never be based on the technical level of a player, as it goes the other way around; the technique should match the music’s intentions.

“Technique should always serve the music and it is important to really study and know what was in the mind and the heart of the composer in order to then decide what technical applications, what technical solutions to use.” (Young)

This more in-depth study of the score is achieved by scanning the music and looking for every bit of “information that is not related to notes and values” (Stegeman). It is important to observe the composer’s markings, language, dates, and also to regard information on the edition.

“I will inform myself about the composer, his life, his other works, the time he had lived in or is living in, who are the other composers living at the same time, what are the other influences in arts, and politics at that time?” (Bohn)

Participants also found value in doing a comprehensive study on the composer’s life, thoughts, style, and historical context. This study not only allows for the musician to seek truth in the composer’s notation, but it can also make the interpretation more meaningful. It is relevant to observe that the score itself can be contextual. Some composers were extremely detailed with their annotations and intended for the music to be played exactly as it is written. Other composers expressed that the performer should add their own musical inputs and that a piece could be played differently each time.

“A composer like Stravinsky said, "Just play it as I wrote it, don't make anything, no interpretations, just play it as I wrote it I'll be happy."
Dvorak said the opposite. He said he counted on the performer as his collaborator and he didn't expect that any two performers would play the same.” (Roberts)

Participants also remarked that this background and historical study serves as a guiding light to motivate us to play differently. There are aspects of music that cannot be translated into notation and it is our responsibility to learn about these details and render them into music.

“It is so important to know what's going on in the composer’s life and what's going on in the world, generally and specifically. What was it that motivated, for example, Smetana, to write his great G Minor Piano Trio? This is a great dramatic piece, but it takes on a whole new urgency if we know that that was written in response to the death of a second child. If you don't know that, somehow you're missing something. It is our responsibility to respect what was written down but also to know about this stuff that cannot be written down.” (Young)

4.1.3 Mental Practice

“I do all of my practising before I practice.” (Klein)

It is valuable to observe that all the steps mentioned above are accomplished away from the participant’s instruments. Once scheduling is set into place and the objective of the practice is clear, mental practice was seen as the next essential pillar in the learning process. Mental practice is the rehearsal of a skill without any physical intervention, using only imagination to work on a specific music task or goal. It allows for the performer to raise their playing to the level of their imagination without the roadblocks of technical difficulties, and “without any compromises” (Klein). It is helpful for some participants to even vocalise what they have in mind prior to applying that onto the instrument.
“Somehow, I am able to get in touch with my heart and maybe my mind more directly when I sing, [more so] than when I have an instrument in my hands… I am able to envision more ways for a phrase and [able] to be imaginative.” (Young)

“We are able to play anything perfectly in our minds” (Klein). It is important that performers get acquainted with the feeling of playing a passage or even an entire piece successfully, and to do it several times. It is also important not to neglect the musical aspects of mental practice, as it should encompass all the details of a performance. Mental practice therefore is an effective use of time and energy. It was the common opinion amongst these professionals that practice that is done mentally brings better results in combination with physical practice. These experts learned by bitter experience that a valuable step of their learning can be done away from the instrument.

“Ideally you spend most of your time mental [practising] and as little possible [physically] practising.” (Stegeman)

“The mental part of the preparation is perhaps worth more than the actual physical part in practice. So, I would say, perhaps with a little exaggeration, two-thirds is mental practice, one-third is actual [physical] practice.” (Bohn)

Participants would choose a section of a piece and intersperse their physical work with mental work. While alternating mental and physical practice, it is important to anticipate mentally the sound and body action as vividly as possible. Only with a clear aural vision can one expect to match the physical action to the imagined concept. Engaging the mind as well as the body means that, after all, “all practice is mental practice” (Roberts). Once physical practice has begun it is essential that performers revisit and continue the mental practice, be it for the improvement of difficult passages or for the investigation and experimentation of musical phrases, as it supports the musical vision and propels a player
towards a solid interpretation. Mental practice was also seen as a great solution for musicians who are in need of improvement but unable to practise for extended periods, like singers and brass players. It is also a great tool for people with temporary injuries and travellers, as one can practice at any time and place (Kageyama).

4.1.4 Mental Rehearsal

There is a subtle distinction between mental practice and mental rehearsal. While mental practice involves the building and connecting of technical work and musical goals, mental rehearsal is seen as a preliminary stage to performing, when a piece is already at a concert and performance level. It was discussed as a dress rehearsal, where one gets to experience the whole process of a performance with great detail – from tuning the instrument, to walking on stage, to feeling the shifts and bow changes, to bowing to an audience after a successful performance. Mental rehearsal builds accuracy and confidence. Even when stepping on stage to play a piece of music for the first time, it will not feel as new, as the performance has already happened and has been played many times in the mind. This concept puts both the body and the mind at ease and allows for the focus to be on the music.

“When I sit down and go through the whole performance mentally, I really imagine all the motoric movements I do, I know exactly the bowings, and the fingerings, and the phrasings. I can feel the string crossings and all the technical aspects, and I have it in mind that it is a joy [to perform].” (Bohn)

4.2 The Importance of Accuracy in Practice

Having a basic understanding of how our brain works and how to record and retrieve information from our memory banks was very significant for these experts. They reported
that when a mindless mistake occurs, “that is going to get recorded and reinforced by our brains” (Kageyama). It will be very difficult to repair the damage caused by inaccurate practice, considering that the brain will have to unlearn the wrong action and then relearn it in the correct way. The brain wants a piece to be learned “perfectly from the first time and never change that”, as that would make the pathways and connections “very secure” (Klein). A player should only move forward once they are 100% sure that they will not make a mistake, because if a mistake were to occur, that would get recorded by the brain. “If a passage includes a mistake, it will produce fear and weaken the performer’s confidence” (Klein).

In order to avoid incorrect practice, some experts suggest that it is imperative to practise slowly, as to refrain from making mistakes. This is a delicate balance, as too much slow practice can also be detrimental. When learning something new, one needs to be able to play very slowly in order to learn the notes and to acquire an understanding of the technical movements of a particular song, but “we should not play slowly for long enough as to make us dependent on that tempo” (Klein). Performers often think of practising slowly at the early stages of learning a piece and gradually going faster after some level of comfort with the piece is achieved. “There are forty muscles involved in producing one note. If one has to teach the brain to then re-think these forty muscles, over and over, for every note, you are never going to be able to finish learning a Bach sonata” (Klein). One of the solutions to that problem is to start playing a fast piece slowly, but quickly switch into a “grouping” strategy (Young). Grouping practice consists of playing three, four, or five notes at a time, at or close to the performance speed. In this manner a player can learn the exact motions the body will have to execute when performing. As practice progresses,
one should move to a different set of notes and add more notes to the group, until the whole passage can be played in tempo.

“When it comes to solving the technical and musical issues, I think it is useful to isolate small bits of music and to play them not necessarily at a super slow tempo, but to play it the way it would be on stage, but just a few notes at a time, because let’s face it, when you play something super slow the technical challenges are different from when you play it in concert tempo.” (Young)

A similar strategy is to vary the rhythms and use a metronome during this process. It allows for the musician to work on practice strategies such as, slow – fast – slow, where, when faced with a series of fast notes, a musician might want to play the notes in groups of four notes, making the first and third notes of this group extremely fast, and the other two excessively slow. This rhythmic alteration allows the player to improve the brain speed and connectivity, while the overall speed of the passage is closer to the original tempo. It is valuable to emphasise that in order for this strategy to be effective, the slow notes should be played extremely slowly, and the fast notes, extremely fast.

