

ROYAL

COLLEGE

OF MUSIC



# AN INVESTIGATION OF MUSICIANS' GOALS AS MOTIVATORS AND REGULATORS

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# DECLARATION

I hereby confirm that this submission is my own work and has not been submitted for a comparable academic award

## ABSTRACT

Research into self-regulated learning has demonstrated that goal directed practice is more effective in producing improvement than non-goal directed practice; however, the substance of the goals is rarely examined in detail. When categorised, generally the dichotomous view of intrinsic or extrinsic goals is used. To elaborate on this research and examine how the content of goals may affect their achievement, this thesis uses the theory that goals can be used as a motivational technique to inform self-regulated learning research into the practice of musicians. The goal theory examines the specificity, measurability, deadline, hierarchy, difficulty, and importance of goals. Research has demonstrated that challenging, achievable goals produce a better improvement than "do your best" goals, and participation in goal setting leads to higher increases in productivity. This provides a detailed understanding of the goals being set by musicians, and whether they are likely to be effective within self-regulated learning.

The final theory examined in this thesis links to the motivation for completing actions: self-determination theory. This was chosen as it provides a more detailed insight into the internalisation of motivation for certain behaviours, beyond that outlined in self-regulated learning and goal setting theory. Examining the quality of a goal, the motivation to achieve it, and the approach to doing so will provide information about self-regulatory processes in musicians' practice that have not been considered in this way previously. A model of predicted relationships between the three theories is tendered based on findings of previous literature, and this is then examined for its suitability in the studies conducted for this thesis.

Three research questions are examined: 1. What goals and self-regulation strategies do musicians use during their practice? 2. How effective are the goals and self-regulation strategies used by musicians during their practice for improving performance skills? 3. Do goals and self-regulation strategies change at different times during individual practice sessions and over the course of the learning process required to take on a new piece of music? And if so how? To address these questions, an online survey was distributed to performance students at UK conservatoires and two micro-analytic studies focusing on the practice sessions of violinists were conducted. The questionnaire contained questions relating to the self-regulation, self-determination, and goals of musicians to develop greater understanding of the connections between these components. The micro-analytic studies involved completion of a self-regulation practice diary, observation of practice sessions, a video recall procedure, and interviews with the participants, providing an in-depth view of their practice and ambitions.

Results of the studies showed that a variety of practice strategies were adopted by participants, but that these tended to be habitual and based on individual preference. Goals were not specific and rarely used effectively, often changing during practice sessions in favour of reactive aims and behaviours. Longer-term goals tended to be intrinsic in nature, and more intrinsic goals were associated with higher perceived likelihood of their attainment. Self-regulation strategies were exhibited by all participants whose practice was observed, but the act of goal setting and attainment was limited in quality, indicating that this is an area that could be improved to benefit

the effective practice of the conservatoire students. Overall, results indicate many positive self-regulatory traits are evident in the practice of the violinists examined, but greater improvement could be made by using goals in a more effectual way and planning their practice in advance.

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## INTRODUCTION

Goals are a part of every person's life; we all set ourselves or others tasks to be completed, aims we wish to achieve, and targets for the future. Musicians do this all the time in their practice, sometimes knowingly and at other times non-consciously, but the driving force behind practice is goals. These goals can come in a variety of short-, medium- or longterm, and can be defined by their specificity, their difficulty, or their origin. The following research considers the goals that musicians set, examining all of the above features to find out how they might be beneficial or detrimental in practice sessions. Their potential uses as motivators and managers are examined by applying concepts related to self-determination theory (SDT) and self-regulated learning (SRL). It is hoped that by identifying the uses of goals both as motivation to practise and during practice sessions, and the most effective strategies used to attain them, musicians will be able to use this information to inform and improve their personal practice. This brings up the possibility that more improvement can be made in shorter time periods, allowing more time for the musician to carry out other activities supportive of a healthy lifestyle.

As a researcher, I have experience in playing cello, piano, and singing to a post-grade 8 standard which has partially informed some of the decisions made in the research of this thesis. For instance, my knowledge of the learning process helped to identify suitable definitions for the difference between the early learning process, halfway through the learning process, and the end of the learning process. My background in music making and education in music and performance science have driven me to take on this research project so that I am able to understand in greater depth how practice is being performed and how it could be improved. Ultimately, I hope this research, in combination with other relevant research, will provide a better model for learning that could help others undertaking the challenge of learning an instrument achieve the highest possible standard without encountering injuries and motivational challenges.

The research for this thesis was conducted as part of an externally funded project -*Optimal Music Performance (OMP)* - that focused on how to make practice more beneficial, enjoyable, systematic, and of a better quality in top-level student musicians. It aimed to examine practice from the point of view of students' private sessions and the impact that teachers can have on practice quality and motivation during studio lessons. The chief investigators for this research were Gary McPherson and Paul Evans from Australia, with

partner investigators Aaron Williamon (RCM), Peter Miksza (Indiana University), Barry Zimmerman (City University, NY), and Richard Ryan (University of Rochester) also involved. There were four main projects that made up the body of this research that included a longitudinal study into motivation, practice and performance; a survey investigating the quantity, quality and motivation for practice; an investigation into interactions between teachers and students during studio lessons; and microanalyses of student practice sessions.

The project involved developing and testing a micro-analytic protocol to examine the selfregulation of conservatoire music students in their private practice and their ability to focus on moment-to-moment fluctuations in practice quality and identify evidence of SRL (McPherson *et al.*, 2019). Questionnaire studies also examined the conservatoire environment and the wellbeing of students, finding that respondents generally endorsed the long-term goal of a career in music and had high-quality motivation to achieve this. This motivation is positively linked to competitiveness and negatively correlated with socially prescribed perfectionism (Miksza *et al.*, 2019a). Another study demonstrated that selforiented perfectionism was positively related to stress, which itself negatively related to subjective vitality (Miksza *et al.*, 2019b). Overall, the findings were positive in demonstrating lower levels of controlling teaching and stress than might be expected based on previous research (Gembris & Davidson, 2002; Kreutz *et al.*, 2008a; Lipson *et al.*, 2016; Perkins *et al.*, 2017), as well as higher quality motivation, career expectations, adaptability, and quality of peer relationships.

For this PhD the *OMP* project provided a strong theoretical base on which to build a research project with the focus on SRL and SDT. Complete autonomy was given to myself as a researcher to choose which areas were to be focused on within these theoretical backgrounds within the population of advanced music students, and the decision to focus on goals and include a goal setting theory was made by myself without input of the project investigators. The team were highly supportive and assisted in the development of materials used to collect data including the questionnaire and practice diary.

This research is important for the musical community as the results could help improve the practice quality of future musicians, opening up possibilities for further improvements in knowledge and skill acquisition. Through this, the overall quality of music making can be enhanced, injury rates related to practising for long periods of time could be reduced, and

time for pursuing other aspects of life (that do not necessarily stem from sitting in a practice room) can be increased. Seligman and colleagues (2013) conducted a large amount of research into prospection - the mental representation and evaluation of possible futures and, in examining how the brain can become a good regulator of physical and social interactions, they suggested that energy-wasting effort could be minimised if the following model of pairings was employed: "if in circumstance C and state S, then behaviour B has outcome O with probability  $\rho$ ". This idea can be taken and applied to music practice. For instance, if we assume that circumstance C is a practice session in which a musician has set a goal to attain (ideal) outcome O, then the desired probability is that of 1, certain. Obviously, the nature of O will influence the probability that it will be attained during the practice session but, assuming it is a realistic, achievable goal, we are left with two variables in the equation: state S and behaviour B. The current research looks at how variations in these factors can produce different results in the achieved outcome, as well as examining the effect of different versions of O. It is predicted that altering behaviours and affective states in practice sessions will lead to different outcomes, some more productive than others. Although the current research will not identify differences between the probability of outcomes over actual outcomes it does come with the stipulation that all individuals are different, meaning that goals, affective and environmental states, and behaviours that are deemed "ideal" are expected to be different for everyone.

It is likely that any suggestions proffered in this thesis for improving practice by changing the types of goals individuals have, behaviours and strategies they use to attain them, the environmental situation in which they are attempted, and the affective states that are most productive will lead to an increase in the *probability* that practice sessions and goal attainment will be improved.

It is important that research of this kind is completed in the field of music education as there will be certain elements of goals, motivation, and regulation that can be identified as beneficial or detrimental to practice quality and outcome. By identifying connections between the three areas in question it should be possible to build a picture of how they operate in conjunction with one another, and the way each supports or thwarts the others depending on how it is approached and used. Applying this research, alongside that which has already been conducted, to the practice of musicians should prove beneficial in improving the quality of practice that occurs, bringing about a faster rate of progression.

#### **REVIEW OF THE LITERATURE**

Both SDT and SRL have been developed out of research into goal setting and goal attainment, with SDT looking into human motivation for completing actions and goals (Deci & Ryan, 2000) and SRL examining the ways in which people manage themselves in order to achieve their goals (Zimmerman, 1989). Although both theories are driven by the principle that people set goals, beyond the basic dichotomy of intrinsic and extrinsic goals, neither specifies the effects of different types of goals on either motivation or self-regulation. It is to this end that the present research examines the constructs of self-regulation and motivation through SDT in respect to musicians completing a performance degree at a conservatoire and looks at the goals they set in order to examine the way in which different combinations affect the effectiveness of practice.

#### Goals

There are many ways in which goals have been observed and studied in previous research. Some areas of focus include the content of goals (Murayama, Elliot & Friedman, 2012), goal difficulty (Locke, 1968), goal clarity (Latham & Baldes, 1975), and the origin of the goal (Deci & Ryan, 2008). There are many aspects to goals that should be considered when researching the affect that they have on the motivation and regulation of individuals, including the factors mentioned. By identifying what an individual is seeking to achieve, we may be able to form an understanding of their behaviour and motivations and whether there are reasons attached to these aims that positively or negatively affect the means used to achieve them.

Most people have hierarchically ordered lists of goals, with more desirable ones viewed as more important than less desirable ones; again, there are a range of reasons that lead people to order their goals' importance in certain ways. What has been identified as affecting the effort put into achieving a goal is the feasibility and desirability attached to it (Liberman & Trope, 1998). Different factors affect the desirability and feasibility of goals, with goal desirability found to be higher when it is in line with needs or wishes and higher-order goals or attitudes. As an example, one could consider the situation where a person has a goal to post a letter – it is more desirable to do so should the letter be an important part of achieving another more important personal goal, such as applying for a job; should the sole purpose of posting the letter appear to have little connection to one's own goals (such as filling in an unnecessary council form) and not be in line with one's personal wishes then a lower desirability is attached to the goal (Gollwitzer, 1993). Feasibility is linked to the self-efficacy

of the individual, self-efficacy being the realistic self-belief held that one is capable of organising and executing actions to achieve goals (Bandura, 1977). The link between feasibility and self-efficacy is clear: having high self-efficacy for a task indicates a strong belief that one is capable of achieving the desired outcome and thus that there is a high feasibility that the task will be accomplished. If an individual has low self-efficacy for the completion of a goal then the reverse would be true. This is particularly important given that self-efficacy has been found to predict performance outcomes and intrinsic interest better than ability and practice time respectively (McPherson & McCormick, 2006; Ritchie & Williamon, 2012), as well as choice of more difficult, challenging tasks (Schunk, 1981).

A frequently discussed aspect of goals is the temporal feature, particularly the time it can take to achieve different goals under different conditions. Major goals tend to take more time than minor goals and often require the completion of shorter-term goals that provide a route to achieving the long-term goal. Goal systems can become complex, especially as people grow and take on new challenges and responsibilities. They become more diverse, increase in number and complexity, and may even contradict each other. As such it becomes important that, in order to achieve all the goals set, time is used to the fullest extent by being efficient, directed, and organised. In relation to musicians and their practising, they will frequently have more than one piece to learn and improve, some of which will be their own chosen repertoire and others imposed upon them externally by the likes of a teacher or an orchestra. Finding the time to bring all the pieces up to a high standard can be challenging, and it can be tempting to put more effort into repertoire that is self-selected over that which has been assigned (Renwick & McPherson, 2002). Information that is sought for this thesis is whether the most effective approach for each scenario would be to set different types of goals and use different strategies to attain them.

The studies conducted in Liberman and Trope's (1998) research assessed the temporal aspect of value associated with a high-level construal of future situations compared with low-level. In this instance, high-level construal was associated with the desirability of the end state: performing an activity because it lines up with other personal goals or needs. Low-level construal of future situations was linked to the feasibility of the activity's end state and the belief that one could achieve the desired outcome. The research found that distant future activities tended to be construed on a higher level than near-future activities, and decisions related to them were more influenced by desirability and less by feasibility. Students were also found to choose distant future assignments based more heavily on their interest in the

assignment, and for more near future assignments they focused more on the difficulty aspect. This shows that when choosing goals the point by which they are to be completed is an important factor that influences the goals that are set. In the case of musicians' day-today practice, this would indicate that goals achievable in a single practice session would be favourable over those that take longer when focusing on a short-term aim. If, however, the musician is focusing on their long-term future goals, their practice is more likely to be seen as one small step towards a much greater achievement as they are focusing on the desirability of an outcome over its achievability.

The concepts of desirability and feasibility of goals bring us to a crucial aspect of this research: motivation. The motivational quality people have for completing goals is partially dependent on the desirability and feasibility placed on the goal in question, but other factors should be considered. For example, the clarity of the goal may make it more or less desirable depending on whether a clear path can be followed to attain the goal or whether more work is required to define how to achieve it. Another factor may be the origin of the goal: if it was developed from within the self or whether it came from an external source. Locke and Latham (1984) examined the possibility that goals could be used as a motivational device in the workplace. Findings of laboratory studies (summarised by Locke, 1968) indicated that difficult goals and specific difficult goals produced a higher level of performance outcome than easy goals and "do your best" goals respectively. In follow-up studies, another detail that was identified that could potentially affect the performance related to goals set was the participation of the individual in the setting of the goal. It was this that Latham et al. (1978) examined, finding that when employees participated in the goalsetting process significantly harder goals were set and participants had higher performance and goal attainment than groups in "do your best" and control conditions.

Taking a social-cognitive approach, Dweck (1986) examined the motivational processes that affected the learning of children, identifying adaptive learning patterns as those promoting the establishment, maintenance, and attainment of personally valued and challenging goals, and maladaptive learning patterns as those related to failing to establish, maintain, and attain valued, challenging goals. Adaptive motivational patterns were held to promote mastery orientation in which persistence was high and children sought challenging tasks. Maladaptive motivational patterns, however, were believed to lead to a helpless behaviour pattern with challenges being avoided and a much-reduced level of persistence. Dweck examined links between behaviour patterns, goal orientations, confidence in ability,

and theory of intelligence. The two theories of intelligence identified were entity theory, in which intelligence is held to be a fixed construct, and incremental theory, which suggests that intelligence is malleable and can be improved with effort. Dweck found that should the child hold an entity theory of intelligence they tended towards a performance goal orientation. This means that if their confidence in their ability was high the behaviour pattern tended towards the adaptive mastery pattern, whereas if it was low then the maladaptive helpless pattern was more common. Those who held an incremental theory of intelligence in their ability was high or intelligence in their ability was high or low, they tended towards a mastery behaviour pattern. An important aside to mention in relation to this article is that it stated the goal should be "personally valued". This is important as it indicates that the author believed goals holding less personal value would not lead to the same goal orientation or behaviour pattern. It also supports some of the ideas concerning SDT discussed in the following section.

Elliot and McGregor (2001) examined the relationship between goals and personal theory of intelligence in their work studying the achievement goals of undergraduate psychology students. Within this, they split goals into four categories: mastery-approach, mastery-avoidance, performance approach, and performance-avoidance. Mastery goals (also frequently described as learning goals in other literature) were those focused on improving one's own competence and ability to master certain tasks. Performance goals were normative in nature and aimed at achieving a specific, external outcome such as placing in a certain position or beating another person's score. The distinction between approach and avoidance goals is that approach goals entailed setting goals that focus on achieving a positive outcome whereas avoidance goals were aimed at the preclusion of a negative outcome. Elliot and McGregor found that mastery-avoidance goals were positively predicted by entity theory and negatively by incremental theory and that performance-avoidance goals were positively predicted by entity theory.

Miksza (2007, 2009, 2011) examined the evidence for the four achievement goals with musicians in studies he conducted focusing on the practice of students in wind bands. These studies showed that mastery-approach goals were the only one of the four achievement goals to correlate with performance achievement. Students who were deemed less impulsive had higher performance scores than those deemed more impulsive, and higher performance achievement by those students whose practice was more strategic and goal-directed. These results suggest that using goals can be a beneficial

aid for practice sessions. The studies in question used a specific piece of music and required all participants to learn it during the sessions, giving them an automatic external aim. A focus of this thesis is whether the same findings are evident in self-run practice sessions where musicians select their own goals and repertoire.

To use time efficiently and attain goals as rapidly as possible, two things are required: motivation and self-regulation. Motivation gives us the will to perform an action, selfregulation lets us control our behaviours, environment, and cognitions to make ourselves as efficient and productive as possible. Two theoretical perspectives have been developed addressing these two factors: SDT is a theory of motivation investigating supporting natural or intrinsic tendencies to behave in effective, healthy ways and SRL examines how the personal management of thoughts, actions, and the environment feeds into the achievement of goals.

#### **Self-Determination Theory**

The motivation that individuals have to complete certain actions is the chief interest of the research that has gone into developing SDT. It was first introduced by Deci and Ryan (1985) as a meta-theory of human motivation, aiming to explain observed phenomena based on the impact that they have on people's "basic psychological needs" (BPN). As a meta-theory, SDT covers a broad subject area comprising six mini-theories that focus on intrinsic motivation, extrinsic motivation and its internalisation, causality orientations, basic psychological needs, goal setting, and relatedness. Intrinsic motivation has been studied for its relationships with positive affect (Isen & Reeve, 2005), external rewards (Hagger & Chatzisarantis, 2011; Moller *et al.*, 2012), achievement goals (Rawsthorne & Elliot, 1999) and perceived competence (Vallerand & Reid 1984). When looking at extrinsic motivation the process by which an action is internalised is a key point of study (Deci *et al.*, 1994; Deci & Ryan, 2008) as it is only with the internalisation of an action that inherent satisfaction can come from completing the action. Without this process, the completion of any action will necessarily be externally motivated.

The internal and external motivations for completing certain actions are key to the current research. If externally set goals produce a different pattern or poorer quality of motivation to those internally set, then it may be that musicians should be encouraged to set their own goals to maximise the positive motivation that is a product of having intrinsic goals. It may also be that if a teacher or organisation requires extrinsic goals, by framing them in a certain

manner the musicians can be encouraged to internalise their importance, taking on more personal responsibility and putting more effort into attaining them.

Three basic psychological needs have emerged as part of SDT: autonomy, competence, and relatedness (more details in Section 1.2.1). To foster the highest quality forms of motivation as well as enhancing performance, persistence, and creativity it is posited that these needs must be supported by the social environments experienced by the individual. Each need has its own role in motivation: competence is required for any kind of motivation to persist beyond the initial learning of an action; autonomy is required for the internalisation of the motivation leading to the manifestation of intrinsic motivation. In order to foster the highest quality of motivation all three of these needs should be supported as a unit – the support of individual needs, while beneficial, does not have a positive effect to the same extent that is evident when all needs are supported (Ryan & Deci, 2000a).

In the framework for SDT, motivation was split three categories: amotivation, extrinsic motivation, and intrinsic motivation. Amotivation is associated with a lack of regulation and an impersonal locus of causality, while intrinsic motivation is associated with intrinsic regulatory styles and an internally perceived locus of causality. Extrinsic motivation is a more complex construct as it is attached to four separate regulatory styles – external regulation, introjected regulation, identified regulation, and integrated regulation – each of which has a more internally perceived locus of causality than the last (further details in Section 1.2.2). The evidence suggests that completing tasks for their intrinsic satisfaction results in an increase in an individual's wellbeing whereas tasks completed for an extrinsic reason serve to thwart this wellbeing (Kasser & Ryan, 1993,1996). Further research has suggested that within extrinsic motivation there is a more complex set of relationships between wellbeing and motivation depending on the degree to which the regulation required for completing the action has been internalised (Deci & Ryan, 2008).

The goals people identify and pursue determine the type of motivation experienced when trying to attain them. Goals that are set by an individual for themselves are likely to carry more intrinsic motivation, leading to greater effort exerted when working towards them. Extrinsic goals, however, thwart the basic psychological needs of the individual, especially that of autonomy, and cause poorer quality of effort, leading to a lower likelihood that the goal will be achieved. In self-determination research examining the field of sport, situations

perceived as supporting basic psychological needs have been found to support wellbeing and have negative effects on amotivation and external regulation, shifting individuals towards a more intrinsically motivated state (Reinboth *et al.*, 2004; Standage *et al.*, 2005).

Many links can be made between goals and SDT, such as the implication that goals supportive of the basic psychological needs are likely to foster more intrinsic motivation and regulation styles leading to greater achievements of the goals. Those likely to thwart the basic psychological needs may lead to a lower quality of extrinsic motivation, or not support the individual's wellbeing, potentially negatively affecting it should the goal set be damaging towards competence, autonomy, or relatedness. At this stage, it is important to look at how different types of goals affect the motivational profile of individuals and how they may support or impede the basic psychological needs. Regulation styles have been discussed in relation to the different types of motivation identified in SDT. Different facets of self-regulation are now considered in more detail to examine how goals are achieved once they have been created and the motivation to complete them has been established.

#### Self-Regulated Learning

As was the case for self-determination, studies investigating self-regulation have been driven by research examining goal setting and goal attainment. SRL examines how people consciously monitor and manage their thoughts, behaviours and environment to improve their performance and reach the goals they set (McPherson & Zimmerman, 2011). SRL involves the regulation of behaviour, environment and affect (Zimmerman 1989). These three elements form a cycle (see Figure 0.1) whereby an individual monitors, directs and regulates each of them to achieve what they desire. The cycle is not, however, a simple one; Zimmerman proposed that there are two loops involved: that of strategy use, and a feedback loop. Affect and behaviour influence environment and behaviours feedback into affective regulation. The environment and behaviours feedback into affective regulation and the environment also influences behaviours. By examining this in real world situations the most effective combinations of behaviours, cognitions, and environments can be identified to improve the rate of goal attainment.

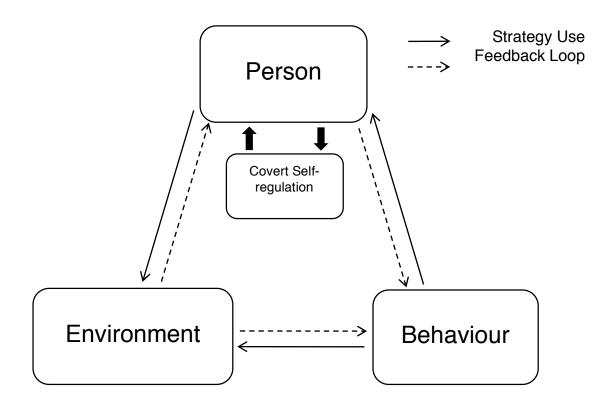
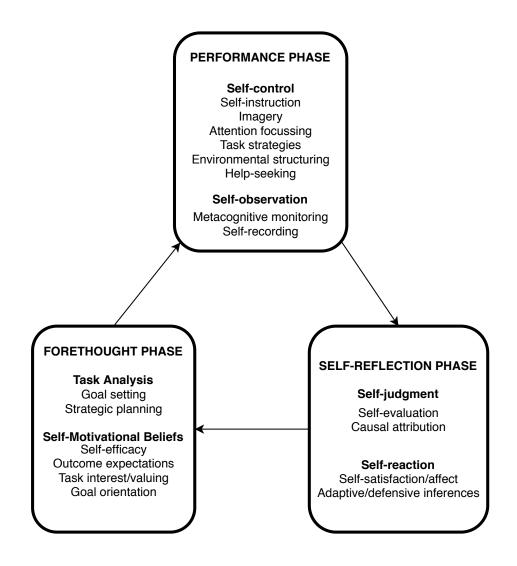


Figure 0.1 Three key forms of self-regulation in self-oriented feedback loops (Zimmerman, 1989).

While establishing the three types of self-regulation Zimmerman (1989) also examined the process of self-regulation and came up with a three-phase cyclical model (see Figure 0.2). The three phases of this model are forethought, performance, and self-reflection. Task analysis and self-motivational beliefs and values are the processes linked with the forethought stage of the cycle. Task strategies are carried out during the performance phase, which requires self-control and self-monitoring. Following the completion of an action, the self-reflection phase is then implemented to assess the extent to which strategies were productive and goals attained. Self-judgment and self-reaction are the predominant processes during this final stage, and it is from here that the cycle begins again, using the judgments attained in the self-reflection phase to inform the following goals that are projected and strategies planned to attain them during the next performance phase.





Research conducted into the self-regulation of musicians has focused on links with various other musical aspects such as long-term musical commitment (Hallam, 2011; McPherson & Renwick, 2011), practice behaviours (Araújo, 2015; Bonneville-Roussy & Boffard, 2015; Duke *et al.*, 2009; Nielsen, 1999, 2001), and epistemic beliefs (Nielsen, 2010). With the insights provided by previous research, it is now important to build on our understanding of self-regulation and how it connects to other theoretical constructs. In doing this we can start to build a picture to assess the overall costs and benefits on other elements, such as motivation, associated with different environments, behaviours, and affective states.

#### Summary

Goals, self-determination, and self-regulation are all discussed in more detail in Chapter 1, alongside the ways in which associations between them may be present. Selfdetermination and self-regulation are both processes that require time and a supportive environment to allow individuals to assimilate and internalise fully the necessity and motivation for completing certain actions. This suggests that the learning situations musicians find themselves in play a key role in the positive acquisition of autonomy, competence and relatedness, and learning strategies in relation to the act of practising and performing. Both self-regulation and motivation have been examined in relation to music students (Evans & Bonneville-Roussy, 2015; Evans *et al.*, 2013; McPherson & Renwick, 2011; Nielsen, 2010), yet there is little research that directly assesses the specific goals that musicians set for themselves, the motivation they have for achieving them, and the ways in which they attempt to do so. Research into this area could be beneficial in providing an insight into the most effective combination leading to the best outcomes and improvements in playing over the shortest period of time while supporting the wellbeing of the player.

In sum, it is straightforward to see where goals sit in the theories of self-determination and self-regulation, as both have developed from theories inspecting goal setting. What is yet to be clarified is the effect that each of these has on the others and whether changing the type of goal, motivation, or regulation components in one alters the other areas. It is this that the current research addresses, examining how different goals set prior to a practice session may lead to different motivation for practising certain repertoire, different use of strategies during the practice session, and different outcomes in terms of achievement and efficiency. The objectives of this research are to assess the most productive practice strategies used during music practice, to look at how conservatoire music students approach goals and identify whether certain methods are more effective, to examine the effect that different types of goals might have on self-regulation and motivation, and finally to examine how methods and goals change during the learning process and how this might affect the content of practice sessions over a period of time.

#### **RESEARCH QUESTIONS**

Based on the review of the literature that has been completed (see Chapter 1: A Review of Goals, Self-Determination, and Self-Regulation) the following research questions have guided the current research:

- 1. What goals and self-regulation strategies do musicians use during their practice?
- 2. How effective are the goals and self-regulation strategies used by musicians during their practice for improving performance skills?
- 3. Do goals and self-regulation strategies change at different times during individual practice sessions and over the course of the learning process required to take on a new piece of music? And if so how?

Further details regarding how and why these specific questions have been developed can be found in the first chapter of this thesis in Sections 1.1.2 (questions 1 and 2) and 1.3 (question 3). By seeking answers to these questions, it is hoped that further understanding can be found regarding the effects that different types of goals can have on musicians' motivation and self-regulation, the most beneficial and efficient ways in which musicians' practice, and the motivation that drives musicians when they practice. Injury is a common problem for all musicians, frequently experienced even before attending tertiary level education (Araújo *et al.*, 2017; Ginsborg *et al.*, 2009; Kreutz *et al.*, 2008b). It is hoped that understanding how practice can become more efficient will allow musicians to spend less time practising, reducing the likelihood of instrument-related injuries, and more time focusing on other behaviours that could benefit their physical and mental health.

#### **RESEARCH METHODOLOGY**

For the purposes of this research, a pragmatic approach using a combination of several methods was used to gather a comprehensive data set from conservatoire music students. Collecting data for this research pragmatically allowed a flexible approach to research in the real world and a focus on practical theories in which current knowledge is context-specific and not necessarily unchanging over time or populace. Quantitative and qualitative data were collected using a large-scale questionnaire, self-regulation practice diaries, video-recall procedures, micro-analytic protocols, and interviews. The questionnaire was used to gather information on facets of self-determination and self-regulation. Violinists were asked to participate in the other studies in which they filled in practice diaries based on SRL, practice sessions were video-recorded and followed by a video recall procedure, and finally, interviews were used to enable a comprehensive understanding of the concepts being researched.

The target participant group for this project was music students studying at a conservatoire for an undergraduate or postgraduate degree in performance. Data were

collected firstly using a questionnaire containing measures of BPN, internalisation of motivation, and long-term goals of musicians (Chapter 3). Data for the two following studies (see Chapters 4-8) were from the practice sessions of violinists. This is due to the relatively large numbers of violinists who attend such a course compared with other instrumental specialisms, the fact that they tend to spend a large amount of time practising per week in comparison to some other instrumentalists (professionals typically play for around 30 hours per week according to Watson, 2009), and violinists' opportunity to get involved in a wide variety of activities (such as chamber ensembles) that increase the time they are required to play. This being the case, focusing and streamlining their practice could allow more time for activities that lead to positive wellbeing.

#### CHAPTER OUTLINE

Three studies were completed for this research and Table 0.1 shows an outline of how these studies are reported in this thesis.

Table 0.1 Thesis structure.

	Chapter Title	Content
Chapter 1	A Review of Goals, Self-	Discussion of the literature around the
	Determination and Self-	three main topics of interest.
	Regulation	
Chapter 2	Methodological Review	Discussion of the methodologies used
		in research discussed in Chapter 1.
Chapter 3	Study 1, Survey	Study 1, questionnaire findings
Chapter 4	Study 2, The Goals of Violinists	Study 2, microanalysis examining the
		goals of two violinists
Chapter 5	Study 2, The Self-Regulation of	Study 2, microanalysis examining the
	Violinists	self-regulation strategies of two
		violinists
Chapters 6	Study 3, Self-Regulation	Study 3, microanalysis examining the
	Practice Diaries of Violinists	practice diaries of three violinists
Chapter 7	Study 3, Long-Term	Study 3, examining the long-term goals
	Performance Profiles and Goals	and performance profiles of three
	of Violinists	violinists
Chapter 8	Study 3, Practice Content of	Study 3, microanalysis examining the
	Violinists	practice content of three violinists
Chapter 9	Goals in Practice Discussion	Conclusions based on the results of all
		three studies and how this fits with
		other literature

# CHAPTER 1 A REVIEW OF GOALS, SELF-DETERMINATION, AND SELF-REGULATION

#### 1.1 GOALS

Man is a goal-seeking animal. His life only has meaning if he is reaching out and striving for his goals – Aristotle

Without goals there is no incentive to act or put effort into tasks, and the meaning of life is lost (at least according to Aristotle). To create meaning and motivation for actions it is necessary that they be completed in the pursuit of a goal; otherwise they are actions without purpose, designed to achieve nothing specific. When it comes to goal setting, musicians should ideally set aims in every practice session based on what they want to achieve in that time, be it improvement, consolidation, or even enjoyment of playing. These goals may be technical or musical, aimed at a performance, assessment, or generally improving the standard of playing. They can be consciously planned or not. It is possible for a musician to go into a practice session with the sole aim to "improve" but no further idea on exactly what to improve, how to do this, or whether it is the most beneficial use of time. Naturally this is unlikely to be the most efficient strategy, and the exact way that goals can be set and used in the practice of musicians to provide the greatest benefit is, therefore, the focus of this research. The use and importance of goals has been examined in other fields including business, education, and sport, and by using this research it may be possible to identify ways in which musicians can turn goal setting approaches to their advantage, enabling them to use the time they spend practising more efficiently and thus improve more effectively.

In the current research, instrumental practice is regarded as time spent with the intention of improving one's skills on an instrument. This does not necessarily require the instrument to be played as it includes practice strategies such as mental rehearsal, listening to music (if done to benefit playing skills), and analysis of scores. Judging the efficient use of these strategies focuses on whether the strategies used are the most effective in achieving the desired results in the shortest amount of time. It is expected that effective used of practice strategies will involve a wide variety of strategies being used to account for the different improvements that are desired. Use of similar strategies in all practice is expected to be less

effective as it indicates musicians are not targeting their strategy use on specific problem areas.

A number of different types of goals have been identified in the last 50 years, including possible selves (Markus & Nurius, 1986), ability-development and ability-demonstration (Dweck, 1986; Nicholls, 1984), approach and avoidance goals (Elliot & Church, 1997; Elliot & McGregor, 2001), mastery (also known as learning) and performance goals (Dweck & Leggett, 1988; Elliot & McGregor, 2001; Harackiewicz et al., 2000), and extrinsic and intrinsic goals (Ryan & Deci, 2000a) with efforts being made to understand the function these have in people's lives and the ways in which individuals try to achieve them. Important features such as the content of the goal, the person who sets the goal, and the importance of the goal have been identified and examined in the hope of understanding exactly how goals affect our behaviours, thoughts, and achievements. One of the chief ways in which this has been assessed is through directly or indirectly examining the effect that the different types of goals have on the motivation people feel to complete certain actions, and not scrutinising constitutional elements of the goals themselves (Gómez-Miñambres, 2012; Smith et al., 2007). Another way in which research has been completed is to examine the effect that different types of goals have on the achievement or performance of individuals (Latham & Baldes, 1975; Miksza, 2007). One such theory is discussed in the following section, and it directly evaluates the use of goals as a motivational technique to increase performance levels of employees in the workplace.

#### 1.1.1 Goals as a motivational technique

Gary Latham and Edwin Locke (1979) viewed goal setting as a method that could be used as a motivational technique within the workplace to increase productivity. Initially they conducted a series of laboratory studies (summarised by Locke, 1968) finding that difficult goals produced a higher level of performance than easy goals, specific difficult goals produced a higher performance level than "do your best" goals, and behavioural intentions regulated choice of behaviour. They also found that the effects of monetary incentives, time limits, and knowledge of results on task performance were mediated by an individual's goals and intentions.

The next natural step for this strand of research was to assess whether the theory that Latham and Locke (1979) had developed was applicable to real life scenarios, and so they moved their studies out of the laboratory and into the workplace. Various researchers

investigated the implications of the theory for practice and, in studies ranging from three months to two years in length, goals were found to improve the performance of employees working in a wide range of jobs including servicing soft drink coolers (Blumenfeld & Leidy, 1969), keypunch entry operators in the navy (Dockstader *et al.*, 1979), salesmen (Ivancevich, 1976), logging operations (Latham & Baldes, 1975), typing (Latham & Yuki, 1976), and ship loading and canning (Migliore, 1977). These studies looked into various aspects of goal setting as a motivational technique and support the suppositions made by Locke and Latham that for optimum improvement in productivity and achievement the goals should be challenging, and the person completing the goals should be involved in setting the goals.

The study conducted by Latham and Baldes (1975) sought to establish the practical significance of Locke's theory of goal setting, using data collected over 12 months on the weight of logging trucks. The trucks were found frequently to fall short of their maximum legal net weight as the drivers aimed to avoid sanctions for overloading, but this also drove down the profits of the company. Measurements of the weight of 36 logging trucks were taken over a period of a year; for the first three months the workers were urged to "do their best" but no further goals were set. Following this, for the next nine months, a specific goal of 94% net weight was decided upon as a difficult but achievable goal for the employees to attain. Employees were assured that no extra work was required of them, no retaliation would be made for decreases in performance, and there was no incentive other than verbal praise. Results found that the "do your best" goal condition of the first three months had negligible effects on the percentage of the legal weight that the truckers carried, remaining between 55% and 65% of capacity. Upon the enactment of the 94% net weight goal the weight carried increased dramatically and for the final six months of the study remained at over 90%. This study clearly demonstrated that specific hard goals produced a better outcome than a vague goal; however, the vague goal was completely ambiguous. Assessment of a larger constellation of goals containing different levels of specificity would greatly benefit research in this area and provide a more comprehensive understanding of the phenomenon. Another area that was not examined closely in this study was the difficulty level of the goal, as all workers were set the same percentage weight, and whether participation in the goal setting would have an affect.

It was the participation in goal setting and the effects of anticipated rewards upon which Latham *et al.* (1978) focused. Two studies were conducted, the first examining 76 engineers

and scientists and their 38 managers. The managers were randomly assigned to one of two goal setting methods (participative or assigned) and one of three incentive conditions (private recognition, public recognition or monetary bonus). Results showed that employees participating in their goal setting set higher goals on six of the eight behavioural criteria used than employees in the assigned goal condition. For the second study a third group was added to the two goal setting conditions and were asked to "do their best", a control group was also included of individuals who were not told their performance was being evaluated or that they were part of a study. The participants in the second study numbered 132 engineers and scientists, and initial performance and ability factors were accounted for in the analysis. On this occasion no significant difference was found between assigned and participative goal setting on performance or goal attainment, but only the participative goal setting condition had higher performance and goal attainment than both the "do your best" group and the control group. With regards to the three incentives, the only relationship found was that the monetary incentive produced a higher performance than public recognition. There was also a connection between actual goal difficulty and performance, which was higher than the relationship between perceived goal difficulty and performance.

This research supported the notion that goal difficulty and performance are positively related to each other and that the setting of specific goals leads to higher performance than "do your best" goals or no goals. Participation in goal setting did not directly affect the performance and goal attainment of the participants, but it did lead to more difficult goals being set and the difficulty of these goals had a positive effect on the performance outcome. It may be that only the difficulty has a decisive effect on performance, or there may be a more complex system of relationships present that is yet to be explained. Perhaps, by including the participant in the goal setting process, they took more personal responsibility for completing the goal and so set challenging goals to impress their managers, then put more effort into attaining the goal than they would have should the same goals have been set without their personal input. It could be that by discussing goals with someone they considered the requirements and planned how to achieve more difficult goals whereas, if a goal was just given to them they took on little personal responsibility to complete it and as a result did not plan or put the same amount of effort into completing the task. These relationships could get more complicated once the facets of goal specificity and actual versus perceived difficulty are included alongside participation and performance outcome and further research is required to disentangle the connections between these components.

It is important to note that the exact nature of the relationship between goal difficulty and goal specificity is unclear and further elucidation is needed on this point to understand the nature of goals as motivators. Although it is clear that hard, specific goals have been found to be the most effective in producing an increase in performance, the influence that concise easy goals or vague hard goals has is yet to be clearly determined. Further research into this theory would benefit from more detailed analysis on the effects each of these components has in real world situations so a greater understanding of the effect of goal content on goal attainment can be reached.

Yearta *et al.* (1995) sought to test the view that goals could be used as a motivational technique, describing the laboratory studies completed by Locke and Latham as not necessarily indicative of real-world scenarios in which goals are more numerous, complex, and less clearly outlined. To do this they approached the research centre of a large multinational company and recruited 132 employees and 27 supervisors as participants in their study. The organisation had implemented a goal setting procedure three years prior to the study, in which they set three goals for each employee at an annual performance appraisal review that happened roughly five months before data were collected. Questionnaires were distributed to employees, asking the extent to which they agreed or disagreed with statements relating to the goals they had been set and to assess the difficulty of each goal, the degree to which they felt they had participated in setting each goal, and their perceptions of their performance to date. Supervisors were given a similar questionnaire to complete for the employees they supervised, answering similar questions.

Results from this study showed that, although employees' ratings of goal difficulty were unrelated to supervisors' ratings of goal performance, there was a negative relationship between supervisors' ratings of goal difficulty and employees' ratings of goal performance. This relationship was also evident between the supervisors' and employees' ratings of goal difficulty and their own ratings of goal performance. In relation to the participation that employees had when setting the goals, the only relationship found was weak but positive between supervisors' and employees' ratings of participation and their own ratings of goal performance. Additional analyses were conducted into whether theoretical relationships existed when the level of agreement between the employees and the supervisors was high on the questionnaires. This once again found a negative relationship between supervisors' ratings of goal difficulty and employees' ratings of goal performance, as well as between supervisors' and the employees' ratings of goal difficulty and their own ratings of goal

performance. In this instance, however, employees' ratings of goal difficulty were negatively related with supervisors' ratings of goal performance, a finding that was not evident in the previous analysis. All correlations regarding the participation of the employee in the setting of the goals (supervisors'/ employees' ratings of participation correlated to the supervisors'/ employees' ratings of participative but weak.

While this research does not support Locke and Latham's theory to the fullest extent, it does indicate that elements of the theory are valid. Those that were considered to have greater involvement in their goal setting were found to have higher ratings of goal performance. The link between task difficulty and task achievement appears to go against the ideas put forward by Locke and Latham, as results were either not significant or there was a negative relationship between the difficulty and performance of a task. Whether this is actually the case is hard to tell without knowing the content of the goals and having an objective measurement of achievement. It is impossible to say to what extent the specificity of the goals had an effect on the achievement or whether the employee and supervisor ratings of difficulty and performance were accurate and thus firm conclusions cannot be drawn. Optimum performance enhancement using goals as a motivational technique may concern getting the balance whereby goals are neither too hard and thus seen as unattainable, nor too easy so that they do not push the individual to try and work to the best of their ability.

In short, evidence has been found both for and against the theory put forward by Latham and Locke (1979) that hard goals produce a higher level of performance than easy goals; specific hard goals produce a higher performance level than "do your best" goals, and behavioural intentions regulate choice of behaviour. It is not clear how these components are related, if they are at all, and to what extent the situation has an impact. With regards to the difficulty of goals set one factor that has been relatively ambiguous is the idea of performance and goal attainment, including which of these is of the most importance. Hard goals may not lead to a significantly higher achievement level than easier goals (Yearta *et al.*, 1995), but it may be that they lead to a significant increase in overall performance (Latham & Baldes; 1975) that is desirable even if the actual goal is not necessarily achieved.

Based on the results found in these studies Locke and Latham published a book, Goal Setting: A Motivational Technique That Works (1984) in which they outlined seven steps to optimal goal setting in the workplace. These were:

- 1. Specify the general objective or tasks to be done.
- 2. Specify how the performance in question will be measured.
- 3. Specify the standard or target to be reached.
- 4. Specify the time span involved.
- 5. Prioritise goals.
- 6. Rate goals as to difficulty and importance.
- 7. Determine coordination requirements.

Although these steps were outlined based on a manager and employee setting goals together to improve performance and productivity in the workplace, they can also be applied to musicians' practice and used to assess the quality of the goals being set. Ensuring musicians participate in the setting of their personal goals, especially during their education, could be a valuable strategy for teachers to use in order to improve the motivation a musician has to improve on their instrument as well as the ability to set themselves highquality goals; using a framework such as the steps outlined could be a beneficial way to approach this. Although the optimum level of difficulty is not clear-cut and easy to define, it is likely that any goals set should be challenging but within the musicians' capabilities so they feel able to complete the task. The difficulty is likely to vary for each individual, depending on level of expertise, so it is important to understand the fluidity of this approach and set goals accordingly. Whether these findings could be applied on a broader scale to an organisation such as an orchestra or opera company would be interesting but focuses on the goals set by an external party and not those set by the individual, which is the particular focus of the current research and so individual practice is chiefly what has been examined. There are few instances in which the goals of musicians have been studied and so the present research aims to go some way to filling this gap in the literature. Discussed next is some of the limited research that has been completed into this field.

# 1.1.2 Musician's Goals

Miksza (2007, 2009, 2011) has undertaken systematic studies in music dealing with the practice behaviours and achievement of high school wind players focusing, in part, on the goals they set themselves. This research was completed using the framework of achievement goal theory developed by Elliot and McGregor (2001) and extended the dichotomous view that goals were either mastery/learning (intrapersonal) or performance (normative) based to a 2x2 model that included the valence of a goal examining the intrinsic attractiveness (positive valence) or averseness (negative valence) of a situation (see Figure

1.1). The valence of goals was concerned with whether goals were framed in terms of a positive, desirable possibility (approaching success) or a negative, undesirable outcome (avoiding failure).

		Definition	
		Absolute/intrapersonal	Normative
		(mastery)	(performance)
Valence	Positive (approaching success)	Mastery-approach goal	Performance- approach goal
	Negative (avoiding failure)	Mastery-avoidance goal	Performance- avoidance goal

Figure 1.1 A 2x2 achievement goal framework (Elliot & McGregor, 2001).

In these studies, the following practice behaviours were examined: repeating a measure (bar), repeating a section, whole-part-whole, chaining (playing segments of music and systematically adding segments that appeared before or after original segment), repeating the étude, slowing, varying pitch, varying articulation, varying rhythm, non-étude-related playing, singing or whistling, use of metronome, and marking the part. Miksza (2007) asked 60 students from high school band programmes to learn an étude over three practice sessions that were recorded and analysed for the frequency of specific behaviours. Data regarding the more general practice habits of the students was also collected. The students played a variety of wind instruments but were asked to learn the same piece. The results showed a large variety of general practice habits widely ranging in length and content with a mean of 36.88% of practice time spent on informal practice and 61.77% spent on formal practice. 78.3% of students reported practising for one session each day, 5% reported not practising, 8.3% reported that they practised twice a day and 3.3% practised three times a day.

Miksza also asked the students to rate their practice efficiency during the sessions in which they learned the étude, resulting in an average score of 6.82 on a ten-point scale, indicating that the students only considered their practice to be moderately efficient. In relation to learning the étude the performance achievement scores increased from a mean of 50.00 on day one to 58.04 on day three. Students who reported greater percentages of

informal practice tended to have lower achievement scores than those reporting greater amounts of formal practice. The practice behaviours showed some significant links to the outcome of the study: repeating sections was significantly related to pre- and post-test performance achievement scores on days one and two (p<.01); slowing was significantly related to pre-test performance achievement scores on days one and two (p<.05); wholepart-whole behaviour significantly related to pre- and post-test achievement scores on days two and three (p<.01); and significant correlations were found between practice efficiency ratings on day one and achievement scores at each time point (p<.001). These results show that the quality of practice had more affect on the improvement of the students' performance scores than the amount of time spent playing.

Following this study, Miksza (2009) studied the music practice of high school wind players by examining the relationships between impulsivity, achievement goal motivation, and practice behaviours. Once again the study consisted of high school band students asked to learn an étude over three practice sessions. Repeating a bar and repeating a section were both found to be apparent in all of the practice sessions and slowing was calculated to be evident in 95% of the sessions. The less common behaviours exhibited in the sessions were chaining, repeating the étude, varying musical element (pitch, articulation or rhythm), nonétude-related playing, singing/whistling/buzzing, and use of the metronome, which were present in less than 50% of the practice sessions. Relationships were found between performance-approach and performance-avoid orientations as well as between masteryapproach and mastery-avoid orientations. Weak interactions were shown between masteryapproach and performance-approach, and mastery-approach and performance-avoid orientations. Mastery-approach goals were the only sub-scale on the 2x2 framework to relate to performance achievement doing so on day one (pre-test), two (pre- and post-test), and three (pre-test). As there was a high degree of relationship between the approach and avoid dimensions of both the mastery and performance scales, composite mastery and performance scales were used for analysis of data and possible influences of the approach and avoidance dimensions were not examined. The only relationship between practice behaviours and these composite scales found was between mastery and duration of practice.

The same relationships between impulsivity, achievement goal motivation, and practice behaviours was examined, this time focusing on the population of college wind players (Miksza, 2011). 55 participants took part in the study in which they were again asked to learn

an étude and improve as much as possible in a 23-minute time frame. They were asked to sight-read the piece at the beginning of the session and play it through completely at the end of the session so that analysis could be done regarding the improvement made over the practice period. Multiple practice behaviours were observed, and Figure 1.2 shows the percentages of students who adopted each technique. Repeating the étude and non-étude related playing were both evident in all of the participants' practice sessions. Repeating bars, repeating two to four bar chunks, varying the rhythm, and use of a metronome were used by 90% or more of the participants. These results demonstrate a dramatic increase in the frequency of non-étude-related playing, repeating the étude, varying the rhythm and use of a metronome behaviours in comparison with the high school students (Miksza, 2009).

The general practice sessions of the college students were different from those of the high school students in the previous studies. The average length of their practice sessions was 70.09 minutes, over half an hour longer than the 33.42-minute average of the high school students, and each day they averaged a total of 141.27 minutes (although this was largely varied throughout the sample), spread over an average of 2.38 sessions, a substantial increase over the majority of high school students who only completed one practice session a day. The majority of time was spent focused on a specific musical or technical goal (86.51%) with only 11.31% of the time reported to be spent without such a goal in mind. Their self-reported practice efficacy was lower than the high school students in the previous studies averaging at 5.44 on the 10-point scale. In relation to the 2x2 framework the highest mean score was mastery-approach goals at 61.33 followed by mastery-avoidance (50.07), performance-approach (44.62), and performance-avoidance (41.95). No significant interaction effects were found between the four types of achievement goal. Negative relationships were found between "chaining" behaviour and both performance-approach and performance-avoidance goals. Impulsivity was found to have the effect that less impulsive individuals had higher performance achievement scores and the more impulsive students were less likely to exhibit strategic practice behaviours. The results suggest that higher performance achievement scores were attained when the practice of the students was more strategic and goal-directed and less impulsive.

Within his research Miksza provides a solid base on which to build research into the manifestations of goals in musicians. The practice strategies that have been identified can be compared to future findings in the observation of practice behaviours looking for similarities and differences over the learning process. For further research in this area, larger

populations need to be sampled varying the age, instrument, and repertoire from that used by Miksza in order to examine age related differences and instrument- or piece-specific factors. In relation to the 2x2 framework proposed by Elliot and McGregor (2001) the results from the studies conducted by Miksza do not convincingly support the application of the model to musicians. Data collected provides evidence for the constructs of mastery and performance; however, the distinct dimensions of approach and avoidance within mastery and performance goals were not evident in the results. It may be that the 2x2 model is not applicable to musicians and that there are other, more suitable, categories of goals that can be identified in the inspection of practice sessions. As such part of the research for this thesis includes the examination of the different goals set by musicians and how they may alter the effectiveness of a practice session (see research questions 1 and 2).

Given the above it is evident that research into achievement goals is far from conclusive in explaining how the type of goal set affects the outcome of striving for the goal. Although the 2x2 framework endorsed by Eliot and McGregor may not fit with musicians' goals, the findings of Miksza are still of interest to the present research as the population of musicians have been so infrequently examined. The application of goals as a motivational technique (Latham & Locke, 1979), could yield interesting results in a population of musicians, especially those still in education. Most of the work that was conducted in this field observed how goals set by management could affect the productivity of the employees, a scenario that could easily be transferred into the learning context with teachers setting goals for students. Some allowances would have to be made to account for the fact that often musicians at higher levels have more than one teacher, and they tend to be their own manager in terms of their private practice and so do not have the same input from another person setting them personal goals to achieve on a day-to-day basis. It could be that they are set goals by their teachers during earlier learning stages and then encouraged to start setting their own, adapting the model demonstrated by the teacher to ensure they set suitable and productive goals for themselves.

Practice behaviours observed	Agreement
Repeat measure: Repeats a measure, or part of a measure, in which an error	98%
may or may not have occurred without correction	
Repeat two to four measure chunk: Repeats a section between two- and four-	94%
measures in length in which an error may or may not have occurred without	
correction	
Repeat four to eight measure chunk: Repeats a section four- and eight-	67%
measures in length in which an error may or may not have occurred without	
correction	
Repeat slow or fast section of the form: Repeats the whole slow section after	86%
completing previous practice (ms. 1-16) or repeats the whole fast section after	
completing previous practice (ms. 17-end)	
Repeat étude: Repeats the whole piece from the beginning after completing	100%
previous practice of the entire piece	
Whole-part-whole: Strategically isolates a phrase or unit of any kind, breaks it	89%
down into smaller parts and then recombines	
Chaining: Playing a segment of music and systematically adds segments that	83%
appear either before or after	
Slowing: Isolates a section or unit of any kind and slows the tempo down	78%
beyond that in which it was initially attempted	
Varying pitch: isolates material and plays on a pitch other than that which is	64%
printed, e.g., transposed up or down, held pitch constant (unintentional	
playing on the wrong partial is not counted)	
Varying articulation: Isolates material and plays with an articulation that is	81%
clearly other than that which is printed, e.g., slurred instead of tongued or vice	
versa	
Varying the rhythm: Isolates material and plays the material at a rhythm that is	90%
clearly other than that which is printed	
Non-étude-related playing: Plays melodic or rhythmic music not associated	100%
with the étude used in the study, e.g., another work, improvised material,	
warm-up slurs and patterns, etc.	
Singing/whistling/buzzing: Sings, whistles or buzzes on a mouthpiece a	74%
passage either melodically or rhythmically for any length of time	
Use of metronome: Uses an audible metronome device to aid playing	90%

Figure 1.2 Definitions and percentage of students using practice behaviours (Miksza, 2011).

Achievement goal orientations were also considered in research by Nielsen (2008a) examining a population of first year conservatoire students. A questionnaire was used to establish relationships between achievement goal orientations, instrumental achievement, and learning strategies. Three achievement goal orientations emerged from the data which were ability-approach (aiming to outperform others), ability-avoid (aiming to avoid looking incompetent), and task goals (focus on self-improvement and mastery of repertoire). Of these the conservatoire students tended to be oriented towards the ability-approach and task goals. Those oriented towards task goals were more likely to be cognitively, metacognitively, and socially involved with their learning than those with either of the other goal orientations, and those with an ability-avoidance goal orientation had a negative relationship with learning strategies. This demonstrates that students with a focus on personal mastery demonstrated better use of learning strategies than those aiming to be better than their peers or aiming to avoid looking incompetent, therefore to improve use of practice strategies one aim could be to encourage musicians to set mastery focused goals.

Research focusing on the practice and rehearsal of small ensembles (Ginsborg, 2017) found that goals varied depending on the nature of the group, the kind of performance being prepared for, the time available for practice and rehearsal, and the point that had been reached within the timeframe. Individuals tended to base their goals around basic elements while ensemble rehearsal elicited goals based on ensemble issues such as unanimity of sound. One of the key things demonstrated in this research related to the success or failure of the group. It was suggested that individual members in groups tended to have shared goals and identities when at the formation of a group, however these diverged approaching performances having the potential to cause problems within the group, and if not handled with appropriate strategies, lead to the group breaking up. Although the research discussed within this thesis does not focus on group practice it is interesting to see that when goals are not aligned relationships between individuals can be strained relating to the activity being performed.

As little research has been done into the goals of musicians it is worth examining one further example of research into goals in the business world as it ties in with research into goals and motivation which are key factors in this thesis. McClelland *et al.*, (1953) examined motivation to complete goals in the business world but from a different perspective to that of Locke and Latham. They developed a theory based on human motivation in which they identified three motivators viewed as common across all people; achievement, affiliation,

and power. They held that one of these motivators would be dominant for each individual depending on the environment and experiences of that person and that this dominant motivator would induce different characteristics in the person. For example, those with a dominant need for achievement would be characterised by a strong need to set and accomplish realistic but challenging goals, taking calculated risks to accomplish these goals, and an appreciation of both positive and negative feedback related to their progress and achievement. Those with a dominant need for affiliation are characterised as wishing to belong to a group and often willing to go along with the desires of the rest of the group over their own personal desires, they prefer collaboration to competition, and high risk or uncertainty are looked upon unfavourably. Finally, when a dominant need for power is evident, McClelland held that common characteristics are the desire to control and influence others, enjoyment of competitions and winning, and the appreciation of both status and the recognition of others. This theory was developed in the business world in order to maximise the motivation of employees in the same way that Locke and Latham's work was used. The structure enabled managers to ask guestions when interviewing applicants that established their dominant need and assign jobs accordingly to ensure maximum motivation and performance.

By establishing a clear way of dealing with different needs, this theory enabled managers to have a relatively solid structure on which to base decisions and ways to encourage the most positive forms of motivation in their workforce. It is also a malleable theory as it holds that the needs are based mostly on the life experiences and environment of the individual, allowing for different needs to be dominant in different situations. It is, however, flawed in that it encourages people only to deal with the dominant need that is apparent, despite saying that everyone has all three needs to some extent. In providing a firm structure that is easily applied in the workplace the nuance required to balance an individual's needs is lost and they are grouped in boxes, rather than acknowledging their personal constellation of needs that all require attention. In this instance "achievement" is referring to the work they accomplish and not, as was the case with the needs, their characteristics and the manner in which they are best motivated. The type of achievement that is aimed for is not clarified and further research into this is required to elucidate the effect that changing the desired achievement might have on the quality of people's motivation.

The idea of innate characteristics determining the motivation people have to complete tasks is of interest to the current research and, while McClelland's theory is not necessarily

the most suitable for the current population of interest, there is another theory of human motivation that holds people have three basic psychological needs determining the extent to which the motivation for enacting certain behaviours is internalised by an individual. This theory is self-determination theory and is founded upon research conducted into goal setting and attainment.

# **1.2 SELF-DETERMINATION THEORY**

Self-determination theory (SDT) is a meta-theory developed by Edward Deci and Richard Ryan (1985) in order to study and understand human motivation and personality. It begins with the assumption that humans are active and have evolved with tendencies toward growing, mastering ambient challenges, and integrating new experiences into a coherent sense of self (Deci & Ryan, 2000). These tendencies, although part of natural human development, are not independent of social context and, to assess the interaction, three basic psychological needs (BPN) were posited: autonomy, competence and relatedness. The theory states that each of these needs should be nurtured and supported in order to foster volitional, high-quality motivation that can lead to enhanced performance, persistence and creativity in individuals or groups (Deci & Ryan, 2000). Thwarting BPN has a detrimental impact upon motivational quality, which can then mean an individual's full potential is not reached. The theory discusses the importance of these needs as well as the conditions in which they are nurtured or thwarted by the social and cultural environment.

## **1.2.1 Basic psychological needs**

Needs in SDT are described as "innate psychological nutrients that are essential for ongoing psychological growth, integrity, and well-being" (Deci & Ryan, 2000, p. 229), and it is presumed that there is a fundamental human trajectory towards integration and health that will be realised, providing BPN are supported. Should these needs be thwarted in a specific situation, it will give rise to non-optimal functioning, and as a result motivation and achievement are negatively affected. The strength of these needs in people is not prescribed in the theory as it is suggested that this is likely to differ between situations and individuals based on previous experiences (Deci & Ryan, 2000), and it is more important to study the effects of supporting or thwarting them than to quantify their exact values. To do this, it is important to examine exactly what each of these needs is and the ways in which they affect psychological wellbeing.

The need for autonomy is the need individuals have to experience their behaviour as volitional and reflectively self-endorsed (DeCharms, 1968). People act autonomously when they act as initiators of their own behaviour, willingly putting time and energy into an activity. Deci et al. (1999) completed a meta-analysis of 128 studies that examined the importance of autonomy in relation to intrinsic motivation and findings showed monetary rewards and contingent tangible rewards undermined intrinsic motivation. Other studies have also found that external pressures to complete a task can have a negative effect on intrinsic motivation. For example, in examining the effects of evaluation (Harackiewicz et al., 1984) and rewards (Hagger & Chatzisarantis, 2011; Harackiewicz, 1979) it was found that the imposition of these on individuals led to the undermining of intrinsic motivation, whereas by giving people a choice of activities (Zuckerman et al., 1978) intrinsic motivation was enhanced. This could be due to the external pressures of deadlines and rewards creating an externally perceived locus of control in relation to an activity, as opposed to the internally perceived locus of control that is generated by providing a choice. The idea of internally and externally perceived loci of control has been discussed in detail by DeCharms (1968) who describes activities that are performed volitionally and spontaneously by those who feel free to do something for the innate interest that it holds, as having an internally perceived locus of causality. External incentives for completing a task are described as controlling of an individual's actions, meaning the locus of causality becomes external to the self and intrinsic motivation is undermined.

In a musical setting, autonomy supportive environments could be as simple as enabling students to make their own decision with regards to the pieces they play or the structure and timing of their practice sessions. Renwick and McPherson (2002) demonstrated the importance of personal choice in a case study of a nine-year old clarinettist who, when allowed to choose her own piece, spent over twelve times longer practising per note than she spent on any of her other pieces. Not only did the time spent on practising increase, but her persistence increased and she used more varied techniques during the time she practised her self-selected piece. The participant reported in an interview that her intrinsic interest in the piece was a strong motivator to practise it, unlike the other music she was learning which she did not have the same personal enthusiasm to master. While older students may or may not find it easier to imbibe the necessity and interest of pieces that their teachers select for them, the promotion of this sense of autonomy in music selection is likely to have a positive effect on their intrinsic motivation to practise and master pieces.

The need for competence is the need to effectively enact behaviours and feel capable of achieving certain actions. It is closely linked to the idea of self-efficacy discussed by Bandura and Cervone (1983), which is the realistic belief that one can accomplish a task or succeed in a specific situation. It evolved as an adaptive advantage in humans, as those who could best negotiate and control their environment were able to locate and hunt food, and avoid danger more successfully than those less competent (Elliot *et al.*, 2002). Research has found that positive feedback enhanced intrinsic motivation of individuals in comparison to no feedback (Deci, 1971; Deci & Vansteenkiste, 2004), and that negative feedback decreases intrinsic motivation relative to no feedback (Deci & Cascio, 1972). It has been suggested that this is because positive feedback satisfies the need for competence, whereas negative feedback thwarts that need (Deci & Ryan, 1980). Competence has proven to be positively linked to intrinsic motivation in a study by Standage *et al.* (2006), which also found it to be the main predictor of self-determined motivation in a secondary level physical education setting.

The last of the three needs, relatedness, is the experience of having satisfying and supportive social relationships with a strong sense of connection to others, as well as feelings of belonging and acceptance by those one is socially connected to (Baumeister & Leary, 1995). Within music research, it is suggested that the most influential relationships are those between parents and children, and teachers and students. Parents have a strong influence over the early musical experiences children have, such as the types of music they listen to and its uses in day-to-day life, providing monetary support to buy instruments and pay for lessons, the support required in taking a child to lessons, performances or exams, and encouraging them to practise (McPherson, 2009). Teachers also form a close relationship with their students and are looked up to as an authority figure when the student needs help or advice on anything related to their instrumental playing and even health factors (Williamon & Thompson, 2006). But it is not just these relationships that shape the interest and motivation of young musicians. Friends can have a strong influence on motivational quality and time spent practising, as well as other role models, and the opportunities available in the educational system. Feeling connected to, and supported by a larger group of musicians and non-musicians is of key importance to foster inherent interest and maintain a strong motivation to practise.

The need for relatedness is also centrally important for the process of internalisation (Ryan & Deci, 2000a) as numerous behaviours are encouraged or modelled from various

influential people in an individual's life. While these tasks may not be inherently interesting to the individual initially (practising scales for example!), the importance placed on them by significant others can help the individual to internalise the necessity and value of the task. If an individual does not feel attached or related to the person encouraging or demonstrating the behaviour, then it is much less likely that the individual will identify and internalise the motivation to complete the action for the inherent satisfaction of doing so. The importance of relatedness, regarding motivation for completing actions, has been clearly demonstrated even at a young age in studies of mothers and infants including work examining infant attachment (Ainsworth, 1979) and the transmission of musical interest between parents and children (Custodero & Johnson-Green, 2003).

Although the support of each individual need is important to improve wellbeing and performance, Ryan and Deci made clear that the constellation of needs supported in certain activities was of the utmost importance. For instance, feelings of competence were found to enhance intrinsic motivation only when accompanied by a sense of autonomy (Ryan & Deci, 2000a). This is because each of the needs play a separate role: competence is required for motivation to be present in any form, especially beyond the initial learning of a new action; autonomy is necessary for the motivation to become intrinsic; and relatedness is important in the maintenance of intrinsic motivation (Deci & Ryan, 2000). All three should be individually supported to promote the highest quality of intrinsic motivation as the neglect or thwarting of one need will lead to a lower quality of motivation that cannot be recompensed by greater support of the other needs.

### 1.2.2 Motivation

Motivation is the most integral part of SDT, and the way intrinsic motivation can be promoted by supporting BPN has been discussed in much detail. Intrinsic motivation is the inherent human tendency to seek out novelty and challenges, to extend and exercise one's capacities, and to explore and learn (Deci & Ryan, 1985). Having intrinsic motivation to perform an action means that the action itself is found to be inherently enjoyable and is undertaken without the need for external encouragement. For these reasons, it is viewed as the optimum form of motivation in humans, as intrinsically motivated activities require no outside encouragement or pressure to be completed. There are different ways to talk about motivation in relation to SDT and it should be noted that, in this instance, type and quality are both used. The type of motivation refers to amotivation, extrinsic motivation, or intrinsic

motivation. The quality of motivation is assumed to be poorest in amotivation, increases in extrinsic motivation, and is of the highest value in intrinsic motivation.

Cognitive Evaluation Theory is one of six mini-theories contained within SDT that each focus on different aspects. Intrinsic motivation is the primary focus of Cognitive Evaluation Theory, and it pays particular attention to the specific factors that explain the variability between individuals (Deci & Ryan, 1985). These factors are the social and environmental contexts in which people live and they can facilitate or undermine intrinsic motivation. Social-contextual events that conduce towards feelings of confidence during completion of an action will enhance the intrinsic motivation for the action being performed, whereas feelings of doubt will undermine it. Other factors that have been found to facilitate the development of intrinsic motivation are optimal challenges, effectance-promoting feedback, and freedom from demeaning evaluations. Connecting these factors with basic psychological needs, it is clear to see that an individual's perceived competence is important within this mini-theory as it mediates the extent to which the factors facilitate intrinsic motivation. If a person does not feel they are competent when completing an action then their intrinsic motivation will be undermined, as they are likely to believe that the task is too hard and that they will not be able to complete it successfully.

Extrinsic motivation is where an action is performed in order to attain some separable outcome such as to earn a reward or to avoid failure. It is often accompanied by an externally perceived locus of causality, although the degree of autonomy within the task can be greater or lesser depending on the action itself. Organismic Integration Theory is the mini-theory primarily concerned with the properties, determinants, and consequences of extrinsic motivation (Deci & Ryan, 1985). It argues that actions can all be internalised to different degrees, which, in turn, leads to varying degrees of autonomy experienced for the specific task. The theory postulates that there is a continuum of internalisation, with greater internalisation leading to greater autonomy, and the regulation for an action moves from external regulation, through introjected regulation and identified regulation, to integrated regulation (see Figure 1.3). Integrated regulation is the most internalised form of extrinsic motivation in which the importance of the action is identified and assimilated to other parts of the self, such as other intrinsic goals. Identified regulation is that in which a behaviour is identified as important in relation to the self and is thus undertaken willingly by the individual without need for further external pressure. Within introjected regulation rewards and threats are still imposed by the self, but the behaviour is imposed by an external factor and not

assimilated to other aspects of the self. External regulation is the poorest quality of regulation encompassed in extrinsic motivation as it is a behaviour that has been enforced by an external source, only carried out for the achievement or avoidance of something external to the self, with no part of the behaviour being integrated and understood as personally important to the individual (Evans, 2015).

In the instance of extrinsic motivation the perceived locus of causality is important, and once again varying, as it is usually from a source outside of the individual as opposed to the internally perceived locus of causality that is inherent in intrinsic motivation. Having an external cause for an action leads to a thwarting of the basic human need for autonomy as a person could easily feel that the only reason they are doing something is because they have been told to, not because they want to. Several studies have shown the negative impact that rewards can have upon the autonomy of an individual (Hagger & Chatzisarantis, 2011; Zuckerman *et al.*, 1978), so while positive feedback is supportive of intrinsic motivation (Deci & Vansteenkiste, 2004), a reward can often thwart an individual's need for autonomy and thus hinder the development of extrinsic motivation.

A final type of motivation that is recognised by SDT is that of amotivation, where an individual has no enthusiasm or motivation to complete a task. In this state, a person's behaviour lacks intentionality and they can feel that the activity they undertake has no personal value, that they do not feel competent in completing the activity, or they do not believe that the outcome will be that which they desire (Ryan & Deci, 2000b). There is little research that focuses on this facet specifically as it generally leads to tasks not being completed and the focus of most research in this area looks at why people do complete certain actions or how motivation can be improved to facilitate the completion of certain actions.

It is worth briefly outlining the four other mini-theories that are encompassed in SDT: Causality Orientations Theory describes people's tendencies to orient their environment and behaviour in specific ways; Basic Psychological Needs Theory concentrates on the links between the basic needs, and health and wellbeing; Goal Contents Theory examines the impact of intrinsic versus extrinsic goals on motivation and wellbeing; finally, Relationships Motivation Theory concerns itself with the effect relationships can have on all of the basic psychological needs. It is the combination of these areas that create SDT as a meta-theory, and all lend something to the exploration and explanation of motivational quality. A key

consideration in several of the mini-theories is the link between the subject matter and health and wellbeing. The theory is primarily interested in promoting healthy ways of managing behaviour and striving to achieve aims to produce the best quality of motivation. This suggests that self-determination theorists believe anything that is not conducive towards good health and wellbeing does not promote good quality motivation. It may be that some less healthy motives for completing actions are effective in producing motivation or achievement, but are not sustainable over time, lead to unhealthy habits, or tend towards extrinsic rather than intrinsic motivation. Good health and wellbeing are important for people's day-to-day lives and should be supported in the activities that they undertake so encouraging motivation that promotes this is likely to lead to a healthier lifestyle.

There are several fields in which research has been carried out to establish the best ways to foster intrinsic motivation including in the business world. Stone, Deci and Ryan (2009) are one example of this with their study examining the need for autonomous motivation in the workplace focusing on the way managers can promote it in their employees. The importance of employees having intrinsic interest in their work was examined for the longerterm benefits it could bring and six steps managers could take to foster the creation of enduring autonomous motivation in their employees were proffered. These six steps were: ask open questions and invite problem-solving participation; actively listen and acknowledge employee perspectives; offer choices within structure including the clarification of responsibilities; provide sincere, positive feedback that acknowledges initiative, and factual, non-judgmental feedback about problems; minimise coercive controls such as rewards and comparisons with others; develop talent and share knowledge to enhance competence and autonomy. Primarily these steps focus on satisfying the need for autonomy by giving the employee more opportunity to control their working environment and have an input into what they do. As discussed previously, it is important that all three needs are satisfied; as such, these six steps should also include points that focus on supporting the needs of competence and relatedness for optimal encouragement of intrinsic motivation. By actively listening and acknowledging employee perspectives managers can foster a positive relationship between themselves and their employee; the provision of sincere feedback acknowledging initiative and non-judgmental feedback about problems supports an individual's need for competence. Although this study took place in the workplace it is easy to see how these steps could be modified in a music setting. Given the impact that teachers can have on their students' motivation, working with a set of steps such as these could encourage them to support the

basic needs of their students and thus facilitate the adoption of autonomous, intrinsic motivation.

Duda and colleagues completed research in the field of sport using SDT, examining young people and students in secondary level education. These studies found that positive relationships are evident between need satisfaction and wellbeing (Reinboth *et al.*, 2004), and that need-supportive environments had direct positive effects on intrinsic motivation and introjected regulation, as well as indirect positive effects on concentration, positive affect, and preference for challenging tasks. Need-supportive environments were found to have direct negative effects on external regulation and amotivation, and indirect effects on feelings of unhappiness (Standage *et al.*, 2005).

Coaches are an important part of fostering and supporting the needs of young people with perceptions of the coach as autonomy supportive, mastery focused, and assisting in emotional support respectively found to be positive predictors of autonomy, competence, and relatedness within teams (Pelletier *et al.*, 2001; Reinboth *et al.*, 2004). It is interesting that mastery focused coaches are positive predictors of competence, as in the previous section on goals mastery goals were found to encourage intrinsic motivation, persistence and engagement whereas performance goals fostered failure-avoidance motivational patterns (Elliot & McGregor, 2001; Miksza, 2009).

Whether goals set effect the type of motivation or the motivational type effects the goals set is likely to be dependent on the situation. Externally set goals are necessarily going to involve an element of extrinsic motivation as they have not been chosen by a person for their inherent interest, whereas personally set goals are likely to foster intrinsic motivation. If a person has intrinsic motivation to complete a task it could be that they are more likely to set goals that are mastery oriented and those who are extrinsically motivated tend towards setting performance goals. To what extent this is the case is yet to be firmly established and so part of the present research aims to clarify some of the links between these two areas. It is likely that these two facets have a type of symbiotic relationship in which aspects of each make certain aspects of the other more likely to occur.

#### Behaviour Non-Self-Determined

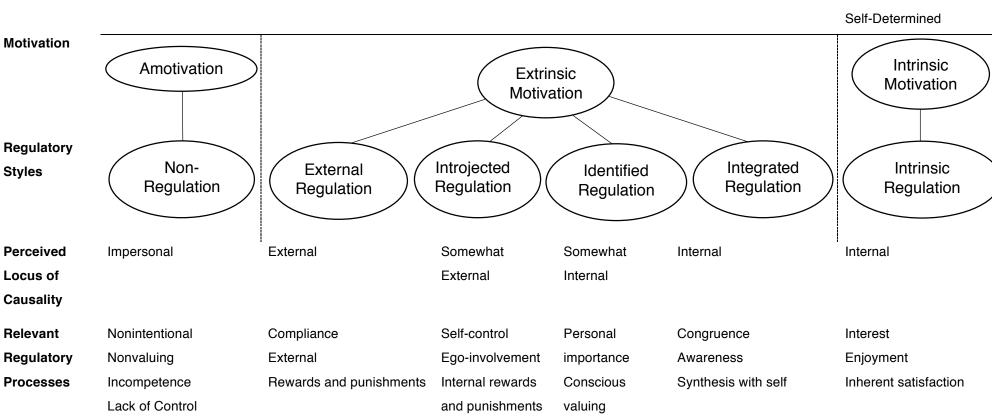


Figure 1.3 The self-determination continuum – showing types of motivation with their regulatory styles, loci of causality, and corresponding processes (Ryan & Deci, 2000).

Very little research has been conducted relating to SDT in the population of musicians. One paper that examined this area focused on university music students, considering how need fulfilment and autonomous motivation within the learning environment explained context-specific affect and behaviour (Evans & Bonneville-Roussy, 2015). Findings showed that psychological need satisfaction predicted autonomous motivation, which in turn predicted practice frequency, frequency of high-quality practice, and preference for challenge. Affect measures correlated with need satisfaction and motivation variables but not practice variables. This is in line with findings in other populations as BPN satisfaction predicted motivation, and motivation predicted all elements of practice that were measured. The finding that autonomous motivation predicted preference for challenge also relates to the suggestion in Locke and Latham's goal setting theory that involvement in goal setting leads to more challenging goals being set.

In summary, goals and motivation alone are not enough to ensure that an action is successfully completed; there is a third stage that is important for the maintenance of behaviour. Once a goal is set and the motivation to complete it is accepted by an individual, then the process of regulation becomes important to allow the goal to be attained. Regulatory processes are discussed in SDT and different types are linked to intrinsic and extrinsic motivation (see Figure 1.3) – however, this only goes a short way into the regulation used by people when seeking to achieve goals and aims. Self-regulated learning looks in detail into the ways people consciously manage their behaviour, thoughts and feelings to reach goals, and it is to this theory that we turn next in our exploration of the literature. The theory examines cognitive, behavioural and environmental factors in order to understand how goals are approached and why in some situations they are completed successfully and in others they are not. By looking at the most productive methods used to achieve an aim we can begin to understand how different actions, thoughts and environments effect our learning ability and what techniques to use to realise our full potential in a particular sphere.

### **1.3 SELF-REGULATED LEARNING**

Self-regulated learning (SRL) was promoted by Albert Bandura in his work looking at social cognitive theory and advanced greatly by Barry Zimmerman in subsequent research. From a social cognitive perspective, self-regulation is founded upon the goals that people set themselves and viewed as an interaction between personal and cognitive factors, behaviour, and environmental events (Bandura, 1986). Bandura argues that both knowing

how one is doing without the presence of a goal and adopting a goal without knowing how one is doing, have no lasting motivational impact, as both goals and performance feedback are required to create durable motivation (Bandura, 1991). This has been shown in studies such as that of Bandura and Cervone (1983), who examined the effect of goals and feedback over three physical activity sessions on 90 psychology students split into one of four conditions: goals and feedback, goals alone, feedback alone, or neither. Those in the goals and feedback condition performed better than those in any other condition, while there was little difference between other groups. This ties in with the findings of research into SDT that has shown positive, effectance-promoting feedback supports intrinsic motivation (Deci & Vansteenkiste, 2004) and satisfies the need for competence (Deci & Ryan, 1980). In this study the type of feedback was not varied, so differences between positive and negative feedback cannot be clearly judged; the feedback that was presented to the participants told them that they had achieved a 24% positive improvement on their previous session. Theoretically this shows that positive feedback alone does not account for improvement in performance, as those in the feedback only condition did not improve over those in the control group – it took the presence of goals as well to produce a significant improvement.

The psychological sub-functions Bandura endorsed as operators of self-regulation were those of self-observation, judgement process, and self-reaction. Self-observation focuses on performance dimensions such as quality, productivity or originality, and the quality of the monitoring including regularity and accuracy. The second sub-function, judgmental process, examines the effect personal standards, referential performances, valuation of the activity, and performance determinants have on self-reactive influences. Finally, self-reaction is split into three categories: evaluative self-reactions, tangible self-reactions, and no self-reaction, based on the outcome of the preceding self-regulatory processes (Bandura, 1991). An important element of the theory is that self-regulation is a conscious process through which actions are directed to attain goals. The system structure presented shows this to be important as the quality of the monitoring is a key part of the first sub-function, the valuation of an activity plays an important role in the second, and in the third evaluative self-reactions require conscious consideration of the previous processes.

The consciousness aspect also becomes important when looking at motivation for attaining the goals in question as it is not future events that cause motivation per se, but the cognitive conception of possible future events that can be used as motivators. Without consciously selecting desirable outcomes and then controlling one's behaviour to attain

these outcomes, self-regulation is not present and so outcomes may not be attained. Bandura (2001) identifies the difference between motive force and self-generated standards, describing motive force as impelling of behaviour, and self-generated standards as motivating and directing behaviour through cognitive anticipatory mechanisms. In the former there is a simplistic process in which a behaviour is caused by a motivator that could be external to the self. The latter implies a certain element of internalisation of the reason for completing a task, as it is self-incentives that are an important motivating feature. It also involves the use of cognitive processes that anticipate the outcome of certain actions and evaluate the best way to go about proceeding to achieve the desired outcome. In music, a motive force for practising could be a parent telling a child to practise a piece. In this situation, if a child does not internalise the value of this action then they are likely just to do what they are told and play through the piece. If, however, the child has internalised the need to practise and wants to improve then they are more likely to consider which parts of the piece they need to practise more, think of different practice strategies to solve problems or weaknesses, and exert more effort to master the music. This process was demonstrated in the study relating to the practice habits of a nine-year-old clarinettist in relation to selfselected and teacher-imposed repertoire (Renwick & McPherson, 2002).

Social cognitive theory also holds that motivation based on goal intentions is mediated by three types of self-influence: affective self-evaluation, perceived self-efficacy, and readjustment of internal standards in light of attainments (Bandura, 2001). As discussed already, affective self-evaluation is key during the judgment process in enabling suitable self-reactions to achieve specific goals. Perceived self-efficacy is the self-belief one has that one is capable of organising and executing actions to attain goals (Bandura, 1977), and has been found to be a better predictor of intrinsic interest in an activity than ability, of performance outcomes than practice time (McPherson & McCormick, 2006), and choice of more difficult and challenging tasks (Schunk, 1981). Readjusting internal standards in light of attainments is important as, if one achieves a goal, to progress it is important to set a new, more challenging goal. If a goal is not achieved then it is important to re-evaluate the suitability of the goal difficulty, change it if necessary, and then put further effort into attaining it. If the readjustment does not happen then those achieving their goals will not be optimally challenged and thus not achieve their best performance (Locke & Latham, 1984), and those who fail to achieve their goals may start to feel less competent and lose motivation (Deci & Ryan, 2000; Standage et al., 2003a) causing them to withdraw the effort they put in to achieving the goal.

Evaluation of the self is an important process in self-regulation as it allows an individual to assess the suitability of a goal, the processes to use in order to attain a goal, the extent to which a goal has been reached, and how to proceed depending on whether a goal has been achieved or not. The evaluation can take many forms and enables judgments to be made on the successes or failures of certain actions used to attain a desired outcome. Bandura (2001) put forward three ways to assess the self: attained performance level, personal standards, and the performance of others. Zimmerman also examined the concept of self-regulation from a social cognitive perspective and put forward his own set of ways in which people self-evaluate: mastery, previous performance, normative, and collaborative (Zimmerman, 2000). These map onto those suggested by Bandura with attained performance level equating to previous performance in the latter suggestions; personal standards suggesting a mastery orientation; and the performance of others being a normative method of assessment. The additional category of collaborative was included by Zimmerman to focus on the important facet of evaluation during team endeavours centred around the success of a member based on their position and how well they work with others.