“…in addition to [using] the metronome I do all kinds of rhythmic exercises. Some notes are long, some notes are a bit shorter and, this way my fingers react how I want it, do not let the fingers react how they want.” (Bohn)

It is valuable to practise the same passage in a range of different ways, as it leads to more “flexible motor skills which are then more adaptive” (Kageyama) in different circumstances.
4.3 Confidence

The organised practice was seen as an opportunity to mitigate the anxiety of the substantial challenge ahead. Confidence is the result of a systematic effort. Setting goals assists with the vision of an outcome, while mental practice facilitates the physical enactment of a task and ensures a confident realisation of the endeavour. Confidence then grows from being fully “aware of your choices” as a musician, along with the reasons behind these choices and the execution of a plan to bring everything to life (Kageyama). “You repeat something not until you finally get it right but until you cannot get it wrong” (Young). With that mentality, by the end of the day, a performer can play a piece better and with fortified confidence. For the participants, confidence is also a result of the observation of progress and fear control. The feeling of being stuck can drain the belief that one can move forward, causing and endless loop of frustration.

“What is it that drains one's confidence in the practice room? I think it's when you have the feeling that you're not making progress; you do what your teacher says, you are putting in the hours, you are doing what you think you need to do in order to make improvements, and then if you don't see that improvement coming, regularly, that drains your confidence. Everyone plays better when they are confident” (Young)

A performer needs to trust that they are able to play a passage and a piece and to feel that progress is being made in order to feed the belief in oneself. It is advisable to avoid starting a piece filled with emotions of caution and fear, as fear can impair learning. Things that are considered difficult are relative and if a performer is aware that a piece is very difficult, they often try to avoid it. Break down a phrase “until you can find its narrowest point” (Roberts), and take the first step. This approach releases one from the psychological barriers and creates a positive cycle. A player first needs to believe that the
achievement of mastery is possible, then take the first step. Work does lead to success – “Nothing is impossible” (Klein). It was noted that fear, when used correctly, can help us concentrate and serves as a signal as to what needs more attention and work.

“No matter how much we practice, the possibility of something going wrong is always there. Accept that. We accept that we are fallible and I prefer to use fear, I like fear. I like being nervous, because fear helps us concentrate. So follow fear where it leads you . . . The fear is coming from our subconscious [minds], from our brain telling us that we made a mistake there at some point or that we might make a mistake in the future. Are you confident? Not yet? Do it again.” (Klein)

Another thing that can sabotage confidence on stage and in auditions is the thought of what people might think of an individual as a musician after a performance. Worrying about the audience and especially “worrying about other musicians” who might be listening to a performance is a recipe for defeat (Kageyama). Instead of focusing on one’s own success, “focus on the music” and draw back to the findings about the composer’s intentions and the vision for the music, as this strategy has the potential to take the pressure off the artists and remind the performer of the bigger goal (Bohn). Although challenging, one should not identify value and self-worth with how great a player they are perceived to be, or whether mistakes occur onstage. Many players struggle with this concept, creating many barriers in their own development and emotional well-being.

“Have this psychology of the violin right. We identify so strongly with this stuff, we identify our self-worth with the violin. You are worth it just because you are alive, and you are breathing, and you are meant to be here. That's it! The rest is unimportant. What you do, how you do it, with whom you do it, who cares? That's your call in life, so do not identify your value with how well you play the violin. We are emotional about our playing of the violin. I can't play this, then there is all this psychological grief. It becomes ‘oh my God, I am not a good person because I can't play.’ Of course, you are [a good person] you know that,
and it doesn't mean anything. So get the emotions out of it, get the judgment out, no judgments.” (Stegeman)

The experts also mentioned the role of a music teacher in the process of building a student’s self-confidence. The mentor should allow for the student to make “just a little bit of progress” during a lesson, as to give the student the feeling of accomplishment and “hope” (Young). If a teacher is “discouraging” of one’s capacity to achieve and progress, the student will leave the lesson with a pessimistic view of their own skills and might sabotage their potential for learning. That does not mean that the teacher needs to be untruthful when the student makes a mistake. It is essential for the teacher to point out both the good and bad in a student’s playing, and to present solutions for the obstacles faced by the pupil.

“A teacher should try to give confidence to a student in lessons. That means that when something is good and there is progress, one should always tell the students, but one should also always be very honest when something is not good.” (Bohn)

For some participants, the level of accomplishment and confidence is also correlated to the amount of practice. Although the number of hours alone a person spends practising does not signify a betterment of performance, the amount of practice can bring a performer comfort and the idea of control. This practice includes both the physical and mental enactment.

“We can never have practice enough, never, but the more we practice the more we know that we can actually control an interpretation, that means that technically and musically we are not afraid of playing because we know we can do it, and there, the mental practice will also help us because we have done it so many times.” (Bohn)
4.4 Conscious Practice

“Good practice is careful practising.” (Roberts)

In the early stages of learning, when people are first introduced to an instrument, learning is a “more practical matter than a philosophical” endeavour (Klein). It is a phase when novices learn how to hold the bow, are free to be curious as to how to make a sound, to place the fingers on the string, and to literally play with the instrument. The sensory receptors are stimulated, and everything is exciting and new. It is a phase where rehearsal and automation of the body gestures are accomplished through repetition. The perception of progress is instantaneous after each small step forward. As one advances, it is easy to fall into the trap that repetition alone will continue to advance one’s skills and to use that as the only strategy for improvement. Practice alone does not ensure progress and is not a guarantee for a better performance. Accordingly, participants felt that optimal practice was viewed as careful practice, where the learner is attentive to details and conscious of every action.

“If you find that you are not concentrating one hundred percent every second [of your practice] then you're wasting time.” (Roberts)

For the participants, the significant risks of repetitive practice are the loss of concentration and mindless repetitions, which can reinforce bad habits and make a performer “accustomed to bad sounds”, besides depriving the student of true improvement (Young). Thus, it is fundamental to be mentally alert throughout the whole extent of a practice session. It is also advisable for each practice session to have a purpose and here is where one gets tactile and hands-on with the goals set prior to touching the instrument (Bohn).
Once a performer knows what to work on, it is valuable to decide how to execute this pre-stipulated practice plan. Deliberate and careful practice can follow a positive cycle, where a player can identify an obstacle, break it down to the smallest possible workable element, analyse and consider how to solve the problem, experiment and evaluate the progress, then consolidate the learning by putting the work back into a musical context (Kageyama). Consequently, the greatest challenge is to remain focused throughout the entire duration of a practice session.

“The key [to good practice] is really concentration and listening one hundred percent to every little thing that you do.” (Young)

However, for these participants, repetition is not the root of all evil. It can be a valuable tool in a phase of deliberate practice, where one is advised to repeat a passage or song in the exact the same way, “with the same amount of bow, same shifts, same dynamics, same everything” (Stegeman), in order to cement the learning of the piece. Here again, a performer should repeat a passage many times “not until you get it right, but until you cannot get it wrong” (Young). When things do not work as expected, it is recommended that the player stops immediately and considers what could be the core of the problem. If a solution cannot be devised for the problem, it is best to “write down” (Stegeman) in a practice journal what happened and start anew on the following practice session. Additionally, participants pointed out that listening objectively and being able to assess one’s own growth to be the main differences between deliberate practice and inattentive practice.

“[when younger] I was sort of passive in my listening, or my thought of what I wanted something to sound like, which in itself isn't the worst problem but it's a kind of relates to the second problem which I think is more of an issue which is that; when I didn't hear what I wanted, I just
played it again, hoping that it would be better the next time.” and so I essentially auto-corrected, or just instinctively auto-corrected to what sounded better.” (Kageyama)

4.4.1 Problem Solving

“If we know how to ask the right questions, sometimes the answers are apparent.” (Young)

An essential facet of mindful practice is to recognise and assess obstacles in music making and to understand how to work and fix them. Where a student would rely on a teacher as a guide to fix issues, these professionals were experienced and autonomous in identifying problems and devising appropriate solutions. Practice without feedback is insufficient. But these experts have risen to a level of maturity where they are able to extract and target issues, and to build them back into context. There is a constant analysis and self-reflection to ensure that any errors are promptly identified and rectified, and never reinforced. They are masters at problem solving. For the participants, to develop the capacity to be self-reliant, to listen objectively, and to “teach yourself” is a skill critical to every musician (Roberts). In order to solve problems, one has to be inquisitive. The greatest challenge for some emerging performers might be to acknowledge the points that can be improved and to conduct a personal search for solutions.

“We should think ‘what went wrong?’ We have to be our own teachers all the time.” (Bohn)

Some participants believe that “we spend too much time getting better at adjusting and being reactive” (Kageyama) to errors, as opposed to figuring out the core of the problem,
solving the issue, and being able to execute appropriate solutions. Problem solving is a long term strategy that not only fixes the immediate obstacles within the repertoire but might serve as a foundation for a solid technique (Kageyama). Experience with this type of conscious practice equips a performer with tools to manage forthcoming situations. Remediying an error and only fixing mistakes on a surface level is not efficient and it hinders true progress in music making. In a lot of ways, it is considerably easier to “auto-correct” and to be reactive in practice because sooner or later, a player will get a different outcome. The dilemma is that reacting to mistakes does not build confidence, nor give a performer the trust that they will be able to play a passage the way they intended when it matters most.

"If you asked me [in my youth] what the problem was [with my playing] and why did it sound weird the first time, I wouldn't be able to tell you. The problem with that is, when it doesn’t sound good tomorrow, it's probably the same problem and same solution, but I wouldn't know what it was, so I'd have to do the same things again and again.” (Kageyama)

The experts believe that by analysing the biggest recurring problems that are faced in daily practice and formulating sustainable solutions for such obstacles, at the end of a practice session, one will have achieved true improvement. Not only will a performer sound better but he or she will also have a solid grasp on how to repeat the same results on the following day. Consequently, the next practice session will reinforce the solutions previously acquired and the player will have a “tangible sense of progress” (Kageyama). “A student has to be curious” in order to understand how to fix these obstacles and to bring musical ideas to life (Young). These experts suggest that the problem should be reduced down to its narrowest point and then worked outward, drawing attention to the idea that “if something is bad, fix it immediately” (Klein).
“Maybe start with two notes and then add the next note or add the previous note until you work your way on both sides of this particular problem. Recognising what the problem is, is an art in itself. I'm sure this is true in business and medicine and science and economics - finding the real knob of the problem is an art but we have to do that.” (Roberts)

When dealing with something too difficult to tackle in the repertoire, one should go back to scales, to methods, and etudes. For these experts, when the challenge ahead is too big, the work should be narrowed by making use of technical etudes in an effort to solve the problem elsewhere before getting discouraged and sabotaging one’s own state of mind when playing the passage. Performers should “only input into practice what we want to experience on stage”, that includes self-esteem and self-belief, always bring a “positive outlook” to the practice room (Klein).

“Isolating technical problems from their musical context and scales are just the foundation that we’ve had forever of string pedagogy and it is what works the best” (Young)

Although technique is a recurrent and prominent focus in deliberate practice, the participants held a clear vision of their musical goals throughout the entire learning process. If music is detached from the technique, a performer is doing himself a disservice, as performance feels greatly different once the rush of phrasing and emotions weigh in on the player.

“Very often a technical passage can be very easy to just play, but if it has a musical meaning, then the problem starts. So, I try to, even if it's very slow, I try to remind myself about the musical context.” (Bohn)

“Technique should serve the artistic goals of the music, as indicated through what the composers wrote down, and it shouldn't just be an end. It shouldn't be just simply a convenience as we see now with too many students.” (Young)
It is also valuable to look at the concept of problem solving in a positive light. Here is the time to delve into the search for mastery, and to match technical capacities to musical visions. Practice therefore is not a burden, it is the pathway towards the externalisation of expressivity: musicians should approach this process with joy.

“When we practice, say the technical aspects, we cannot forget about the musical phrasing, because very often, a technical passage can be very easy to just play, but if it has a musical meaning then, the problems start again. . . [Practice] sometimes is about problem solving, but it is also a joy, it is a you for you know how to work with the instrument. Discover new possibilities, work with the music. While playing we can discover things which we didn't discover when we were just reading the music, it is a new world coming, so this is not the problem, a problem, I think is negative. I think it is a time for exploring.” (Bohn)

Deliberate practice requires sustained effort and undivided focus. A performer needs to be truly committed to improvement in order to experience the benefits of life-long learning. The question that follows is: how much should one practice in order to achieve technical and musical mastery?

### 4.4.2 How much Practice?

Awareness of practice capacity was essential to the realisation of optimal practice. According to the participants, practice should only last for as long as one is capable of concentrating – “the number of hours is not the most critical thing” (Young). The amount of practice needed to learn foundational technique and repertoire varies from individual to individual. A performer needs to account for their innate facility and to develop an acute perception of his or her own ability to absorb new information.

“Nathan Milstein said he caps it at three hours, you know, no more than that, but he had a different kind of talent than I did, so I might need more [practice time].” (Roberts)
Practice should not be measured in minutes. These performers believe that musicians need to constantly monitor their level of focus and use that as a guide to interleave breaks and intensive work as well as to indicate the end of a session. The number of hours one should practice not only varies amongst different people, but it also varies day by day for the same individual. Being able to practise for a number of hours in one day is not an automatic indication that one can duplicate the same amount of practice in the following days.

“One day it might be easy to stay engaged for an hour, or ninety minutes and then another day, just because of fatigue or whatever else is going on, my mind might start wandering after twenty or thirty minutes. Just because I could practice in a focused way for an hour the day before doesn’t mean that I’m going to be able to [do the same] today. So if I insist on pushing through and meeting the time of an hour, I might spend a half an hour of playing junk and almost worthless practice, when it could have been spent doing course study, or homework, or something else, so that when I come back there are fewer distractions in the head, or I’m better rested and I could actually then practice more effectively.” (Kageyama)

Another relevant detail discussed by the participants, is that the ‘ten thousand hours’ rule, suggested by Anders Ericsson, is an average. The concept suggests that a person needs to spend ten thousand hours of deliberate practice in a specific field in order to achieve true mastery. However, “for every person that requires five thousand hours of study, there is going to be someone who requires fifteen thousand hours” of similar work to reach a comparable level (Kageyama). This type of hours and dedication can be difficult to achieve once a performer accounts for daily activities and life events. It is very improbable that a player will be able to continue to practise for an extended number of hours once they have a job and a family. Therefore, practice time should be scheduled as
any other personal or work commitment. It seems limiting, but this discipline gives a player freedom. When a performer only has one hour available in a day to practise, somehow, they manage to be more efficient with their time.