The research completed by Bandura was used by Zimmerman to develop a cyclical model demonstrating the phases of self-regulation processes (Figure 1.4) and a triadic cycle of self-oriented feedback loops (Figure 1.5). The first of these splits self-regulation into three phases of forethought, performance and self-reflection. The forethought phase includes the sub-processes of task analysis, such as goal setting and strategic planning, and selfmotivational beliefs, including self-efficacy, outcome expectations, task value, and goal orientations. The sub-processes contained within the performance phase are self-control, comprising of self-instruction, imagery, attention focusing and task strategies, and selfobservation using metacognitive monitoring and self-recording. The final stage of selfreflection is made up of self-judgment, such as self-evaluation and causal attribution, and self-reaction of self-satisfaction/affect, and adaptive or defensive reactions. According to this model, the way in which goals are attained follows a cycle: they are set, a plan is made detailing how to approach them, an action is undertaken to achieve them, and the outcome is evaluated to establish to what extent the goals have been attained. It is at this point that the self-influence of readjusting internal standards discussed already (Bandura, 2001) becomes important. If the goal is achieved then new, more challenging, goals should be set to ensure continued motivation through goal setting and the utilisation of optimally challenging situations (Locke & Latham, 1984). Should the goal not be achieved then

consideration of whether the goal is suitable, considering self-motivational beliefs, would be wise to avoid lowering the quality of motivation should self-efficacy and outcome expectations decrease.

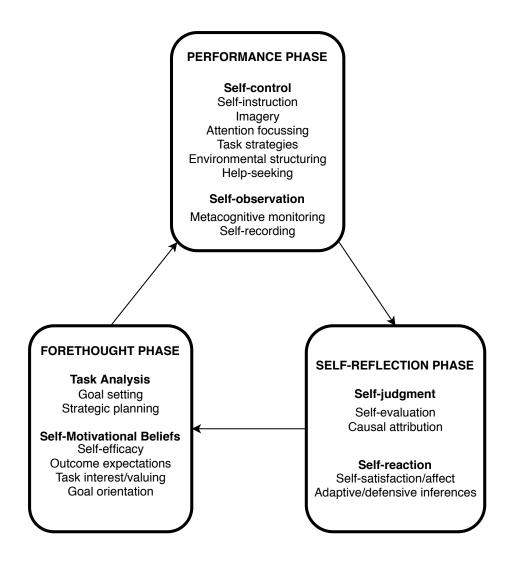


Figure 1.4 Phases and subprocesses of self-regulation. From Zimmerman and Moylan (2009, Fig 16.1, p. 300. Retrieved from <u>http://ebookcentral.proquest.com</u> on 2018-07-04 18:47:17).

As discussed previously, the basic psychological needs of autonomy, competence, and relatedness play a major role in this cycle, especially in ensuring continued persistence and effort to attain harder, longer-term goals. Should the basic needs be thwarted then the quality of motivation is reduced leading to less effort being exerted to attain goals (Deci & Ryan, 2000) and a lower likelihood of selecting challenging tasks (Reinboth *et al.*, 2004). Linking this to the self-regulation cycle (Figure 1.4), there are several factors that could explain why motivation for activities such as music practice decreases or increases over time. In terms of autonomy in goal setting, if the repertoire being learnt is chosen externally

then, as McPherson and Renwick (2001) found, fewer task strategies are used in the practising of that piece in comparison to pieces that are self-selected. A narrower range of task strategies could lead to a poorer evaluation of progress during the self-reflection phase, in turn leading to lower outcome expectations for the next practice session.

Strong feelings of competence could be supported by the attainment of goals, as being able to complete something proves to the self that one is capable and increases the likelihood that, should a similar task come up, one feels able to successfully complete it. Links to self-efficacy can be seen in this, as supporting the need for competence supports the realistic belief that one will be able to complete similar tasks in the future, and outcome expectations are likely to be positive. Should feelings of competence for an action be low during the forethought phase then it is probable that both self-efficacy and outcome expectations will be lower than optimal and the quality of an individual's self-regulation will decrease, leading to a scenario in which the probability that the desired goal is achieved is non-optimal.

As discussed in the previous section, external forces such as relationships are likely to lead to the adoption of certain values and goals. Once a goal is created and the process of self-regulation begins, relationships with others may or may not impact upon the inner processes described in the phases of forethought, performance, and self-reflection. A critical element of examining self-regulation from a social-cognitive perspective is that self-regulation is viewed as having social origins. As one develops and learns socially prescribed values, aims shift to a self-valued model through four stages: observation, emulation, self-control, and finally self-regulation. Without positive relationships, schema for evaluation, knowledge of different task strategies, and types of goals that are worth setting, values may not be acknowledged and internalised by an individual, making it impossible for that person to progress to self-regulating an action. Only with positive relationships and role models can actions be observed, deemed as desirable in oneself, emulated, controlled, and ultimately move away from modelling and social support to become completely self-regulated.

If the BPN are supported in relation to instrumental practice, motivation is likely to become more internalised to complete the activity. Higher internalisation of motivation to practise is likely to lead to more time and effort being put into practising in comparison to individuals who are extrinsically motivated to complete practice, as intrinsic motivation implies completing a task for the inherent satisfaction that it affords. It is likely that more

internalised motivation to practice will increase the quality of SRL as self-motivational beliefs are an important subprocess of the forethought phase and as such feed into the quality of the performance and self-reflection phases. As shown in figure 1.4, self-motivational beliefs consist of self-efficacy, outcome expectations, task interest/valuing, and goal orientation, all factors that are likely to be positively impacted by support of autonomy, competence, and relatedness.

The other model developed by Zimmerman was the self-oriented feedback loop focusing on three key forms of self-regulation: person, behaviour, and environment (Figure 1.5). These three processes were linked as they examined learners' personal agency to act on social settings and structures (Zimmerman, 1989). Self-regulation of the self (also known as covert self-regulation) involved the monitoring and adjusting of cognitive and affective states; behavioural self-regulation focused on the observation of the self and strategic alteration of performance processes; finally, environmental self-regulation was composed of observing and adjusting environmental conditions in order to achieve certain outcomes (Zimmerman, 2000). The triadic loops are assumed to be open in this situation, meaning that new and more difficult goals can be incorporated so that performance discrepancies between current achievement and desired outcome may in fact increase when the new goal is set (Zimmerman, 2000). This is distinct from closed loop systems in which the aim is to reactively reduce performance discrepancies against a constant, unchanging standard (Locke, 1991). The open loop allows for a more adaptable design that can take into account new factors and inputs that come to fruition during the process of attempting to achieve a goal.

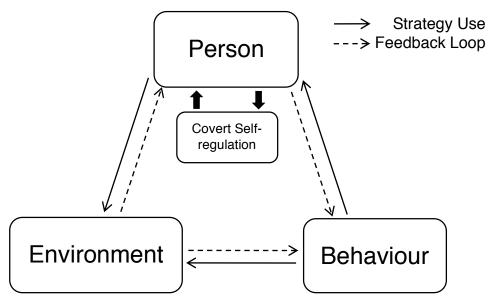


Figure 1.5 Three key forms of self-regulation in self-oriented feedback loops (Zimmerman, 1989).

In real world situations, such as the learning processes of musicians, there is rarely a closed-loop system that is capable of accounting for all variables. For instance, in the learning of a new piece of music players will often have their own standard process that they follow, however inputs from teachers could change their practice strategies, availability of practice spaces could prevent them from working in the desired environment, other commitments could lead to a less than optimal practice schedule, and the varying affective state of the individual may lead to different levels of practice quality and effectiveness. The system proposed by Zimmerman accounts for each of these different facets, and the influences that each form of regulation has on the other. The work previously discussed has shown that positive and non-judgmental feedback enhance intrinsic motivation (Deci & Ryan, 1985; Deci & Vansteenkiste, 2004; Stone, Deci & Ryan, 2009), which in turn leads to more time and effort being put into achieving a task, leading to a greater likelihood that the goal will be achieved. It is in the self-oriented feedback loop that the reason for this is found: the feedback allows an individual to identify and use appropriate strategies (behaviour), decide whether any instruction would be beneficial and whether more difficult tasks should be chosen (environment), and control cognitive and affective processes during learning and performance of a task (person) (McPherson et al., 2013).

Determinants for each form of SRL were outlined by Zimmerman (1990) as physical context (task features and external outcomes), material and social resources for environmental influences (declarative and self-regulative knowledge, self-efficacy beliefs, goals or intentions, metacognitive processes including planning and behaviour control, and

affective processes as influential over the self), and finally enactment of self-regulatory activities (self-observation, self-evaluations, self-reactions and environmental structuring) for behavioural influences. The variety of these determinants show that self-regulation is a context-specific set of processes that alter depending on the situation and is not a constantly fixed design. The challenge with this is that in examining self-regulated behaviour there are many features that need to be considered to truly account for the achievement (or lack thereof) when striving for a goal.

The performance phase involves the way a person approaches their goals. By this point in the self-regulation cycle the goal has been set, ideally at a challenging but attainable level which the individual feels confident that they can achieve, and a plan has been created regarding how to approach it. During performance, self-control in the form of self-instruction, imagery, attention focusing or task strategies, and self-monitoring using metacognitive monitoring or self-recording are essential components for SRL. Research into strategies used by musicians in practice has found many different approaches, with advanced musicians using a wider range of learning strategies than less advanced players (Hallam, 1995; Hallam *et al.*, 2012; Nielsen, 2002). In his work in the field of education Zimmerman (1989) proposed 14 different types of SRL strategies and a fifteenth option of behaviour initiated by another person such as the parent or teacher. These strategies are self-evaluating, organising and transforming, goal setting and planning, seeking information, keeping records and monitoring, environmental structuring, self-consequences, rehearsing and memorising, seeking help from peers, seeking help from teachers, seeking help from adults, reviewing notes, reviewing tests, and reviewing textbooks.

Since these were proffered others have sought to identify, clarify, and refine the different types of learning strategies that are evident in sports, music, and academia. Nielsen (2001, 2004) completed research examining the practice of conservatoire-level music students, splitting cognitive learning strategies into four categories: rehearsal strategies, elaboration strategies, organisation strategies, and critical thinking strategies. Rehearsal strategies were used when the section of music being played was not fully mastered, elaboration strategies were classed as those used to vary the interpretation or speed of a piece of music, organisation strategies included using a diary to monitor progress and plan ahead or structuring practice in a way that meant more challenging tasks were addressed before moving onto playing for fun, and critical thinking strategies were used when students were experimenting with different technical or musical ways of performing a piece in order to be

fully prepared to play in any situation. The metacognitive learning strategy measured was metacognitive self-regulation and the final category of learning strategy, resource management, included time and study environment, effort regulation, peer learning, and help seeking. These three categories clearly fit into the triadic self-regulation feedback loop of person (metacognitive), behaviour (cognitive), and environment (resource management). The most frequently used strategies were rehearsal strategies, elaboration strategies, critical thinking strategies, and metacognitive strategies, with the others, including all resource management strategies, being used to a lesser extent. All the learning strategies examined were significantly related to self-efficacy save the effort regulation subscale, and students who were more efficacious reported using a greater variety of learning strategies. This is supported by previous evidence found (Zimmerman *et al.*, 1992) that showed a positive causal effect of self-efficacy on the setting of academic goals and their achievement.

The learning strategies identified by Nielsen are similar to those proposed by Zimmerman (1989) however one particular component differs to a greater extent than the rest as the situation Nielsen is examining is that of advanced music students. This component is that which Nielsen calls cognitive strategies (rehearsal, elaboration, organisation, and critical thinking). While the organisational component is included within Zimmerman's strategies, rehearsal, elaboration and critical thinking are used to define strictly musical behaviours in the studies conducted by Nielsen, occurring at specific times during the learning of a piece, and while there are similarities between them and other components on Zimmerman's list, they do not directly relate to the subscales.

A similar array of strategies was used in other research completed by Nielsen (2010) in which she assessed connections between learning strategies and epistemic beliefs of advanced music students. In this study strategies examined were repeating strategies, elaboration strategies, organisation strategies, metacognitive strategies, and strategies used to manage time and study environment and regulate effort invested. Students' uses of these strategies were set against their beliefs that musical ability was either fixed or malleable and the results showed that those who believed that the ability to learn an instrument was malleable and related to hard work, rather than being fixed, were more likely to use elaboration, organisation, and metacognitive strategies. This shows that, when dealing with a topic such as self-regulation, there is a wide variety of influences that affect the quality. Although reduced strategy usage does not necessarily mean that an individual will achieve less, it has been found that using a wider variety of strategies tends to lead to greater

progression during practice sessions (Bathgate *et al.*, 2012; Peynircioğlu *et al.*, 2014; Renwick & McPherson, 2002).

In the research presented in this thesis it is assumed that any practice strategy can be self-regulated in relation to instrumental practice if it is consciously completed in order to improve the person, environment, or behaviours using the three-phase cycle. For example, a self-regulated environmental strategy could be based on an assessment that the individual is too hot and so needs to open a window (forethought), they then open the window (performance), and afterwards consider if the temperature is better for them to practice in comfortably (self-reflection). In relation to practising on an instrument an individual could decide that they are not happy with a shift on the violin and so decide that they will isolate the two notes and slow them down (forethought), they then play the two notes included in the shift slowly a few times (performance), decide that they are content with the result and move on to something else that requires work (self-reflection). A strategy that would not be considered to be self-regulated would be playing through a section without an intention as the practice is not consciously planned or monitored.

The idea of fixed or malleable musical ability is widely researched with studies being conducted into the genetic basis of musical ability (Tan *et al.*, 2014), as well as the belief that ability is malleable and anybody can become an expert performer (Ericsson *et al.*, 1993). Ericsson focuses on deliberate practice, defined as "the engagement with full concentration in a training activity designed to improve a particular aspect of performance with immediate feedback, opportunities for gradual refinement by repetition and problemsolving." (Ericsson, 2013, p. 534). In an earlier study, Ericsson *et al.* (1993) discussed the importance of deliberate practice over work and play, and within the paper suggested that motivation, enjoyment, and support were key elements in the initiation and maintenance of deliberate practice. Combined findings of the research suggest that time spent performing an activity is of a lower benefit for improvement and mastery of the action than completing deliberate practice of the action.

There are clear links between theoretical components of deliberate practice and SRL. Within SRL it has been stipulated that one of the key elements to self-regulated strategies is that they are performed consciously, connecting with the idea of "full concentration" promoted by Ericsson (2013). The element of feedback in relation to deliberate practice is related to self-reflection in the phases and subprocesses cycle of SRL. Problem-solving as

described by Deno (1995) involves defining problem areas, measuring behaviours, developing and implementing interventions, and assessing the efficacy of the interventions. This is very closely linked to the self-regulation phases of forethought, performance, and self-reflection.

It is important to be flexible in definitions for terms such as deliberate practice and selfregulated practice, given that different people will have certain strategies that they find more effective and that certain types of technical or musical work will require different strategies. The concept of deliberate practice fits in well with the idea of conscious personal management required for self-regulation, and clearly it could be argued that those who selfregulate by setting goals and finding the most effective strategies to use to reach those goals are practising deliberately. Whether there is a need to include the idea of deliberate practice as a separate construct in such research or whether it becomes redundant given terms coined in more recent literature on self-regulation is yet to be determined. Ericsson's definition of deliberate practice is in line with much SRL research focusing on the concentrated management of practice and although it includes the need for feedback it does not discuss directly the need for planning how to approach an activity. The cognitive, behavioural and environmental strategies identified within SRL are not all present within the definition of deliberate practice with the chief focus of Ericsson's research being around behavioural activities. As the elements included in the definition of deliberate practice are contained within the theoretical discussion of SRL, and self-regulation literature also includes consideration of other elements, the research presented in this thesis will focus on discussion of self-regulated learning with the understanding that deliberate practice is incorporated in the definition.

It has become a generally accepted practice in the music world to set a practice schedule based around time spent per day rather than items achieved, the basic principle used when homework is set in education, and research has indeed found that time spent playing can be a predictor of level of expertise in young instrumentalists (Hallam, 2011). SRL suggests, however, that quantity of practice is not necessarily linked to improvements in playing; it is the quality that is most important. As such, a system that focuses on time spent playing over goals accomplished is not necessarily the most beneficial and productive for musicians. Instead a system in which full focus is given to accomplishing a task, and practice ends once the task is accomplished (or suitable steps are made towards the accomplishment), would seem to be a more useful one. Duke *et al.* (2009) set up a study in which they focused on

the element of correcting errors during a practice session. To do this they asked 17 advanced student pianists to learn a three-bar passage in a single practice session and monitored the number, length and accuracy of performance trials and practice elements used by each of the pianists in this time. The pianists were then asked to return the next day and play through the passage 15 times at the target tempo and these performances were then used to rank the players' performance quality considering tone, character, and expressiveness.

None of the measured variables were significantly related to the total time practised or the total number of performance trials. Significant correlations were found between rank and number of complete, incorrect performance trials (p < .05), percentage of all complete trials that were correct (p < .001), percentage of complete trials that were correct or near-correct (p < .006), and percentage of total performance trials (including incomplete trials) during practice that were correct (p < .04). Interestingly the researchers studied videos of the practice sessions and observed a combination of eight elements that appeared in the three top-ranked pianists' practice that were not evident in the sessions of other participants. These were playing hands-together early in practice; practice was with inflection early on with the initial conceptualisation of the music showing inflection; practice was thoughtful, as evidenced by salient pauses while looking at the music, singing or humming, making notes on the page, or expressing verbal "ah-ha's"; errors were pre-empted by stopping in anticipation of mistakes; errors were addressed immediately when they appeared; precise location and source of each error was identified accurately, rehearsed and corrected; the tempo of individual performance trials was varied systematically; and target passages were repeated until the error was corrected and the passage was stabilised, as evidenced by the error's absence in subsequent trials. Most of these elements were observed disparately during the other participants' practice sessions, with the exception of the final three that appeared in all three of the top ranked players' sessions but rarely in any other. Other notable differences highlighted in the study were that the top players were nearly always accurate when playing the section at a new speed, errors were only intermittent after the initial learning phase with no persistent errors, and at least 20% of the starts were complete performances at varying tempi. The results of this research are particularly interesting as they support the idea that practice quality, and not practice quantity, is the critical component in practice that leads to the greatest levels of improvement. Neither practising for longer periods of time, nor repeating the passage more frequently, had any effect on the quality of playing in the retention test. Instead, the features that came to the foreground as

components of practice that produce better performances were the abilities to accurately identify and efficiently handle errors.

As is frequently the case in studies, a limitation is that the study only took place at one time point and as such data is limited. Another issue is the fact it only looked at 30 pianists, which is a small sample size and focuses on only one instrument. Although the information collected as part of the research is interesting, more is needed to come up with any firm or generalisable conclusions. Bonneville-Roussy and Bouffard (2015) conducted their own research examining the practice of college music students, a similar population, considering the relationships between time taken, motivation, and formal practice strategies used during practice. It took place over a four-month period with measurements being taken from 173 music students at three time points: the beginning of term, mid-term, and the final grade at the end of the term. There was a wide range of instruments covered, including 122 classical music students (30 pianists, 24 singers, 21 guitarists, 18 wind, 18 string, ten brass, one harpsichord), and 51 jazz musicians. A significant effect of age was found, with younger participants using deliberate practice strategies less frequently than older participants. Other findings were that self-perceptions of musical competence were positively related to weekly practice time, focused attention during practice, and use of self-regulation and deliberate practice strategies. Weekly practice time was related to all variables with the exception of musical achievement. In this instance, self-regulated and deliberate practice were both positively predicted by practice time, however none of these components were related to musical achievement. Bonneville-Roussy and Bouffard described formal practice as being comprised of various strategies that could be integrated into four components: goal direction, focusing attention, self-regulation strategies, and deliberate practice strategies. The two models that they tested (path analysis and regression models) in which these elements were considered separately accounted for 12% and 13% of the variance respectively. When the components were combined into the single underlying latent construct of formal practice it was found to be a better predictor of musical achievement, with the new model accounting for 18% of the variance in musical achievement and 36% of the variance in formal practice.

From this we can conceive that the ideas of deliberate practice and self-regulation examined are both components of formal practice, and that combining them with goaldirected and focused periods of practice leads to formal practice that was a strong positive predictor of musical achievement. Self-regulated practice is, by definition, goal-directed (Bandura, 1991). It also requires conscious cognitive appraisal during the practice period

that necessitates a high level of focus, but the ability to monitor use of self-regulation strategies systematically allows for the ability to regulate the use of the strategies when faced with different tasks (Nielsen, 1999, 2008b). The differences between formal practice as defined in this study (Bonneville-Roussy & Bouffard, 2015) and self-regulated practice would seem to be slim, if there are any clear differences at all. The single construct of formal practice enables differentiation from informal practice and work and also solves the issues created by having both self-regulation and deliberate practice as factors that are separate yet share certain constructs, as it amalgamates the two.

The process and sub-components of SRL have been outlined and it is important to examine the way in which these manifest themselves in real-life situations. Research into the use of self-regulation strategies has been completed in the fields of education (Ramdass & Zimmerman, 2011; Zimmerman et al., 2011; Zimmerman & Kitsantas, 2014), sport (Cleary & Zimmerman, 2001), and music learning (Araújo, 2015; Hallam, 2011; Miller & Brickman, 2004; Nielsen, 1999). Nielsen (2001) created a model showing the cyclic self-regulation of learning strategies that included four problem-solving options as demonstrated in the practice sessions of two advanced conservatoire students. The first stage of the model is the same for all paths and moves through the initial self-regulation cycle of identifying a problem, sometimes using metacognitive knowledge and regulation to inform the strategies that are used, performing the action, and finally self-evaluating. The first suggested path was that, should the self-evaluation show that the performance was successful, then musicians tended to move on to a new problem and begin the process again. The other three options looked at how they reacted when the performance was deemed unsuccessful. On some occasions, they judged that they needed to increase the effort they put in and so used the same strategies and completed a second performance. At other times, they deemed that a revision of the strategies they had chosen was necessary and so they used metacognitive knowledge and regulation to alter their strategies before completing a successful performance. The final path that is included in the Nielsen model is where the musician not only decided that the strategies they used needed revising, but also the problem that they had identified. Once the problem belief had been revised then the process of identifying strategies to be used was the same as for the first stage in the model leading to the second performance.

In optimal conditions, all of these paths could be considered as self-regulated behaviour as they all include the phases of forethought, performance, and self-evaluation. What this

model does not address is the extent to which each of these paths produces successful outcomes in various circumstances. For example, a large amount of music practice completed includes the use of repetition to iron out mistakes (Coughlan *et al.*, 2014; Miksza, 2009); often this repetition will be continuous focusing on a short section without consideration of whether the strategy being used is effective. This puts the player in a loop of the second path of the model in which the strategy used is repeated without cognitive appraisal of whether it is functioning as desired. In a situation such as this, if the chosen strategy is the best fit for the purpose then cognitive appraisal is not necessary; however, should it not work it is important that players can identify this and revise their strategies accordingly. One area of research that would be worth examining is how these paths coalesce during a practice session, whether certain combinations produce more effective practice than others, and if at various times during the learning process different path structures lead to greater improvement. Part of the current research will examine this using a micro-analytic procedure examining the practice of conservatoire level violinists (see research question 3).

#### **1.4 A COMBINED APPROACH**

The three theories discussed so far in this chapter have their own strengths and weaknesses focusing on various aspects that are part of the acquisition or improvement of a skill. Locke and Latham's goal setting theory predominantly focuses on the use of goals to motivate individuals and improve productivity from an industrial perspective, SDT is concerned with human motivation on a more individual level, and SRL examines the process of learning effectively. Little research has been done with these theoretical perspectives in combining the approach. Although she did not use these theories specifically, Ames (1992) focused her research on the potential links between goals and motivation. Using an achievement goal perspective, she examined motivation and achievement in a classroom situation aiming to identify whether striving for performance or mastery goals was more beneficial. In this research, mastery goals were found to elicit a motivational pattern associated with a quality of involvement that was likely to maintain achievement behaviour, increase the amount of time children spent on learning tasks, increase persistence in the face of difficulty and engagement in learning, and encourage pride and satisfaction in relation to successful effort and guilt in relation to inadequate effort. Performance goals, on the other hand, were associated with fostering a failure-avoidance pattern of motivation. Use of superficial or short-term learning strategies, and a self-concept of ability becoming an important determinant of achievement-related behaviours such that in a situation where a

low self-concept is perceived the individual is less likely to undertake a challenging task or use self-regulation strategies.

These results led Ames to stipulate that a focus on mastery goals over performance goals benefits the learning environment of children and encourages structures in classrooms that contribute to a mastery goal orientation, discussing the importance of tasks, authority, and evaluation or recognition. Figure 1.6 shows the strategies Ames (1992) suggests should be used to support mastery goals in the classroom, leading to positive motivational pattern for students. Although not directly related to the theories used in this thesis, the suggestions proffered by Ames use much of the same language as these theories. In the task element Ames encourages the act of self-referenced (intrinsic) goal setting, with tasks that are reasonably challenging (as advocated by Locke and Latham), approached using effective learning strategies (the focus of SRL). The authority section of the structure encourages participation in decision making (Locke and Latham's goal setting theory), and the encouragement of self-management and monitoring skills (key to self-regulation). During the evaluation/recognition section of the structure Ames promotes a focus on mastery of activities rather than performance goals. Finally, the motivational patterns promoted are the intrinsic interest in the activity (as outlined in SDT), attribution to effort (belief in a malleable ability rather than fixed as discussed in SRL literature), use of effective self-regulatory strategies, and positive affect (both encouraged in SRL literature).

The research completed by Ames demonstrates that these components are interrelated and focusing on how they interact could be beneficial when examining the learning environment in any situation, including that of learning an instrument. The *Optimal Music Performance* project aimed to combine elements of SDT and SRL with published research showing detailed understanding of SRL in pianists' practice sessions and the variability between higher and lower achievers (McPherson *et al.*, 2019). Studies for the project also examined the autonomous motivation of conservatoire-level music students, finding positive relationships with competitiveness and high career intentions, while high socially prescribed perfectionism and teacher control negatively related to autonomous motivation (Miksza *et al.*, 2019a). In this paper motivation was shown to be of a high quality and the competitive environment fostered in a conservatoire-level establishment positively fed into this motivation.

Another paper published (Miksza *et al.*, 2019b), examined elements of self-regulation and self-determination in their relation to student wellbeing. Quality of peer relationships and adaptability were positively associated with subjective vitality, and negatively with stress. This supports SDT research suggesting good quality relationships lead to greater wellbeing (Reinboth *et al.*, 2004; Williamon & Thompson, 2006), and that in relation to self-regulation, the act of evaluating effectiveness of strategies and adapting them as required is important in supporting wellbeing as well as promoting more effective practice (Nielsen, 2001; Pike, 2017).

Structure	Instructional Strategies	Motivational Patterns
Task —	<ul> <li>Focus on the meaningful aspects of learning activities</li> <li>Design tasks for novelty, variety, diversity, and student interest</li> <li>Design tasks that offer reasonable challenge to students</li> <li>Help students establish short-term, self-referenced goals</li> <li>Support development and use of effective learning strategies</li> </ul>	Focus on effort and learning High intrinsic interest in
Authority —	<ul> <li>Focus on helping students participate in the decision making Provide "real" choices where decisions are based on effort, not ability evaluations</li> <li>Give opportunities to develop responsibility and independence Support development and use of self-management and monitoring skills</li> </ul>	activity Attributions to effort Attributions to effort-based strategies Use of effective learning and other self-regulatory strategies Active engagement Positive affect on high effort tasks Feelings of belongingness "Failure-tolerance"
Evaluation/ Recognition	<ul> <li>Focus on individual improvement, progress, and mastery</li> <li>Make evaluation private, not public</li> <li>Recognise students' effort</li> <li>Provide opportunities for improvement</li> <li>Encourage view of mistakes as part of learning</li> </ul>	

Figure 1.6 Classroom structure and instructional strategies supporting a mastery goal (Ames, 1992).

A model combining elements of Locke and Latham's goal setting theory, SDT, and SRL was developed for the current research (Figure 1.7). The focal point of this model is the forethought, performance, self-reflection cycle outlined in SRL by Zimmerman (2000). The current research is interested in examining how goal setting and SDT feed into this model, specifically the initial forethought phase. In SRL literature goal setting is described as a key step in the initial phase but not much has been done to elucidate further on the specific elements that are beneficial or detrimental in relation to the process. To address this gap in the literature the model in Figure 1.7 uses an adapted version of the seven key steps to goal setting outlined by Locke and Latham (1984) as a schema to examine the quality of the goals set by musicians.

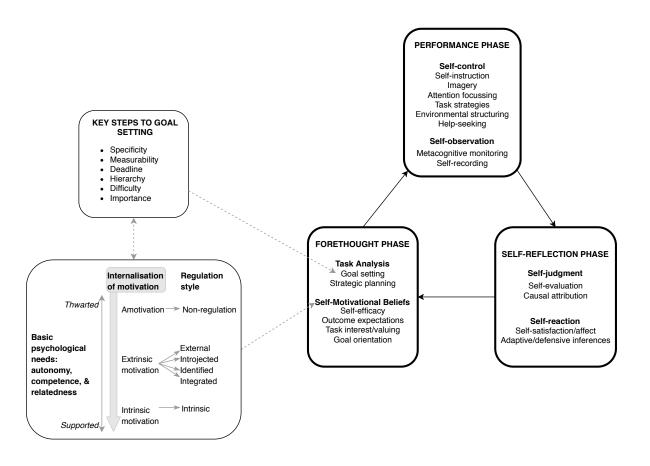


Figure 1.7 Model of the relationship between SRL, SDT, and the key steps to goal setting.

The seven steps to goal setting initially tendered by Locke and Latham (1984) as promoting optimal attainment were:

- 1. Specify the general objective or tasks to be done.
- 2. Specify how the performance in question will be measured.

- 3. Specify the standard or target to be reached.
- 4. Specify the time span involved.
- 5. Prioritise goals.
- 6. Rate goals as to difficulty and importance.
- 7. Determine coordination requirements.

As can be seen in Figure 1.7 these have been condensed into six items: specificity, measurability, deadline, hierarchy, difficulty, and importance. The alterations exhibited are intended to modify the model to suit the current population and purpose of the present research, namely that the focus is not on the setting of goals to promote optimal achievement, but on the content of the goals being set by musicians. Most research conducted in this field when these key steps were developed was focused on the business world, looking at external goals set by managers and examining how these could be developed to promote motivation in employees and achieve greater productivity (Blumenfeld & Leidy, 1969; Latham et al., 1978; Latham & Yuki, 1976). The current research has a different focus in the private practice of classical musicians studying at a conservatoire and as such these adaptations have been made to reflect the potential for intrinsic goals as well as extrinsic goals. The final step, to determine coordination requirements, was omitted as the focus on private practice meant that it was expected that most of the goals set would be personal aims for the practice session with little requirement to coordinate with others. The first and third key steps were merged into specificity as the third step, to specify the standard or target, is essentially an extension of the first, to specify the general objective or task, and in this instance the order in which the steps are completed is not a focal point as the chief interest is the content, not how the goals are set. The final change was to separate step six into the two separate components of difficulty and importance rather than viewing them on the same level. This was done as in the literature relating to SRL the difficulty of goals is assessed as a separate factor to that of importance (Miksza, 2011; Zimmerman, 2000).

The forethought phase of the self-regulation cycle consists of two items: task analysis and self-motivational beliefs. The theory holds that the quality of factors that feed into these will affect the next phases of self-regulation exhibited by an individual when performing a task (Zimmerman, 2000). The goal setting theory discussed provides deeper insight into the goal setting element of forethought and can be used to assess the effectiveness of goals that are being set by musicians. It is also important in this research to examine other facets that may influence this process including the self-motivational beliefs of individuals. To do this SDT will be examined for its potential to provide a deeper understanding of the concepts involved.

As discussed in this chapter, the focus of SDT is the internalisation of motivation for completing tasks from amotivation, through extrinsic motivation, to intrinsic motivation. This is done through supporting BPN of autonomy, competence, and relatedness. In the model, it is proposed that this will feed into the self-motivational beliefs component of the forethought phase in self-regulation. In his research, Zimmerman clarified task interest or value as focusing on the intrinsic or extrinsic nature of a goal (2000), fitting in with the idea of internalisation of motivation outlined in SDT. Bandura promoted the idea of self-efficacy as being influential upon achievement, defining it as "the conviction that one can successfully execute the behaviour required to produce the outcomes." (Bandura, 1977, p.193). This research was used by scholars focusing on both SRL (McPherson & McCormick, 2006; Pelletier et al., 2001; Zimmerman, 1989) and SDT (Deci & Ryan, 2000; Vansteenkiste et al., 2005). In SRL, the concept of self-efficacy was incorporated into the forethoughtperformance-self-reflection cycle under the self-motivational beliefs component of the forethought phase. Within SDT the BPN for competence, the need to effectively enact behaviours and feel capable of achieving certain actions (Ryan & Deci, 2000a), is closely linked to self-efficacy as can be seen in the similarity between the definitions of both which have two components: 1) competence - a sense of capability and belief that one can complete a certain behaviour, and 2) self-efficacy - the ability or belief of ability that enables one to enact those behaviours.

It has been indicated that SDT lacks specificity beyond intrinsic and extrinsic aspects of goal content and as such when looking to use the theory to elucidate on SRL, it cannot provide more detail on all aspects of motivation included in the forethought stage. For example, goal orientation, focusing on mastery or learning goals as having positive influences on motivation, and acquisition and performance over performance goals (Zimmerman, 2000), are not covered in the research into SDT. Neither are the outcome expectations considered, although in SRL they are a key part of the motivational process. To some extent Locke and Latham's goal setting theory provides more detailed information in relation to some of these components, predominantly the content of goals. The hierarchy and goal importance elements of the theory touch on some of the concepts within outcome expectations and goal orientation but are not similar enough in theory to justify using one to

expound upon the other. As such for these elements of goals it will be important to examine results against those found in SRL literature.

SRL identifies salient features of goals being their orientation (mastery or learning), whether they are intrinsic or extrinsic, and their specificity, difficulty and hierarchy (Zimmerman, 2000). These tally with aspects of Locke and Latham's key steps to goal setting, which also focuses on the features of specificity, difficulty, and hierarchy. This theoretical framework also includes the measurability of the goals, any coordination required to complete them, and the timeframe in which they are to be completed. SDT operates in a slightly different manner when looking at goals as it examines the motivation of a person to enact certain behaviours, which in themselves will lead to goal attainment. The intrinsic and extrinsic focus of SDT is an element not covered in Locke and Latham's theory, and as the framework for SRL includes this distinction using a theory that examines the construct in more detail is of benefit.

Employing SDT and Locke and Latham's theory to provide a more detailed understanding of elements included in SRL will provide a deeper understanding of how these processes work and associate with each other. The model outlined (Figure 1.7) provides a possible option for the combination of these theories and will be examined in relation to data gathered to assess its compatibility with musicians day-to-day and long-term practice goals. Should this model prove to be functional in a musical environment, discussion will turn to how it could be used by musicians to help improve their goal setting abilities and their achievement of these goals.

To conclude, based on the literature reviewed in this chapter, three research questions have been developed as the principal areas of investigation in this thesis (see Introduction). Specifically, it is the area of self-regulation on which the following research focuses, examining in detail the practice of musicians at various time points during the process of learning new music. Using a video recall procedure and micro-analyses of practice sessions, the strategies used to achieve goals, why they are used, and the effect of the individual over the practice session are analysed in detail. Another important feature being examined is musicians' use of goals. Goals are a basis for both SRL and SDT and as such the ways they are used and approached by musicians during practice could provide a deeper insight into motivational and regulation constructs. It is predicted that with optimal goal use, motivation, and regulation, optimal progression in performance could be made; however, the exact

definitions of 'optimal' in each of these cases are fluid, person dependent, and as yet undefined. In this instance, these three constructs are examined in combination, using various methods including a questionnaire, interviews, and practice diaries, as theoretically and experimentally links have been shown between them, and they are all crucial components of reaching an expert performance level. If we can identify the constituent components of the most effective motivation and practice, and impart this knowledge to musicians at all stages of learning, then it may be that people can improve at a faster rate, practice more efficiently for a shorter time (which could reduce the rate of instrument related injuries that occur in musicians), and/or have more time to partake in other activities that could support a healthy physical and mental lifestyle. With this in mind, this thesis explores the goals and self-regulation strategies musicians use during their practice, how effective these are in producing improvement, and whether and how they change during practice sessions or over the learning process required to take on a new piece of music.

# CHAPTER 2 METHODOLOGICAL REVIEW

#### 2.1 INTRODUCTION

The research presented in this thesis adopted a pragmatic approach considering the goal strategies developed and used by conservatoire music students, examining how these fed into their motivation to practise and the self-regulation they demonstrate in practice sessions. This approach was taken based on the research conducted by others who examined similar areas of interest with the same epistemology and theoretical foundations. The aim of the present research is to focus on practical theories based in the real world, building up a picture of how the three facets of practice discussed in the literature review (goals, motivation, and self-regulation) interlink. To do this, various modes of data collection were been employed including a large-scale questionnaire (Chapter 3), the examination of individual practice sessions (Chapters 4, 5, & 8), a longitudinal practice diary (Chapter 6), and examination of long-term goals and performance profiles (Chapter 7).

The analysis of the questionnaire was quantitative in nature focusing on musicians' longterm goals and their levels of self-regulation and self-determination. The examination of practice sessions enabled concentration to shift to shorter-term goals, examining how musicians go about achieving aims for a single practice session, and mid-term aims of learning a piece of music to perform. This data collection involved the use of multiple methods including a self-regulation practice diary, the observation of practice, a video recall procedure, and interviews. The final study contained in this thesis used multiple methods of data collection to examine the short- and long-term goals musicians develop including a selfregulation practice diary completed once a week, interviews, the creation of a detailed goal profile, performance profiling, the recording of practice sessions, and video recall procedures. Further information about each of these strands of data collection is available in the relevant chapters, in which there is a greater focus on the detail of methods and procedures used. The remainder of the current chapter is devoted to examining the methodologies of the literature upon which the present research is based, to identify the ways research has been conducted into the theoretical constructs discussed in the previous chapter and to justify the methods that have been chosen for the research within this thesis.

Table 2.1 outlines the focus of the studies referred to in the previous chapter and the field in which the research was conducted. It is evident from this table that the only examination of goals in relation to music are the two articles looking at practice and goals, both of which were authored by Miksza (2009, 2011) and focus on achievement goals. Notably there is no work done with musicians expounding on the goal setting theory put forward by Locke and Latham.

	Total	Music	Education	Workplace	Sports	General	Other
Total	99	36	17	13	7	15	11
Self-regulated learning	25	15	7		1	2	
Self-determination theory	21	3	1	2	6	6	3 (laboratory)
Goals	22		6	11		2	3 (laboratory/future selves)
Practice	8	8					201100)
Motivation	10		1			4	5
Self-efficacy	4	1	2			1	(laboratory/pinball)
Practice/goals	4	4					
Other	5	5 (role of parents/ wellbeing/ genetic ability)					

Table 2.1 Focus of studies referred to in the literature review.

The methodologies used in the 72 studies detailed that focus on self-regulated learning (SRL), self-determination theory (SDT), and goals (including the two studies studying both practice and goals) are the primary focus of the discussion as these are the principal points of interest currently. For papers examining self-determination and self-regulation, the focus will be on those that examine a population of musicians. In the case of goals, there is not currently enough information relating to musicians to do the same and so the methodologies of other research fields will be considered and the potential applications of their findings in relation to musicians will be discussed. The participants in these studies range from an individual case study of a 7-year-old clarinettist (Renwick & McPherson, 2002) to 950 young athletes (Standage *et al.*, 2005), and while most of the studies are cross-sectional, some took place over a period of up to three years.

#### 2.2 MUSIC

22 of the 72 studies that examined SDT, SRL, or practice and goals discussed in the literature review look at musicians, although four of these focused on theoretical constructs and did not report study findings. Of the rest, 10 used a questionnaire to gather quantitative data. Of those that used a questionnaire as a stand-alone tool and not in conjunction with another method of data collection, participant responses ranged from 130 (Nielsen, 2010) to 410 (Evans & Bonneville-Roussy, 2015). The studies that also used other data collection techniques such as observation of practice sessions (Miksza, 2009, 2011, Pike, 2017) and implementing an intervention (Bathgate et al., 2012) only surveyed those taking part in the whole process of data collection meaning that participant numbers were much lower, ranging between 9 and 60 participants. This demonstrates the benefits of running studies using a guestionnaire in that the number of participants that can be assessed is much larger, making any results more valid for the wider community under scrutiny. When other measures are included that take up more of the researcher's time, the number of participants that can be examined becomes limited. On the other hand, the benefit of completing data collection using multiple methods is that it is possible to triangulate the results found using each method to validate findings. The content of the guestionnaires used will be examined in more detail but first, it is important to examine the participants involved in the studies.

Various ages of musicians were considered in these studies. The most frequently surveyed population were advanced music students studying performance at a conservatoire level with an age range of 18-43. Additionally, research has been done looking at the practice and motivation of young musicians aged 9-19 (Bathgate *et al.* 2012; McPherson & McCormick, 2006) and professional players (Araújo, 2015). As a musician develops from the initial learning phase of an instrument through to becoming a professional player there are many stages of development requiring different types of goals, motivation, and self-regulation, as such it is important to understand the requirements at each stage of learning, necessitating the study of musicians of different ages and at different levels of expertise. Advanced music students are of particular interest to those researching expertise in music playing as they have maintained the motivation and quality of practice to achieve a high standard on their instrument (Hallam, 2011; Hallam *et al.*, 2012) making their early learning experiences an invaluable source of information regarding ways in which expertise and persistence can be encouraged in young musicians. They are at a stage where they can still remember their early learning experiences in some detail, and at the same time, they are

generally preparing to move into a professional performance world and should be at or close to the standard required for this with some awareness of that which will be expected of them in the professional sphere.