“So, time. I do that [my scheduling] for the whole week, so from Monday through Friday it's all mapped out. I put it on google calendar the teaching and all that, so I know exactly what I'm going to do and when. That's boring because instead of having freedom - Oh, its five o'clock I want to go see Bobby down the street - No we are practising.” (Stegeman)

Participants also reported that practising in sections is a productive and powerful way to carry out practice. One section can be divided into one, three, or even five hours, but should only last for as long as the player is able to fully concentrate and “remain focused on one line of thinking” (Klein). It is advisable to break down technical, and musical elements, and isolate those components in order to attain efficiency and to avoid mental fatigue.

“We can’t pack everything into one [practice session]. That you are going to practise technique, repertoire, depth of sounds, and different composers into one section because that becomes confusing. To the point that we get tired. We can do it, but it will get more of us mentally then it should. If we are going to practise technique, do it for as long as you want, but then stop, take a break, get some water, go for a walk, sleep actually. . . During your sleep the brain is going to pass and prioritise your temporary memory to memory - but only the priority.” (Klein)

4.5 Motivation

According to the participants, preparation for a performance, confidence, environment, and progress seem to be the major catalysts of practice and motivation. Motivation was
described in two categories - intrinsic and extrinsic. For the participants, these two different forms of thinking produce different outcomes in the practice room. The professionals described their current practice through the eyes of their students, and observed that when intrinsically motivated, the students would practice as a result of their desire to improve and accomplish, coupled with the confidence and belief that they are able to achieve these established results. Their striving for progress makes them aware that practice will help them reach a “higher level” (Kageyama) and therefore the entire process is seen as a painless and necessary measure. On the other hand, if a student is motivated extrinsically, “practising out of guilt” (Kageyama) by feeling that not practising might cause the dissatisfaction of third-parties and troubles, the amount of practice might be comparable as to when a student is working guided by their own internal motivations, but the results may show a different level of competence. Hence, strategies such as rewarding students might appear to be effective for the reason that the students do usually spend more time in the practice room when offered incentives.

Although a student is expected to get better in spite of “practising mindlessly year to year” (Kageyama), they are also expected to reach a plateau in development. The quality of extrinsically motivated practice cannot be compared to the quality of practice that exists as a consequence of a student’s own ambitions. The results obtained through this type of practice and motivation tend not to be nearly as permanent or effective as it could be if the learner were to be fully engaged in the learning process.

“If I don't practice, my quartet mates are going to give me a hard time because I am going to show up not prepared or something. Even though you are in a way intrinsically motivated to practise, it is because of external pressure. That has a very different effect on practice time and quality. If you were practising because you are afraid of getting in
trouble, you practised just about as much as if you practice because you are practising to get better. I find that fascinating because what that means is, you can coerce a student to practise more and if you are measuring the effectiveness of something based on how long they are practising, it looks like your tactics of motivation are working right. So, if you are a parent or teacher and you incentivise them to practise with ice-cream or your gold stars or not yelling, it will look like it is working because they will practice more, but the quality of the practice is vastly superior when you are practising for your own internal reasons than when you are being coerced into practising. So you are just going through the motions and since you are not as engaged, you are not creating goals for yourself, you are not as focused.” (Kageyama)

For these participants, motivation can also develop from immersion in different and challenging environments (see quote below). They remark that being in an academic setting, for example, can challenge the perspective of their students and expand current horizons. When students evaluate their surroundings and observe that there are other players currently more skilled than they are, it serves as a motivation to improve. It gives students a feeling that the next level is not too far out of reach. It is also important that students do not have the feeling that they are the best performers in their environment, as that can influence how much they would be able to accomplish by simply accepting that they are already good enough.

“One of the things about Mr. Gingold, our final teacher in school, was that there were all these kids in the class most of whom were talented and none of us felt we were good enough class which was a wonderful motivation. Great to be surrounded by classmates and it was better to be in the middle of the pack than to be the best.” (Young)

Performances and goals are also a significant motivation tool for the participants and their students. This cohort of experts reported feeling motivated to practise when faced with concert deadlines and the desire to deliver a great performance. Throughout practice, the perception of progress and accomplishment feeds back again into the positive cycle that
propels one to be more engaged with their own learning. Thus, participants are motivated to reach even higher levels.

“One motivation is that I know I'm performing this and this piece this and this date, so I need to learn it because I want to play it, I want to play it well, so this is my motivation. The other motivation, and this is if I am doing good, intelligent and sensible practising, I will hear a different result and improvement and that is my motivation. If we stop recall what we call practice, when we spend time with the instrument and there is no development, that means that we are practising in the wrong way.” (Bohn)

The participants also reported that listening to recordings can be a convenient tool and a source for inspiration. However, if used excessively, listening to others can be detrimental. Listening to recordings can help learners improve quickly in the early stages of development, as it is a passive and easy way to get familiar with the music. “If the objective is learning a piece as quickly as you can” (Kageyama), recordings can be very useful. However, that can create the illusion that the player can already play at a concert tempo from the start, based on what is being heard, and that is most likely not the case. It is important for performers to consider whether they want to listen to recordings “at the outset, or later” (Kageyama) in the development of practice. There is a danger that musicians might become overly dependent on recordings; and the way the music is presented in recordings might not necessarily be what is conveyed on the page by the composer (Young).

The participants reported that listening to a single interpretation can make a player inclined to a certain interpretation that is not an outcome of their own research and experience. For them, a great number of young players formulate their musical and
technical approaches to music and learning by outsourcing their ideas and interpretations to the internet. These players are therefore “motivated by their impressions of other people” (Young) rather than by their own ideas and the composer’s intentions.

“Kids are using as their sole source of motivation and inspiration what they see on YouTube, I think that it is a shortcut that really leads to diminishing returns in terms of building the most important thing, and that is artistry.” (Young)

“I think listening to recordings is very good, but I would use recordings in plural because if you listen to one recording, all over and over again, I’m trying to match that. First of all, it won’t be good, it is not your own interpretation. It won’t be good because it is just second hand. But several recordings, oh absolutely I will love it, great inspiration.” (Bohn)

4.6 Practice Performing

“We do too little too late.” (Kageyama)

To complete the practice cycle, these participants would envisage themselves in the final act of performance in order to assure success on stage. It was a crucial step for the musicians to analyse whether the elements from the practice room would be realised in performance. By enacting and visualising themselves on stage these musicians are reducing liability. It requires an elevated degree of professionalism to deliver the final musical product beyond the practice room. These professionals would put their winning performance on repeat to guarantee that the actual conceived rendition of the music would be a success. This is a difficult step, as performers have the constant feeling that one should not perform until “you are totally ready” (Kageyama) and therefore leave this exercise for the very “last minute” (Kageyama).
“I think our excuses are, I am not ready yet, not ready to play for other people, not ready to run [the music], I just need to work on it and practice it more and then we run it out a ton” (Kageyama).

The best professionals, however, leave nothing to chance. They imagine and repeat how they will perform in a particular situation, and repeat this process until they are absolutely confident that they will be able to reproduce the same results outside the practice room. They mitigate risk and aim to achieve automaticity. It is like a sports person preparing for the winning shot. If something sounds extraordinarily well in the practice room but a performer is not able to repeat the same outcome on stage, this should serve as constructive feedback. Although practising performing helps players to demonstrate their skills when important situations arise, it is often neglected.

"Okay, even though it sounded much better in the practice room, it doesn't count because I couldn't demonstrate that when it really mattered."(Kageyama)

The ability to remain calm and in control, impervious to the environment and external situations requires sheer dedication. For the participants, the moment they begin to superimpose their conceptions, feelings, and ideas on the music, their technique has to have a good foundation. Therefore, it is valuable to practise performing in order to gain control over the adrenaline and the ‘rush’ of being on stage.

“If you get the satisfaction, you are going to get tense, you are going to get emotionally involved, the blood pressure goes up, the heart rate goes up, adrenaline starts flying and you are screwed because you are not going to be able to get through that... As Richard Young says, ‘Have fire in your heart but ice in your veins’. ” (Stegeman)
In order to achieve such control, these experts recommend that practising performing should be a part of the everyday studies of musicians. A musician does not have to play the entire piece at each practice session; however, it would be very beneficial to practise certain passages and phrases every day, as to make sure that every detail worked on in the practice room will be able to be reproduced on stage later on.

“I think we should practice performing every day, and I don't mean to practise in full tempo or anything we cannot [do yet], just small sections. [It] can be slow, but we should imagine ourselves on stage, that should be every day.” (Bohn)

The stage is the place where a performer should focus on the music that is going to be exuded from an instrument. The participants believe that it is “too late to focus on technique” (Kageyama) and worry whether one will be able to play a shift correctly, or if technique will be able to support the pre-established musical ideas when in a performance.

On stage is more about you focusing on blending with the pianist, or your colleagues, or focusing on the sound that you want to create and staying relentlessly focused on and what you want as opposed to what is actually happening and reacting to it. (Kageyama)

A few tools that these participants use as means of feedback for performance are recording themselves and mock auditions. The recordings function as a device to obtain a true assessment of their playing and objective listening, making it easier for the performer to identify errors and devise a plan to remedy such mistakes in the next practice session. For these experts, “making a record and listening to the recordings” (Kageyama) is an important tool when “learning something new” (Kageyama). The other tool mentioned by the participants is mock performances and auditions. Here the participants put themselves into a pretend performance situation in order to increase their mental and
physical stamina on stage. For these participants, it is important to vary the audience and their physical state in preparation for a concert. It is important to “play for somebody different or maybe [even] do push-ups before” (Kageyama) a mock performance, as it is difficult to predict the internal and external factors that might be in play once the spotlight is on the musician.

“[About recording yourself months prior to an audition] So, obviously it is not going to feel comfortable, it is not going to sound great because we are talking months before the audition. He [a colleague of the participant, who won a position at the MET, in NY] started doing that once it [the music] was at the level that he can run or play through, which is way earlier than people want to record themselves because it doesn’t sound good. But basically, he would then take that recording and figure out what are the biggest problems that I hear because those are the things that would happen. If that [mistake] happened on the audition day, he would prioritise those [issues] and work on them. Which is a different list than if you just started playing the piece and worked on things as they popped up.”

4.7 The Role of Practising in Delivering Art

“An artist needs to be the first person to love their art.” (Klein)

These professionals shared a passion to deliver their art. Their dedication was driven by a need to communicate a composer’s intentions in the best possible way and to achieve the delivery of fine art, focusing purely on the music and not on the vainglory of the performer. For these participants, it is important to remember that “we are part of a much greater human effort to understand itself.” (Klein)
A question that arose is, “why do we practice?” (Klein) What is the determinant factor that keeps bringing a performer back into the practice room, day after day, to polish and master their instruments and pieces? According to the participants, this answer is more intricate than simply the need to play an instrument flawlessly and to be remunerated for it.

“If playing music can be reduced to practising violin and going on stage, people clap, you get a cheque, and you go back home, I don’t believe that is good enough.” (Klein)

When performing, a musician is contributing to history, contributing to the artistic debate, contributing to culture, and keeping composers’ music alive. Even early in our existence, humanity saw the need to externalise its feelings through artistic expressions. “Why is it that human beings, thirty, forty thousand years ago started painting caves?” (Klein) Those paintings are the fruit of the same urge as fine arts. It is the participant’s hope that our performances and music making are going to bolster that human need to express itself in beautiful and intricate ways.

“Those [cave] paintings are not merely about hunting strategies. They are beautiful, they are proportional, they are lyrical. They don’t have to put so many colours to determine how we are going to hunt that bull. Somehow there was an aesthetic point of view to that painting. It was not only one [painting], because we see that all over the world around that time. As we jumped into civilization, the same things happened when we created cities, so ten thousand years ago, our art accompanied architecture, and we find flutes that are nine thousand years old. So imagine that music was coming along with all of that. Why is it that we have art? It puts our practice into perspective . . . We need to understand that we are part of something much bigger than our little concert, our little practice, our little difficult passage. That we are feeding into something much more beautiful and often, extremely necessary. So society at large can have some sanity. Without the fine arts we are doomed. Fine arts somehow manage to remind us of civilization.” (Klein)
Art therefore, is not solely about what is right and what is wrong. “Playing a scale in tune is a task” (Klein), it is binary, and there is no middle ground. Art itself is in a different dimension. A person should not be able to judge and argue that the phrasing of a musician is wrong. “Music exists when our inadequate words begin to stutter” (Young). Our practising has to somehow prepare us not only for a very organised and concentrated way of solving all our technical problems, but also for applying that technique in the service of music, which is “not always an objective thing” (Young). The participants found it relevant to point out that mastery of technique alone does not guarantee that a performer will be able to connect with an audience and convey the significance of a piece of music through their performance. Striving for pure technical mastery can be a frustrating endeavour.

“Music is an entertainment industry, and so just because you can play more accurately or louder or faster than anybody else, doesn't mean that you are going to have a better career or be more likely to sell tickets, because a part of it has to do with what resonates [with the audience]. The audience is ready to pay for whatever they see, it is a whole package, and so it can be really frustrating and deceptive for some who feel like they play better than someone [else] who gets more concerts.” (Kageyama)

Even when practising technique, performers should seek to control the beauty in their environment. Participants stated that “there is enough ugliness in the world” (Young). It is important to always be aware that the end goal of all of our practice efforts is the delivery of music and art.

Music sometimes is about things that cannot be lucidly discussed. It is about that which sometimes defies logic, but somehow it is a powerful, powerful force. If we are going to be hopefully artistic in what we do, if we are going to share with the listeners something that transcends technique, transcends objectivity, well... how do we do that? Our practising has to allow for that, and we have to give animation to the
impulse to experiment, to be curious, to try all sorts of different solutions, to play. Not just one or two tried and true techniques. If it is all about technique, we are in the wrong business.” (Young)

“What we are dealing with is little black dots on a paper. Somehow we have to get it off the page and that is our job to make these black dots come to life and go to the last row of the auditorium, or the room we are playing in, to fall on the ears of everyone present and make sure that they are edified by it that, they think this is really worth listening to.” (Roberts)

“We are in the beauty business when it’s all is said and done.” (Young)
5 Discussion

This study investigated in depth how professional performers are able to bring theoretical concepts of practice to life and what constitutes practice mastery. Most of the studies with experts do not generally include mental preparation and mental practice in detail, while this research contributes and champions these concepts, exemplifying its importance for expert practice. These performers’ achievements and observations can be helpful as examples for learners and other musicians on how to obtain proficiency in a meaningful and masterful manner. Much like a sportsperson training for a big game, all performers had a structure and a map of their approaches to the learning of a new piece. They held their musical interpretation in mind throughout the entire learning process and evaluated their practice frequently. They were creative with their problem-solving solutions and worked towards the delivery of music and art always putting forward their winning performances.