The benefits that come with studying advanced performance students as opposed to professionals are that they have frequent examinations giving some indication of their standard in comparison to one another, they are still at a stage in which much of their repertoire is solo so examining individual progression is more accessible than with some professionals, and as most students are at comparable levels, generalisations across the population are not so far reaching (Aráujo, 2015; Boneville-Roussy & Bouffard, 2015; Nielsen, 2010). Professionals are in a different situation as their expertise is likely to vary depending on their age and experiences. Their situation also differs in that an institution does not assess them in the same manner so for research purposes if an assessment of ability is wanted then a measure must be developed and included in the procedure. The advantage of examining professional musicians is that they can provide an insight to the real world situation of musicians once they manage to make a living as a performer. The amount of time available to practise, how that time is organised, external pressures, and the motivation driving the maintenance of the performing musician lifestyle are all factors that can only be truly assessed by examining professional players (Ericsson, 1993; Hallam, 1995).

Another point of interest in the studies examining musicians is the research questions or issues that they were examining. The studies examining the self-regulation of musicians dealt with a range of topics including SRL strategies (Nielsen, 2001), deliberate practice (Ericsson *et al.*, 1993), metacognitive strategies (Bathgate *et al.*, 2012), and intrinsic interest (Renwick & McPherson, 2002). Of interest for the current research was the work done by Nielsen (2001) in which she examined the practice sessions of two organists looking for their use of self-regulated practice strategies. The research question being examined was; "do the students demonstrate skilful self-regulatory learning by setting specific goals, engaging in strategic planning, self-control, self-monitoring, and self-judgment?" To answer this question Nielsen observed the behaviours of two advanced organ students when practising moderately difficult repertoire in preparation for their final examinations. Data collection took place in three sequences over the course of eight weeks. The first sequence involved the videoing of three practice sessions, each lasting an hour; the first occurred on the first day of the students' first learning period; the second video session was conducted on the first day

of their second learning period; the final session took place on the first day of their third learning period which was the final learning period before they performed the pieces in concert. The second sequence of data collection occurred the day after the three sessions of the first sequence, during which they were once again video-recorded practising the same piece, however, on these occasions the students were encouraged to verbalise reports of their problem-solving activities focusing on their cognitive processes. The final sequence of data collected involved a retrospective debriefing report given immediately after the second sequence of data collection by the student regarding their problem-solving activities during the practice session. The point of these sessions was to examine the students' knowledge of strategies in more detail. To aid their recall of problem-solving activities dering their practice session, the students were shown the video recording of their practice session that day in which they had been verbalising their strategies. Behaviours and verbal reports exhibited on the recordings from all phases of data collection were coded and analysed according to the methods of skilful regulators (Zimmerman, 1998 & 2000).

Part of the current research project involves looking at violinists' practice focusing on their use of goals and other self-regulatory processes in making their practice effective. It is prudent to consider the research methods described when designing studies around these topics as it provides information on how such phenomena can be examined, including the benefits and limitations of such techniques. The research question posed by Nielsen examined whether musicians used self-regulation strategies in their practice session and the data she collected in the form of observational and verbal reports allowed her to identify the cyclic self-regulation of learning strategies during practice based on four problem-solving paths observed in the practice sessions (see Section 1.3). The research questions in this thesis are focused on examining what these strategies are, their effectiveness, and whether they have a temporal dimension. Given the similarities between the research aims the current investigation will use a range of methods including some used by Nielsen (2001) to further our knowledge into this field. The observation of practice is necessary to collect information relating to these topics and the use of a video recall procedure could enhance the depth of information that can be gathered from participants relating to their moment-tomoment affect and cognitions during a practice session, expanding upon the visual cues that can be assessed by a researcher from a video.

#### 2.3 SELF-DETERMINATION THEORY

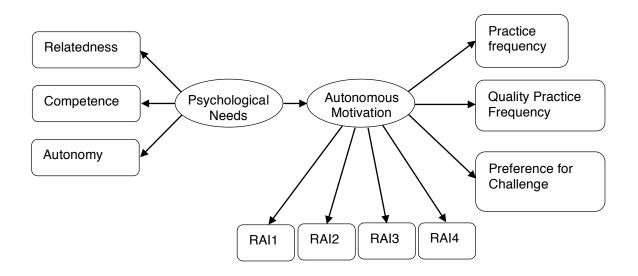
Only three studies included in the table focused on SDT in relation to musicians (Evans, 2015; Evans & Bonneville-Roussy, 2015; Miksza *et al.*, 2019a). Of these one discussed how SDT could be used to approach research into motivation in music education, and as it was theoretically focused it did not report study findings (Evans, 2015). The other two focused on conservatoire-level musicians using questionnaires to collect data on the chosen topics.

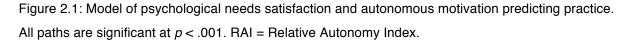
Miksza et al. (2019a) used a questionnaire to gather data at two time points, once at the beginning of the first term of the academic year and once at the beginning of the second term. This was done in three tertiary level schools of music in Australia and the US. Data between the two time points was found to be similar, so all data was discussed in aggregate. Five measures were used in the study which measured career intentions, motivation for studying music, teacher control, competitiveness, and social-prescribed perfectionism. All were measured on 7-point Likert-type scales and Cronbach's alpha was adequate to excellent for the data collected demonstrating that the data found were reliable. The use of the survey at two time points ensured that potential bias due to the time of year was lessened, and also demonstrated that this bias was not observed in the data sample collected as there was no significant difference between the data sets. The numbers were much higher in the first round of data collection (N=386) as opposed to the second (N=74) which may have limited the differences between the samples. A strength of the research was that it covered a broad community of musicians on two separate continents. This enables the findings to examine the overall picture of self-determination in musicians in different contexts and education systems. It does, however, mean that differences between institutions were not examined.

The study of Evans and Bonneville-Roussy (2015) examined SDT in relation to university musicians. The study considered how university music students were motivated focusing on their need satisfaction within the music learning environment and how their motivation affected three aspects of practice – practice frequency, quality practice frequency, and preference for challenge. To test the hypotheses, they extended the idea that more autonomous motivation would lead to higher practice frequency, higher-quality practice frequency, and higher preference for challenge. Evans and Bonneville-Roussy distributed an online questionnaire amongst university students studying a programme in which music performance was a core requirement with 392 students completing it. The questionnaire consisted of the Balanced Measure of Psychological Needs and the Self-Regulation

Questionnaire with minor adaptations to suit musicians, as well as items ascertaining the number of practice sessions participants had completed over the past week, how many of these were productive or rewarding, to what extent their new music selection was within or above their current ability, and how they felt in their music learning and playing.

Using structural equation modelling they created a model (see Figure 2.1) that accounted for the variation in practice frequency, quality practice frequency, and preference for challenge by 6%, 11% and 9% respectively. The Self-Regulation questionnaire was made up of eight items divided into two stems focusing on why students played and learnt music and why they had music lessons. Both stems examined four types of motivation regulation – extrinsic regulation, introjected regulation, identified regulation, and intrinsic motivation, each of which was found to be significant during analysis of factor loadings. With this data, they created a relative autonomy index that puts more weight on the intrinsic and extrinsic forms of regulation.





The Balanced Measure of Psychological Needs questionnaire used to measure the needs satisfaction dimension of autonomy, competence, and relatedness in this study consisted of 18 items with three positively worded and three negatively worded items focusing on each of the needs dimensions. Using the positively worded items only, the researchers created composite scores for each basic psychological need (BPN) and it is these that were tested in the structural equation modelling. As can be seen in Figure 2.1 the three needs dimensions explained the psychological needs satisfaction. Psychological needs satisfaction predicted

autonomous motivation, which in turn predicted each of the three practice aspects measured – practice frequency, quality practice frequency, and preference for challenge. Autonomous motivation mediated links between psychological needs satisfaction and practice time, quality practice frequency, and preference for challenge.

The decision to use the positively worded items in the creation of composite scores for the BPN meant that misunderstanding or misreading of negative items by participants did not affect the overall result and that the concept of each need is not confused by negative wording (for example a participant indicating that they do not feel incompetent is not the same as suggesting they feel competent). The benefit of using both positively and negatively worded items in research is that the data collected can demonstrate more nuances although it may be that the negatively and positively worded items are found to load onto separate factors. In the case of Evans and Bonneville-Roussy if their chief interest was examining how the positive attitudes of participants towards their basic psychological needs fed into their autonomous motivation then using only the positively worded items in their structural equation modelling was the most appropriate course of action.

The research demonstrated that students who perceived their BPN to be satisfied had more autonomous motivation which in turn predicted practice frequency, quality practice frequency, and preference for challenge. These direct links demonstrate that SDT, focusing on BPN and internalisation of motivation, affects the practice of music students. The chief purpose of SRL is in examining what is necessary to promote good quality practice and the model tested here demonstrates that environments supportive of the BPN could contribute to that. In using a questionnaire as a tool for data collection the researchers gathered information from a substantial number of students to enable testing of the structural equation model they proposed. The measures used had previously been validated in other research, backing up their use in subsequent studies as a reliable tool. The limitations of the data collection are that in only using one sequence of data collection there was no triangulation of results useful to validate findings, and data collected were self-report measures only. Having single items to measure practice frequency, quality practice frequency, and preference for challenge, and no source external to the student to corroborate the reported figures for each of these means that this research is limited as to the extent to which its findings can be generalised but it provides a solid foundation upon which further research can build.

The current research examines both SDT and SRL focusing on how goals might act as a mediating factor between the two making it important to assess the methods used examining all three areas in previous research before selecting the best combination of methods that can be used to research potential links between the theories. Having examined some of the research completed related to SDT, self-regulation literature is now to be examined focusing on studies with a population of musicians.

## 2.4 SELF-REGULATED LEARNING

Of the research papers that focused on self-regulation, 15 concentrated their research on musicians. Of the twelve which outlined original research, seven were longitudinal (with data collection ranging from seven weeks to three years) and the rest cross sectional. The most common method of data collection was a questionnaire with four of the studies only using this method and a further two using it in conjunction with another method. The participant numbers ranged from an individual case study to 212 musicians with two of the studies concentrating on young children (aged 7-9 years old), two investigating young musicians aged 9-19, seven centring around advanced music students (aged 16-43), and the final study focusing on classical musicians aged 18-58. As the current research is examining advanced music students it is beneficial to identify how previous research has approached investigating this population and the environment that they are in. Focusing on these seven studies, four used longitudinal data collection methods (Bonneville-Roussy & Bouffard, 2015; Ericsson *et al.*, 1993; McPherson *et al.*, 2019; Nielsen, 2001) and two used a cross-sectional questionnaire (Nielsen, 2004; Nielsen, 2010), and the final study used observation of a single practice session (Nielsen, 1999).

Bonneville-Roussy and Bouffard (2015) distributed a questionnaire at two time points over a period of four months to gather information from 173 advanced music students aged 16-30. The aim of the research was to disentangle the roles of practice time, self-regulation and deliberate practice in musical achievement by examining a framework they proposed linking an individual's motivational profile, the amount of time they practice for, their use of formal practice strategies, and their musical achievement. The measure they took for musical achievement was the final grade achieved in the participants' course of study, total practice time was measured using two items during the first round of data collection, and weekly practice and work-play were quantified by asking students to report the number of hours per day and days per week that they practised, and the number of hours per week they spent on musical work and play respectively. The motivational profile of the participants was

measured using the Perceived Competence in Life Domains Scale consisting of four items, administered during the first round of data collection. Formal practice was measured during the second round of data collection and consisted of four criteria: goal direction, focused attention, self-regulation strategies, and deliberate practice strategies. The first two of these were each measured using a single item; self-regulation strategies were measured using nine items from a pre-existing questionnaire (Bouffard *et al.*, 1995); and deliberate practice strategies also adapted several pre-existing questionnaires to suit the purpose producing an eight-item measure.

The number of participants is a strength of this research alongside the use of questionnaires that were already in existence, and as such already had some information regarding their reliability to measure the desired factor. The number of items used to examine each factor varied and, in some instances, there was only one item that weakens any conclusions that might be drawn in relation to those particular factors. Having two rounds of data collection ensured that the authors could ask more questions than they otherwise would have been able to do in just one questionnaire, and having data related to the amount of formal practice completed by the musicians from two separate time points reinforces the validity of any conclusions drawn around that factor.

The paper by Ericsson et al. (1993) contains two studies using mixed methods data collection with the central prediction that elite adult performance was related to the amount of deliberate practice that had been undertaken. The first study concentrated on advanced violin students studying at a Music Academy where professors nominated ten students from three categories: those with potential careers as international soloists, good students, and students from a different department, in this case music education. ten middle-aged violinists from two symphony orchestras in West Berlin were also interviewed. The data collection for this study involved three interviews establishing the background of the participants, an estimation of the hours that they had practised since they started playing the violin, their typical practice and concentration levels over this time, and their life goals. They were also asked to complete a 30-item taxonomy of activities including ten everyday categories and 12 musical categories. For each item, they were asked to estimate the time that they spent on it during a typical week, the effort required to complete it, and the enjoyableness of the activity. The final mode of data collection used by the researchers was a practice diary which the participants were asked to complete every day for a week included the taxonomy of activities among other measures. The second study assessed the practice of 12 expert and 12

amateur pianists, again using an array of data collection techniques over two sessions 7-12 days apart. During the first session, an interview was conducted establishing bibliographical information and an estimation of the practice they had completed since they started playing. A complex movement coordination task was completed and they were introduced to the diary procedure which they completed over the next seven days. During the second session, they were asked to complete a musical performance task, a Digit-Substitution Symbol Test, a two-choice time task, and three finger tapping task to assess their general perceptuomotor speed, speed response, and motor efficiency respectively. Two other groups were interviewed consisting of older age-matched samples of 12 experts and 12 amateurs to establish an estimate of the total time that they had practised.

The use of a diary as a tool is a valuable method of data collection that has not yet been discussed. It allows data collection over a period of days and is more likely to be accurate in relation to the time spent on certain activities than an interview, in which they are considered retrospectively, as it does not rely on longer-term memory. The first study displays this weakness also in estimating the total number of hours practised since they started playing the violin and how the typical practice and concentration levels over this time. Although retrospective questioning is the only way to establish any estimation for this information it requires participants to remember details from years ago and thus the accuracy of the information obtained is unlikely to be high. The nature of self-report items is that people may not be completely honest, either with the researching team or with themselves when it comes to discussing items such as practice length and content. The diary also has the drawback that the researcher is not present when it is completed and so cannot attest that it was done in a timely manner. In this particular study, however, the use of a diary alongside the other methods bolsters the reliability of the findings as it can be used to support or refute the interview findings and provide a quantitative variable in the analysis of the movement task and musical performance task conducted in the second study. The mix of quantitative and qualitative data collected in both of these studies provides a rich source of data and the inclusion of older participants in a selection of the data collection creates a platform upon which the authors can speculate as to how the students are likely to develop as well as countering the innate bias necessitated by asking professors to assign students to different categories.

#### 2.5 GOALS

Of the 22 studies that focused on goals there are no instances in which the goals of performing musicians were examined beyond their involvement in SDT or SRL. The most frequent situation in which goals were assessed was in the workplace with half of the articles examining relationships between goals and the performance of employees. Of the other eleven studies, two focused on theoretical discussions and did not present data, six focused on an educational environment, two examined future selves as goals, and the final study took place under laboratory conditions. All the research concerned was quantitative in nature and the two methods used most frequently to collect data were questionnaires (favoured in the research focusing on education) and interventions (used most frequently in the workplace).

The first research to be examined in this area is that which took place in the workplace, all of which was focused on researching further the theory of goals as a motivational technique put forward by Locke and Latham (1984). As discussed in the previous chapter (Section 1.1.1) the main tenet of this theory was that goals could be used to increase productivity by increasing motivation. The initial findings in a series of laboratory experiments (Locke, 1968) showed that difficult goals produced a higher level of performance than easy goals, specific difficult goals produced a higher performance level than "do your best" goals, and behavioural intentions regulated choice of behaviour. Monetary incentives, time limits, and the effects of knowing results effects on task performance were mediated by goals and intentions. Following this research seven intervention studies were run in the field of business focusing on the relationship between goal difficulty and performance (Yearta et al., 1995) including whether specific hard goals produced a better performance than "do your best" goals (Blumenfeld & Leidy, 1969; Latham & Baldes, 1975), whether incentives could be used to motivate employees (Dockstader et al., 1979), the effects of participative and assigned goal conditions (lvancevich, 1976; Latham et al., 1978; Latham & Yuki, 1976; Yearta et al., 1995).

All the intervention studies mentioned involved gathering research in a workplace environment by running a study that assessed the performance of participants. Two of the studies triangulated their results using data collected from employees and their managers to establish the condition in which maximum increase in productivity was apparent (Latham *et al.*, 1978; Yearta *et al.*, 1995). Other studies made their findings more reliable by using a

control group to compare with those under imposed experimental conditions (Ivancevich, 1976; Latham & Baldes, 1975).

Although the findings of these intervention studies tend towards supporting the theories first put forward by Locke and Latham (1984) there are weaknesses in the studies themselves that would indicate further research would be greatly beneficial in confirming and expanding upon the theories. Firstly, only three of the studies included a control group. Secondly, all the interventions took place in a company environment, a setting in which all variables could not be controlled by the researchers and as a result, there may be separate factors that play a part in the performance of employees that have not been accounted for. In the case of those studies looking at the effects of participative versus assigned goals there was a ratio of managers to employees as high as 1:2 (Latham et al., 1978) with a total of 38 managers taking part in the research. In this research, employees were evaluated on newly advanced criterion measures, validated during the process of development, and consisted of eight behavioural criteria that came from actual behavioural incidents previously reported in the company that were seen to illustrate either effective or ineffective performance. Before this program was introduced to the company managers assessed the performance of employees on a single 5-point scale and so the introduction of the new criteria greatly expanded on this assessment and the work required from the managers. As such it is likely that there is not necessarily continuity across all reports provided by the 38 managers and there may be notable differences between the reports produced and implementation of the program by the different managers. It is important that future research exploring real world situations considers the difficulties in controlling the wealth of variables that present themselves. The current research is looking at an equally complex situation and it is important to be aware of all factors that may influence these goals. As the present research is exploratory in nature the focal point is to identify the goals held by musicians and how these influence content and efficiency of practice, not, as is the case in the previous studies, to implement a program that will improve these things.

A final discussion point in relation to this set of studies is the environment in which they were conducted. The situation of conservatoire musicians is greatly different from any of the workplaces in which the studies were conducted. Students do not have managers to assign them targets and jobs on a day-to-day basis, nor are they in a situation in which they are getting paid for what they do; on the contrary, they are paying for the privilege of attending a conservatoire, or have a scholarship or loan to cover the cost. Setting up a similar scheme to

incentivise students is likely not to work unless it is adapted to suit the alternate environment. Students do have senior figures in their instrumental teachers and conservatoire staff who will set them certain goals and aims and as such there are similarities between the two worlds. There are also assessments of the work that they complete for which they are expected to attain a minimum mark to continue their course. Demands on their time are such that improving the productivity of their practice could be greatly beneficial to their physical and mental health as well as their career as it would create more time in which to complete other activities. Taking this on board it is important that the current research appreciates the research that has been completed studying this field but also takes into consideration any variations that are likely to exist between the two populations and does not assume that the environments or effects of implementing a program will necessarily be the same, especially in the light of SRL in which the environment is a key factor that can affect the quality of work produced. Research is required first to examine how applicable this theory could be to musicians before creating any practical applications.

Education is another field in which goals have been examined using cross sectional and longitudinal methods. One of the six studies discussed possible applications of achievement goal theory of motivation in the classroom environment but presented no novel research. Four of the other five studies included focused on psychology students studying at university with participant numbers ranging from 90 to 604. Three of these studies used questionnaires to quantitatively assess the types of goals that led to improved performance focusing on relationships between motivation, competence, type of goal, and exam achievement (Elliot & Church, 1997), long-term interest in the subject (Harackiewicz et al., 2000), and to test a 2x2 achievement goal framework (Elliot & McGregor, 2001). The study conducted by Bandura and Cervone (1983) is unique in this category as it is the only intervention study to be completed. One of the chief hypotheses of the project was that subjects in a group where goals and performance feedback were administered would display the highest gain in effortful performance, ahead of those in the goals alone, feedback alone, and neither factor conditions. Equal numbers of male and female participants were included in each treatment condition with a smaller sample acting as a control group. Each group was asked to complete a performance task three times, the first setting a baseline and the other two to measure the effects of the goals and feedback conditions, they also completed questionnaires to ascertain their background, physical readiness, self-satisfaction, and selfefficacy.

The intervention was well crafted: going into the session participants were not informed that the main interest was how individually or in combination goals and feedback would affect performance outcomes, but that they were researching performance tasks that could plan and evaluate post-coronary rehabilitation programs. They also were not informed of the number of times they would be required to complete the performance task or the time that had passed during the completion of the task to prevent any alterations in effort based on how far through the process they were. Taking these measures allowed the researchers to minimise the influence of external factors that they were not researching on the results obtained. The use of equal group sizes and men to women ration within each group also was a reasonable step to counter other variances that might occur due to differences in population.

Although there is much research into goals and their affect on attainment and motivation, there is very little completed examining the population of musicians. Taking the findings of other research, such as challenging yet attainable goals producing the best increase in productivity, it would be of interest to assess whether they apply to musician's practice and improvement. As the environment in which people develop into professional musicians is different to a workplace environment, or even a university psychology course, it is to be expected that some adaptations will be required to suit the population, but that the underlying theory could be applicable.

## 2.6 GOALS IN MUSIC PRACTICE

In terms of measuring a musical population the work of Miksza (2009, 2011) is some of the most relevant in relation to this thesis. In this research Miksza studied achievement goal motivation and the practice of music students. To gather data Miksza observed the practice sessions of 60 high school students (2009) and 55 college students (2011), distributing questionnaires to gather data relating to measures of impulsivity, achievement goal motivation and performance achievement. The 2009 study had two purposes: firstly, to investigate relationships between impulsivity, achievement goal motivation, and performance achievement how individual differences in impulsivity and achievement goal motivation were related to observed practice behaviours. Developing from this in the 2011 study he posed four research questions: "Do significant relationships exist between observed practice behaviours and pre- and/or post-test performance achievement? Do individual differences in achievement goal orientations and/or impulsivity interact with

changes in performance achievement over time? Are individual differences in achievement goal orientations and/or impulsivity related to the type of practice behaviours an individual uses? Do the observed practice behaviours vary as a function of performance medium (i.e., brass versus woodwind)?" (Miksza, 2011, p. 54).

For the first of these two articles, the process used by Miksza involved video recording three 25-minute practice sessions completed by high school band students on three consecutive days as they learnt an étude. The recordings were then analysed for evidence of specific practice behaviours. The questionnaire that these students were then asked to complete included the Eysenck Impulsiveness Questionnaire for adults and the Achievement Goal Questionnaire, adapted by the author to suit musicians. The 2011 study focusing on college students was similar in nature but only collected data from one 23-minute practice session, at the end of which they were required to play through the étude from beginning to end as a post-test measure of performance achievement. The practice session was again examined for the presence of specific practice behaviours and the questionnaire distributed included the same measures used previously as well as the addition of the Barratt Impulsiveness Scale. The questionnaire was used to gather information regarding the average minutes spent practising per session, the minutes spent practising per day, the number of practice sessions per day, percentages of time usually spent practising with and/or without a specific musical or technical goal in mind, and how efficient they felt practising was during the study session.

The methods used by Miksza are a valuable springboard from which to design and conduct further research into musicians' goals and practice. The mixed methods approach allowed him to look in detail at a complex real-world scenario and make inroads into explaining how the constructs correlate with one another. It is always important to develop and improve on research designs and so it is important to point out the limitations of this study. The instrumentalists involved played a variety of different instruments but were all asked to perform the same étude. As a result, the performance achievement measure may not account for the requirements of the different instruments. The study also focused on the practice of musicians participating in a wind band, not specifically performance students. Although this is not a weakness in the design of the study, for the purposes of this research it must be considered as it is conceivable that the content of wind band musicians' practice sessions will be different to those of conservatoire level performance students as their aims are likely to differ.

Nielsen (2008a) examined 130 first year tertiary music students focusing on relationships between their achievement goal orientations, instrumental achievement, and learning strategies using a questionnaire consisting of two pre-existing measures, *The Students' Achievement Goal Orientations Scales* (AGOS) and *The Motivated Strategies for Learning Questionnaire*, both applied to instrumental practising. Using the questionnaire allowed her to have a larger number of participants than the studies of Miksza, and use of pre-existing measures ensured that they had been validated in previous research. To increase the validity of her findings Nielsen computed the internal consistency for items in the AGOS, eliminating items with total correlations less than .10. Four other items were also eliminated after loading above .30 on multiple factors within a factor analysis of the scale, again increasing the validity of the analysis.

The main populations examined previously are employees and their managers, students and their parents and teachers, and musicians. There is a direct link between the research presented within this thesis and previous research that focuses on musicians as a population, and so similar methods and measures could be used with relatively little adaptation. The populations of sports men and women, businesspeople, and students naturally have different environments, aims, cultures, and beliefs than those of musicians in relation to goals, self-regulation, and self-determination. As such any measures or methods to be used in conjunction with musicians, previously used in research into other populations, must be suitably adapted to account for these variances while appreciating similarities that make it suitable to use similar methods in analysis

## 2.7 OPTIMAL MUSIC PERFORMANCE STUDIES

The studies completed for the *Optimal Music Performance* (OMP) project predominantly focused on data collected using large-scale questionnaires distributed in multiple institutions, and micro-analytic protocols examining individual's practice sessions. This variety looks at the macro and the micro elements of students' experiences including how the environment affects their wellbeing, and the moment-to-moment quality of their practice sessions.

The questionnaire research published focused on students studying at three institutions across two countries with sample sizes of between 74 and 386. Populations studied were similar and the measures used to test the variables all had a good to excellent Cronbach's alphas. (Miksza *et al.*, 2019a; Miksza *et al.*, 2019b). One weakness of both studies was that

the results were based solely on self-report measures and so depended on the reliability of individual students' personal responses. Many of the measures used also lack public norms so descriptive statistics were compared to the mid-point of the scales rather than other populations.

The micro-analytic protocol developed and tested (McPherson *et al.*, 2019) was intended to identify whether it was a valid means of gathering data relating to the SRL exhibited in individuals' practice sessions. The protocol was based on that of Cleary *et al.* (2012) which asserts that for micro-analytic a well-defined task should be selected, target SRL processes should be identified, SRL micro-analytic questions should be developed, task dimensions should be linked to the cyclical phase processes, and scoring procedures should be developed. The OMP study elected to examine a music practice session, targeting all processes in the three-phase SRL model (as shown in Figure 1.4), developed 18 questions linked to the task and context of the practice session, administered the questions at suitable points in the process, and used three question formats: Likert scales, ranking items, and open-ended questions coded independently by two researchers.

Two planists were studied, each examined on three occasions, one achieving the highest audition ranking upon entry to the course she studied and the other the lowest. For each set of data collected forethought processes were discussed prior to the practice session, the session was then conducted and video-recorded, 30 minutes of the video was reviewed by the researcher and participant focusing on processes in the performance phase of the model, and finally the participants were asked to evaluate how productive and fulfilling the session had been in terms of the goals they had set. The researchers felt that the pianists were receptive to the questions and the broader constructs of the techniques used. They also believed the process allowed them to focus on the moment-to-moment fluctuations in practice quality. As might be expected the two participants demonstrated distinctly different practice habits with the higher achiever demonstrating greater SRL processes, and the lower achiever showing reactive and habitual strategy use. The protocol outlined was able to identify the differences between two individuals at the same stage in their education and, based on findings from other SRL research, was able to identify possible reasons why one individual achieved higher marks than the other. With no other studies conducted in this manner within the same population its accuracy is hard to gauge, but it provided a thorough, in-depth analysis of pianists SRL processes based strongly on SRL research which has been validated in other areas.

The research conducted in this thesis will fill in the gap in knowledge that exists around the goals of musicians. As is clear from Table 2.1 there are no studies that specifically examine the goals of top-level musicians, nor comparisons between these and the practice efficiency or motivation exhibited in conjunction with them. The work of Miksza has started the process but it does not focus specifically on performance students or expert performers, neither is it directly linked to SRL, although there are elements that are comparable. There is a need for research to be completed using the strong theoretical support and knowledge that comes from theories such as SRL and SDT, into specific populations, such as expert musicians, to expand our knowledge of such constructs and improve the practice of the players themselves.

## 2.8 DISCUSSION

With the advancement of the theories of self-regulation and self-determination over the past three decades it is important to provide a clearer understanding of their constituent elements. As goals are a key foundation in both these approaches they would benefit from a more concise understanding in context specific situations. Understanding the goals that conservatoire music students set for themselves will help us identify the most effective learning processes that foster the highest quality motivation encouraging musicians to practise of their own volition from an early age and in a self-regulated manner.

In the entirety of the literature examined in the present chapter, questionnaires were the most frequently used method of data collection. They enable access to large numbers of potential participants with less time-consuming ways to collect and organise the data. This particular strength of questionnaires however comes with the limitation that they often consist of self-reported items only and frequently are only used at one time point. These are factors that can be circumvented by distributing questionnaires to the population of interest as well as other significant people connected to them, as was done in several of the articles examining goals as a motivational technique (Latham *et al.*, 1978; Yearta *et al.*, 1995), where data was collected from both employees and managers. Distributing questionnaires at multiple times points would also be beneficial as demonstrated in Bonneville-Roussy and Bouffard (2015) who used a questionnaire at two time points allowing them to collect more information while limiting the influence of survey fatigue, as well as gathering the same information from two time points for certain measures. Outside of research using only questionnaires, techniques have also been used by other researchers to enhance the

reliability and validity of their conclusions. Renwick and McPherson (2002) used multiple sources to collect information about the focal population by conducting interviews with young children (the population of interest), as well as their mothers, classroom teachers, and instrumental teachers. Multiple interviews were conducted with all of these people over a three-year time span in relation to one young girl, information gleaned was then triangulated with videotapes of practice sessions taken over the same timeframe allowing researchers to compare the potentially biased reports of those closely related to the child with their own observational analysis of the videos.

There are many other methods that have been used to collect data including the use of diaries (Ericsson *et al.*, 1993; Ginsborg, 2009; Ginsborg, 2017), video recall procedures (Nielsen, 2001), microanalysis (Cleary & Zimmerman, 2001), and interventions (Bandura & Cervone, 1983; Bathgate *et al.*, 2012). These methods each have their own strengths and limitations, and one way to strengthen the reliability and validity of research is to use them in conjunction with one another. To do so it would be beneficial to gather data from large numbers of people and in-depth information that, pragmatically, requires the study of smaller numbers. Another key aspect to consider is the temporal aspect of data collection. Although single time point data is useful, it is also beneficial for the current research to include data collected over a longer period of time to establish whether motivation and self-regulation adapt or stays constant over time and the effect this has on the efficiency of practice sessions.

To fulfil these requirements three studies were undertaken for this thesis: the first was an online survey to enable a greater number of musicians to be surveyed consisting mostly of pre-existing questionnaires (Chapter 3); the second focused on two conservatoire violin students examining in detail the process of learning a new piece of music and preparing it for performance (Chapters 4 & 5); and finally the third study looked at the practice of three conservatoire violin students over the period of two terms examining their weekly practice habits (Chapters 6, 7 & 8). The questionnaire was developed as part of the *Optimal Music Performance* project and used measures adapted for musicians that have been previously used in other research and proven to be valid and reliable. The Aspirations Index has not been used in the context of music practice and so component analysis was performed in the current research, alongside tests for sampling adequacy to determine whether it was a valid measure for the population of musicians (further details in section 3.2.3).

The procedures in the second and third studies both included use of a self-regulation practice diary, video recording of practice sessions, video recall procedures, and semistructured interviews. The use of multiple methods within a pragmatic epistemology means that in-depth data can be collected and triangulated, increasing the reliability of findings. The video-recall procedure was included in preference to only an interview as encouraging the violinists to watch their practice back helped remind them of what they did and so increase the validity of their reports as well as encouraging the to think about the moment-to-moment decisions they made as opposed to discussing the overall session. The semi-structured interviews also included information about the violinists' backgrounds enabling comparisons between the participants to consider their history as well as their current practice habits. Although the self-regulation practice diary has not been frequently used in previous research, it was created based on a strong theoretical foundation of SRL research into education and musicians' practice.

The final chapter draws the strands of research together to form an overall conclusion based on data collected from the variety of methods that have been used and examines the contribution made to knowledge of the related constructs.

# CHAPTER 3 STUDY 1 SURVEY

## **3.1 INTRODUCTION**

The first study reported in this thesis used a questionnaire distributed to students at UK conservatoires aiming to identify links between self-regulation, motivation, and goal setting. The principal framework adopted was self-determination theory (SDT; Deci & Ryan, 1985). The fundamental principle of SDT is that support of autonomy, competence, and relatedness leads to greater internalisation of motivation (see Section 1.2). Within the theory, motivation is categorised as 1) intrinsic, where tasks are completed because they are inherently enjoyable; 2) identified, in which the motivation is assimilated to parts of the self and the action is undertaken willingly; 3) introjected, a less internally valued form with greater imposition of a behaviour from external factors; and 4) extrinsic, completely enforced by an external entity (Deci & Ryan, 1985).

Findings have shown that these three basic psychological needs (BPN) are positively related to wellbeing (Reinboth *et al.*, 2004; Ryan & Deci, 2000a) and intrinsic motivation (Deci *et al.*, 1999; Standage *et al.*, 2005), and that the undermining of BPN can have a negative effect on intrinsic motivation (Harackiewicz *et al.*, 1984; Hagger & Chatzisarantis, 2011). In sports, environments and coaches conducive to BPN support have been shown to have positive effects on concentration, positive affect, preference for challenge (Standage *et al.*, 2005), and intrinsic motivation, which itself was associated with persistence (Pelletier *et al.*, 2001). In workplace environments, support of BPN has been linked to enhanced performance, and individuals who felt they had autonomy-supportive managers also showed higher ratings of intrinsic motivation (Baard *et al.*, 2004).

SDT is domain specific so high levels of psychological need support and internalisation of motivation in relation to one field, does not necessarily lead to high levels in other areas. Research into the self-determination of musicians has found support of BPN was associated with autonomous motivation (Evans & Bonneville-Roussy, 2015) and engagement in learning (Evans *et al.*, 2013), whereas thwarting of the needs has been linked to ceasing music learning (Evans *et al.*, 2013). Senior figures support of the basic needs has a strong

impact upon the internalisation of motivation (coaches in sports and mangers in the work place), this was also found to be the case in music learning where instrumental teachers have a strong influence on their students' perception of needs support and their motivation to continue learning (Küpers *et al.*, 2014).

Vallerand (1997) identified three levels at which motivation was experienced: global (overall disposition), contextual (specific domains), and situational (moment-to-moment). SDT deals predominantly with the contextual level, and to some extent examines the situational level associated with the domain being examined. Practice sessions would be a key example of situations in which musicians' overall motivation for playing (domain level) and their moment-to-moment motivations (situational) both have an impact upon their attainment in the session. The intention behind an action will affect the motivation to complete it at both domain and situational levels. The reasoning could be intrinsic and aimed at a goal that was viewed as personally fulfilling, or it could be extrinsic and completed to achieve an externally prescribed goal. Intrinsic goals have been found to link with greater wellbeing and self-actualisation whereas extrinsic goals have been associated with higher control orientations, lower psychological adjustment, and greater distress (Kasser & Ryan, 1993, 1996).

Goals set by external bodies have been found to be most effective in producing optimal attainment when they were set at levels that reflected the desired standards of the employees (Gómez-Miñambres, 2012). This suggests personal agency is an important factor in goal setting to promote high levels of attainment, and that goals more assimilated to one's sense of self are more likely to foster higher levels of motivation for completion. Other research into the goal setting of musicians has found that personally selected musical repertoire encourages longer time spent practising pieces and higher levels of persistence (Renwick & McPherson, 2002). It has also been shown that strategic, goal-directed practice positively affected performance achievement (Miksza, 2011).

In order to promote effective practice and high-quality motivation, it is important to understand the relationship between BPN support, motivation, and goals in musicians. Greater knowledge about the links between these constructs will enable greater comprehension of the areas that require adaptation to promote higher self-actualisation and achievement among musicians. The three hypotheses tested in this chapter are that, within the domain of music, support of the BPN will lead to more intrinsic motivation; higher intrinsic

motivation will relate to higher long-term goal importance and likelihood; and finally, that current attainment of goals will link to the perceived support of BPN and internalisation of motivation. To test these assumptions, a survey was distributed among conservatoire music students studying performance at UK conservatoires.

## 3.2 METHOD

#### 3.2.1 Respondents

Students studying performance at UK conservatoires, either at undergraduate or postgraduate level, were invited to take part in the survey. 46 musicians completed the survey, 16 men and 30 women, with a mean age of 22.7 (SD=3.56). Conservatoires represented were the Royal College of Music, Royal Academy of Music, Guildhall School of Music and Drama, Royal Northern College of Music, Trinity Laban, and Royal Welsh College of Music and Drama. String players made up 41% of the sample, 23% played a woodwind instrument, keyboard players represented 16% of the sample, 11% reported their principal instrument was voice, and 9% played brass instruments. Reports showed they had been playing their instrument for between 2 and 20 years with a median of 12, and they had been studying for between 1 and 17 full terms at a conservatoire (median = 5).

## 3.2.2 Procedure

Conservatoire music students were sent a link to the survey (see Appendix A) and an invitation to take part, which explained the purpose of the research. This was distributed on two occasions. Six people filled in the survey on both occasions (identified by their student ID and email), so their data were removed from the second set. The consent and survey were completed online and ethics approval was obtained from the CUK Research Ethics Committee and, where necessary, from the individual conservatoire's ethics committees. The platform hosting the survey was part of the University of New South Wales website, an institution involved in the *Optimal Music Performance* project, and it took roughly 15 minutes to complete the survey.

#### 3.2.3 Measures

Demographic information about the respondents was ascertained regarding the conservatoire they studied at, their gender, how many full terms they had completed at a conservatoire, the number of years of formal music lessons they had undertaken, what instrument they were studying, and their date of birth. Other measures in the questionnaire included the Aspiration Index, the Balanced Measure of Psychological Needs for Music, and

the Self-Regulation Questionnaire for Music, more details of these are given in the following sections.

*Aspirations index.* To measure the long-term aspirations of participants, the Aspirations Index (AI) was used (Kasser & Ryan, 1993) as a domain-general measure. The scale comprises seven items and asks the respondent to rate, on a 7-point scale from 'not at all' to 'very', how important, likely, and currently attained a goal is for them. The categories of aspirations used are split into extrinsic goals relating to wealth, fame and image, intrinsic goals relating to meaningful relationships, personal growth and community contribution, and the aspiration of good health which was neither intrinsic or extrinsic. The scale was adapted to make it more appropriate to the context of music and is referred to as the AI-Music throughout the rest of this chapter, items are outlined in Table 3.1. The item relating to good health was omitted as it was not pertinent to the hypotheses being tested.

Table 3.1 Items used for the AI-Music.

Intrinsic To share my music with any audience To play for the love of it
To express myself artistically through my work as a performing musician
Extrinsic
To be liked by large audiences
To earn lots of money performing
To become a world-renowned musician

*Psychological needs satisfaction.* The Balanced Measure of Psychological Needs for Music (BMPN: Sheldon & Hilpert, 2012; BMPN-Music: Evans & Bonneville-Roussy, 2015) was used to measure autonomy, competence, and relatedness using four positively worded items and four negatively worded items for each dimension. A complete list of the statements used for each psychological need is shown in Table 3.2, each was measured on 7-point scale from 'strongly disagree' to 'strongly agree'. The stem - 'As a music student' - was stated before the items to clarify the intended context.