The participants were able to articulate in detail what constitutes good practice – from planning, to preparation, to reflexion, to execution. It is remarkable to observe that for these participants, mental preparation was essential at the early stages of learning and that they unanimously acted upon this concept. These professionals were clear that planning and setting goals served as a framework for the work ahead and spent a considerable amount of time thinking about the final objective. Devising goals and creating personal targets for their work enabled the participants to observe progress during and after each practice session. It is also important to emphasise that these professionals were invested in mental preparation and mental practice, prior to any physical contact with their instruments. They pursued artistry and musical interpretation and the act of learning a
new piece was never a purely mechanical endeavour. Much like as the violinist Tivadar Nachez expressed, for these participants “technique, after all, is only a means” (Nachez, as cited in Martens, 1919).

These participants were therefore conscious that all performance aspects have to be rehearsed from the outset of a piece. They were mindful that practice requires repetition and the rehearsal of different physical motions but were sensitive to the fact that when approached without sufficient attention, repeating can handicap the development of a musician. While the volume of practice is essential, the content and quality of the practice session is what separates the experts from the learners (Williamon & Valentine, 2002). These professionals would practice with their full attention, fully focused, established clear goals, and were able to provide reflexion and self-feedback in order to maximise productivity (Ericsson et al., 1993). These participants were both intrinsically and extrinsically motivated to practice at times, however intrinsic motivation seemed to be more rewarding, which supports research on musical practice motivation, where goals, environment and social aspects can influence the degree of engagement of an artist with practice (Hallam, 2002).

### 5.1 Prologue to Practice – Mental Preparation

Musicians have long been interested on the particularities of expert practice (Cervino et al., 2011; Lisboa et al., 2018). While some pedagogues have suggested that a certain degree of groundwork is important prior to the core studies of the instrument (Martens, 1919), this research demonstrates and suggest that mental preparation is fundamental to the success of practice and performance. A minimum amount of time spent devising plans and structuring the practice ahead can be more effective, in the view of the participants,
than numerous hours of unfocused practice or mindless repetitions. Participants described that each and everything thing they do, even before picking up their instruments, was critical to any session they managed. More specifically, they regarded that it is valuable for a performer to set clear goals for each practice session. Defining meaningful and attainable immediate and ongoing objectives motivated these participants to spend the time necessary to achieve their set outcome. Participants would then schedule their practice with a clear vision of the tasks ahead, always putting their musical interpretation at the forefront of their priorities. The way a musician schedules their practice can determine the course of their creative life, therefore, it is valuable that musicians devise schedules that are attainable and that can motivate a player to seek further progress (Klickstein, 2009).

Once participants created a road map for their work, they would research background and contextual information on the composer and the period when the piece was brought to life. They would look for any detail that might be relevant to be conveyed during performance and were committed to honouring the composer’s intentions. For these participants, it was only possible to construct an interpretation once they were familiar with the character, style and history of a work (Applebaum, 1972). Participants found value in listening to recordings while creating their musical ideas, despite admitting that the overuse of recordings can be detrimental to their interpretation. Research on the topic shows that the influence of recordings in practice are not harmful (Lisboa et al., 2005). Following these preparations, the participants would create a musical vision for their performance, which informed their every practice session. While this concept has been theorised (Kim, 2008), it was remarkable to notice that all participants would make use
of a planning and goal-setting strategy. They were clear that time was a scarce resource and worked with a laser-sharp focus on the target they aimed to obtain.

5.2 Importance of Mental Practice

Participants made use of mental preparation techniques and continued their practice path by making use of mental practice. Despite their choice of repertoire, these performers would first learn a new piece in their minds. These participants regarded this type of practice as an efficient and effective use of time and energy, as they could save hours of labour and physical strength by learning entirely mentally what and how they wish to play a piece, “much before turning to their instruments” (Mangeot, 1953).

Once with their instruments in hand, the participants would interleave mental practice and physical practice, playing anything from small sections of music to the whole piece, always aiming to incorporate all aspects of artful performance in this exercise. Participants could play error free in their minds, which allowed them to feel confident in their musical choices, solidified their technical goals, and mitigated the anxiety of performance. When physically practising, the task and techniques already felt familiar, and the work was more productive. This also allowed the participants to match their technique to their musical visions, as at the outset of learning a piece, a performer’s technical decisions have to be rooted in an interpretative blueprint (Klickstein, 2009).

A combination of mental practice and physical practice is known to be more efficient than either physical or mental practice alone (Ay et al., 2013; Coffman, 1990; Grouios, 1992; McHugh-Grifa, 2011; Ross, 1985). The current research supports these findings and promotes the relevance of mental practice on the development musicians. Every
participant described the vital role of mental practice in their practice concept, despite their different cultural background, or musical instrument. According to Ericsson (1993) ten thousand hours of practice are necessary in order to achieve mastery in any field (Ericsson et al., 1993). It is an intriguing idea to consider that mental practice plays as much of a role as physical practice in contributing to these ten thousand hours of deliberate practice. These participants first had to visualise themselves doing the task, to actually achieve it. For them, practice was as much a mental effort as a physical endeavour. It is interesting to observe that the practice adage of a musician going into the practice room, closing the door, picking up the instrument, and repeating passages hours into the day was not present into the participants’ learning structure. They had an extraordinary setup, where they would devise a plan, learn the background and context of a piece, mentally play it in their mind and only when this was complete, touch their instruments. This mental practice may be the critical difference between professional performers and emerging artists.

5.3 Pursue of automaticity and Problem Solving

Participants were aware that practice is the rehearsal of motions with the intention to build automaticity and ease in performance. Practice requires repetitions and, while repetition can strengthen the artistry and music skills of a performer, when poorly managed, it can hinder the development of a musician (Klickstein, 2009). The participants were aware that repetition alone was not a guarantee of progress in the practice room (Sloboda et al., 1996) and were experts in problem solving.

The mental work allowed these participants to build automaticity and playing was a less effortful endeavour. Once with a clear vision of the music and having mentally visualised
a passage, these performers isolated and defined occasional obstacles and made use of

techniques such as the variations of rhythms and note groupings, developing creative

approaches to help in their practice endeavour. For these performers, such strategies can
enable the problem to be solved in a permanent way, and help a musician attain

excellence. These findings are consistent with research on observational practice (Imreh
& Chaffin, 1997; Miksza, 2007; Parncutt & McPherson, 2002). Participants also deemed
it significant to practise slowly and diligently at the outset of learning, but increased
tempo at the earliest possible time, as a way not to create dependence upon the slow speed.
The hazard of slow practice is that it can install habits that are incoherent to the
coordination required to play at concert speed (Whiteside, 1997). Performers in this study
also stated that practice should only last for as long as they were able to concentrate, and
that the amount of time spent in a practice room may not be a significant factor in their
development. The amount of practice alone does not guarantee improved performance
and is not a conclusive factor on the quality of a performance outcome (Duke et al., 2009;
Jørgensen, 2002; Miksza, 2007; Williamon & Valentine, 2000).