### Table 3.2 Items used for the BMPN-Music.

# Autonomy

## Positively worded items

- I feel a sense of choice and freedom in the things I undertake
- I feel that my decisions reflect what I really want
- I feel my choices express who I really am
- I feel I have been doing what really interests me

## Negatively worded items

Most of the things I do I feel like "I have to"

- I feel forced to do many things I wouldn't choose to do
- I feel pressured to do many things
- My daily activities feel like a chain of obligations

## Competence

## Positively worded items

- I feel confident that I can do things well
- I feel capable at what I do
- I feel competent to achieve my goals
- I feel I can successfully complete difficult tasks

## Negatively worded items

- I have serious doubts about whether I can do things well
- I feel disappointed with many of my performance
- I feel insecure about my abilities
- I feel like a failure because of the mistakes I make

#### Relatedness

#### Positively worded items

- I feel that the people I care about also care about me
- I feel connected with people who care for me, and for whom I care
- I feel close and connected with other people who are important to me
- I experience a warm feeling with the people I spend time with

#### Negatively worded items

- I feel excluded from the group I want to belong to
- I feel that people who are important to me are cold and distant towards me
- I have the impression that people I spend time with dislike me
- I feel the relationships I have are just superficial

Internalisation of motivation. The Self-Regulation Questionnaire – Music (SRQ-Music) was used to assess the type of motivation related to music practice, adapted by Evans and Bonneville-Roussy (2015) to suit the musical setting from Ryan and Connell's measure used in academic settings (Ryan & Connell, 1989). Four types of motivation were measured, intrinsic, identified, introjected and extrinsic, and the items used to measure these are outlined in Table 3.3. The stem - 'the main reason I practice is' - was stated before the items

to clarify the context, and the items were measured on a 7-point scale from 'strongly disagree' to 'strongly agree'.

Table 3.3 Items used for the SRQ-Music.

Intrinsic Because I enjoy practicing Because I love practicing Because it is fun to practise Because practicing will help me increase my skills

Identified

Because practicing will help me increase my skills Because practicing is useful for me Because I want to become a better musician Because practice is important to my future

Introjected

Because I want people to think I'm good at music So I can show off if I do well Because I will feel bad or guilty if I don't practice Because I will feel ashamed of myself if I don't practice

Extrinsic Because I have no other choice but to practice Because my parents, teachers, or peers expect me to practise Because I am supposed to practise Because I have to practise

## 3.3 RESULTS

Principal component analysis with varimax rotation was conducted separately on the importance, likelihood, and attainment dimensions of the AI-Music to support the classification of the items as intrinsic or extrinsic. Eigenvalues greater than one were retained. Kaiser-Meyer-Olkin (KMO) tests were also run to check for sampling adequacy. For the dimension of importance, the KMO was 0.71, greater than the 0.5 suggested by Field (2000) to assess the adequacy of the sample. The principal component analysis showed that the results loaded onto two factors, intrinsic and extrinsic aspirations (weightings above 0.3 are set out in Table 3.4). 'To share my music with any audience' loaded on the extrinsic scale more than the intrinsic scale by a small margin. The factor was intended as an intrinsic measure but did not load strongly on either component and so the remaining analyses use an overall importance score computed by averaging the importance scores for all items on the AI-Music.

Table 3.4 Importance of aspirations.

	Component	
	1	2
To become a world-renowned musician. – Importance	0.812	
To express myself artistically through my work as a performing musician. – Importance		0.818
To earn lots of money performing. – Importance	0.843	
To play for the love of it. – Importance		0.767
To be liked by large audiences. – Importance	0.837	
To share my music with any audience. – Importance	0.485	0.595

For the aspiration likelihood dimension the KMO was 0.81, once again higher than the suggested 0.5 (Field, 2000). The factors (weightings above 0.3 set out in Table 3.5) loaded in the same manner as they did in the analysis of the importance dimension other than data collected related to the variable 'to share my music with any audience', which loaded on the intrinsic component, and 'to earn lots of money performing' showed a slightly higher loading on the intrinsic component. As the cross loadings were apparent a composite score of average likelihood was used in all further analyses, calculated by averaging both the intrinsic and extrinsic items of the AI-Music related to likelihood.

Table 3.5 Likelihood of aspirations.

	Component	
	1	2
To become a world-renowned musician Likelihood	0.798	
To express myself artistically through my work as a performing musician. – Likelihood		0.830
To earn lots of money performing. – Likelihood	0.747	0.306
To play for the love of it. – Likelihood		0.826
To be liked by large audiences. – Likelihood	0.839	
To share my music with any audience Likelihood	0.531	0.657

The attainment dimension, based on the extent to which the participants felt they had already achieved the aspirations outlined in the questionnaire, had a KMO of 0.73 and, as the weightings in Table 3.6 show, three factors cross loaded onto both dimensions: 'to express myself artistically through my work as a performing musician', 'to be liked by large audiences', and 'to share my music with any audience'. Because these three factors did not strongly load as expected, all further analyses used a composite score of attainment that was calculated by averaging all attainment items on the AI-Music.

Table 3.6 Attainment of aspirations.

	Component	
	1	2
To become a world-renowned musician Attainment	0.746	
To express myself artistically through my work as a performing musician. – Attainment	0.459	0.567
To earn lots of money performing Attainment	0.786	
To play for the love of it Attainment		0.839
To be liked by large audiences Attainment	0.696	0.545
To share my music with any audience Attainment	0.527	0.655

As the sample size on this occasion was small, and confirmatory factor analysis of the BMPN-Music and the SRQ-Music have already been conducted on larger sample sizes (Evans & Bonneville-Roussy, 2015), the fit of the measures was assumed to be representative of the items measured. Descriptive statistics for the calculated variables used in analysis are presented in Table 3.7.

The first prediction in the current chapter was that support of BPN would correlate positively with more intrinsic levels of motivation. To test this, a linear regression was performed using the mean calculated score for the basic needs and the calculated RAI. This resulted in a significant effect of BPN support (p<.001) accounting for 28.4% of the variance in internalisation of motivation.

	Mean	S.D.	Range
Basic psychological needs	5.07	0.83	3-7
RAI	4.60	6.21	-13-17
Importance	5.33	1.02	3-7
Likelihood	4.42	0.99	2-6
Attainment	3.79	0.94	2-6

Table 3.7 Descriptive statistics for measures used in the analyses.

The second prediction was that the internalisation of motivation would correlate with the goal importance and likelihood. Overall importance and likelihood scores were calculated by averaging responses to the intrinsic and extrinsic items on the AI-Music. Two linear regressions were then performed to examine this, firstly regressing motivation on overall importance of aspirations and secondly on overall likelihood. The first regression analysis showed no significant relationship between motivation and importance of aspirations, suggesting that the internalisation of motivation measured on the BMPN-Music did not correlate with importance of the long-term aspirations in the AI-Music. The second linear regression found a significant effect of motivation on likelihood of aspirations (p<.001) accounting for 33.0% of the variance in the sample.

The final hypothesis, that current attainment of goals would predict the perceived support of BPN and internalisation of motivation, was tested using a further two linear regression analyses. The first of these found no effect of goal attainment on BPN. The regression of goal attainment on motivation found a positive significant effect of attainment on internalisation of motivation (p<.05) accounting for 12.1% of the variance.

### 3.4 DISCUSSION

It was expected that the survey would show that perceived support of BPN would be linked to higher internalisation of motivation, which itself would be linked to higher ratings of long-term goal importance and likelihood. It was also hypothesised that current goal attainment would positively correlate with higher perceived support of BPN and greater internalisation of motivation. Responses to the survey distributed suggest that support of the BPN was associated with more internalised motivation, in line with much of the research completed into SDT and suggesting internalisation of motivation is linked with support of the

need for autonomy, competence, and relatedness (Baard *et al.*, 2004; Küpers *et al.*, 2014; Standage *et al.*, 2005).

The second hypothesis, that conservatoire music students with more internalised motivation for practice would rate their long-term aspirations as more important and likely, was not supported in relation to aspiration importance, but it was in relation to aspiration likelihood. This could reflect the fact that the composite score for importance and likelihood used in the calculations, which included both the intrinsic and extrinsic goals measured, is likely to impact upon the importance ratings of some goals. It is possible that intrinsic goals are perceived as more important as they are more assimilated to the self, whereas extrinsic goals may not be judged as so important. In the case of goal likelihood, the difference between intrinsic and extrinsic goals may not be as marked as, if the need for competence is met, the respondents possibly felt they would be able to achieve the goal whether it was intrinsically important to them or not.

The final hypothesis, that current goal attainment would affect perceived support of BPN and internalisation of motivation, was supported in part by data gathered. It suggested that current attainment impacts motivation relating to that domain. Findings did not, however, demonstrate a relationship between current attainment and support of BPN. It may be that the goals themselves provide a motivational structure that positively impacts respondents' motivation without impacting directly upon the BPN, or it may be that the small sample size did not demonstrate the anticipated finding.

Connections between support of the BPN and internalisation of motivation have been well documented (Deci *et al.*, 1999; Evans & Bonneville-Roussy, 2015; Standage *et al.*, 2005), but research assessing connections between these and long-term aspirations is scarce. Although the current study had a low number of respondents, it does provide an initial insight into potential links and areas of interest for future research which could ultimately lead to an understanding of how goals can best be used not only to outline long-term aims, but also to support the motivation to achieve them. In the future one area that would be particularly interesting would be looking at the different effect intrinsic and extrinsic aspirations may have on motivation.

The broader aim of this thesis was to examine a combined model of self-regulated learning, SDT, and goal setting (Figure 3.1). The research presented in this chapter focuses

predominantly on the connection between SDT and goal setting and has shown that there are some bidirectional connections between goals and motivation. To continue from this, it is important to examine how these findings fit into a broader picture that encompasses SRL and the effects this may have on the learning processes in the performance and self-reflection phase and how these, in turn, affect goal setting and motivation.

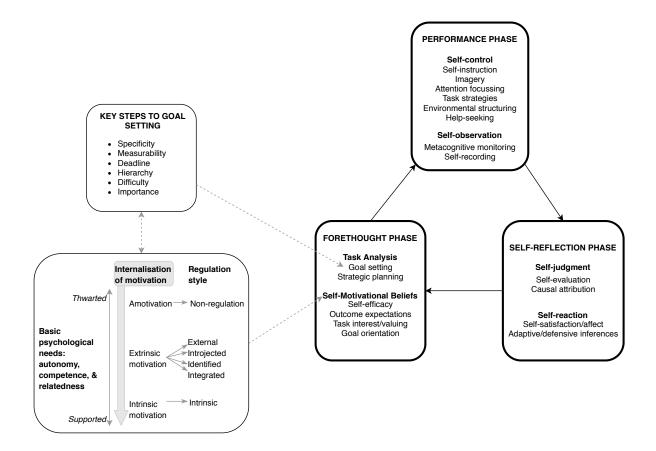


Figure 3.1 Model of the relationship between SRL, SDT, and goal setting.

The following chapter examines an in-depth analysis of violinists learning a new piece of self-selected music, focusing on their practice processes, and provides a discussion of their practice based on a video recall procedure. Moment-to-moment motivations and actions are considered alongside a more distal view of the time spent learning the piece, and how their practising may have changed as they become more familiar with the music and move towards a public performance.

# CHAPTER 4 STUDY 2 THE GOALS OF VIOLINISTS

## **4.1. INTRODUCTION**

The second study completed for this thesis was an exploratory case study focusing on two conservatoire violinists. The purpose of the research was to identify the extent to which these violinists made and used goals in their day-to-day practice, the motivation they possessed to attain the goals, strategies they used in their day-to-day practice and how these affected their goal attainment, and whether the goals they set changed as they progressed through the learning process. The current chapter focuses on the goals that the violinists set for themselves while the strategies used and attainment of these goals are examined in the Chapter 5.

As was identified in Chapter 1, goals are an important part of the self-regulation cycle of forethought, performance, and self-reflection. They provide key aims that are set out during the forethought phase and can be used to control affect and behaviours during the performance phase. At the conclusion of the performance phase, musicians reflect in terms of the success or otherwise of their efforts. This can include reflections on the use of goals and practice strategies. The current chapter focuses on the forethought phase of the self-regulation cycle, the main components of which are task analysis (goal setting and strategic planning) and self-motivational beliefs (self-efficacy, outcome expectations, task interest/value, and goal orientation). To examine these constructs in more detail, two other theoretical approaches are employed: Locke and Latham's theory that goals can be used as a motivational technique (1984), and self-determination theory (SDT) developed by Deci and Ryan (1985).

Figure 4.1 indicates the predicted links between the forethought stage of self-reflection and the other two theories, with Locke and Latham's goal setting theory explicating more detail in relation to the quality of goals set, and SDT relating to the self-motivational beliefs in self-regulated learning (SRL), focusing on the motivation to complete specific tasks and aims.

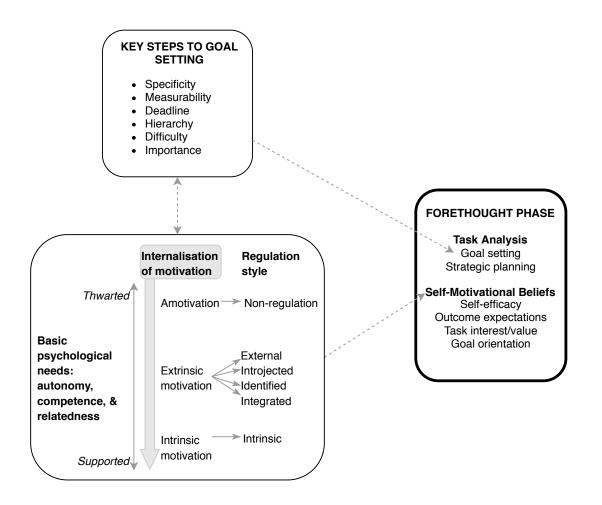


Figure 4.1. Model of the relationship between forethought, SDT, and goal setting.

Locke and Latham initially proposed seven steps to optimal goal setting which were condensed to six components for the current research: specificity, measurability, deadline, hierarchy, difficulty, and importance. The alterations exhibited are intended to modify the model to suit the current population and the purpose of the research, namely that the focus is not on the setting of goals to promote optimal achievement, but on the content of the goals being set currently by musicians. When these steps were developed, most research conducted in this field was focused on the business world, looking at external goals set by managers and examining how these could be developed to promote motivation in employees to achieve greater productivity (Blumenfeld & Leidy, 1969; Latham *et al.*, 1978; Latham & Yuki, 1976; Stansfield & Longeneker, 2006). This study has a different focus in the private practice of conservatoire music students, and as such these adaptations have been made to reflect the potential for intrinsic goals as well as extrinsic goals. The final step to determine coordination requirements was omitted as the focus on private practice meant that it was expected that most of the goals set would be a personal aim for the practice session with few requirements to coordinate with others beyond seeking advice. The first and third key step were merged into specificity as the third step, to specify the standard or target, was essentially an extension of the first, to specify the general objective or task, and in this instance the order in which the steps are completed is not a focal point. The final change was to separate step six into two separate components of difficulty and importance rather than viewing them on the same level. This was done because in SRL difficulty of goals is assessed as a separate factor to importance (Zimmerman, 2000).

The forethought phase of the self-regulation cycle consists of two items, task analysis and self-motivational beliefs, and the research suggests that the factors that feed into these will affect the quality of self-regulation exhibited by an individual when performing a task (Zimmerman, 1989; Zimmerman, 2000). The goal setting theory discussed provides deeper insight into the goal setting element of forethought and can be used to assess the effectiveness of goals that are being set by musicians. It is also important in this research to examine other facets that may influence this process, including the self-motivational beliefs of individuals. To achieve this, SDT is examined for its potential to provide a deeper understanding of the concepts involved.

The literature review in Chapter 1 outlined the focus of SDT as the internalisation of motivation for completing tasks, from amotivation, through extrinsic motivation, to intrinsic motivation, achieved through supporting basic psychological needs (BPN) (Deci & Ryan, 2000). In the model (Figure 4.1) it is proposed that this will feed into the self-motivational beliefs component of the forethought phase in self-regulation, as well as having an affect on the types of goals that are set. In his research, Zimmerman clarified task interest or value as focusing on the intrinsic or extrinsic nature of a goal (2000), fitting in with the idea of internalisation of motivation outlined in SDT. Bandura promoted the idea of self-efficacy as being influential upon achievement defining it as, "the conviction that one can successfully execute the behaviour required to produce the outcomes" (Bandura, 1977, p.193). This research was used by scholars focusing on both SRL (McPherson & McCormick, 2006; Pelletier *et al.*, 2001; Zimmerman, 1989) and SDT (Deci & Ryan, 2000; Vansteenkiste *et al.*, 2005). In SRL the concept of self-efficacy was incorporated into the forethought phase under the self-motivational beliefs component. BPN for competence, the need to enact behaviours effectively and feel capable of achieving certain actions (Ryan & Deci, 2000a), is closely

linked to self-efficacy as can be seen in the similarity between the definitions of both which have two components: 1) a sense of capability and belief that one can complete a certain behaviour, and 2) the ability or belief of ability that enables one to enact those behaviours.

SDT lacks specificity beyond intrinsic and extrinsic aspects of goal content. When applying the theory to elucidate on the self-motivational beliefs in SRL, it does not improve our understanding of all the elements involved. For example, goal orientation, focusing on mastery or learning goals as having positive influences on task achievement and performance goals as having a negative impact upon task achievement (Zimmerman, 2000), is not covered in the research into the theory. Neither are the outcome expectations considered, although in SRL they are a key part of the motivational process. Locke and Latham's goal setting theory provides more detailed information in relation to some of these components, predominantly the content of goals. The hierarchy and goal importance elements of the theory touch on some of the concepts within outcome expectations and goal orientation, but are not similar enough in theory to justify using one to replace the other. As such for these elements it will be important to examine results in relation to both theories.

SRL identifies salient features of goals being their orientation (mastery or learning), whether they are intrinsic or extrinsic, and their specificity, difficulty and hierarchy (Zimmerman, 2000). These tally with aspects of Locke and Latham's key steps which also focus on the features of specificity, difficulty, importance, hierarchy, measurability, and deadline pertaining to goals. SDT operates in a slightly different manner when looking at goals as it examines the motivation of a person to complete actions which, in themselves, are likely to lead to goal attainment. The intrinsic and extrinsic focus of SDT is an element not covered in Locke and Latham's theory, and as the framework for SRL includes this distinction, using a theory that examines the construct in more detail is of benefit.

Employing SDT and Locke and Latham's theory to provide a more detailed comprehension of the elements included in SRL will provide an understanding of how these processes work and relate with each other. Figure 4.1 provides a possible option for the combination of these theories and will be examined in relation to the data gathered to assess its compatibility with violinists' day-to-day and longer-term practice goals. Should this model appear to be functional in a musical environment discussion will examine how it could be used by musicians to help improve their goal setting abilities and their achievement of these goals.

## 4.2. METHOD

#### 4.2.1. Participants

Two violinists were chosen using convenience sampling as case studies for the current chapter. Both were women, studying on postgraduate courses in violin performance at a UK conservatoire, and aged 24. They were both preparing to learn a new piece for a forthcoming performance, and while they had heard their respective pieces before the study commenced, neither had played them previously. The first musician, who will be referred to with the pseudonym Laura, chose to learn a piece called "Distance de Fée" by the Japanese composer Toru Takemitsu written in 1951 (excerpt shown in Figure 4.2). The second musician, referred to henceforth as Rebecca, was learning the *Adagio* from Brahms' Violin Concerto in D Major, Op. 77, composed in 1878 (excerpt shown in Figure 4.3). Further details about the pieces are summarised in Table 4.1. As motivation is central to the current research, it was decided the participants should decide on the piece to play for themselves and not have a piece selected for them as it would affect their motivation to learn the piece. As the research is exploratory in nature, the difference between the pieces will allow for some understanding of whether different strategies are used for different styles of piece, or whether there is a tendency to follow a similar pattern for all music learned.

	Laura	Rebecca	
Title	Distance de Fée	Adagio (movement II), Violin	
		Concerto in D Major, Op. 77	
Composer	Toru Takemitsu	Johannes Brahms	
Date composed	1951	1878	
Number of bars	71	116	
Number of notes	293	563	
Performance length	c. 8:00	c. 9:30	

Table 4.1. Information about the music played by each case study.

## 4.2.2. Procedure

Data were gathered at three time points as the participants learned their respective pieces of music and prepared them for performance. Each sequence of data collected consisted of four elements: a self-regulation practice diary, a practice session that was video recorded, a micro-analytic video recall procedure based around the recorded practice session, and a semi-structured interview. The first sequence of data collection occurred on the day each musician first practised their chosen piece, the second was roughly half way through the learning process and based around when the participant felt she knew the repertoire well but was still learning some of the details, and the third and final sequence occurred in the week preceding the participants' first public performance when each had stated that she was putting the finishing touches to their pieces (Figure 4.4).

On each occasion before starting their practice, the participants were asked to fill in the first section of the self-regulation practice diary based around the forethought phase of the self-regulation cycle. The participants were then asked to practise in their normal manner for up to 45 minutes focusing predominantly on the piece they were learning. Immediately following the practice session both participants were asked to complete the final two sections of the practice diary relating to the performance and self-reflection phases of self-regulation. Participants then took part in a video recall procedure whereby they watched the video of the practice they had just performed and answered questions focusing on the three processes of self-regulated learners: forethought, performance, and self-reflection. To conclude the data collection, a semi-structured interview was conducted collecting demographic information about the participants, more detailed information regarding the longer-term goals they were pursuing, and the strategies they could adopt to achieve these goals.

Participants reported not being put off by the video recorder in the room after the first few minutes of their practice. Neither had completed a video recall procedure on their practice sessions before so at the beginning of this part of the data collection they required a lot of prompts from the researcher to encourage them to discuss their practice and steer them towards the subjects of interest, however once they became used to the process the prompts became less frequent.

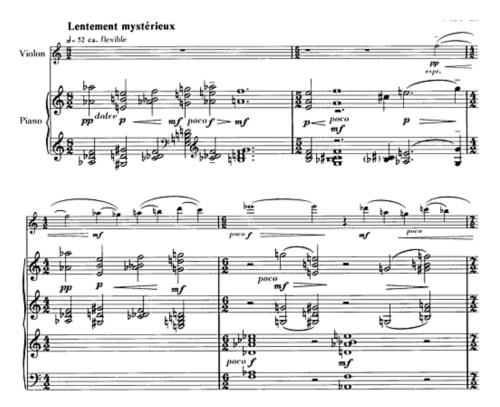


Figure 4.2. An excerpt from Takemitsu's Distance de Feé.



Figure 4.3. An excerpt from Brahms' Violin Concerto in D, second movement.

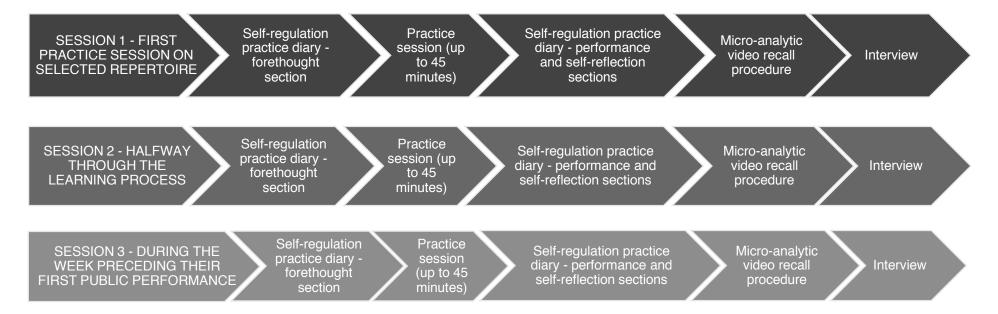


Figure 4.4. Process diagram of the procedure used to collect data.

#### 4.2.3. Materials

The self-regulation practice diary consisted of three sections (see Appendix B). The initial section, completed before commencing the practice session, focused on the forethought phase and asked the participants to set out the goals on which they planned to focus in their practice and the strategies they would use to do this. The section also included questions regarding the extent to which they had mastered their repertoire, the confidence they had that they could master it in the forthcoming session, the confidence they had that they would master it by the time they performed it, their personal interest in the repertoire, and the longer-term value they placed on the repertoire. Following the practice session the participants completed the final two sections: performance, in which they were asked how they focused their concentration and monitored their practice; and self-reflection, in which they were asked to rate the effectiveness of their strategies, and to what extent the practice was typical or atypical, unfocused or focused, stimulating or tedious, frustrating or satisfying, and completely disappointing or completely satisfying.

The diary was developed based on a similar diary being used with pianists in a pilot study in Australia for the OMP project. It was constructed to specifically target elements of SRL in music practice focusing on the forethought, performance, self-reflection cycle. Specific explanations for how to complete each question were included on the left-hand side of the diary and the participants filled them in with the researcher present so they were able to ask questions if anything was unclear. They were also informed before completing the diary that if they felt they did not have enough space to respond appropriately to any of the questions that they could finish their response in other empty space on the paper. Both participants reported feeling the diary aided their practice in providing a focus, but that they would not choose to use it in the format presented on a daily basis, instead indicating that they would take certain elements from it if they decided to start a personal diary.

The present chapter solely examines the goals outlined by Laura and Rebecca in the initial section of the practice diary on each occasion data was gathered, as well as information pertaining to the participants' other goals identified in the video recall or interview processes (see Appendix C for the interview schedule). The next chapter examines other data collected.

#### 4.2.4. Case Studies

## 4.2.4.1. Laura

The first case study was a 24-year-old student studying a postgraduate degree in violin performance who possessed absolute pitch. She began learning the violin in private lessons aged two alongside her older brother. Other than the violin Laura played the viola to a good standard performing it as second study at the conservatoire, she also plays the piano and flute. As she grew up Laura participated in a variety of music activities including performance opportunities afforded to her by her secondary school and the county youth orchestra finding both environments to be supportive, and that the youth orchestra, in particular, was a very good standard. At university Laura chose to study academic music at an undergraduate level, not violin performance, although she did take the performance modules where possible, felt she had an excellent teacher there, and was afforded plenty of opportunities to perform in a variety of contexts. Following the undergraduate degree Laura auditioned for a UK conservatoire masters course and was accepted, which is where this research occurred. She found the conservatoire to be supportive with good teachers and lots of opportunities.

Regarding Laura's practice habits, in interview she discussed practising roughly six days a week, although this could alter depending on her other commitments including a part time job that could reduce her practice time. Ideally, she aimed to practise 3-4 hours each day, split into hour long sessions, although on a bad day she reported practising for an hour to an hour and a half due to other obligations.

## 4.2.4.2. Rebecca

The second case study whose practice was observed was also a 24-year-old student with absolute pitch studying a postgraduate degree in violin performance. Her first lessons on the violin occurred when she was six years old after persuading her mother to take her to an open evening at a school near where they lived, and she was given a violin based on her audition and physique (particularly the shape of her hands). She participated in school music groups although found them to be not a particularly high standard and, feeling that she required a greater challenge, joined the junior department at a conservatoire at the age of 14. At this time, she started taking lessons from a new teacher. In the establishment she felt like she was one of the worst players, but believed that she could improve and persisted so that within a couple of years she felt like she had caught up with most of the other players, although there were a couple she thought were "amazingly good" who drove her to improve further and be like them. In general, she felt the secondary school she attended was not

supportive of her musical interests making it difficult for her to leave lessons to attend music lessons and not acknowledging her achievements.

Following her secondary education Rebecca completed an undergraduate degree in violin performance at a UK conservatoire, moved on to a programme at a different UK conservatoire where she completed a postgraduate in violin performance, and at the point of data collection she was in the process of completing a second postgraduate degree in performance at her initial conservatoire.

In the first interview conducted Rebecca explained that she aimed to practise for a minimum of one hour a day even when her time was taken up with other commitments, and on a good day she would get five to six hours' practice completed in 45-minute slots. Although not counting it within her hours of practice she also felt that activities such as listening to music, looking at scores, or using visualisation techniques could be a part of practice, especially on occasions where it was not possible physically to pick up the violin and play. She was also aware that she did not want her practice to become robotic and discussed techniques she used to keep her practice mindful such as the use of breaks. During her final session, this had changed for Rebecca as she explained her new practice regime was to complete three to four hours of practice on a good day in 20-minute slots, as she felt that to focus for those 20 minutes took a lot of "brain power". She also counted activities such as studying scores and listening to recordings within the three to four hours she outlined.

## 4.3. RESULTS

To examine the quality of the participants' goals, first their in-session goals for each practice observed will be examined in relation to the six components of Locke and Latham's goal setting theory: specificity, measurability, difficulty, importance, hierarchy, and deadlines. How these change over the learning process is also examined, and the same theoretical standpoint will then be used to examine their longer-term goals.

	Goals		
	Session 1	Session 2	Session 3
Laura	Play through piece from start to finish	Better intonation, particularly on last page	Absolute fine-tune intonation
	Consolidate fingering as much as possible	Keeping pulse	Clear tone on harmonics
	Improve intonation	Including accurate dynamics	
Rebecca	Intonation/ harmony	Clarity	Intonation on two passages
	Structure	Intonation	
	Fingerings	Co-ordination	Bow point of contact
		(All mainly on triplets and sextuplets)	Legato

Table 4.2. Goals set in the self-regulation practice diaries.

# 4.3.1. In-Session goals

## 4.3.1.1. Specificity

As can be seen from Table 4.2, Laura's goals, except for the goal to play through the whole piece in the first session, became more specific in each session. She moved from general goals aimed at consolidating the fingering "as much as possible" and "improving" intonation in the first session, increasing in specificity identifying specific sections to focus on in the second session, and ultimately identifying specific notes (the harmonics) to work on, as well as expecting a much greater degree of accuracy in her tuning. Rebecca's goals also became more specific from the first session in which she aimed to get an idea of the piece's structure, harmonies and basic fingering, through the second session where she identified the triplets and sextuplets as requiring specific attention, and identifying two specific passages to work on in the final session.

It was expected that, on the initial rehearsal of a piece, the goals would lack specificity as, while both had listened to their choice repertoire, neither participant had played the music they were learning before the session. Although the goals do get more specific for both they still could be more so, focusing on shorter passages and identifying which notes or segments require the in detail work they assign such as "absolute fine tuning". Outlining the nature of the work that is required within each goal would also increase the specificity of the goals, for example, "decide upon and write in the fingerings for the whole piece", or "improve the intonation of the opening phrase by playing slowly and checking the notes against open strings". Interestingly both participants had identified specific areas which required this detailed work including marking notes on the score that needed micro-tuning and worked on these during their sessions. It may be that only having space for three goals in the diary encouraged them to focus on the goals they had in general for all that they would work on that day, rather than stimulating them to specify the sections that were of interest on that occasion.

## 4.3.1.2. Measurability

The measurability of the goals set out in the diaries is the most notable weakness in the context of Locke and Latham's theory, as few were objectively measurable and therefore objectively achievable. The nature of a large proportion of music performance is that it is subjective in its quality and as such it is necessary that the goals set to become a better performer are, to some extent, subjectively measured. There is nothing inherently problematic with the goals set in the diaries, such as "improve intonation", other than there being a distinct lack of clarity regarding what the participants' intentions were and when these were attained in the session. In the third practice session, when asked to what extent she felt she had achieved the goals set in the practice diary, Rebecca responded "a 50ish kind of percent mark I'd say. I was somewhat aware of them but whether or not I could have done better, probably I could have, there was definitely scope to do better". Having said this when asked straight after if she expected to achieve any of them in the session, she responded that she did and felt she had. Laura also demonstrated a lack of achievability in her goals, as in the third session during the interview she stated that she felt the goals she had set, "absolute fine-tune intonation" and "clear tone on harmonics", could not be completely attained.

When discussing this subject Rebecca seemed to have a clearer picture than Laura regarding the achievement of these goals, as she discussed the amount she had achieved her goals in terms of percentages, whereas Laura tended towards saying she had achieved them "as much as is possible" (Laura, interview 1) and did not have a clear idea of what complete achievement of some of the goals, such as improving intonation, would look like.

Laura also discussed a greater reliance on her teacher identifying the problem passages that she then worked on.

# 4.3.1.3. Difficulty

The goals set in the sessions have been identified as lacking in specificity; as such it is also hard to categorise their difficulty accurately. For example, it would depend on the extent to which each musician wished to improve their intonation, as well as the difference in how hard they found certain techniques. Both Laura and Rebecca held that they set hard but achievable goals, and according to previous research completed, discussed in the literature review, optimal goals are those which are challenging yet achievable (Blumenfeld & Leidy, 1969; Ivancevich, 1976; Migliore, 1977):

"I think generally they're doable, I'm quite realistic with my practice and my playing. I won't generally attempt a piece if I think there's no way I'll be able to play it well for a performance. So yes, I'm quite realistic." Laura, interview 1.

"It's so hard but I kind of know that if I persistently keep going and try and invent new ways of going I will get there whether I like it or not." Rebecca, interview 1.

Whether, to foster motivation as described by Locke and Latham, it is enough for the participants to feel they are setting goals of this standard, or whether it requires the goals to be more objectively so is unclear. It is also important to consider the kind of motivation that is likely to be encouraged in this situation and so key to assess the relationship between the goals and SDT, this is discussed in Section 4.3.4.

## 4.3.1.4. Importance and Hierarchy

For the purposes of this analysis, goal importance and hierarchy will be discussed together as participants tended to discuss their goals in relation to each other rather than as discrete articles. In the first two sessions Laura identified a clear hierarchy for the goals she set in the diary. On both occasions she identified the third goal as an extra to be focused on if she had time when she completed the other two:

"So, my first one [goal] was to play through it from start to finish which I did. And then consolidate things as much as possible, yes again I think I did that, I wrote in anything that wasn't clear. And then I put improve intonation. Which still it needs work on. But

that was kind of a third one. I knew I wasn't going to play it perfectly in tune at the end of it." Laura, interview 1.

"I set three goals and I didn't really get a chance to look at the third. But the first two I think I did achieve and the third was kind of like an if I have time for anyway, which I didn't so I wasn't too bothered about not getting on to that." Laura, interview 2.

Rebecca worked through her goals in a distinctly different way, depending on the practice session. In the first she discussed working through the piece, looking at all the goals to some extent at the same time. The second session involved her focusing on all the goals she set at once in relation to a specific part of the music (the triplets and sextuplets identified in the diary).

"I think really in my opinion they were quite equal cause kind of they all feed off each other a lot of the time, cause again when you're relaxed your intonation is going to be good because your hands are relaxed and then the clarity is going to come through that. So, if you're really nitty gritty about it, it all comes to one thing." Rebecca, interview 2.

In the final practice session, Rebecca felt she had split her time equally and spent a third of it on each goal but achieved the goals to different extents. There was no clear hierarchy of difference in the level of importance of each goal in the individual practice sessions. There was, however, evidence of an overarching hierarchy of layers as she learned the piece:

"the expression, the bowings will come later". Rebecca, interview 1.

"eventually you get the correct number of notes under one bow, the correct bowing and kind of anticipating the next layer in the practice." Rebecca, recall 1.

## 4.3.1.5. Deadlines

Neither participant had particularly stringent deadlines for the goals they set in the practice diary. Although both were aiming to make at least some progress towards them during each individual session, there were few goals either of them stated categorically that they wanted to achieve within the session. This may have been influenced by the lack of specificity and measurability, making it almost impossible to achieve some of the goals, and hence not possible or productive to schedule a deadline for them. As the session was

already defined in terms of time limits it may be that in the case of goals written in the practice diary, Laura and Rebecca felt they had a natural deadline set and thus chose goals and restricted their expectations based on the predetermined time limit, rather than considering how long they felt they would need completely to achieve each goal.

#### 4.3.1.6. Interim Discussion

The goals that proved to be the most effective in producing an improvement in performance in previous literature were those that were challenging and specific (Latham & Baldes, 1975; Latham *et al.*, 1978). Although both participants felt the goals they set themselves were challenging in general, they were not specific to the same degree and as such likely not to produce the optimal improvement in performance. Having a hierarchy of goals is a feature prevalent in SRL (Zimmerman & Campillo, 2003) and Locke and Latham's theory. This is something that was evident in the practice sessions of the two case studies, most distinctly in Laura's practice sessions.

Other research that has been conducted into the goals of musicians has examined the role of problem-solving in the practice process suggesting that the nature of expert practice is akin to other scenarios requiring expert problem solving skills and that the process by which these expert skills are attained are similar across many areas including chess, law, and general problem solving (Chaffin et al., 2003; Ericsson et al., 2003; Nielsen, 2001; Zimmerman & Campilo, 2003). One researcher focusing on the problem-solving abilities of musicians was Nielsen (2001) who examined the practice of two organ students studying at a conservatoire level. Her research demonstrated that hierarchical goals were apparent in the students' observed practice sessions and that in the initial learning phase both played large parts of the piece at slower tempi, focusing on technical problems inherent in the piece. Moving into the second learning phase they started to focus more on the expressive qualities on the piece although there were some individual differences in the extent to which they did so between the case studies. Comments made when reflecting on their practice established that they based their perception of weaknesses in their playing on the consequences it could have for their performance of the piece. This implied that they had a distal goal of mastering the piece with proximal sub-goals, such as correcting wrong notes or persisting with difficult transitions, that supported achievement of the distal goal.

Chaffin *et al.* (2003) also held that musicians acted as expert problem solvers when learning a new piece, and to test this theory they examined the learning process of one of the author's as they learned new piano repertoire. In this process, the pianist had a specific,

structured way of practising from the beginning, starting by establishing a "big picture" of the entire movement, which they achieved by playing through slowly but without stopping in the first practice session, and then, over the next five practice sessions, working systematically through the sections deciding fingering and establishing motor memory. Once this was completed, the goal for her next couple of practice sessions was to play through the whole piece fluently, before developing interpretation in the following practice sessions. The final couple of sessions in the initial learning phase of the piece consisted of running through the piece and fixing mistakes. By the end of the twelfth session, the pianist had the work from memory. The second learning period consisted of a further 12 practice sessions taking a total of eight hours, at the end of which the pianist performed the piece in public. Some of her practice still centred around basic dimensions but interpretive dimensions became more important to the content of her practice session, as did certain performance dimensions. The third and final learning period consisted of 33 sessions totalling 14 hours of practice before the piece was recorded by the pianist for a CD. In this period, the main cause for work to be done on certain sections was related to performance dimensions required to play the piece.

Both Nielsen (2001) and Chaffin et al. (2003) suggest that the practice of the individuals they observed was mastery goal oriented with an evident hierarchy of goals, in which proximal goals served as regulators of more distal goals. All the participants spent the initial learning phase familiarising themselves with the piece they were learning and focusing on the basic elements of playing it. Focus on the expressive characteristics was a feature of their later practice sessions. In general, the research outlined in this chapter is concordant with the findings of these studies. Laura and Rebecca both set more general goals in their early practice, becoming more specific and focused on the expressive qualities of their music in later practice sessions, and to some extent a hierarchy of goals was present. What is not clear in the research of Nielsen and Chaffin et al. is the exact content of the goals set by the participants and, as such, it is difficult to assess whether they are specific and measurable with a clear importance, difficulty level, hierarchy, and deadline. Both publications say that the participants had specific ways of practising or aims for their practice, however the discussion of these is vague and does not go into enough detail to allow for an understanding of whether they could have improved any of these aspects to achieve greater productivity and achievement in practice sessions.

So far only the goals set by Laura and Rebecca for use during the practice sessions have been examined. It is now important to identify the longer-term goals that they had and

see whether these have some of the qualities outlined by Locke and Latham, or whether there is evidence that the case studies have a distal "big picture" goal, regulated by more proximal goals.

## 4.3.2. Longer-term goals

Understanding whether a continuum exists wherein proximal goals support the achievement of more distal goals is one of the focuses of the following section. First, the longer-term goals identified by the two case studies are assessed in relation to the key steps outlined by Locke and Latham, then these goals will be examined to identify their potential affect on the internalisation of the motivation to complete each of the goals in relation to SDT.

## 4.3.2.1. Laura

Figure 4.5 outlines Laura's long-term goals developed from discussions in the interviews throughout data collection. This diagram demonstrates a clear hierarchy in relation to the mid- and long-term goals. As can be seen from the diagram, the goals set by Laura are ordered hierarchically with shorter-term goals predicating longer-term goals and supporting their attainment. The dotted line between the mid-term goal of performances and the long-term goal of playing professionally denotes that some of the performance opportunities afforded to this case study were held to be beneficial for the furthering of her career and increase her chances of obtaining professional work, while other performances were seen to be less important in this respect and completed for other reasons. Having a long-term goal to remain motivated to practise and retain the enjoyment experienced when playing is a positive step in relation to SRL, as it shows she is considering the mental fortitude and affect required to become a professional violinist which, according to Zimmerman, is one of the three key forms of self-regulation (Section 1.3).

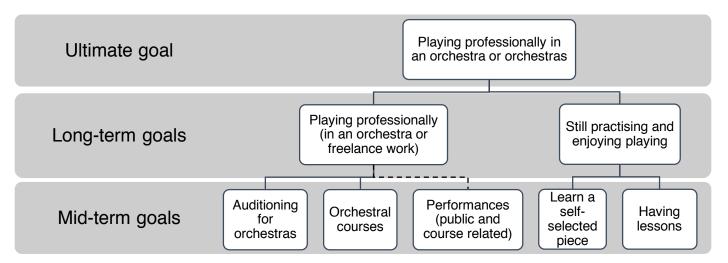


Figure 4.5. Longer-term goals of Laura.

Although in general Laura demonstrates a good hierarchy of goals and estimation of their relative importance to her, they all to some extent lack measurability, specificity, a deadline, and/or a clear understanding of their difficulty. It is to be expected that the more distal a goal is the less clarity it has, so it is unsurprising that the ultimate goal of playing professionally for an orchestra or multiple orchestras is not specific as to which orchestras, type of ensemble, or location. It is objectively measurable, which is a positive step and, although vague, Laura did aim to achieve this goal at some point in the next five to ten years. As for the level of difficulty of this goal, it is widely accepted that making a career as an orchestral violinist is not easy to achieve. Some orchestras are more challenging to get into than others, however, and without specifying which orchestras are of particular interest the level of difficulty is hard to prescribe accurately.

Looking now at her long-term goals, both playing professionally and continuing to practise and enjoy playing are technically measurable, although as they lack specificity the degree to which they can be measured and therefore achieved is diminished. Neither goal had a specific deadline beyond Laura stating that she would like to be playing professionally in the next few years, and that the goal to be practising and enjoying playing was ongoing. As to their difficulty, again the goal to play professionally is challenging in the current climate but should be achievable for conservatoire graduates, although as discussed in relation to the ultimate goal, the difficulty depends on the standard of professional playing that is desirable. It is hard to judge how difficult the goal of practising and enjoying playing will be for the individual as it will depend upon the context of playing and other motivational factors, scrutinised in more detail in relation to SDT in Section 4.3.4.

Laura's mid-term goals of are of interest to the current research, as they demonstrate a lack of specificity and direction that would make them the most appropriate goals to use in order to progress to the long-term goals. Other than a couple of specific performances that were occurring over the course of a couple of months, none of the mid-term goals had any stable deadline. The goals such as "auditioning for orchestras", "orchestral courses", and "having lessons" lack specificity and as such it is hard to measure their completion with any degree of accuracy, or even to decide if they have been completed at all, as there is no prerequisite stating, for example, how frequently lessons are desirable, for how long, the number of auditions and courses, or the achievement that is required for these to no longer be necessary, perhaps a successful audition for an orchestra. As to the difficulty of the goals, again due to the lack of clarity in what the goals are specifically aimed at, it is not possible to assess how hard each of the goals is likely to be. There will always be some ambiguity in the music world as to whether certain goals have been attained meaning that in some instances you can never truly claim to have completed something or not. It may be that in looking for a performance job the deadline of a certain date, month, or year is not a suitable aim and that the deadline could require the achievement of another goal such as auditioning for orchestras a place in one is achieved.

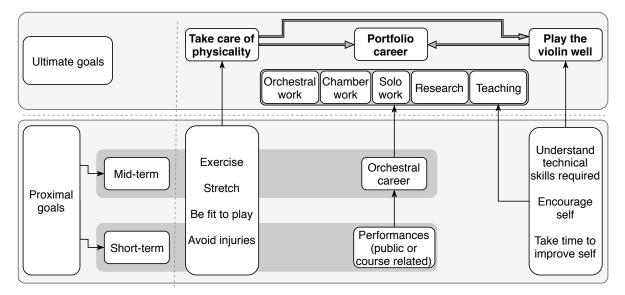
The adaptation of Locke and Latham's key principles for optimal goal setting will need to be considered in the light of the current research and in the discussion (Section 4.4) the model combining this theory with SRL and SDT is examined in relation to the two case studies in this chapter, to see if it is a suitable and useful tool for the population examined in the present research. In this instance, individual perception is most important, not an objective reality. The achievability of these goals depends on the perceived clarity of the level of attainment desired, and whether the individuals feel that they can and do achieve them.

## 4.3.2.2. Rebecca

The schema of Rebecca's long-term goals is different from Laura's and can be seen in Figure 4.6. Although some of the content is similar, the organisation and priorities are distinct, and this is likely to be due to the ultimate aims that Rebecca has which are more numerous and wide-ranging than those of Laura. In terms of her career Rebecca described her ultimate goal to have a well-rounded career, not limiting herself to one particular goal:

"doing some orchestral would be good, chamber music maybe, occasional recital or solo performance there and teaching and yes, inspiring younger people [...] to have some academic research that I'm doing." Rebecca, interview 1

Looking at her goals in terms of specificity, difficulty, measurability, importance, hierarchy, and deadline, the profile lacks specificity, a clear hierarchy of which of these components is most important to her and which least, and a deadline as she had no specific time that she wished to complete this by. As with Laura's goals whether she attains her career goal could be measured meaning it is objectively achievable, and while the constituent elements are not hierarchically ordered, Rebecca stated it does have a high degree of importance for her.





Alongside the goal Rebecca has for her career are two other goals: playing the violin well and taking care of her physicality. Both goals are measurable to a certain degree but lack the specificity to make them eminently achievable. Again, no deadline is set for either one, although this is not surprising in relation to taking care of her physicality as this was something she wished to do for the rest of her playing career. As for the difficulty of these goals, again it depends on the specific aims. Playing the violin well to some is achieving a grade 8, and although generally the population of interest in this study aims for a much higher standard, without having the required detail it is impossible to assess how difficult Rebecca would find it to achieve this goal. Taking care of one's physicality to be fit to play is also a vague goal. There are many who manage to play professionally despite injury, and although the goal is intended to avoid that occurrence the exact standard that the case study would be content with was not elucidated on and so the difficulty of this goal is non-specific. These two goals are clearly a top priority for Rebecca as she put them on par with her ultimate career aims as the most important goals she had.

These goals did not each stand alone, there were connections between the three. The aim to take care of her physicality was seen by Rebecca as having an impact upon both her ability to play the violin well and her career as a performer, as she felt being in the best physical condition would support her efforts to improve as a violinist as well as her ability to attain and maintain a career as a performing violinist.

"the general kind of taking care of my physicality so you know just doing some physical activity and stretching and just making sure that since I am doing this for the rest of my life, fingers crossed if nothing ever severe happens, that you know I will be fit and able to play so that it's just preventing any injury and just taking good care of myself." Rebecca, interview 1.

She also felt that her ability to play the violin well would have an impact upon her career, not only in the way that it would help her secure a position in an orchestra or other performing work, but also in her desire to work as a teacher where she felt that her ability to pass on her knowledge and help other players to become better violinists would be improved if her own technique was stronger. One point that she held to be particularly poignant was the idea that having made mistakes herself she could help others avoid making the same errors.

"each thing that I've mentioned, is important to me but at this moment I think it's just kind of spending that time just by myself and just encouraging myself and understanding the technical side of it and teaching myself, and doing all of this so I can teach other people and kind of doing the mistakes myself. So I think those moments, actually just taking time for myself, are quite crucial now [...] I'm maybe slightly putting a slight priority on that more than on anything else." Rebecca, interview 1.

As was the case with Laura's longer-term goals, Rebecca's have a hierarchy, although with the increased number of ultimate goals it is not such a straightforward grading. For the goals to take care of her physicality and being able to play the violin well, Rebecca set general proximal goals that covered both the short- and mid-term time frame. Some of these proximal goals are more detailed than others and, as was the case with previous goals

discussed in this chapter, the level of specificity directly impacts upon other features of the goal including the difficulty and measurability. As these goals are proximal and ongoing, there is no deadline held by Rebecca regarding by when they should be attained. In accordance with Locke and Latham's theory, a deficiency in one or more of the elements required for optimal goal setting reduces the positive motivational impact the goals can have. Although inherently the goals set by Rebecca demonstrate positive aims with which a career could be obtained and maintained performing on the violin, they lack salient features that have the potential to increase the motivation to achieve a goal.

One of the biggest differences between the ultimate aims of both Laura and Rebecca is the ambitions they have regarding their final career. As was discussed previously, Laura's ultimate aim professionally was to obtain a job in an orchestra. Rebecca, on the other hand, views that as a mid-term aim leading on to her ultimate aim of a portfolio career. This is likely to impact upon the motivation of each case study to work towards their goals, as the ultimate aim of Rebecca requires far more effort to obtain, with more elements involved. Due to this fact, it could be expected that Rebecca's short- and mid-term goals would be more numerous but, unlike Laura's goal outline, Rebecca lacks a coherent, comprehensive goal structure leading from her current position to her ultimate aims.

## 4.3.2.3. Interim Discussion

Many researchers have examined the achievement of learners and their long-term commitment to playing an instrument, looking at the effects of self-selected repertoire (Renwick & McPherson, 2002), time spent learning and future aspirations (Hallam, 2011), and formal practice (Sloboda *et al.*, 1996). One aspect that has rarely been considered was the intentions of the participants and whether they aimed to continue for a long period of time. Although some research is available examining the aims high-level musicians have when practising, rarely does this expand to consider the long-term aims they hold from a more general perspective. Laura and Rebecca have clearly been motivated and driven enough to achieve the position they are currently in, but with the challenges yet to face them in the competitive climate they are entering once they have completed their education, their goals may be one factor that could increase their chances of attaining their ultimate aims.

Markus and Nurius (1986) examined the concept of possible selves as a motivating force. In this theory, they established that the embodiment of the end state imagined, be it a desire to achieve something positive or the wish to avoid something perceived as negative, would influence the motivation of an individual as it built a cognitive bridge between the

present and the future. At the beginning of this section it was outlined that one focus of the discussion would be aimed at examining the extent to which proximal goals lead to a more distal future goal, a similar idea to that of building a bridge between one's current self and possible future self. It can be seen in the figures outlining the goals of Laura and Rebecca (4.5 & 4.6) that both participants had a hierarchy of goals, however this was not comprehensive and did not provide a clear path from proximal goals to more distal ones.

SDT posits that the likelihood of internalising the motivation to achieve goals is dependent upon the extent to which the goals foster BPN (Deci & Ryan, 2000). This suggests that, if the longer-term goals of musicians promote support for their BPN, musicians could be more likely to attain their aims. Whether this is the case is examined in Section 4.3.4 after the goals are examined to assess whether they demonstrate any changes over the timeframe in which the research was conducted.

## 4.3.3. Change in goals over time

One of the particular interests of the current research was whether the goals set by musicians change over time and as performances approach. To examine this, Laura and Rebecca had a final extrinsic deadline imposed upon them as the first public performance of the piece they were learning. Laura set herself other deadlines preceding this, but these also tended to be for external events leading up to the performance, such as playing the music in a class or for her peers. As a result, the deadlines she was aiming for increased in number as she got closer to her performance.

In learning the Brahms, Rebecca was able to focus on the piece to varying degrees in her general practice depending on other commitments she had at the various time points, and she discussed a rough timeline of when she wanted certain elements to be learned given the obligations she had to her other work. As Rebecca approached her performance date, she did not demonstrate the singular focus on the performance that was exhibited by Laura, describing the other goals she held that required her time and effort, and how she necessarily prioritised between them rather than focusing all her efforts on one.

"Yeah. I mean at this point it's a bit crazy because I'm juggling a lot of things, so I'm kind of, with the Brahms it's at quite a high level in my opinion, dare I say! So I don't think it needs that much time because I dedicated a lot of time on it this academic year [...] Now it's just kind of balancing the Brahms, and preparing for an exam, and preparing for a trial day, and preparing for auditions." Rebecca, interview 3.

The content of the goals set for their practice sessions was similar throughout, aiming at the same general objectives, predominantly intonation and sound quality. As discussed in Section 4.3.1, in-session goals, to a limited degree, increased in specificity and became more difficult through the learning process. The measurability of the goals was generally poor throughout and no change was observed in the participants' abilities to assess the extent to which they had achieved them, although Rebecca demonstrated a higher understanding on all three occasions. The hierarchy outlined in discussions with Laura altered from session one to session two with the emphasis moving from working through the piece on basic aspects, to more accurate intonation, which was also the primary focus in her third session. While the goals in Rebecca's practice session did not become more specific they did alter in terms of the musical elements they focused on. An increase in specificity was demonstrated in the section of the piece, moving from a play through in the first session, to a few choice segments in the second, and in the final session 11 bars were sectioned into three parts.

#### 4.3.4. Self-Determination Theory

Evidence suggests that the motivation behind goals is likely to affect the effort and commitment contributed by an individual, which can lead to longer-term commitment and higher achievement relating to the desired objective (Evans & McPherson, 2014). To elucidate further on this, the motivation behind the goals of Laura and Rebecca will be examined using SDT, considering how supporting competence, relatedness, and autonomy leads to an internalisation of motivation and regulatory style to complete a goal.

# 4.3.4.1. Laura

One branch of the diagram outlining the longer-term goals held by Laura (Figure 4.5) demonstrates the intrinsic goals of Laura (learning self-selected pieces, having lessons, and practising and enjoying playing), and the other her extrinsic goals (auditioning for orchestras, orchestral courses, performances, and playing professionally). These will be examined using two of the six mini-theories of SDT: Cognitive Evaluation Theory (CET) and Organismic Integration Theory (OIT). The predominant focus of CET is on intrinsic motivation to complete actions, while OIT concerns itself with the properties, determinants, and consequences of extrinsic motivation.

Laura's long-term motivation to play the violin professionally was shown to be intrinsic during a discussion in the first interview about a time during her undergraduate course where she was almost not permitted to participate in the third-year performance course due to a poor mark (later moderated up by an external examiner):

"I think it made me realise, that experience, how much I did want to play the violin and how much I enjoyed it and, I'd always kind of assumed that I would do it throughout university, so then when I thought for a week or so that I might not be able to do performance in third year I was always like 'What?', and I don't think I'd realised before then how important it was." Laura, interview 1

According to CET, this indicates that the social-contextual events that led to this goal being formed supported the individual's intrinsic motivation. The theory holds that events conducing towards doubt and demeaning evaluations are likely to undermine an individual's intrinsic motivation to complete a certain behaviour, and therefore it could be expected that after the negative experience or receiving a low mark that would not allow the continuation of violin performance on her course, Laura's intrinsic motivation to play would be undermined. This is clearly not the case and it may be that the subsequent moderation of her mark to a higher one counteracted this and she converged towards feelings of confidence that are said to enhance intrinsic motivation. Another explanation could be that previous experiences had led to high intrinsic motivation were such that the negative impact of receiving a low mark was not sufficient to undermine her motivation drastically.

The intrinsic goals set by Laura, including the aims to continue having lessons, learn music, and continue practising and enjoying playing the violin, indicate that in relation to these activities she has feelings of confidence, optimal challenges, received effectance-promoting feedback, and has not been subject to demeaning evaluations that have strongly affected her motivation to complete the actions (Deci & Ryan, 1985). When asked about the difficulty of her goals she held that they were difficult but attainable, the optimal level of challenge, "I'm quite realistic with my practice and my playing" (Laura, interview 1), "[my aims are] quite hard because music in general is quite hard. And career-wise, obviously it is so competitive [...] but you know that when you sign up for it." (Laura, interview 2).

According to OIT it becomes important to assess the extent to which the extrinsic goals set by Laura have been internalised. Many of her longer-term goals were supported by the internalised regulatory styles of integrated and identified regulation where the goals have been identified as important in relation to the self, undertaken willingly without the need for external pressure, and, in the case of integrated regulation, assimilated to other parts of the

self and other goals. This was evident in her goal to play the Takemitsu as part of her final recital, where she discussed the mark as being of secondary importance to enjoying the recital and playing well, "marks-wise I don't really mind. That's not the important thing. I want to enjoy it - I think that's my main aim - and I want to come out of it feeling that I've done myself justice." (Laura, interview 3.)

Some of her goals, however, had not been internalised to the same degree and were accompanied by a more introjected or external regulatory style, in which external factors predominated the impulse to complete an action. In the case of external regulation, the goals had not been understood as personally important and were only completed to achieve or avoid something external to the self. This was evident when she talked about some of the things she was working on in the sessions that her teacher had told her required improvement:

"this little bit is something I identified in my lesson yesterday, my teacher also, we talked a bit about the intonation of this particular bar so I'm going over that for a while." Laura, recall 2.

"in my lesson yesterday there were a few bits that came up and Steve, my teacher, kind of said you know the bits that need looking at. So, it was those certain bits that I was generally concentrating on." Laura, interview 3

Although she had internalised the motivation to work on the identified sections to some degree, the effort she chose to put in was still driven by the external factor of her teacher telling her that those sections required work.

## 4.3.4.2. Rebecca

Rebecca's goals also included some that were intrinsic and some extrinsic, internalised to differing degrees. The intrinsic goals to take care of her physicality and play the violin well were the most important to her, in that they would allow her to continue playing for a long time: "making sure that since I am doing this for the rest of my life, fingers crossed if nothing ever severe happens, that I will be fit and able to play" (Rebecca, interview 1).

Another intrinsic goal that was important to her was being happy with the violin:

"being happy with the violin is cheesy [...] but yeah because I think there's nothing worse than specifically what I experienced over the summer having different pressures put on you, when you just don't want to spend time with it and it's just, over just like basic things that are not working." Rebecca, interview 2.

These intrinsic goals are positive, as they describe the whole career that Rebecca intends to have and show she is considering the future first and foremost when deliberating about what is most important to her. This is unlike Laura's goals where the most important aims she described at each time point were those that were in close proximity, chief among which was her final recital; other longer-term aims such as auditions and courses she discussed, although important, were auxiliary to the performances in the short-term.

The extrinsic goals of Rebecca, similarly to Laura, included performances, auditions, and teaching, and had been internalised to differing degrees although, in general, they were accompanied by identified and integrated regulatory styles, as she had assimilated the importance of completing them to her sense of self and other long-term intrinsic goals to play the violin.

"especially in my undergrad days, I just had to learn it because you know there's a specific technical thing or something that my teacher wanted to learn. But now [...] I'm much more responsible with what I'm doing." Rebecca, interview 1.

When discussing how she felt and acted when she knew her performance was to be judged, such as in an audition scenario, she said she tried to "exclude the external sources and just focus" (Rebecca, interview 1), demonstrating her recognition of the external input into the behaviour, but also that she had internalised the need to complete the audition to achieve a more desirable intrinsic goal.

Generally, the intrinsic goals set by Rebecca are more numerous than those set by Laura. In addition to this, she demonstrates a clearer understanding of how her extrinsic goals might lead to her achieving her intrinsic goals, thus leading to a greater degree of internalisation of the motivation to complete those aims. Although Laura's goals in general are internalised so that the associated regulatory styles are identified or integrated, those she identified as most important to her over the course of the data collection were the shortterm, extrinsic performance goals which she did not necessarily view as being highly beneficial of her other longer-term intrinsic goals to play the violin at a professional level and enjoying doing so.

#### 4.3.4.4. Interim Discussion

SDT describes the internalisation of the motivation required to complete a task as being facilitated by support of BPN. This has been supported by research conducted into physical education in schools (Pintrich, 2003; Reeve & Halusic, 2009; Standage *et al.*, 2003b), exercise (Daley & Duda, 2006; Edmunds *et al.*, 2008; Quested, *et al.* 2013), health (Edmunds *et al.*, 2007; Jolly *et al.*, 2009), and music (Evans, 2015; Evans & Bonneville-Roussy, 2015; Evans & McPherson, 2014).

Daley and Duda (2006) showed self-determined regulation of exercising behaviours in university undergraduates was greater in those who were in the later stages of taking up a new activity (in the maintenance and action phases) as opposed to those in the early stages of behaviour change (pre-preparation and preparation phases). Evans and McPherson (2014) conducted a longitudinal study of primary school children over a 10-year period beginning just before they started a school music program in which they learnt instruments. Of interest in this research was whether the child's view of how long they would play the instrument for affected their persistence and achievement. Results demonstrated that those who had a long-term view of themselves as a musician before they began the learning process achieved higher levels on a standardised test after three years of learning, and that they persisted with music learning and playing for longer than those who did not have such a long-term view. Both studies examine the motivation required to take up and persist with a new behaviour. Laura and Rebecca both started learning the violin at an early age and persisted for many years to reach their current standard, indicating that at the initial learning stage both may have had a long-term image of themselves as a musician and that their practice behaviours were, to some extent, self-determined.

Evans and Bonneville-Roussy (2015) conducted research on a population of university musicians using a survey to identify the extent to which participants felt BPN had been satisfied in relation to music, their playing habits, and their motivation to play. The findings of this research were that those who felt BPN had been satisfied had more autonomous motivation towards musical activities, which in turn predicted practice frequency, quality practice frequency, and preference for challenge. When BPN were viewed as being fulfilled and motivation autonomous, the students' responses indicated they experienced positive emotions more frequently and negative emotions less frequently.

The participants identified for the current chapter were at a similar level to those surveyed in the research by Evans and Bonneville-Roussy, in tertiary music education. In general, the long-term aims they identified were intrinsically motivated suggesting that, in relation to those activities, their BPN had been supported. Interestingly the shorter-term aims were where the most extrinsic motivation was evident, especially in the case of Laura's insession goals where she frequently discussed areas which her teacher had identified as requiring work. The long-term view that both had of themselves as professional violinists is likely to have been initiated at an early stage in the learning process as suggested in the research by Evans and McPherson (2014), and this was indeed what was reported by the two case studies. Both are likely to have gone through many stages of behaviour change in relation to their practice habits over the years they had been playing, and in the current research Rebecca identified how she was adapting her practice to accommodate her soonto-be status as a graduate looking for professional work, in an environment unlike the structure of the conservatoire she studied at. When the research process began for this study, she was in the initial stages of changing her practice content (including the use of a diary which she took up after the first session of data collection), and by the end she had moved into the maintenance phase for some of the actions. Based on the research outlined by Daley and Duda (2006), this would suggest that Rebecca maintained high levels of selfdetermination through this process, enabling her to adopt and maintain the new behaviours.

The participants in this research have maintained the motivation to practise over many years and have adopted intrinsic long-term goals to become professional violinists while maintaining their practice quality and enthusiasm. Based on literature exploring SDT, this would suggest that, in relation to playing the violin, the participants' needs for autonomy, competence, and relatedness have been supported by their environments to help them achieve the level they have reached. To continue improving, to achieve, and to maintain their long-term goals both will need to practise for many more hours over many more years requiring a high level of motivation. Of interest to the current research is whether the goals the participants have set, and their motivation to strive for them, is likely to lead to their achievement. This is examined in the following section, alongside how improvements in goal setting could lead to stronger motivation to complete goals, which, in turn, leads to greater attainment of goals.

#### 4.4. DISCUSSION

The different theories discussed in this research demonstrate various components prevalent in goals. In SDT, the focus is on the extent individuals internalise a behaviour and assimilate it to the self. Locke and Latham's theory holds that goals could be used as a motivational technique, and six key components have been extracted based on the seven key steps to goal setting outlined: specificity, measurability, difficulty, importance, hierarchy, and deadline. In addition to these, SRL holds that the salient features of goals are their orientation (performance or mastery), whether they are intrinsic or extrinsic, their specificity, difficulty, and hierarchy. Much overlap of the theories is evident from this, with SRL and SDT both examining intrinsic and extrinsic goals, the elements of specificity, difficulty, and hierarchy identified in both SRL and Locke and Latham's goal setting theory, and the motivational components inherent in SDT and Locke and Latham's theory. This being the case, there is a theoretical grounding for using the three theories in conjunction to examine the goals of musicians.

At the beginning of the current chapter, a proposition was made for a framework combining the theories (Figure 4.1), and it was stipulated that the research presented in the current chapter would serve the dual purpose of examining the goals set by the two participants to assess their quality, as well as using the data collected to assess whether the combination of the theories in the manner described is suitable to use as a framework to examine musicians' goals. When considering the latter of these, things that should be taken into consideration are whether the categories identified in the theories are present to some extent in the goals of musicians and, if they are not, whether their addition is feasible given the environment. Another important consideration is whether by encouraging musicians to set goals according to the framework stipulated it is likely to encourage higher levels of motivation or achievement among musicians.

Venturing to explore the first of these points, having examined the goals of Laura and Rebecca it is evident that the elements identified in Locke and Latham's theory are present in some of their goals to some extent. The most problematic element has proven to be that of measurability in the goals of the two case studies examined, as the musical goals identified were not objectively measurable, especially when considering the in-session goals. Information that has come from the research presented in this chapter has shown, however, that both participants held most of their goals to be subjectively measurable and that they have a clear idea of what the achievement of some of the goals would resemble in their playing as well as the extent to which they could achieve certain goals they held to be

unattainable in their entirety, such as "absolute fine-tune intonation". In terms of intrinsic and extrinsic goals, it has been discussed that both musicians had some intrinsic and some extrinsic goals clearly present in their in-session goals and their longer-term goals. The final dichotomy to consider is that of performance and mastery goals, both of which are present in the case studies outlined.

The presence of these factors in some, if not all, of the goals set by Laura and Rebecca for their work in a practice session and their longer-term goals, indicates that the proposed framework may be of use examining their goals. It is now important to examine the second point raised: could encouraging the use of this framework improve the goals of musicians leading to potentially higher motivation levels and achievement rates? In examination of the goals presented, many lack elements that may make them more motivational and achievable. More specific details for each of the case studies are discussed in the following sections, but this research holds that increasing the factors of measurability, specificity, and deadlines particularly, as well as encouraging the clarification pertaining to other aspects of the goals, could lead to greater motivation and goal completion.

Having determined that the use of the framework prescribed could be beneficial when identifying the goals of musicians, a detailed assessment of the guality of the goals set by the two participants is considered. One of the chief problems inherent to the discussion of goals in music performance is that the quality of a performance is, to some extent, a subjective opinion. This makes the setting of goals necessarily subjective based on what the individual wishes to achieve in their performance, and as a result many goals may not fit into an objectively specific, measurable category with a clear non-partisan level of difficulty and importance. As the nature of music preferences is so often subjective, it is important to stress that the current research does not promote the need for objectivity as a necessity in goal setting. This being the case, the nature of a quality goal based on the theories discussed requires further definition. From SRL and SDT, we understand that the best quality goals are performance or learning oriented and intrinsic, or failing this, extrinsic goals that have an integrated style of regulation. In addition, based on theories expounded by Locke and Latham and in relation to SRL, the goals should be specific, measurable, difficult but achievable, and have a clear deadline. Incorporated into these should be a clear idea of how important the goal is to the individual setting it, and its relative importance in relation to other goals that person has. As the personal values of individuals have such a great effect on the goals they set for themselves, it may be that many of the findings outlined in this chapter are due to preferences of the participants, and not indicative of overall practice

behaviours across the population. Further research is required to identify the similarities and differences between the goals of musicians and understand the generalisability of the data collected herein.

Goals set in the day-to-day practice observed lacked specificity, measurability, and deadlines more than any other components. The other elements of difficulty, importance and hierarchy were evidenced to a greater degree, but could still be improved upon directly or indirectly through other elements (i.e. identifying the difficulty of a goal would be easier if it were more specific or had a deadline). The dearth in self-set deadlines could be due to a lack of understanding, whereby the participants do not feel confident in setting a time by which to achieve a certain goal, as they seem less than clear about how long it will take to complete the goals. One option for solving this issue could be to encourage deadlines to be set based on time spent on a piece or approaching a goal, rather than overall time that has passed. To improve measurability, one thing that could be encouraged is increasing the specificity of goals, which was shown to be lacking in the research outlined. More specific goals, such as 'play the shift in bar 25 correctly at least three times', are more easily measured and although not all goals in music can be this precise, having a greater predominance of them amongst the goals set could improve the attainment and motivation of individuals.

The theory put forward by Locke and Latham promotes the use of goals as a motivational technique, using the goal itself to encourage an individual to progress and improve. Also considered in the results in relation to SDT was the idea that the motivation to complete a goal could also affect progress and improvement, based on the extent to which the motivation for completing it had been internalised. To this point, the proposed framework has only considered the initial forethought phase of self-regulation but it is important to put it into context with the three-phased model. An expanded version of the model included at the beginning of this chapter is displayed that connects the two theories with the complete cycle (Figure 4.7). In this model, it is suggested that the constituent goal elements of difficulty, importance, hierarchy, specificity, measurability, and deadlines directly affect the motivation to complete a task. The motivation to complete a task affects the self-motivational beliefs of an individual in relation to that task, and thus, the approach and achievement of a goal (although not necessarily the content). Finally, as indicated in SRL, the performance and self-reflection phases of the cycle affects the following motivation and goal setting.

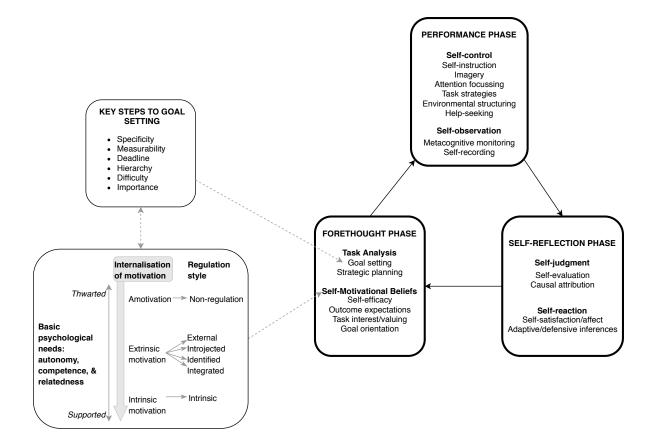


Figure 4.7. Model of the relationship between SRL, SDT, and goal setting.

The research questions outlined in the literature review in relation to the goals set by musicians are aimed at understanding what the goals are, how effective they are, and whether they change during practice sessions and over the course of learning a piece of music. Goals from the two participants have been examined in this chapter and demonstrate that in-session goals, although generally mastery focused and intrinsic, lack achievability due to low levels of specificity and measurability. The longer-term goals described by the participants have more instances of extrinsic and performance goals, as well as lacking specificity, although both imply that they do have a clear hierarchy, and the difficulty is perceived to be challenging but achievable for many of the goals. Regarding the effectiveness of the goals to produce improvement, both felt that setting goals in the diary aided their practice making it more focused and goal-driven than it otherwise could be. One even chose to use the method herself and after the first session started writing her own diary. This suggests that the act of goal setting is likely to be of benefit to improving achievement in practice sessions; however, currently this is not something that is commonly engaged in and so does not benefit musicians as much as it could. In addition to this, it has been discussed that the goals in question could potentially be improved upon, and so it is

not known whether increasing the quality of the goals could benefit practice and achievement more than simply encouraging musicians to set goals for their practice.

In relation to the final research question regarding the change in goals over time, as the participants learned their music, the goals they set for the practice sessions became more specific. The scope of the current investigation was limited in its ability to assess change in relation to the longer-term goals, so relatively little change was observed, other than the shift of importance in the case of Laura, where the closer she got to her performance the more importance she attributed to that goal. Rebecca, on the other hand, seemed to put more importance on her performance earlier on; shortly before her performance, other factors were more important to her over and above that of the imminent performance. The timeframe over which each musician learned their chosen repertoire has the potential also to alter the composition of the goals at various points over the learning process. The time in which musicians are required to learn pieces varies greatly, and it may be that with the various time restrictions come different goals, or alternatively it may be that they use the same goals but reach a lower performance level. To elucidate this further, a closer examination of the goals set during the learning process of multiple pieces of music over varying time frames is required.

Focusing on two participants allowed the research to look in depth at their goals and the impact these might have on the participant's motivation, although to become generalisable a much greater sample should be examined to ascertain whether the findings from these two individuals is representative in any way of the populations of violinists and musicians. The study also focused predominantly on the learning of a single piece of music. It is likely that, to some extent, different music requires different skills and as a result different goals are chosen to suit this. Being able to examine multiple people playing the same pieces of music, varying the style and the timeframe available to learn these pieces, would provide a great insight into the effects that individual preferences, musical style, and deadlines had on the content of goals.

In the music world, it is currently difficult for young, inexperienced performers to make a living as performers with the competition for jobs being fierce. These circumstances are not optimal to encourage motivation to continue in this sphere of work, and as such, it is important for those wishing to pursue such a career to have fundamental components supportive of their motivation and enable them to persist when they come up against difficulties and failures. Goal outlines such as those of Laura and Rebecca are not

necessarily conducive to supporting motivation and, given that most of their goals lack at least one of the six elements outlined, it may be that by changing the content of the goals to bolster these elements, their motivation to complete their short- and long-term goals could be enhanced. While this research champions the use of goals featuring the components outlined in the theories discussed, it does not suggest that goals that do not comply with these theories are necessarily poor quality. As has been seen in the case studies examined in this chapter, many goals do not match the framework suggested but may be useful for the individual involved. The present research suggests that musicians should be encouraged to set more goals that do fit into the framework described alongside the other goals they may have that do not, and in this way an improvement in goal attainment and motivation can hopefully be achieved. As evidenced both participants felt that the self-regulation practice diary used benefitted their practice, making it more focused and goal-driven.

"It was good because it made me think before I started practising what I was going to work on rather than just opening the piece and thinking I'll see what happens." Laura, interview 1.

"It definitely gave me that ping moment when I was a bit stuck or something, "ok these were your goals". So it did give me that reassurance that I can go back to what I want to do at the beginning of the session. My intentions are always good at the beginning of the session, whether or not I carry on with it is a different matter." Rebecca, interview 3.

One possible way to encourage such actions to be taken could be to implement the use of an in-session practice diary, requiring users to set goals, think about how they intend to achieve them, and assess the extent to which they feel they have achieved them afterwards and why this might be. It would be important that such an aid also had information regarding the content of good quality goals and that the forethought section encouraged specific, measurable goals to be set.

Another potentially beneficial method that could be used in combination with the insession practice diary would be a longer-term diary in which users set out their longer-term goals, outlining how they plan to approach and achieve them, as well as linking other goals that would benefit from, or be beneficial to, the achievement of each goal. This would enable the establishment of a clear hierarchy of goals and support the use of proximal goals as a means of achieving distal goals. The third study conducted for this thesis (see Chapters 6-8) adapted the self-regulation practice diary used for the research in the current chapter, as well as creating a goal profile for each participant taking on some of the suggestions already discussed to assess their potential impact.

# CHAPTER 5 STUDY 2 THE SELF-REGULATION OF VIOLINISTS

# **5.1 INTRODUCTION**

The previous chapter discussed the goals set by violinists in their practice sessions. The current chapter focuses on the evidence of other self-regulation processes in the players' practice sessions to examine the extent to which they are self-regulating, and possible ways this could be improved.

Goals are only one part of the tripartite cycle of forethought, performance, and selfreflection developed by Zimmerman. The forethought stage also includes strategic planning in the task analysis section, and the self-motivational beliefs of self-efficacy, outcome expectations, intrinsic motivation, and goal orientation. The performance phase focuses on self-control through self-instruction, imagery, attention focusing and task strategies, and selfobservation through self-recording and self-experimentation. The final self-reflective phase is split into two sections; self-judgement focusing on self-evaluation and causal attribution, and self-reaction which includes self-satisfaction, and adaptive or defensive inferences. In studies examining the academic achievement of high school students, it was found that those who had higher achievement levels demonstrated greater use of self-regulation processes (DiBenedetto & Zimmerman, 2013; Zimmerman & Kitsantas, 2014).

McPherson *et al.* (2012) conducted a longitudinal study over 14 years with music learners who were aged between seven and nine at the commencement of the study. The focuses were the self-regulation processes demonstrated in the early stages of learning a piece, and the musical achievement of the participants. They found that over the first three years of learning to play a new instrument, the young people demonstrated significant differences in achievement according to aspects of goal setting and strategic planning. Miksza (2011) also conducted research on how practice regulation affected musical achievement, focusing mainly on the population of undergraduate wind players. He examined the relationships between performance achievement, deliberate practice, impulsivity, and achievement goal motivation. The results showed that those who used more strategic or goal-directed practice, as well as those demonstrating a lower level of impulsivity, had higher achievement scores. Miksza (2015) also conducted a study to assess

the effectiveness of two interventions on practice behaviour. Those in the treatment condition received instruction on how to use practice strategies and self-regulation in a practice session, while the comparison condition received instruction only on practice strategies. Findings showed that both groups improved, but the treatment condition showed significantly more improvement than the comparison condition, demonstrating the benefits of self-regulation instruction for students at that level.

Jørgensen and Hallam (2009) examined literature relating to the practice of musicians across all levels and identified two key practice variables, quantity and quality, which, in interaction with prior knowledge or skills, both were shown to contribute to the level of expertise attained. In relation to quantity, time spent practising was found to increase with age, expertise, proximity to assessments, and on the day following a weekly lesson. Decreases were demonstrated during holidays and upon the entrance to a performing musical profession. Examining the quality of practice, four strategy types were identified: planning strategies, strategies for the conduct of practice, strategies to evaluate practice, and meta-strategies. Among the studies examined, there was a great diversity of practice strategies demonstrated but it was found that the ability to adopt more effective practice strategies was linked with the level of expertise attained. Araújo (2015) distributed a guestionnaire to explore the self-regulatory behaviours of advanced musicians in relation to their practice organisation, personal resources, and external resources. Elements that received the highest means were goals and strategy comprehension (practice organisation), expressing metacognitive knowledge (personal resources), and practice to improve musical skills (external resources). Elements receiving the lowest means were support from others and organisation, support from external factors, help from others (external resources), and planning of time for practice (practice organisation). These results suggest that although advanced musicians understand the nature of their goals and the strategies necessary to achieve them, they do not plan how to implement the strategies in their practice sessions. They also demonstrate low usage of external resources to self-regulate, relying predominantly on personal resources.

The observation of practice sessions is another method employed by researchers (Ginsborg & Chaffin, 2011a; McPherson & Renwick 2011; Nielsen, 2001; Santos & Gerling, 2011) to identify the ways in which musicians work, as well as examining specific aspects of a musician's performance in relation to their self-reports. Chaffin and his colleagues (Chaffin et al., 2003; Chaffin et al., 2010; Chaffin & Imreh, 2001; Chaffin & Logan, 2006; Ginsborg *et al.*, 2012) focused on the long-term practice and memorisation of professional musicians

preparing pieces for performances in public concerts. In one research publication (Chaffin et al., 2010), the focus was on a single professional cellist and her preparation of a memorised cello piece practised and performed over 75 observed sessions. 19 practice dimensions were identified and categorised into basic technique, interpretation, performance cues, and musical structure. The learning process was also split into sections which were explore, smooth out, listen, rework technique, and prepare performances, these occurred chronologically. Initially the cellist focused on getting a big picture of the piece then on formal structure, basic cues, and interpretative cues consecutively through the learning process. It was found that starts and stops in practice were mainly at expressive cues and sub-section boundaries, and intense practice was conducted most around expressive cues (as identified by the cellist) demonstrating that the predominant concern was on interpretation rather than technique.

Findings were similar to those of Chaffin and Logan (2006), who examined the practice and memorisation of a pianist preparing a piece over 57 practice sessions and performances. As was the case in the examination of the cellist's practice, the pianist discussed choosing to play through the piece during the first session to get a big picture of how the work fitted together, then proceeded to work on the structural cues, the basic cues, and the interpretation cues successively through his practice. The starts, stops and repeats demonstrated in the practice of the pianist mirrored the progression identified in the selfreports of the pianist moving from basic cues, to interpretive cues, and then expressive. The findings of these studies suggest that professional musicians work through pieces by obtaining a big picture of the work, then focus on basic cues in the piece, moving on to interpretative, then expressive aims as their practice develops. The research also found that in the performances of the pieces by the musicians, which were from memory, the musicians reported using the cues they had created in their practice of the piece to aid them with memory.

The use of practice cues has also been examined in relation to performance (Ginsborg *et al.*, 2012; Ginsborg & Chaffin, 2011b). Findings showed that generally more expressive and interpretative cues were retained in performance than basic cues, however when technical issues were experienced the tendency was to focus on basic cues until the problem was overcome. The results also demonstrated that spontaneous performance cues occurred during performance; mostly these were considered to be useful musical insights, overlooked in practice and rehearsal, that would be retained for future use. In both studies only a limited number of spontaneous thoughts were categorised as extraneous, relating to

the specific performance and context and so unlikely to be reused. This research would suggest that the tendency to move from basic cues to more interpretive and expressive cues later in the learning process (Chaffin & Logan, 2006; Chaffin *et al.*, 2010) continues into performances of pieces.

Hallam (1995) examined the way in which professional musicians practised by interviewing 22 players of various instruments about their orientation to practice. Once again, the idea of achieving a big picture of a new piece in the initial learning stages was reported by 21 of the 22 interviewees, and all of the participants emphasised the importance of using cognitive analysis or slow meticulous playing of a piece in the early stages. The players split into two camps in the second phase of learning where they adopted repetitious or analytic strategies once they had an overview of the music. There was also a division between those who had a technical practice orientation, those who adopted a musical one, and those who preferred one but considered both, with 12 focusing on the technical elements of a piece, one on the musical elements, and 9 considering both but expressing a preference for one or the other.

The practice of 6-to-19-year old musicians was examined by Hallam et al. (2012) using a large-scale guestionnaire, distributed among instrumentalists playing at up to a grade 8 standard. Results from the 3325 participants showed a statistically significant linear increase between expertise and the number of days practised in a week (p<.0001), and expertise and the amount of daily practice (p < .0001). Factor analysis found the adoption of systematic practice accounted for 10.7% of the variance in the sample, organisation of practice for 7.7%, use of recordings for listening and feedback and use of metronome for 7.6%, use of analytic strategies for 7.3%, adoption of ineffective practice strategies for 6.9%, concentration for 5.5%, and immediate correction of errors for 5.0%. Both the adoption of ineffective practice strategies and immediate correction of errors showed a negative effect of expertise on the factors which had a linear trend. There was also a positive relationship between expertise and all the other factors with a linear increase of expertise and the adoption of systematic practice and use of recordings for listening and feedback and use of metronome. Other pertinent findings of this investigation were that reluctance to practise increased with expertise, neither liking practice nor finding it boring were effected by level of expertise, and that the greatest enjoyment was shown during the initial learning phase of a new instrument, this waned between grades 3-6, but returned, to a lesser extent, after this point.