This research supports previous findings in the literature, where judicious practice is
constituted of the ability to solve problems, to self-regulate practice, and to devise creative
solutions (Cervino et al., 2011; Ericsson et al., 1993; Galamian, 1964). These participants
described that practice must be intelligent and that a performer needs to develop the
capacity to foresee difficulties, whether technical or musical, supporting pedagogue Max
Rostal’s view (Rostal, 2004). These experts also deemed it important to develop objective
listening and problem-solving capacities, being creative in devising strategies to
overcome obstacles and to seek musically oriented solutions.
5.4 Mental Rehearsal, Performance, and Art

In preparation for a concert, participants imagined and rehearsed their performance in its entirety, reaching the last step of their practice concept. It was important for them to play for different people, to play mock recitals and auditions, and to record themselves so as to create a different atmosphere for their playing. Self-recording proved to be an excellent tool to sharpen their objective listening, to obtain feedback and to inform future practice sessions, and it is consistent with research on the effectiveness of a model and self-evaluating capacity (Hewitt, 2001; Puopolo, 1971). The rehearsal of performance is an “express route to excellence” (Klickstein, 2009). For them, practice was not sufficient if they could not perform at their best on stage. These performers accounted for the adrenaline and rush of a live performance while practising, making sure that passages were never practised purely mechanically, as it would often leave them handicapped when the excitement of a performance developed.

These professionals always practised with their musical goals in mind and focused on the music. This also supports findings from Clark et al., where successful performers reported on their focus on the music and communicating with the audience (Clark et al., 2014). It was critical for the participants to remind themselves of the role of music and of the artist in society. They were acutely aware that their instruments and playing were a vessel to convey to the audience what was of the utmost importance: music and art. They seamlessly made the transition between the isolation of individual practice to the social responsibility and delivery of art to an audience (Davidson et al., 2009). This research also supports previous findings in which the role of a musician is described as being to give life to the works of the past, present and future. These professionals were masters in
practice and could transform annotations on a score into beautiful pieces of art. For them, a musician has the duty to accept the role of a bearer of cultural heritage (Menuhin, 1996), and only when the musician removed their ego, could this responsibility be put forward. These participants practised with the end goal in mind. They were in pursuit of mastery and art.

### 5.5 Limitations and Future Directions

This research has investigated a remarkable group of professionals and it analysed in depth the practice procedures of six expert performers, by reviewing their concepts, approaches and ideas on practice mastery. It is important to acknowledge that this is a small-scale study, based only on interviews with a small number of participants, and according to research, what people say may not be what they do (Chaffin & Imreh, 2001). This study could be extended to observations and more in-depth case studies to take further what the results of the interviews started to unveil.

The next challenge is to investigate how students structure their practice, to examine if there are any discrepancies when compared with the results from the experts, and to observe at what stage in their development their visions of this task change. It would be important to study how students conduct their practice in the beginning of their careers, mid careers, and at what point do they realise that they have to do something different in order to achieve excellence.

Practice accounts for a large part of musician’s lives and this study was an exploration of concepts and practice strategies that can propel forward the advancement and excellence of musicians in learning, teaching, performing, and achieving mastery. It plays an
important role for musicians and pedagogues, and have the potential to remodel current practice notions.

5.6 Conclusion

This thesis investigated the practice strategies of professional musicians in depth and has highlighted what constitutes masterful practice after analysing the concepts, approaches and experience of six professional performers. It is intriguing to notice that, despite having a mixed background, this group of participants has a very similar vision regarding practice mastery amongst themselves. The old adage that practice makes perfect, although not incorrect, lacks detail and depth. Practice is much more intricate than mere repetitions. It is widely accepted that in order to achieve mastery, practice has to be deliberate, it has to be mindful, it has to be focused. What is captivating in this research is that the performers clearly demonstrate the link between theory and practice. Although these participants have compiled their ten thousand hours (or more) of practice throughout the years, for them, practice does not carry the meaning of how many times something has to be repeated over and over again, nor the idea that the more practice the better. They have accounted for these hours in a much more interesting way than we realise.

This study confirms what we have learned in a variety of fields: that a combination of mental and physical is more efficient than either physical or mental practice alone. This thesis contends that mental preparation, mental practice and mental rehearsal are not only important, they are fundamental. The mental work is crucial. For these participants practice works seamlessly and allows them to conceptualise their performance. Practice was always seen in totality and these experts consciously started with the end result in mind. This study has the capacity to transform how we conceptualise the practice model.
by suggesting that mental practice has as much of a role as physical practice in contributing to these ten thousand hours previously suggested be Ericsson et al (1993). Art and music should be at the front and centre of each practice session. Practice is not just a means to an end, and it embodies the entire process of the pursuit of excellence.
References


Appendix A: Ethics Approval

Research Integrity & Ethics Administration
Human Research Ethics Committee

Friday, 27 October 2017

Dr Helen Mitchell
Musicology Unit, Sydney Conservatorium of Music
Email: helen.mitchell@sydney.edu.au

Dear Helen,

The University of Sydney Human Research Ethics Committee (HREC) has considered your application.

After consideration of your response to the comments raised your project has been approved.

Approval is granted for a period of four years from 27 October 2017 to 27 October 2021

Project title: Practice and Learning Strategies for Violin
Project no.: 2017/727

First Annual Report due: 27 October 2018

Authorised Personnel: Mitchell Helen; Vitorino Murakawa Ana Janaina;

Documents Approved:

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Condition/s of Approval

- Research must be conducted according to the approved proposal.
- An annual progress report must be submitted to the Ethics Office on or before the anniversary of approval and on completion of the project.
- You must report as soon as practicable anything that might warrant review of ethical approval of the project including:
  - Serious or unexpected adverse events (which should be reported within 72 hours).
  - Unforeseen events that might affect continued ethical acceptability of the project.

Research Integrity & Ethics Administration
Level 2, Margaret Tefler Building (K07)
The University of Sydney
NSW 2006 Australia
T +61 2 9308 9151
E human.ethics@sydney.edu.au
W sydney.edu.au/ethics

ABN 15 211 513 464
CRICOS 00038A
Any changes to the proposal must be approved prior to their implementation (except where an amendment is undertaken to eliminate immediate risk to participants).

Personnel working on this project must be sufficiently qualified by education, training and experience for their role, or adequately supervised. Changes to personnel must be reported and approved.

Personnel must disclose any actual or potential conflicts of interest, including any financial or other interest or affiliation, as relevant to this project.

Data and primary materials must be retained and stored in accordance with the relevant legislation and University guidelines.

Ethics approval is dependent upon ongoing compliance of the research with the National Statement on Ethical Conduct in Human Research, the Australian Code for the Responsible Conduct of Research, applicable legal requirements, and with University policies, procedures and governance requirements.

The Ethics Office may conduct audits on approved projects.

The Chief Investigator has ultimate responsibility for the conduct of the research and is responsible for ensuring all others involved will conduct the research in accordance with the above.

This letter constitutes ethical approval only.

Please contact the Ethics Office should you require further information or clarification.

Sincerely

[Signature]

Professor Glen Davis
Chair
Human Research Ethics Committee (HREC 2)

The University of Sydney HRECs are constituted and operate in accordance with the National Health and Medical Research Council’s (NHMRC) National Statement on Ethical Conduct in Human Research (2007) and the NHMRC’s Australian Code for the Responsible Conduct of Research (2007).
Appendix B: Invitation Letter

Dear X

You are invited to take part in a research study investigating strategies and techniques for violin and music practice.

You are being invited because you are an expert in your field. If you decide to take part in this study you will be asked to give an interview regarding your expertise in learning, learning how to learn, and practice; which will inform the research body of a Doctoral thesis aiming to unfold the best current methods and strategies for music learning.

The interview is expected to have a duration of 60 minute and it will take place at venues arranged by the researcher or venues preferred by participants, including the possibility of online interviews.

You will find attached a Participant Information Sheet with more details regarding the research.

Thank you for your consideration. I look forward to hearing from you.

Kind regards,

Anna Murakawa.