These results show that increases in expertise were accompanied by linear increases in daily practice, number of days practised per week, adoption of systematic strategies, and use of recordings or metronome, and decreased immediate correction of errors and adoption of ineffective practice strategies. This would seem to suggest that as individuals learn an instrument their self-regulation improves with their expertise as they reject ineffective practice strategies in favour of more effective ones, organise their practice to a greater degree, use external sources to assist them, and improve their concentration. The study was not able to account for drop-out rate in its analysis, and it may be that the increase in self-regulatory processes as expertise develops is due to those who exhibit lower levels of the factors included in the analysis do not attain the same grade level or drop out at a lower level of expertise.

The discussion in the present chapter centres around the same two violinists who were studying music performance at UK conservatoires in the previous chapter. Having examined their goals from the immediate aims within a practice session to their more distal aspiration, the current chapter examines other factors which could assist or impede them in their progress towards their goals. Focusing on the adapted self-regulation cycle (Figure 5.1) outlined in previous chapters, the results in this chapter examine the self-motivational beliefs, self-control, self-observation, self-judgment, and self-reaction exhibited by the musicians in their practice session and the way they discuss striving to achieve more distal goals.

## 5.2 METHOD

## 5.2.1 Participants and Procedure

Data examined in the current chapter were obtained from the two participants identified in the previous chapter, during the same set of data collection (Section 4.2). Elements from the practice diary not previously discussed, the videos of the practice sessions, the video recall procedure, and the interviews are discussed to identify the self-regulatory practices of Rebecca and Laura.

## 5.2.2 Materials

The previous chapter focused on data pertaining to the goals of the two participants collected in the self-regulation practice diaries, the video recall procedures, and the interviews conducted at three time points. The current chapter uses data collected from the same procedure but examining elements not discussed in the previous chapter, to put the place of goals into perspective in the self-regulation cycle.

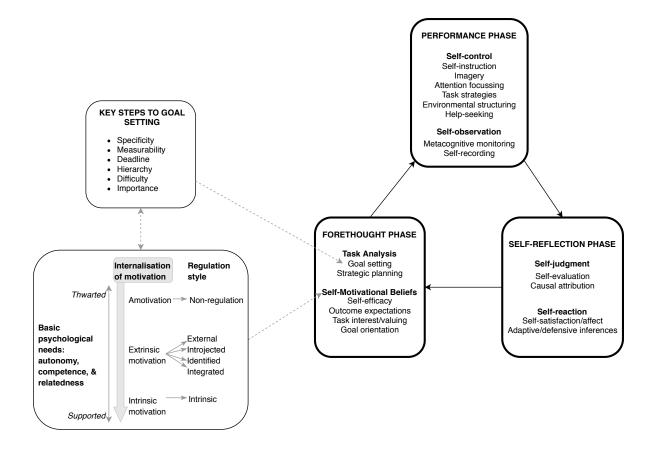


Figure 5.1. Model of the relationship between SRL, SDT, and goal setting.

## 5.3 RESULTS

To examine the other features of the self-regulation cycle in relation to the data gathered, five components will be discussed: the basic makeup of the participants' practice sessions; the way in which they worked through the piece on each occasion; the remaining content of the self-regulation practice diaries; the discussion in the video recall procedure; and finally, if evidence was obtained indicating whether these processes changed over time. By examining what the participants did in their practice sessions initially, then seeking to understand what they thought they did and why, it is hoped that the research can go some way to understanding the levels of conscious and subconscious processes that occur and the extent to which the musicians themselves understand the process they go through in learning a piece of repertoire.

# 5.3.1 Basic Makeup of the Practice Sessions

This section will focus on the essential elements of the practice sessions observed: when the participants were playing, not playing, or annotating the music. These were analysed using Scribe software developed by Duke and Stammen (2011). Of the three 45-minute practice sessions, each consisted of 80-90% playing for both participants. The length of the playing segments within the three sessions varied, averaging between 48 seconds and 1 minute 4 seconds for Laura, and 40 seconds and 1 minute 17 seconds for Rebecca. There was a large standard deviation for both, although this was generally greater in Laura's practice, in which the segments tended to reduce in length as she moved through the session. As can be seen in Tables 5.1 and 5.2, annotating the music was most frequent in the initial session for both participants, with Laura spending 6% of her time doing so - a similar amount of time to that which she spent not playing - and Rebecca spending just under eight times longer annotating her music than not playing; a total of 15.7% of her practice time. The following sessions involved far less annotating of the music, less than 2% on each occasion, with Laura doing so on a total of three occasions over the two sessions and Rebecca eight times in the second session and not at all in the final session.

The time the participants did not have the bow on or next to the strings and were not in the process of annotating the music was coded as time spent not playing. This varied greatly across the sessions for both players, with Laura spending 7%, 19%, and 11% respectively not playing in her sessions, averaging between 8 and 11 seconds. For Rebecca, these figures were <2%, 15%, and 13% of her practice sessions respectively, and the average length of these segments were between 6 and 11 seconds. The longest segments of time spent not playing for Laura were between 1 minute and 1 and a half minutes. The variance in this was far greater for Rebecca, whose longest segments ranged between 26 seconds, and 2 minutes and 45 seconds across the three observed practice sessions.

The total time spent practising was limited by the data collection procedure, both participants being informed that they would be given 45 minutes to practise before being interrupted by the researcher. Although this was flexible, Laura kept to between 40 and 45 minutes, always having finished her practice by the time the investigator returned to the practice room. Rebecca had more varied practice habits: during the first two sequences of data collection, she took more than the 45 minutes allotted and had to be stopped by the researcher. In the final session, she chose to practise for 27 minutes before finishing the session early.

Session	Behaviour	Frequency	/ Time	% Time	Mean(s)	SDev
1	Playing	36	35:59	87	60	66.33
	Annotating music	17	02:28	6	9	3.43
	Not playing	21	02:53	7	8	13.07
00:00 Subject: Basic Bel	05:00 10:00 haviours	15:00 20	:00 25:	00 30	1:00 35:1	00
P P P	<mark>P P P P P P P</mark>	P P P P P P	PPP PP	P <mark>a</mark> pm <mark>p p p</mark>	P <mark>P N</mark> P	Р
2	Playing	42	33:40	81	48	40.63
	Annotating music	2	00:12	1	6	0.22
	Not playing	44	07:44	18	11	17.84
0:00 Subject: Basic Beł	05:00 10:00 haviours	15:00 20:	00 25:0	30:	00 35:0	0
P	N PP PP FIP P P P	P IFNP IP PPIPFN	P P P P	РРР	N P P P	FIFP P NP P NP
	Playing	34	36:37	84	65	70.77
	Annotating music	1	00:41	2	41	0.00
	Not playing	35	06:24	15	11	18.57
00:00 Subject: Basic Beł	06:00 12:00	18:00	24:00	30:00	36:00	
-	IP NP P	PIPP P NP IP IP	P P	I <mark>A</mark> IP P IP	N P P P P	P P P P P IP IIP P

Table 5.1. Scribe analysis of Laura's practice sessions.
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Session	Behaviour	Frequer	icy Time	% Time	e Mean(s)	SDev
1	Playing	60	40:19	82	40	34.21
	Annotating music	54	07:39	16	8	4.08
	Not playing	8	00:52	2	6	8.19
00:00 Subject: Basic Be	06:00 12:00	18:00	24:00	30:00	36:00	42:00
P P <mark>a</mark> p <mark>a</mark> p p	PPP FPPFP PPFPFFFFFFFFFFFFFFFFFFFFFFFF	P P I		P <mark>app (pafa</mark> fp <mark>/p p</mark>	KPPPP	P <mark>M</mark> P P P
2	Playing	51	42:53	84	50	47.44
	Annotating music	8	00:49	2	6	1.32
	Not playing	46	07:29	14	10	25.11
00:00 Subject: Basic Be	07:00 14:00 haviours	21:00	28:00	35:00	42:00	
Р	P FP P NP NP FFP IIIP P	PNPPP	IP P IPPIPP <mark>N</mark> P P	P P PPIIIP N	FP P P	PPPPP
3	Playing	18	23:16	87	78	60.09
	Annotating music	0	00:00	0.00	0	0.00
	Not playing	18	03:20	13	11	16.84
00:00 Subject: Basic Be	03:00 06:00	09:00 1	2:00 15:00	18:00	21:00	24:00
P P	P IFIP NP P P	P N P	P P P	N P	NP	IP I

Table 5.2. Scribe analysis of Rebecca's practice sessions.

It is not surprising to find that the majority of practice time was spent playing the violin, and that the music annotation frequency declined over the three practice sessions, as the participants learnt their respective pieces of music. It is evident, from the Scribe analysis conducted on Laura's practice, that the structure relating to the three basic elements over the three observed sessions only altered a small amount, other than the reduction in score annotation. Rebecca, on the other hand, demonstrated a greater amount of change, which may be due to the stage at which she was at learning a piece or, as discussed in the previous chapter, the alteration of her planning habits affecting the composition of her practice sessions. The elements examined here are some of the most basic and inherent in practice, so further elucidation is required to understand more detail about what was happening within each of these practice segments. To advance on this basic understanding, a SYMP analysis was conducted of each of the practice sessions and is discussed in more detail in the following section.

## 5.3.2 SYMP Analysis of the Practice Sessions

The SYMP software tool was developed by a team at the University of Connecticut and frequently used in research by Chaffin and colleagues (Chaffin & Logan, 2006; Chaffin *et al.*, 2010) to assist with the empirical study of music practice. It was written in Microsoft Excel and requires the researcher to input information about the note and time where playing segments start and stop in a practice session in order to generate a graph that visually summarises these elements. In previous research using this software tool the starts and stops have been measured to the half-bar, however in the research completed for this thesis it was decided to create an analysis considering the individual notes that were played. This allowed for more detailed understanding of the practice process as it enabled accurate visualisations of when participants were moving backwards and forwards between just two notes as well as when they played longer segments.

Figure 5.2 shows the SYMP analysis of Laura's three observed practice sessions outlining the way she worked through the piece on each occasion. In the first and last of Laura's recorded practice sessions she works through the piece in a linear manner from the beginning to the end. During her second session, which occurred at the point she felt she had a good overview of the repertoire but still needed to improve, Laura chose to begin at the section she found hardest, working through to the end of the piece before working backwards in a logical order. The only section she missed during this was one that was a repeat of a previous section. In all three sessions Laura moved into a full run through of the piece between 30 and 35 minutes after the start of the session. In the initial session, the run through was nine seconds faster than in the final session and had one break where she chose to repeat note 186, the first note after a page turn. The run-through in the final session also only had one break at the same point. The second session differed, in that Laura chose to stop and repeat sections on four occasions. Despite this, it was also the fastest run-through of those observed at 6 minutes 13 seconds; 38 seconds faster than the run-through in the first session.

Figure 5.2 shows that the processes used by Laura to work on the Takemitsu were similar on all three occasions, although the order was changed during the second session. In general, her practice appears reactive, as she plays through sections and stops to repeat when she is not satisfied with an element of her playing.

The same analysis process was completed on Rebecca's practice sessions, and the resulting graphs of her practice sessions are shown in Figure 5.3. This was considerably different in content to Laura's practice sessions. In the initial session, she plays through a section of the Brahms and then works through it, repeating areas she deems to require improvement. Having worked through in this manner, she goes back to the beginning of the section and works through it again with fewer repetitions, before playing through the section again and linking into the next part of the piece. She repeats this process through the session, working on various sections, and only on one occasion does she move further back in the piece than the section she was working on, to run through a few of the sections she has isolated. She only works through 209 of the 563 notes in the movement and at no point during the session does she run through the entirety of the sections she has worked on.

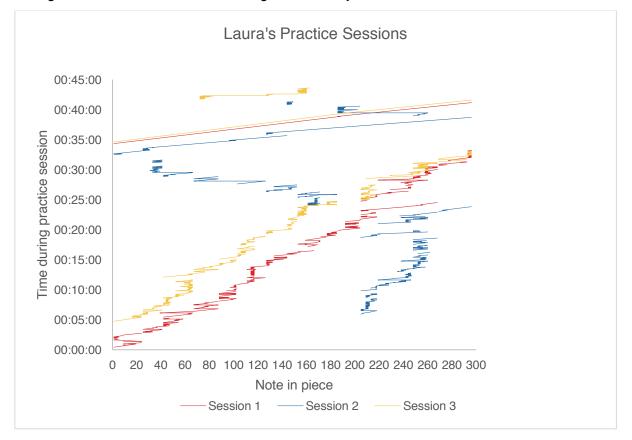


Figure 5.2. SYMP analysis of Laura's three practice sessions.

The makeup of her second session is markedly different to that of the first. Rebecca identifies four specific sections that require work and spends 5-10 minutes on each one, a process which she completes twice for one of the sections. In the time spent on each section she tended to proactively identify a short passage within the section and focus on that, before attempting to play through the whole section and using reactive practice, in which she corrects mistakes or makes improvements based on something heard in the moment. At the

end of this practice session, she decided to run through all the sections she had practised that day, stopping to correct mistakes when she felt it was required. Section 5.3.4 will focus on the video recall procedure and interview in which Rebecca discussed her practice, but it is pertinent at this point to examine why the composition of the practice session distinctly changed between the first and second session. Rebecca identified that, after the first observed practice session, she started looking at how she practised and researching ways in which she could improve. As a result, she began keeping her own diary (see Appendix D) and focusing on shorter sections for limited time period, Rebecca felt this helped her to remain focused, and directed her practice to areas that most needed improvement.

This change in practice style is also evident in the third observed practice session, where she identifies three sections that require work and concentrates on each of these in turn before returning to work on the first one, finishing her session with a run-through of the first two sections. One proactive rehearsal technique that she used during this session was to identify the notes that fell on the semi-quaver beats in certain passages and play those without playing the notes in-between. Other parts of her practice appear to be more reactive where she played through a segment then repeats a smaller segment to work on it. In total for this session she decided to practise for less than half an hour.

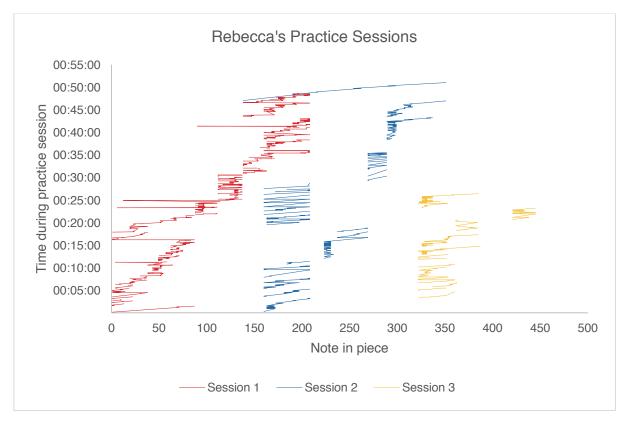


Figure 5.3. SYMP analysis of Rebecca's three practice sessions.

The analysis conducted so far has been predominantly concerned with what the two participants did in their practice sessions. It is now necessary to look at the things they discussed doing, thinking, and feeling during the practice sessions. Firstly, their responses in the self-regulation practice diaries are considered, then discussion turns to the transcripts of the video recall procedure and interviews.

#### **5.3.3 Self-Regulation Practice Diaries**

Looking at the self-regulation practice diaries (see Appendix B) enables the examination of some of the self-regulation processes exhibited by the participants. As previously stated, the self-regulation practice diaries were developed based around the tripartite cycle of forethought, performance, and self-reflection, and so the results will also be examined based on these categories.

## 5.3.3.1 Forethought

The forethought section of the diary focused on the planning phase of self-regulation examining what the participants intended to do in their practice session, as well as identifying their familiarity with the piece, confidence in their ability to master the repertoire, and the value they placed on the repertoire. As the goals set in the diaries were the focus of the previous chapter, they are included in the table but largely omitted from discussion at this point. Table 5.3 shows the responses Laura and Rebecca gave when completing the practice diaries on each of the three occasions.

The practice strategies Laura planned to use remained similar throughout the three sessions, indicating that she relied on a few core strategies to help her improve, regardless of the extent to which she knew the repertoire. This could be because the practice diary only had space available for three strategies and she may have felt that setting general strategies, that would work towards everything she planned to do in the sessions, was the more appropriate course of action, not discussing specific strategies she would use for individual sections. Another possibility is that Laura might not have detailed practice strategies in mind before practising and so is unable to be more specific. The lack of goal specificity identified in the previous chapter supports this notion, as does the SYMP analysis of her practice sessions, in which it appears she works on a section of her repertoire after she has played through it and identified a problem. The strategies outlined by Rebecca are more varied and fit the stage of learning she was at to a greater degree. In the initial session, they are aimed at getting a picture of the piece, in the second session she focuses

more on problem areas she has identified, and in the final observed practice she targeted specific sections of the piece that required work. The increase in specificity of aims over the course of learning a piece, evident in Rebecca's diaries, could be due to her altering her practice habits following the initial session, as her goals became more specific so may her planned practice strategies. It could also be due to her gaining a greater understanding of the Brahms and the areas that were most personally challenging, enabling her to set more specific strategies.

Rebecca had a greater long-term value for the repertoire she was learning, as well as a higher level of personal interest, than Laura. She also had more confidence at all three stages that she would be able to master the repertoire by the performance, despite on the second and third rounds of data collection feeling she had mastered the repertoire to a lesser degree. Although generally higher than Laura, Rebecca's confidence in mastering the repertoire before her performance decreased, from 100% certain in the first two sessions to 80% just a few days before her performance. This drop was not evident in the practice of Laura who remained on 70% for her second and third sessions, having started at 80% when she first played. For Rebecca, this could demonstrate that she has confidence in her ability to master repertoire but an imminent deadline undermines that confidence. In the case of Laura, it is interesting that, in the first session, when she had not played the piece she believed herself capable of mastering the repertoire 80% by the performance date. This could show a lack of confidence in her own ability to completely master the piece, or it could be that she feels mastering a piece of music is highly unlikely, as there are always elements that could be improved.

	Laura			Rebecca		
	Session 1	Session 2	Session 3	Session 1	Session 2	Session 3
Goals	Play	Better	Absolute	Intonation/	Clarity	Intonation
	through	intonation,	fine-tune	harmony	-	on two
	piece from	particularly on	intonation		Intonation	passages
	start to	last page		Structure		
	finish		Clear tone		Co-	Bow point
		Keeping pulse	on	Fingerings	ordination	of contact
	Consolidate		harmonics		(mainly on	
	fingering as	Including			triplets and	Legato
	much as	accurate			sextuplets)	
	possible	dynamics				
	Improve					
	intonation					
Planned	Break piece	Slow tempo	Slow tempo	Sing/hum	Rhythm	Double stop
strategies	into chunks			passages	practice	practice
5		Work	Non-vibrato			·
	Slow tempo	backwards		Scales	String	Open
			Shift		crossing	strings
	Shift	Listen to	practice	Identify	-	practice
	practice	dynamics		rhythmic	Breathing/	·
		-		patterns	relaxation	Stripping
						some bars
						to the main
						notes only
		700/			500/	700/
Mastery of repertoire so far	N/A	70%	80%	N/A	50%	70%
	000/	2001	700/	500/	500/	0001
Confidence they will master the	30%	60%	70%	50%	50%	80%
repertoire in the						

Table 5.3. Content completed in the forethought section of the self-regulation practice diary.

Confidence they will master the repertoire by the performance	80%	70%	70%	100%	100%	80%
Personal interest in the repertoire	7/10	7/10	8/10	10/10	10/10	10/10
Longer-term value of the repertoire	7/10	6/10	7/10	10/10	10/10	10/10

# 5.3.3.2 Performance

The performance section of the practice diary asked the participants two questions: how they focused their concentration, and how they monitored their practice. The responses are outlined in Table 5.4.

	Laura			Rebecca			
	Session 1	Session 2	Session 3	Session 1	Session 2	Session 3	
Focused	Worked	Starting at	Listening to	Listening,	Divide	Moving	
concentration	through the	the hardest	intonation,	singing,	sections	myself	
	piece phrase-	bit, practice	working	occasional	into chunks	around the	
	by-phrase,	in small	through piece	stretch, &	and	room,	
	checked the	chunks &	methodically,	cup of tea	focusing on	checking	
	time to	working	& standing up		precise	my left	
	plan/practice	backwards	for the run		technical	hand.	
	effectively,	to avoid just	through		challenges	Imagining	
	play through	playing			within	the score,	
	entire piece at	through, &			these	hearing the	
	the end, &	using a				orchestra	
	working out	metronome				via my inner	
	the					ear	
	notes/chords/						
	harmonics						

Table 5.4. Content completed in the performance section of the self-regulation practice diary.

Monitored	Listening to	Listening for	Listening to	Didn't	How the	By my train
practice	sound	intonation	intonation and	monitor	upper body	of thought. I
		slips, listen	judging when	time,	was	did have a
		to how	not good	focused on	feeling,	small break
		metronome	enough and	relaxing	setting	to stretch
		affected	needing	bow arm	alarms for	my back
		intonation	repeating	and training	each	and arms.
				left-hand	section	But what I
				fingers to	practised	had failed
				know where		to do was
				they are		time my
				going		practice
						session
				1		

Laura appears to focus her behaviour using strategies related to segmenting the piece and ordering how she worked through the segments. The SYMP analysis supports the notion that she worked on the piece in segments, and in the second session that she started later in the piece and worked backwards. In the practice diaries, she does not talk about using other strategies identified in literature such as breaks, mental practice, reducing the tempo, or varying articulation or rhythm (Clark & Williamon, 2011; McPherson, 1997; Miksza, 2009). Rebecca's strategies for focusing her concentration vary in all three sessions. In the initial session, she discusses the use of short breaks to stretch and drink tea, alongside listening and singing the music. In the second session, she focuses by splitting the practice into 5-10 minute chunks in which she works on specific segments of the music and the technical challenges within them. In the final session, she talks about moving around the room, concentrating on specific areas of her body, and thinking about the accompaniment that will be underneath her playing. The diversity in strategies Rebecca discussed mirror the difference in her practice sessions, demonstrated in the SYMP analysis. One possible explanation is that the difference in practice content necessitated altering her concentration strategies. The practices of Laura, on the other hand, were similar on all three occasions and so it is unsurprising that her methods of focusing are similar.

In monitoring her practice, Laura identified listening as the key strategy she used, predominantly aimed at her intonation. Rebecca identified using sensations in her body, primarily focusing on the presence of tension, as a chief means of monitoring her practice. Neither discussed making any records in the form of video or audio recordings to use for this purpose, and only Rebecca identified using alarms during the practice in her second session as a means of monitoring her progress.

## 5.3.3.2 Self-Reflection

The responses to the self-reflection section of the practice diary are outlined in Table 5.5. The reasons that Laura gave for the rating regarding the effectiveness of her practice sessions referred to the goals she set for the session, at least in part. In the first session, where one of her goals was to play through the whole piece, she rated the effectiveness at 8/10 with the reason being that she had got through the whole piece and "played from start to finish ok". The second session she rated lower (6/10) because she did not have time to think about the dynamics which was one of her goals for that session. In the final session, she rated the effectiveness 8/10 again, stating that she had been able to include an extra run-through in the session that she had not thought she would have time for. Rebecca, on the other hand, did not demonstrate the same reflective process in her explanations for the rating she gave of the efficiency of her practice. In the initial session, she rated the efficiency at 3/10 due to not working through the whole movement, feeling she had only scratched the surface in relation to the technical challenges of the movement, but that she had a better understanding of the work that was required. When talking about her effectiveness in the second session, she identified that she had found three areas that required further attention, indicating that she felt recognising sections that were not at her desired standard was a positive thing to come out of a practice session.

The table shows that Laura tended to feel her practice sessions were more focused than Rebecca and she estimated that a higher percentage of the practice time was focused. Her responses were similar across the three sessions with the biggest differences being that she found the first session the most stimulating, and her second session was more frustrating than the other two. Rebecca showed more variety in her responses with a low estimation of focus in the final session, which she chose to end within 30 minutes. The similarity of Laura's responses would suggest that her practice sessions did not vary greatly in terms of her focus and affect, regardless of the extent to which she knew her repertoire. When considering this in conjunction with the findings of the SYMP analysis, which showed similar practice patterns in all three sessions, it suggests a formulaic approach to practice with similar strategies used throughout the learning process. The variety of responses from Rebecca show a greater diversity of practice strategies and affect. This could be due to the stage of learning she had reached with the repertoire, or it could be due to other

circumstances such as the amount of other work she had, the proximity of the performance, or her general affect that day.

To further understanding into the results obtained, the focus now turns to the transcripts of the video recall protocol and interviews, in which the two participants watched their practice session back straight after completing it and commented on what they were doing, why they were doing it, and how they were feeling.

# **5.3.4 Video Recall Procedure and Interviews**

Theory-driven coding was conducted on the transcripts using a framework derived from Zimmerman's methods of skilful regulators with two extra categories included: analysis of the score and analysis of the instrument (see Table 5.6). This was done as the point of interest in the current chapter was the SRL strategies exhibited by the participants and so using a set of codes predetermined by the existing literature on the theory allowed direct comparison of the data with research conducted previously.

Of these codes, there were some that were not discussed at all or discussed rarely while the participants were watching their video back. In relation to the forethought stage the goals set in the practice diary were rarely discussed suggesting that they are not frequently monitoring their explicit goals during practice. As would be expected the goals they did discuss were short-term and generally specific showing some elements of a hierarchy, "[I am] not trying to get it to sound perfect by doing this, it's just trying to get a feel for the speed so I'm not too worried about minute details" (Laura, session 2 recall). Rebecca discussed how she felt her practice process was benefitting her long-term goals as well as her short-term goals, "If some tool in you, your hands or whatever, is not fully working that is something that you do have to adjust by yourself. It's really going to benefit each area that you work on." (Rebecca, interview 2). Laura did not exhibit this thought pattern on any occasion during discussions.

	Laura			Rebecca		
	Session 1	Session 2	Session 3	Session 1	Session 2	Session 3
Effectiveness of practice (0 not effective–10 effective)	8/10	6/10	8/10	3/10	7/10	6/10
Atypical (0)–typical (10) <sup>a</sup>	7/10	7/10	7/10	6/10	8/10	6/10
Unfocused (0)– focused (10)	8/10	7/10	8/10	6/10	8/10	4/10
Stimulating (0)– tedious (10)	3/10	6/10	5/10	7/10	7/10	5/10
Frustrating (0)– satisfying (10)	7/10	5/10	7/10	7/10	5/10	5/10
Effectiveness of strategies	8/10	6/10	8/10	5/10	7/10	4/10
Practice session completely disappointing (0)– completely satisfying (10)	7/10	6/10	7/10	4/10	7/10	5/10
Percentage of the practice which was focused	80%	80%	80%	60%	70%	30%
Length of practice session	40 minutes	45 minutes	45 minutes	50 minutes	50 minutes	30 minutes

Table 5.5. Content completed in the self-reflection section of the self-regulation practice diary.

<sup>a</sup> In the diary presented to the participants this measure was "different-typical" however as the general meaning and use are the same for different and atypical in this context the latter has been substituted in discussion.

	<b>e</b> (	· ,
Forethought	Task analysis	Strategic planning
		Goal setting
	Self-motivational beliefs	Goal orientation
		Self-efficacy
		Motivation
		Outcome expectations
Performance	Self-control	Self-instruction
		Attention focusing
		Imagery
		Task strategy
	Self-observation	Self-recording
		Self-experimentation
Self-reflection	Self-judgment	Self-evaluation
		Causal attribution
	Self-reaction	Adaptive/defensive inferences
		Self-satisfaction
External analysis	Analysis of the score	
	Analysis of the instrument	

Table 5.6. Zimmerman's methods of skilful regulators (Zimmerman, 2000).

Planning strategy use was frequently discussed by both participants which was accompanied by the controlling of affect in the case of Rebecca but not Laura:

"Yeah, definitely mixing it up helps. So again coming back to yesterday what I did, because I spent [...] quite a big chunk working the Brahms, but I have other commitments to work on as well so I started playing it, found that my hands and my tools are not working so, "you know what you need to just do mental practice on it", [...] you can still do something to help. [...] It probably can do more harm to you than good if you're not prepared to handle it properly." (Rebecca, interview 2)

One of the largest differences between the two participants' video recall transcripts was evident in the strategic planning, as Rebecca demonstrated a far greater proclivity for controlling her affect and planning her strategy use than Laura, discussing elements related to strategic planning nearly four times more frequently in total over the three sessions. Laura did not mention controlling her affect, directing her motor execution, or using reactive strategies during any of her practice sessions. Partially this difference is likely to be down to assumption, as it was evident from the videos that some of these elements were present in her practice, such as the controlling of her affect by taking breaks when she was feeling tired, however, the large differentiation between the two participants could also be related to the conscious decisions that each makes within a practice session. This would suggest that Rebecca is far more aware of how she works and is more proactive in using strategies to regulate her practice as opposed to Laura who appears to be using the strategies in a more subconscious or reactive manner.

Self-motivational beliefs were discussed infrequently, with self-efficacy being the only one discussed to some extent during most of the sessions. Both participants were generally positive in this respect, feeling that they could master the tasks they had, or would know where to find assistance that would enable them to achieve their goals: "at least know the right sort of techniques to try to improve each bit" (Laura, interview 2); "I think by this stage I have a kind of reservoir now of ideas and things that I can try out and experiment with, and then if there's something so difficult that I cannot still kind of grasp it I usually just take it to somebody and just, you know having that extra pair of ears listen to it" (Rebecca, interview 3).

Items discussed in the recall reflecting the performance phase of self-regulation were most frequently connected to task strategies and attention focusing. Once again, Rebecca discussed both more frequently than Laura, particularly regarding attention focusing, where she identified a greater number of instances where she lost focus and used a volitional method of control in her practice session. As she was clearly aware of more frequent focus lapses, it is not surprising that her volitional control is also reported at a higher rate than Laura, who only reported a loss of focus in her final session. Another element of attention focusing looked for in the coding process was discussion regarding slow-motion task execution. Although both participants demonstrated frequent use of this technique in the videos of their practice, neither discussed it to the same extent during the video recall procedure. This may be because a large amount of their practice was under tempo and, having discussed it once, they did not feel the need to repeat themselves. It could also be a technique that they used so often that it had become automatic to some extent, so they were not consciously aware of the amount it was used, even when watching their practice back.

The imagery and self-instruction elements of self-control were rarely discussed by both participants, with Rebecca using positive imagery on occasion in all three sessions, while

Laura did not discuss its use at all. Both identified elements of positive self-instruction in some, but not all, of their sessions. It was most commonly used by Rebecca in her first practice session, where she talked about employing it to question herself, "why am I not getting this, why isn't this in tune? You just think again to the basics, what is the tonality? Or something like that or, is it going chromatic?", to asses and decide on technical elements, "I could do this fingering there or this bowing here, why, why is that good? Can you try something else? Can you try playing it on one string?", for encouragement, "okay go back to the beginning and do it again but you know that you can do it, you just did it", and to control her affect, "no, there's no reason to get angry or start shouting or anything, just do it again and think of the, again what you can do technically to help yourself". In relation to selfobservation, little was mentioned in the video recall of either participant. Neither participants used audio, emotional reactions, or overt performances to self-record and, although both discussed using videos on occasion (generally for full performances or run throughs), neither used this during the observed sessions to get instant feedback. The most frequently used method of self-recording was textual and usually involved making notes in the score. Rebecca also began keeping a diary of the work she had done after the first session and used this in session two. On the third session, she said she was still using the diary but had forgotten to bring it with her. The diary was used to keep track of her practice sessions and also as a tool for motivation by writing down positive feedback she received, "it's been kind of my faithful little companion, not just for practice sessions, for jotting down ideas and that, but any kind of, you know this one word or sentence that somebody says and that really propels something positive within me, or some ideas, these positive ideas that I can like read or come back to whenever I feel a bit low, so it's definitely my book of goodness" (Rebecca, recall 3). Laura used self-experimentation to a greater degree than Rebecca and most frequently in the early sessions when working out fingerings and bowings for her piece. This was most frequently discussed in conjunction with passages where she was working on harmonics, and the greater frequency could be due to the more modern nature of the Takemitsu she was playing and the less frequently used musical patterns.

Comments made relating to the self-judgment elements of self-reflection indicated both felt that ability was malleable, and they based their self-evaluation around mastery of the piece or their previous performances. Laura most commonly compared her playing to previous performances in the initial two sessions, and in the final session her focus switched to mastery of the music. Rebecca was more focused on mastery throughout the three sessions. In their self-reactions, Rebecca identified more frequent occurrences of cognitive disengagement and procrastination than Laura, possibly because Rebecca disengaged with

her task more frequently or she was more consciously aware that this was happening. When discussing their self-satisfaction at various points during the video recall, Laura tended mostly to identify feelings of satisfaction: "I've been generally happy with how those things have gone so that's good", "in general I'm happy enough with the kind of sound that's coming across", "Obviously it's not perfect but it's going in the right direction". Rebecca, on the other hand, acknowledged feelings of satisfaction and dissatisfaction relatively equally in each of the three sessions, as well as similar levels of positive and negative affect throughout the session. The only session where this was not the case was during the final one, in which she discussed instances of negative affect, frequently referring to her frustration, but no positive affect: "I was feeling a little bit frustrated", "you can see in the facial expressions as well it's just, not a very happy bunny", "it's definitely kind of going low in focus and motivation".

The final two aspects of practice that were coded related to external analysis of the score and of the instrument. Both participants discussed analysing the score in the first two sessions, and it was mentioned to a lesser degree by Rebecca in the final session. As the final session occurred a couple of days before they were performing the music, it is likely that by this time they knew their own score and the accompaniment well and so did not have the same need to examine it. Laura's comments tended towards analysis of her own part, with little attention being paid to what her accompanist would be doing: "I don't actually know the piano part that well which is another thing that came up last week, I've written in a few things that the piano has but mainly I'm just thinking about what I'm doing." (Laura, video recall session 2). Rebecca, on the other hand, often exhibited a greater interest in the full orchestral score that accompanied the Brahms Sonata. Analysis of the instrument was a rare occurrence generally and was only a feature of the discussion when the participants had re-strung their instrument or re-haired their bow; this is to be expected as it made playing their instrument noticeably different.

Some elements are not expected to come up frequently in the recall, as it was not designed to cover all areas equally (outcome expectations, goal orientation, and causal attribution were likely to come up less than goal setting and task strategies). What is interesting about these results is the lack of goals being discussed in the practice session, despite the participants frequently being asked what they are doing at that moment in the video and why. This seems to demonstrate a disconnect between their implicit and explicit goals. Usually, when asked what they are doing and why, participants will identify why they chose to repeat a passage, but rarely did this map directly onto the goals that they had set

for the session in their diaries or any other explicit goal that they explained during the recall. They also seem to be planning and using strategies without the consideration of what they are hoping to achieve using them.

## 5.3.5 Change over time

## 5.3.5.1 Laura

As can be seen from the Scribe and SYMP analysis, Laura's practice sessions did not change markedly as she moved through the process of learning the piece. In sessions one and three the timings are very similar, as demonstrated by the SYMP graphs, and involve working through the piece in chronological order before a final run through at the end, which in the case of the third session, was followed by some brief corrections. The second session was the most distinctive as she decided to work from the hardest section, which she spent more time on than on other occasions, through to the end and then backwards through the piece, phrase by phrase, until she had worked on the whole thing. Following this, she completed a run-through and then worked briefly on a couple of selected passages. The scribe analysis shows little variation between the playing and not playing content of her three sessions, the annotating of music appears to be predominantly covered in the early stages of practice as in the second and third sessions there were only one or three occasions on which she annotated her score.

Thematic coding of the video-recall revealed few differences between the three sessions. There was some evidence that focusing on single elements became less frequent through the sessions and that during the final session mastery became the predominant selfevaluation tool as opposed to previous performance which was the focus of the first two sessions.

## 5.3.5.2 Rebecca

Rebecca displayed a drastic change between sessions one and two, although this is unlikely to be entirely connected to the progressions through the piece. As demonstrated in her interviews Rebecca thought a lot about the best methods of practising and as such adopted her own version of the diary process following the first session. She had also been considering research completed on practice, and as such her second session was modified and focused on specific passages for short amounts of time. Because of this her practice self-regulation was much improved and the content of her second practice session appears far more productive. The video recall evidenced a greater focus on controlling affect between the first and second sessions, and higher levels of self-reaction in all areas.

Although this includes the more negative reactions, it indicates that she was more aware of her affect in the second session.

## 5.4 DISCUSSION

Zimmerman (1989) identified three forms of self-regulation: covert, behavioural, and environmental. He postulated that by using strategies to improve behavioural self-regulation one could improve one's covert and environmental regulation, and by using covert regulation strategies that could also have a beneficial effect on one's environmental regulation. He also stated that these fed back into each other and so positively regulating one's environment would lead to better regulation of the self and one's behaviour, and covert regulation would feed back into behavioural regulation. These three forms of self-regulation are present throughout the self-regulation cycle of forethought, performance, and self-reflection, and addressing them at each stage could prove beneficial for improving efficiency. By increasing musicians' awareness and monitoring of the strategies they use, and encouraging them to reflect and how they could regulate them in the face of different tasks, it could improve their practice quality (Nielsen, 1999, 2008b). This could lead to more efficient, conscious practice in which time is taken to understand what achievement is desired and how to attain it, taking into account both situation and mood.

The two participants in this study were at a similar stage in their education, both being postgraduate violinists preparing to move into the professional sphere upon completion of their course. The predominant interest of the research in this thesis is in examining the selfregulation strategies exhibited by the participants, how they use them, and whether they are dependent on the familiarity of the repertoire being played. It has become evident that both participants used conscious and subconscious processes during their practice sessions with greater or lesser effect. Laura's practice tended towards being formulaic and reactive with little difference in the organisation of her practice, or the way she approached challenges, over the three observed sessions. The self-regulation strategies she did discuss or demonstrate tended to be behavioural with little evidence that she intentionally and consistently used covert or environmental self-regulation strategies. Rebecca's practice underwent a notable change following the first session, after which she adopted the use of her own personal diary for practising, conducted some research into how she could improve her practice, and amended the ways in which she worked on her repertoire. In the initial session, her practice content looked much like that of Laura's, focusing on reactive, automatic processes to learn and improve the piece she was working on. The second and

third practice sessions, however, demonstrated a more diverse and proactive approach to her practice as well as a greater frequency of covert self-regulation strategies in addition to the behavioural strategies that were most apparent in the initial session. As was the case with Laura a limited amount of environmental regulation was evident in the observed practice of Rebecca, and that which is present tended to be reactive rather than proactive. The two participants practice frequently in the environments they were observed in, so it is likely that they are in spaces in which they feel comfortable and have everything that they require. As a result, it is unsurprising that they did not feel the need to regulate their environment and only did so in reaction to an unforeseen external circumstance, such as reacting to noises that permeated their practice space.

Implicit goals, not identified in the diary, appeared to drive much of the practice conducted in the sessions. It is to be expected that over the years of practice certain habits have become automatic, and it may be this that leads to implicit goals which are not necessarily seen as goals by the two musicians. If this is the case, then it is pertinent to look at whether the implicit goals and strategies used automatically are effective, or whether the lack of conscious consideration for these elements leads to less productive practice. One way to look at this is to examine the self-reports of Rebecca and the differences between her first practice session and the other two. In the practice diary, she marked the first session as the least efficient (only 3/10 as opposed to the 7/10 and 6/10 of the following sessions) despite saying that the final session which she chose to finish early was by far the least focused. This suggests in general that she felt her practice, despite her lack of focus, was more efficient in the final session, where she identified specific sections, than in the first session where she worked through the piece reactively. The other change exhibited in Rebecca's later practice sessions was the increase in awareness of how her mood and feelings could affect her practice quality, and as a result, she increased her covert selfregulation to control and adapt her practice using a greater variety of methods to refocus when her attention lapsed.

Previous research has identified that higher achievement levels are linked to greater use of certain self-regulation processes (DiBenedetto & Zimmerman, 2013; McPherson & Renwick, 2011; Zimmerman & Kitsantas, 2014). We see in the research of Hallam et al. (2012) links between expertise and practice that is systematic, organised, and concentrated. Adopting more effective strategies has been found to link with level of expertise (Jørgensen & Hallam, 2009), whereas adopting inefficient strategies was found to negatively correlate with level of expertise (Hallam et al., 2012). The practice of the two participants examined in

this research and the reports they gave, demonstrate that both self-regulate to some extent, especially in relation to behavioural regulation, during the practice phase. What does appear to be lacking is comprehensive goal setting, strategic planning, and self-reflective processes that are then utilised in planning future practice. Based on the findings of Miksza (2011) who found that more strategic or goal-directed practice was linked with higher achievement levels, it is likely that improving the violinists' ability to plan and set effective goals will assist in their practice to improve their achievement. In another study conducted by Miksza (2015) it was found that students receiving instruction in self-regulation strategies had a higher level of achievement than a control group who did not receive the same training.