For more information, please contact Anna Murakawa at: avit8170@uni.sydney.edu.au
Appendix C: Participant Information Statement

INTerview Participant Information Statement

(1) What is this study about?

You are invited to take part in a research study investigating strategies and techniques for effective and efficient violin practice.

You have been invited to participate in this study because you are an expert in the fields of Pedagogy, Cognitive Neuroscience, Music, and/or Psychology.

This Participant Information Statement tells you about the research study. Knowing what is involved will help you decide if you want to take part in the research. Please read this sheet carefully and ask questions about anything that you don’t understand or want to know more about.

Participation in this research study is voluntary.

By giving your consent to take part in this study you are telling us that you:

✓ Understand what you have read.
✓ Agree to take part in the research study as outlined below.
✓ Agree to the use of your personal information as described.

You will be given a copy of this Participant Information Statement to keep.

(2) Who is running the study?

Anna Murakawa is conducting this study as the basis for the degree of Doctor of Musical Arts (violin) at The University of Sydney. This will take place under the supervision of Dr Helen Mitchell, Senior Lecturer at the Sydney Conservatorium of Music.
(3) What will the study involve for me?

In this study, you will be asked to give an interview regarding your expertise and research in the fields of practice and learning. The information gathered in your interview will add to a body of work that aims to discuss what are the current most efficient and effective strategies and techniques to practice the violin.

You will be asked to answer questions about learning strategies, teaching insights, and violin practice.

The interview will be audio and video recorded, and snapshots and photographs might be taken to illustrate points relevant to the research. The interview might be in person or online, depending on your availability. You have the choice to remain anonymous or to be identifiable.

(4) How much of my time will the study take?

The interview is designed to take approximately 60 minutes.

(5) Who can take part in the study?

Participation in this study is restricted to field experts of the areas of music, psychology, pedagogy, meta-learning, and cognitive neuroscience. This inclusion criterion is due to the specificity of the research questions in this study, aiming to uncover the best learning strategies according to current research and expert judgment.

(6) Do I have to be in the study? Can I withdraw from the study once I've started?

Being in this study is completely voluntary and you do not have to take part. Your decision whether to participate will not affect your current or future relationship with the researchers or anyone else at the University of Sydney.

You may stop the interview at any time if you do not wish to continue, the video recording will be erased and the information provided will not be included in the study.

If you decide to take part in the study and then change your mind later, you are free to withdraw at any time. You can do this by contacting Anna Murakawa at avit8170@uni.sydney.edu.au. Your answers will therefore be removed from any further recordkeeping and will not be included in the analysis of results.

(7) Are there any risks or costs associated with being in the study?

Aside from giving up your time, we do not expect that there will be any risks or costs associated with taking part in this study.

(8) Are there any benefits associated with being in the study?

We cannot guarantee that you will receive any direct benefits from being in the study.
(9) **What will happen to information about me that is collected during the study?**

By providing your consent, you are agreeing to us collecting personal information about you for the purposes of this research study. Your information will only be used for the purposes outlined in this Participant Information Statement, unless you consent otherwise.

All aspects of the study, including results, will be strictly confidential and only the researchers will have access to information on participants. The information you provide is important to musicians worldwide regarding practice strategies. If you agree, I would like to keep your contribution in perpetuity and to attribute your words/quotes to you.

Your information will be stored securely and your identity/information will only be disclosed with your permission, except as required by law. Study findings will be published, but you will not be identified in these publications unless you agree to this by giving us consent.

All electronic and hardcopy data collected as part of this study will be stored during and after the study in a confidential folder at the University of Sydney research drive. Only the investigators of this study will have access to this data.

We will keep the information we collect for this study, and we may use it in future projects. By providing your consent you are allowing us to use your information in future projects. We don't know at this stage what these other projects will involve. We will seek ethical approval before using the information in these future projects.

Results from this study may be published in a Doctoral Thesis, conference presentations, and journal publications.

(10) **Can I tell other people about the study?**

Yes, you are welcome to tell other people about the study.

(11) **What if I would like further information about the study?**

When you have read this information, Anna Murakawa will be available to discuss it with you further and answer any questions you may have. If you would like to know more at any stage during the study, please feel free to contact Anna Murakawa, DMA candidate at the University of Sydney, at avit8170@uni.sydney.edu.au.

(12) **Will I be told the results of the study?**

You have the right to receive feedback about the overall results of this study. You can tell us that you wish to receive feedback when you give your consent to participate in this study. This feedback will be in the form of a one-page summary or media release. You will receive this feedback after the study is completed.
What if I have a complaint or any concerns about the study?

Research involving humans in Australia is reviewed by an independent group of people called a Human Research Ethics Committee (HREC). The ethical aspects of this study have been approved by the HREC of the University of Sydney [INSERT protocol number once approval is obtained]. As part of this process, we have agreed to carry out the study according to the *National Statement on Ethical Conduct in Human Research* (2007). This statement has been developed to protect people who agree to take part in research studies.

If you are concerned about the way this study is being conducted or you wish to make a complaint to someone independent from the study, please contact the university using the details outlined below. Please quote the study title and protocol number.

The Manager, Ethics Administration, University of Sydney:
- **Telephone:** +61 2 8627 8176
- **Email:** human.ethics@sydney.edu.au
- **Fax:** +61 2 8627 8177 (Facsimile)

*This information sheet is for you to keep*
Appendix D: Participant Consent Form

Practice and Learning Strategies for Violin

PARTICIPANT CONSENT FORM
Interview

I, ................................................................................... [PRINT NAME], agree to take part in this research study.

In giving my consent I acknowledge that:

1. If the interview occurs via telephone or internet, this consent form will be read aloud to the participant by the researcher. The participant will be informed that the call will be recorded, complying with the Surveillance Devices Act 2007 (NSW) (SDA) which deals with the recording of phone calls.

2. I understand the purpose of the study, what I will be asked to do, and any risks/benefits involved.

3. I have read the Participant Information Statement and have been able to discuss my involvement in the study with the researchers if I wished to do so.

4. I understand that being in this study is completely voluntary and I do not have to take part. My decision whether to be in the study will not affect my relationship with the researchers or anyone else at the University of Sydney now or in the future.

5. I understand that I can withdraw from the study at any time.

6. I understand that I may stop the interview at any time if I do not wish to continue, and that unless I indicate otherwise any recordings will then be erased and the information provided will not be included in the study. I also understand that I may refuse to answer any questions I don’t wish to answer.

7. I understand that personal information about me that is collected over the course of this project will be stored securely and will only be used for purposes that I have agreed to. I understand that information about me will only be told to others with my permission, except as required by law.
8. I understand that the results of this study may be published, but these publications will not contain my name or any identifiable information about me unless I consent to being identified using the “Yes” checkbox below. If you choose to remain anonymous, please choose a name to identify yourself below.

☐ Yes, I am happy to be identified.

☐ No, I don’t want to be identified. Please keep my identity anonymous and use the pseudonym…………………………………….. [PRINT NAME] to identify me.

I consent to:

- Audio-recording
- Video-recording
- Photographs
- Reviewing transcripts
- Data being kept in perpetuity
- Being named and having my quotes attributed to me

Would you like to receive feedback about the overall results of this study?

☐ Yes □ NO □

If you answered YES, please indicate your preferred form of feedback and address:

☐ Postal Address: ____________________________________________________________

________________________________________________________

☐ Email: ____________________________________________________________

..................................................................................

Signature

..................................................................................

Please PRINT name

..................................................................................

Date