The data from Araújo's study (2015) showed advanced musicians understood the goals and strategies required to make improvements but did not plan how to implement these. In the practice of Rebecca and Laura, we see that both generally feel confident in their ability to select the correct strategy to improve certain aspects of a piece, and if they are unsure they know how to find out. However, in the practice sessions observed, the strategies they identified in the diaries tended to be more generic than specific and, especially in the case of Laura, repetitious strategies were frequently used. This could suggest that, as was the case with the musicians in Araújo's study, the two participants understood a variety of strategies and how they theoretically worked but did not see the value or take the time to plan how to use them effectively.

The dramatic alteration in Rebecca's practice is particularly noteworthy as, with no incentive provided from the study itself, she chose to seek out a better understanding of her own practice and other ways to practise following the first session, something Laura did not choose to do. Throughout the study, they were not asked to practise any differently, nor were they instructed in efficient practice strategies or self-regulation. For Rebecca, the first session, and the use of the diary particularly, seemed to inspire her to take it upon herself to seek out new ways of practising and understanding how she could make her practice more efficient, the results of which are evident in the data collected in the second and third sessions. But why was this behaviour change effected in Rebecca and not Laura? Both underwent the same process, and both were aiming to be professional musicians in the near future. The most obvious difference that came through in the interviews was motivation: a motivation and need to change behaviour to achieve long-term goals. Rebecca showed a greater awareness of the dangers of injury from playing the violin too much, as well as having a busy schedule and a desire to play well in all performances, so required efficient practice. Laura, on the other hand, approached an audition saying that she was not going to

"nail" it and that it wouldn't "sound perfect". Although a practical viewpoint given the time constraints in the circumstances, it demonstrated a lesser drive to master repertoire and set a goal that was of a lower standard.

It is important to balance striving for perfection or the avoidance of imperfection, which can be damaging in itself (Kenny *et al.*, 2004; Stoeber & Eismann, 2007), with aiming for achievable yet challenging goals, a key construct in the Locke and Latham model. The present research is concerned with the efficiency of practice, with the aim of finding out how musicians can organise their practice to maximise achievement and motivation while minimising risk of injury. The study outlined in the current and previous chapter only focused on two violinists learning one piece of music each and observing three practice sessions. To assess whether any of these findings have the potential to be more generalisable, it is important to examine the practice of other players learning a wider variety of music to see whether they choose to alter strategies based on the specific requirements of the piece, or tend to use similar strategies in approaching all their repertoire. The following three chapters examine the practice of three other conservatoire violin students, learning a variety of repertoire.

# CHAPTER 6 STUDY 3 SELF-REGULATION PRACTICE DIARIES OF VIOLINISTS

# **6.1 INTRODUCTION**

In Chapter 4, the goals of the two violinists were discussed in relation to six dimensions based on Locke and Latham's goal setting theory, which promotes the use of goals as a motivational tool. The theory posited that goals could improve motivation by clarifying expectations, relieving boredom, increasing liking for a task, providing satisfaction with performance, increasing self-confidence and pride, and increasing willingness to accept future challenges (Locke & Latham, 1984). All six dimensions (specificity, measurability, hierarchy, difficulty, importance, and deadlines) appeared to be lacking in the goals of the violinists, suggesting the possibility that improving the quality of the goals using the framework could lead to higher levels of motivation and achievement. The research reported in this chapter focuses on the in-session goals set by the participants and so the elements of hierarchy and deadlines are less likely to be prominent as the time span to complete the goals is restricted to the single session, and having a hierarchy is less likely as the number of goals will be limited.

Both laboratory and real-world studies found that specific, challenging goals produced the greatest achievement (Blumenfeld & Leidy, 1969; Dockstader *et al.*, 1979; Latham & Baldes, 1975). Vague, "do your best" goals produced lower rates of achievement, which was suggested to be due to their vagueness and lack of measurability. Three ways were suggested as a method to measure outputs: physical units, time, or money (Locke & Latham, 1984): a fourth suggested option when these are not suitable was to measure behaviours assumed to lead to successful outcomes. In the case of music practice, these behaviours could be drawn from research into self-regulated learning (SRL), which has examined desirable behaviours likely to lead to enhanced learning outcomes. The other three outputs are less applicable, as music practice is intended to produce an improvement in skill level rather than a quantifiable product. Deadlines were deemed important, as they set a time limit for achieving the goal, providing an incentive to put effort in doing so. Goals that had no time limit, or one far longer than required, led to a reduction in effort either from

the outset, or once the goal had been completed and there was still time before the deadline.

Importance and hierarchy were also key to the theory. Goals identified as important to the individual were more likely to induce heightened effort when approaching a task than when the goal was seen to be unimportant (Latham *et al.*, 1978). Hierarchical goal setting was deemed to be important when multiple goals were set over the same time span, and the individual had to be able to integrate their plans for achieving the goals and know how to manage their time to achieve them. If time is limited, then it is important to understand the goals that are most important to achieve and modify one's plan to do so, possibly at the expense of less crucial goals.

Locke and Latham identified that goals could produce stress or a reduction in productivity if they were applied in an ineffective way, such that the goal deadlines were too soon or too distant, the difficulty was unattainable or too easy, the goal was not felt to be important to the individual, or that there was no way of measuring if it had been achieved. This being the case, it is important to examine the practice of musicians to see if they can set effective goals that are measurable, important to them, achievable but challenging, and they know how long the goals will take to attain.

A challenging factor of music in relation to this is the frequently held belief that there is no objective "true" version of performing a piece, and that interpretations are tentative and individual (Nielsen, 2001). As such, achieving perfection when playing is almost impossible and striving to do so can lead to deleterious effects including lower goal satisfaction, a sense of worthlessness, anxiety, and shame when a performance is deemed less than perfect (Kenny, 2011). Part of the learning process for any skill is the ability to apply knowledge gained effectively to the practice of that skill. A large-scale questionnaire distributed to over 3,000 young people (Hallam et al., 2012) found that as expertise increased, so did the adoption of specific practice strategies and other factors associated with better quality practice (including organisation, use of recordings and metronome, and concentration levels). This suggests that as expertise developed students were learning to apply their knowledge in more effective ways. Looking at the practice of nine teenagers over two months, Pike (2017) found students tended to report using more strategies than were observed and that they lacked flexibility in adapting strategies that were not bringing the desired improvement. Over the time they were observed, the progress made tended to be in their private lessons with the new learning being maintained during private practice. The

pupils reported that they did not always know what to do when they practised or when difficulties were encountered, five also said they either did not or could not identify problems they had with their repertoire, and three students who believed they could identify problems did not always feel the strategy they chose to address them worked. This suggests that there is a lack of understanding in how to practise and a strong reliance on the teacher to solve problems from an early age. Results of the study (Hallam *et al.*, 2012) suggest that practice does improve with expertise, so it may be that the situation is different when looking at conservatoire level musicians. It could also be that, because the questionnaire relied solely on the self-reports of the participants, they became more aware of effective practice as they improved and reported using it to a greater extent than they did, tying in with the findings of Pike that students reported using more strategies than were observed.

Research examining advanced music students has found positive links between achievement and deliberate or formal practice (Bonneville-Roussy & Bouffard, 2015; Ericsson et al., 1993; Sloboda et al., 1996), although interestingly it has been found that increased weekly practice time negatively effects achievement (Bonneville-Roussy & Bouffard, 2015), as well as that the amount of time practised on a specific piece was not as determinative of performance during a retention test as the strategies used in practice (Duke et al., 2009). These results suggest that quantity of practice is a lower level predictor of achievement than quality of practice when musicians reach conservatoire level. The practice of higher level students has been found to demonstrate systematic problem-solving and error correction over and above that of students at a lower level (Duke et al., 2009), there was also an erroneous belief among many of the students that the primary goal was to avoid mistakes, and the difference between them and their teachers was that their teachers made less errors, not that they handled them in a better way. When talking about practice, advanced students focused primarily on the method with little discussion of their behaviour or social/cultural factors (Santos & Gerling, 2011), suggesting that they found it easier to discuss how they practised than how they thought during practice. This finding was replicated in the previous study in this thesis (Chapter 5), in that most of the discussion during the video recall procedure was centred around what the participant was doing at the time and explanations for why were frequently cursory.

The self-regulation of advanced students and professionals was found to increase with age (Araújo, 2015), and practice time was frequently shorter for those at higher levels than those at lower levels (Araújo, 2015; Hallam, 1995). This could be because the increase in self-regulation made practice more effective and so less practice was necessary, or the

demands of professional work commitments limited the practice time available, or because the practice of professional musicians was aimed more at the maintenance of a skill rather than improvement and as such required less time (Hallam, 1995).

Research in this chapter examines the understanding that violinists have of their practice, as well as self-regulation strategies that they exhibit. By understanding how violinists plan, perform, and self-evaluate their practice the positive and negative elements of their practice habits will become clearer, allowing a greater appreciation of what could be improved to make their practice more effective, as well as the things at which they are already skilled. The predominant focus is on the goals they set, their plans to achieve them, and the extent to which they feel they do achieve them.

#### 6.2 METHOD

#### 6.2.1 Participants

Three volunteers were chosen as participant musicians, all of whom studied violin performance at the Royal College of Music. Two were female, completing a master's programme in violin performance (henceforth referred to as Beth and Elle). The third was a male completing an undergraduate programme in violin performance (henceforth Will). All participants had been playing the violin for 15-19 years, since they were five years old, and started with the support of their parents, who took them to music classes or lessons. Will and Elle both attended music classes as infants and said that their talent was recognised by the teachers and that they were encouraged to start learning an instrument. Beth's mother played the violin herself, which enthused Beth to want to try; her mother refused lessons at first as she herself did not enjoy them as a young child, but she relented and found Beth a private tutor after Beth insisted she wanted to learn. Both Beth and Will had experienced arm injuries due to playing the violin too much and with poor technique, which prohibited them from practising as much as they wanted and had forced them to alter their practice habits. All the participants planned to become professional violinists and, although admitting to having doubts in the past, none of them expressed regret for choosing it as a career path and were confident they had made the right decision.

#### 6.2.2 Procedure

The participants were asked to complete a self-regulation practice diary once a week over the course of the second and third terms of the academic year. There was no time limit assigned to the practice sessions for which these were completed, nor were there any instructions regarding the content of the practice session; the participants were asked to

practise whatever they wanted in their usual manner. Not all participants managed to complete a diary each week, and the final number of completed diaries were 14, 18, and 19 for Elle, Beth, and Will respectively.

#### 6.2.3 Materials

The practice diary used for the collection of data (Appendix E) in this study was created based on that used in Chapters 4 and 5 of this thesis. Questions were asked relating to the forethought, performance, and self-reflection phases of the self-regulation cycle (Zimmerman, 1989). Those relating to the first phase were answered before the practice session occurred. Those relating to the latter two phases were completed at the culmination of the practice session. In comparison to the diary used in the previous study the goals and strategies section was expanded to allow room for five goals with more space to write, a planning section was included in the first section and a corresponding assessment of how much time was spent on the individual goals was included in the final section. A performance profile was also included which required participants to identify up to six important factors they felt were to be included in their practice, what level they were at, the level they were aiming for at the end of the session, and, at the end of the diary, they were asked to rate the level which they achieved. The other addition to the practice diary required participants to rate the extent to which they achieved each individual goal.

As the additions increased the length of the diary other elements were removed which were the extent they felt they had mastered their repertoire, their confidence that they could master the repertoire in the session, and their prediction that they will master their repertoire by the performance. Questions relating to how they focused their concentration and monitored their practice were also removed. As was the case with Rebecca and Laura, participants in this study reported that the diary was beneficial to their practice in providing a focus and structure for their practice. They also said that some elements were more useful than others and if they were to create their own practice diary they would include elements from this one but not the entirety.

In the initial interview the researcher went through the contents of the diary with the participants to ensure they understood the requirements to complete it and the first occasion they completed it was during a practice session where the researcher was present and able to answer any queries they had. Subsequent diaries were completed by the participants on their own but if questions came up they could contact the researcher to clarify.

#### 6.3 RESULTS

The following analysis examines the content of the goals and strategies according to Locke and Latham's goal setting theory. The relationship between time spent on goals and their achievement and the conflict that was apparent in some of the responses regarding the completion of certain goals were examined. Statistical analysis was also conducted on semantic differential scales in which participants rated the focus, typicality, stimulation, satisfaction, and strategy effectiveness of their practice session, as well as the achievement of goals. This analysis examines correlations between focus, typicality, stimulation, satisfaction, and effectiveness of practice strategies, and whether the effectiveness of strategies is related to the achievement of goals. Every diary included a performance profile in which participants were asked to select the most important elements in their practice and identify their starting level, the ideal level, and the level they thought they would achieve by the end of the practice session for each factor. The findings of these are discussed in Section 6.3.3 followed by an analysis examining whether the goals and strategies outlined by the participants changed based on the repertoire they were playing. The combined findings of these elements are drawn together and discussed in the final section of the chapter.

## 6.3.1 Goals and Strategies

#### 6.3.1.1 Locke and Latham

In the examination of the participants' goals in relation to the items specificity, measurability, deadlines, hierarchy, difficulty, and importance, the strategies they chose to use were also considered as they gave fundamental information about how the violinists planned to achieve their goals. The specificity and measurability of the goals on their own were low for all three participants, with few specific goals that were comprehensibly measurable. This altered, however, when considering the strategies the participants outlined in their diaries, with all three showing a marked increase in specificity and fewer non-specific plans. This suggests that although the participants may not define specific, measurable goals they are able to set out strategies that provide more detailed information about what they want to achieve and how they plan to do so.

The practice had the inherent deadline of the end of the session, which varied on each occasion. In the diary, before completing their practice, participants were also asked how long they intended to work on each individual goal during the session. Table 6.1 outlines the percentage of goals that the participants rated as spending less, as much, or more time than expected. It is clear from this table that participants frequently under- or over-estimated the

time it would take them to complete the goals they set for the practice session. Will was the most accurate, spending as much time as he predicted on 62% of the goals set. Beth only spent the amount of time she estimated at the start on 16.4% of her goals, indicating either that she was not clear on how long it would take for her to achieve the goals she set or that she did not follow her deadlines closely and was more flexible with her time management during the session. Beth and Will both spent more time than expected on a greater number of their goals than they spent less time than expected. This implies that there was a larger amount of time less than planned, spent on fewer goals, and a smaller amount of time more than planned, spent on a larger number of goals. Possibly both Will and Beth tended to spend more time on their goals than they had planned and a few of their goals were neglected because of this. The opposite is true for Elle who had a greater frequency of spending more time on her goals than less. This could be a similar reason to that of Beth and Will in that she preferred to spend more time on some of her goals but the amount more is much greater and so inhibited her from spending time on other goals. It could also be because she tended to complete her goals in less time than she had planned to do so and so was able to spend longer on those less achieved.

		Percentage of	goals
Time Taken	Elle	Beth	Will
Less than expected	43.4%	34.5%	14.1%
As expected	43.4%	16.4%	62.0%
More than expected	13.2%	49.1%	23.9%

Table 6.1 Length of time taken on goals compared with that expected.

The difficulty, importance, and hierarchy were not measured for each individual goal in the diary, and although the participants clearly favoured certain goals over others, in that they would spend more time improving them at the expense of time spent on other aims, they did not explicitly state if any were more important than others. The following chapter focuses further on what these participants discussed in interviews about their practice, elucidating their understanding of the goals' difficulty and importance. Having looked at elements of the goals including the time spent, it is important to examine the achievement of the goals. This allows insight into whether the participants could accurately estimate how long it would take them to achieve each specific goal or if they were not aware of the time required to achieve the level they sought.

#### 6.3.1.2 Planning and Achievement of Goals

Figures 6.1, 6.2, and 6.3 show graphs of the time against achievement of the participants. In each session, in addition to rating the time taken on a 10-point scale (0 =much shorted than planned,  $5 = as \log as planned$ , and  $10 = much \log er than planned)$ , the three violinists were asked to rate the extent to which they achieved their goals on a 10point scale (0 = not at all, 5 = as much as expected, and 10 = much more than expected). Ideally plot points would centre around the 5 (time) / 5 (achievement) point, demonstrating that they achieved the goal to the extent that they were expecting in the time that they had planned. This would show that the participants were able to accurately plan their time and execute their sessions to achieve maximum benefit. As is evident from the data presented in the previous section, this was not the case, with many goals having more, or less, time than planned in the sessions of all three participants. In this instance, it is to be expected that any goals having less time spent on them would possibly have a lower level of achievement than expected and those which had more time spent on them could have a higher level of achievement than expected, supposing that the participants are accurate in their estimates of the time required to complete tasks. Should this be the case, then the line of best fit should be close to x=y (shown by the grey dotted line on the graphs), with results where x < yshowing a higher level of achievement in a shorter amount of time, and x > y demonstrating a longer time taken to achieve a lower result. Data from Elle's practice diaries came closest to this and she had the most results at 5, 5 (achieving her goals as much as she predicted in the time she estimated). The line of best fit for Beth is further from the ideal but still has a positive gradient. It is clear from her graph that there was a greater variety in the data of the diary. The shading on some of the spots show that the result was demonstrated more frequently in the practice diaries, for Elle this mostly centres around the 5,5 mark, but there are also two points in the lower left quartile of the graph. These are not balanced out by obviously greater frequencies in results taking more time than planned, suggesting either she was not aware of how long she had taken focusing on certain goals and so did not rate taking longer than planned as much as she did, or her practice was frequently shorter than planned. In the case of Beth, she most frequently spent more time on a goal and achieved more than she planned to initially. In this case, it does appear to be balanced by goals that had far less time spent on them than planned.

The time/achievement graph of Will's practice shows that he was not able to accurately plan and achieve his goals, with a negative gradient on his line of best fit. In addition to this the y-intercept is below five indicating that Will was not achieving his goals to the extent he expected when he spent the time he had planned on them. Will does appear to adhere more

closely to his plan of the time he wanted to spend on each goal, with the greatest frequency of results showing he spent the time he had planned but not achieved the level he hoped to. It is to be expected when practising that things do not always go as planned and sometimes it takes longer to achieve something than one expects, and at other times goals are achieved in a shorter amount of time. Musicians may also choose to change their plans during practice deciding to reach a better level than they were expecting to with a task or moving on having not achieved a goal. The data of these three participants supports the notion that practice sessions are not accurately planned with all participants demonstrating achievement and time spent above or below that which was expected. In the cases of Elle and Beth the variation in time and achievement still averaged at a positive value with more time leading to greater achievement in general. It is of concern that the practice of Will shows the opposite of this and indicative that he does not understand to the same extent how long goals take to achieve, and as such is not able to effectively organise his practice time.



Figure 6.1 A plot of time versus achievement of the goals in Beth's practice diaries.

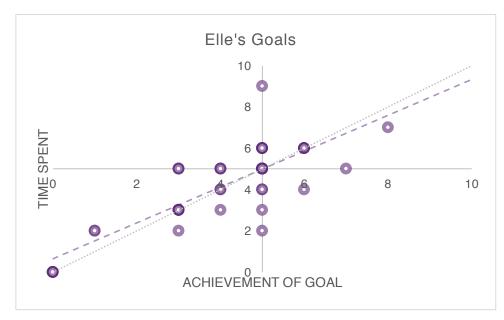


Figure 6.2 A plot of time versus achievement of the goals in Elle's practice diaries.



Figure 6.3. A plot of time versus achievement of the goals in Will's practice diaries.

# 6.3.1.3 Conflicts in Achievement

Before being asked to what extent they felt they had achieved their goals, the participants were asked to name any of the goals that they had achieved. There was a conflict between the results of all three participants with multiple goals being rated as achieved as much as expected, or more than expected on the 10-point scale, yet not being identified as achieved in the previous question. The opposite was true on one occasion for Beth and Will where they indicated that they had achieved a goal, then on the 10-point scale marked a level of achievement less than expected. Table 6.2 outlines the goals for which this was the case in the diaries of all three participants.

	Goal	Marked as	Rating of achievemen	
		achieved		
BETH	Intonation	No	More than expected	
	Phrasing as I remember from listening to	No	More than expected	
	recordings throughout childhood and now			
	Feel physically relaxed and confident so the	No	More than expected	
	playing is not strained			
	Get comfy with notes of movement -	No	More than expected	
	Prokofiev			
	Play rhythmically and at tempo = 80 (the	No	More than expected	
	concert tempo) - Prokofiev			
	Great intonation - Prokofiev	No	More than expected	
	Solidify memory - Wieniawski	No	More than expected	
	Play with great character - Wieniawski	No	More than expected	
	Bounce bow stroke	No	As expected	
	Memory (Szymanowski)	No	More than expected	
	Memory (Szymanowski)	No	More than expected	
	Notturno: Play through from memory, check	Yes	Less than expected	
	any spots			
	Memorise last movement of sonata	No	More than expected	
	(Schumann)			
	Schumann mvmt 1 - intonation and physical	No	More than expected	
	comfort			
	Check memory of 'Molly' and Melodie	No	More than expected	
ELLE	Finalise bowings and fingerings	No	More than expected	
	Improve right hand	No	More than expected	
	Find tone and line in melodies (Takemitsu)	No	As expected	
	Isolate shifts (Takemitsu and Debussy)	No	As expected	
	3 improve tone and line in melodies	No	More than expected	
	Work through shifts slowly	No	More than expected	
	Play all with metronome	No	As expected	
	Use correct articulation and bow strokes	No	As expected	
	Good intonation	No	More than expected	
	Good rhythm	No	As expected	
	Secure shifts and intonation	No	As expected	
	Improve resonance and beauty of sound	No	As expected	
	Isolate tricky shifts	No	As expected	
	Pure sound and intonation	No	As expected	

Table 6.2 Goals marked as both achieved and not achieved.

WILL Improve tuning of first sections Yes Less than exped	cted
Improve sound of first sections No More than expe	cted
Improve tuning opening section No As expected	
Improve tuning of thirds No More than expe	cted
Read through all adding new fingerings No As expected	
Work on difficult passages No As expected	
Improve sound No As expected	
Release tension in left arm No As expected	
Release tension in left arm No As expected	
Fluidity in phrasing and sound (mainly Franck No As expected	
Sonata)	
Work on bowing No As expected	
Work on sound No As expected	

This conflict was present in 27% of Beth's goals, 26% of Elle's goals, and 17% Will's goals suggesting that, out of the three participants, Will was the most consistent in his assessment of achievement. This is possibly because he had a clearer picture of what he was hoping to achieve and the final standard he reached, whereas the other two participants were not able to assess their achievement as effectively due to either not being aware of the standard they desired or the level they achieved. The conflict may also have come because the participants felt they had achieved as much as they expected (or more) in the session, but they viewed the goal as a longer-term endeavour and so did not feel they had fully achieved it (despite being asked to set goals for the session only). If this is the case it indicates a lack of ability to plan and set goals for a single practice session. This supports the findings of the previous section showing participants were not able to consistently judge the time it would take to achieve their goals (Section 6.3.1.2).

## 6.3.2 Affect and Achievement in Practice

The diary included measures for the overall effectiveness, focus, typicality, stimulation, and satisfaction levels of the practice session, each assessed using a 10-point semantic differential scale. The measure for stimulation was the only reverse scored item out of the selection, and descriptive statistics for each variable is included in Table 6.3. Average goal achievement was calculated by averaging the ratings of achievement given by the participants for the individual goals they set in their practice sessions. Of interest to the current research is whether the affective measures demonstrate any correlations and whether the rating of effectiveness correlates with goal achievement for each of the three participants.

Variable	Median (S.D.)			
	Beth	Elle	Will	
Not at all effective - highly effective	7.5 (0.86)	7 (1.05)	6 (1.32)	
Unfocused – focused	8 (1.00)	5.5 (1.34)	7 (1.64)	
Atypical – typical	8 (0.90)	5.5 (1.96)	6 (1.34)	
Tedious – stimulating*	7 (1.54)	6.5 (1.45)	5 (1.44)	
Frustrating – satisfying	7 (1.13)	7 (1.61)	6 (1.35)	
Average goal achievement	5 (1.33)	4.15 (0.90)	4 (0.55)	

Table 6.3 Descriptive statistics for cognitive elements of self-regulation measured.

\*indicates reverse scored item

<sup>a</sup> In the diary presented to the participants this measure was "different-typical" however as the general meaning and use are the same for different and atypical in this context the latter has been substituted in discussion.

## 6.3.2.1 Beth

The data collected was based on one individuals' sample and as such was nonparametric, Spearman's correlations were calculated between the measures for typicality, focus, stimulation, satisfaction, and effectiveness of practice for Beth (Table 6.4). Results showed the only significant correlation was between focus and effectiveness of practice (rho=0.83, p<.001). Spearman's correlations were calculated separately between effectiveness of practice and average goal achievement and, on this occasion, the finding was not significant (Table 6.5).

## 6.3.2.2 Elle

The same analyses completed on Beth's practice diary data was computed using Elle's completed diaries (see Tables 6.6 & 6.7) and found significant relationships between focus and stimulation (*rho*=0.63, *p*<.05), stimulation and satisfaction (*rho*=0.65, *p*<.05), stimulation and effectiveness (*rho*=0.66, *p*=.01), and finally satisfaction and effectiveness (*rho*=0.81, *p*<.001). The Spearman's correlation between effectiveness of practice and average achievement of goals was once again non-significant.

#### 6.3.2.3 Will

Finally, data from Will's diaries was used to calculate Spearman's correlations between the variables of interest (see Tables 6.8 & 6.9) and results showed a significant correlation between typicality and focus (*rho*=0.67, *p*<.005), typicality and satisfaction (*rho*=0.557, *p*<.05), typicality and effectiveness (*rho*=0.66, *p*<.005), focus and satisfaction (*rho*=0.65, *p*<.005), and focus and effectiveness (*rho*=0.85, *p*<.001). Will's data showed a significant

correlation between effectiveness of practice and average goal achievement (*rho*=0.60, p<.01).

		Atypical-	Unfocused-	Tedious –	Frustrating-	Not at all
		typical	focused	stimulating*	satisfying	effective-highly
						effective
	Spearman's					
Atypical -typical	rho	_				
	<i>p</i> -value	_				
Unfocused-	Spearman's	-0.049	_			
focused	rho	-0.043				
	<i>p</i> -value	0.847	_			
Tedious –	Spearman's	-0.030	0.376	_		
stimulating*	rho	-0.000	0.070			
	<i>p</i> -value	0.905	0.124	_		
Frustrating-	Spearman's	0.270	0.302	0.408	_	
satisfying	rho	0.270	0.002	0.400		
	<i>p</i> -value	0.279	0.224	0.093	_	
Not at all	Spearman's	-0.028	0.825	0.268	0.049	_
effective-highly	rho	0.020	0.020	0.200	0.040	
effective	<i>p</i> -value	0.911	<.001	0.281	0.846	_

Table 6.4 Correlation Matrix for Beth's affective measures.

\*indicates reverse scored item

Table 6.5 Correlation Matrix for Beth's effectiveness of strategies and achievement.

		Average achievement of goals	Not at all effective-highly effective
Average achievement of goals	Spearman's rho	_	
	<i>p</i> -value	_	
Not at all effective- highly effective	Spearman's rho	-0.033	_
	<i>p</i> -value	0.896	_

		Atypical -	Unfocused-	Tedious –	Frustrating-	Not at all
		typical	focused	stimulating*	satisfying	effective-highly
						effective
	Spearman's					
Atypical -typical	rho	_				
	<i>p</i> -value	_				
Unfocused-	Spearman's	0.518	_			
focused	rho	0.510	_			
	<i>p</i> -value	0.058	_			
Tedious –	Spearman's	0.417	0.631			
stimulating*	rho	0.417	0.001	_		
	<i>p</i> -value	0.138	0.016	—		
Frustrating-	Spearman's	0.0s39	0.208	0.653		
satisfying	rho	0.0339	0.200	0.000	_	
	<i>p</i> -value	0.894	0.475	0.011	—	
Not at all	Spearman's	0.135	0.279	0.661	0.812	—
effective-highly	rho	0.135	0.279	0.001	0.012	
effective	<i>p</i> -value	0.645	0.335	0.010	<.001	_

Table 6.6 Correlation Matrix for Elle's affective measures.

\*indicates reverse scored item

Table 6.7 Correlation Matrix for Elle's effectiveness of strategies and achievement.

		Average achievement of goals	Not at all effective-highly effective
Average achievement of goals	Spearman's rho	_	
	<i>p</i> -value	_	
Not at all effective- highly effective	Spearman's rho	0.371	_
	<i>p</i> -value	0.191	-

		Atypical -	Unfocused-	Tedious –	Frustrating-	Not at all
		typical	focused	stimulating*	satisfying	effective-
						highly
						effective
	Spearman's					
Atypical -typical	rho	_				
	<i>p</i> -value	—				
Unfocused-	Spearman's	0.674	_			
focused	rho	0.074	—			
	<i>p</i> -value	0.002	—			
Tedious –	Spearman's	0.091	0.065			
stimulating*	rho	0.091	0.005	_		
	<i>p</i> -value	0.712	0.793	—		
Frustrating-	Spearman's	0.557	0.651	0.000	_	
satisfying	rho	0.337	0.001	0.000	—	
	<i>p</i> -value	0.013	0.003	1.000	—	
Not at all	Spearman's	0.661	0.854	0.037	0.435	—
effective-highly	rho	0.001	0.004	0.037	0.435	
effective	<i>p</i> -value	0.002	<.001	0.882	0.062	_

Table 6.8 Correlation Matrix for Will's affective measures.

\*indicates reverse scored item

Table 6.9 Correlation Matrix for Will's effectiveness of strategies and achievement.

		Average achievement of goals	Not at all effective-highly effective
Average achievement of goals	Spearman's rho	_	
	<i>p</i> -value	_	
Not at all effective- highly effective	Spearman's rho	0.600	_
	<i>p</i> -value	0.007	_

# 6.3.2.4 Interim discussion

The correlations produced different results for the three participants with the only commonality demonstrated between Beth and Will where significant positive correlations were found between focus and effectiveness of practice. All the correlations that were shown to be significant were positive for all participants indicating that, where links were evident,

different affective states have a positive connection, for instance in the case of Elle greater satisfaction was associated with greater effectiveness and stimulation. The correlation between effectiveness and achievement for Will could be due to the fact he focused more on the goals he set in the diary and so the effectiveness was judged in closer relation to the achievement of his goals.

## 6.3.3 Performance profiles

A component of the self-regulation practice diaries was a performance profile in which the participants were asked to identify, in addition to the goals they set out at the beginning, the most important factors in relation to that practice session, the level they were currently at (0=very poor, 10=ideal), and the level they wished to attain by the end of the practice session. This was done before they completed their practice. After the practice was over, they were asked to rate the level that they had achieved. The results are displayed in the performance profiles (Figures 6.4, 6.5, and 6.6). These show that none of the three participants frequently felt that they attained their desired level in relation to the factors they identified with the aspirational level consistently being higher for most elements across their practice sessions. Improvements were made, with the final level frequently scoring higher than the current level, although there were occasions for all the participants in which they demonstrated no improvement in relation to one or more factors in their practice session.

By their nature, these aspirations were non-specific, included to examine the overarching principles that were desired by the participants in their practice sessions. As was to be expected, they were frequently linked to the goals outlined at the beginning of the diary on each occasion, and as such it could be expected that principles relating to those goals that were rated as achieved in other sections of the diary, would also demonstrate that the desired level was equal to that of the final level of the practice. This, however, was not the case with the performance profiles showing a lower rate of achievement than the goals. It is possible that this is related to the lack of specificity in the factors outlined making it difficult for the participants to assess whether they had improved as much as they wanted to. It could also be that all participants tended to set themselves high aspirational levels which they were rarely able to achieve. Both options demonstrate a misunderstanding or a misuse of a potentially beneficial motivational and organisational strategy: being able to set realistic challenging goals, and their achievement fostering positive motivation and increased achievement (Locke & Latham, 1984).

Elle

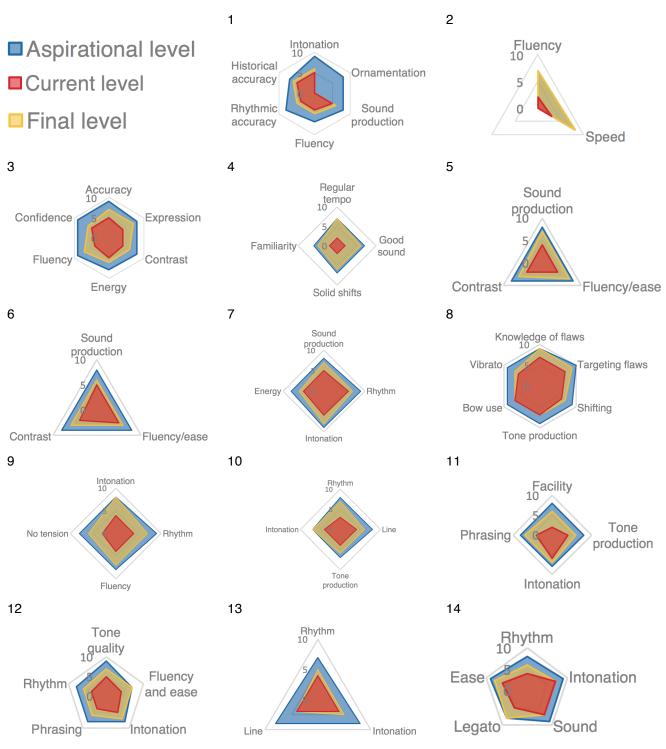


Figure 6.4. Performance profiles of Elle.

Beth

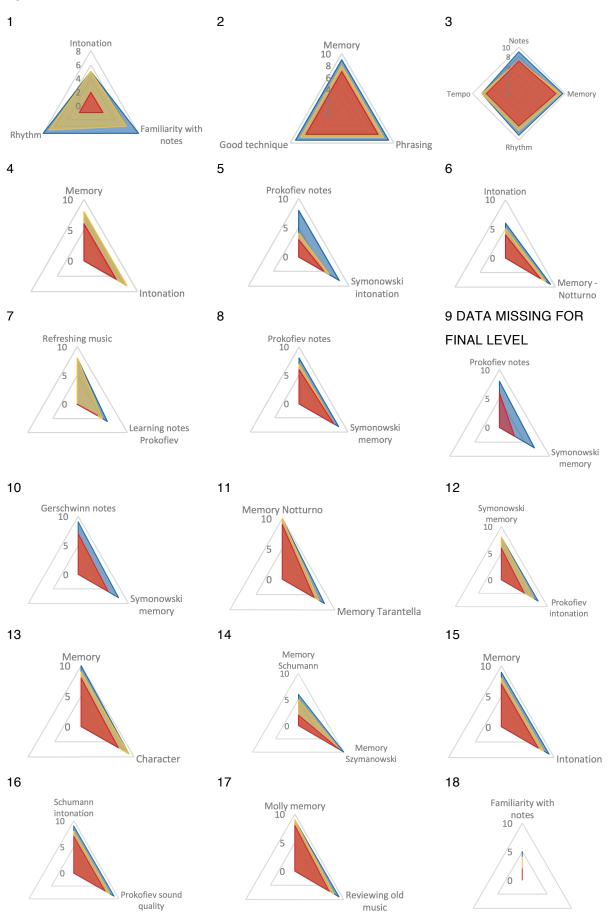
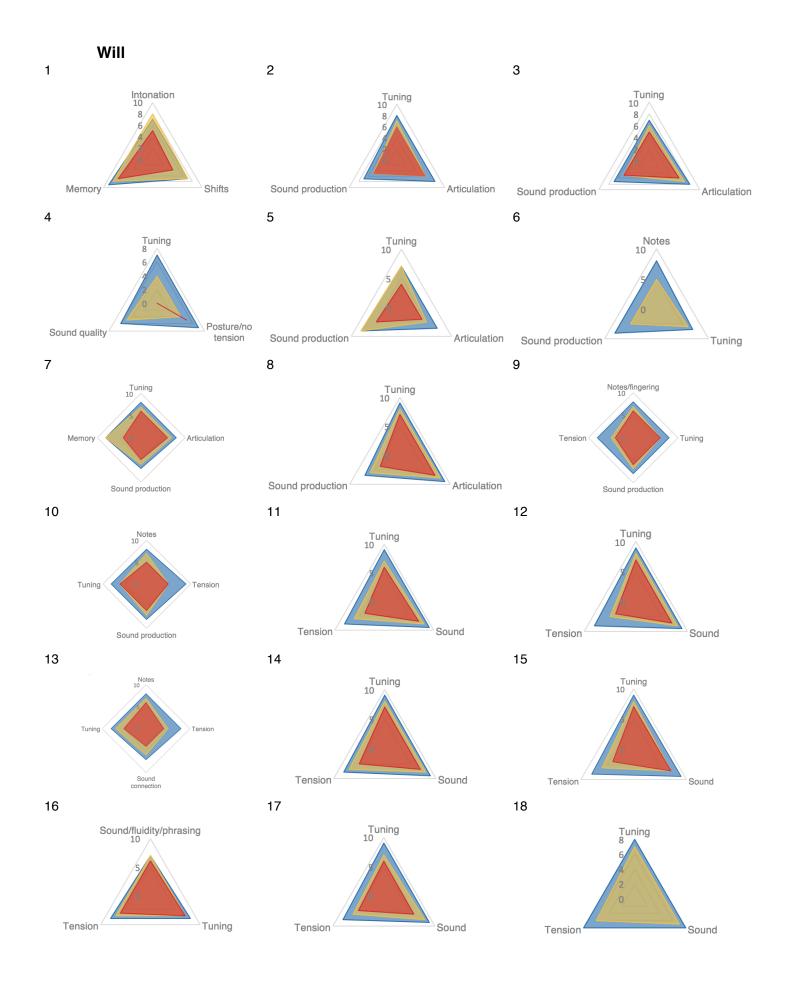


Figure 6.5. Performance profiles of Beth.



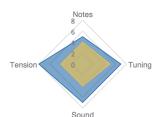


Figure 6.6. Performance profiles of Will.

### 6.3.4 Differences in strategies and goals depending upon piece

One of the aims of the present research was to identify whether goals and self-regulation practice strategies changed during practice sessions or over the course of learning a new piece of music. The practice diaries allow for the examination of goals and strategies in relation to the learning process and the type of piece being played. In Chapter 4, neither of the musicians markedly changed their goals as they learned their music, but as the focus was on a single piece it was not possible to identify whether this could depend on the music that was being played. A full summary of the goals and strategies outlined for the pieces practised by Beth, Elle, and Will is included in Appendix F. Over the course of the research, Will focused on five pieces, Elle on ten as well as some orchestral excerpts, and Beth on eleven. The difference in the number of pieces could be due to the stage they were at in their course. Will was completing an undergraduate degree, whereas both Beth and Elle were completing postgraduate degrees and, as a result, may have been required to learn more repertoire.

The majority of repertoire studied by Will was from the classical and romantic eras including Mozart's Second Violin Concerto (with a cadenza by Harold Auer), Kreutzer's 14<sup>th</sup> Etude, Paganini's Caprice No.20, and Franck's Violin Sonata. The only piece that was not during these eras was Barber's Violin Concerto (1939). One common goal permeated work on all these pieces: to keep the left hand relaxed. This is unsurprising, as it is not a piece-centred goal but rather a technique-centred goal. In relation to goals that focused on elements of the music, they tended to be similar across the pieces including the aim to improve sound, intonation, articulation, and memory. The strategies he planned to use to work towards his goals were likewise similar across the pieces. The only piece in which Will highlighted two specific shifts as requiring work was the Paganini Caprice, although the strategies he outlined for these goals were similar to those he described on other occasions with other pieces. All his other goals and strategies were general and applied to multiple pieces.

The pieces practised by Elle were more varied including one of Bach's Partitas, a Mozart Violin Concerto, and seven 20<sup>th</sup> century works composed by Debussy, Elgar, Ysaye, Prokofiev, Maconchy, Takemitsu, and Lutoslowski. The strategies that she outlined had a greater relationship with the piece being played than those defined by Will, although the majority were still generalised across multiple pieces with metronomic practice, intonation, and shift isolation being frequently identified across all the repertoire. The more piece specific goals, such as focusing on the ornamentation and minuet feel in the Bach, and locating tunes in the chamber works, correlated with more specific strategies that were not seen elsewhere in her diaries. In the 20<sup>th</sup> century works the goal to bring out the tone and line in melodies was apparent more frequently than it was when she looked at earlier repertoire suggesting that she found the more modern compositions required more work in that area.

Beth had a similarly diverse selection of music to that of Elle, with one piece from the Baroque era (Locateli's Harmonic Labyrinth), four romantic compositions, and six varied works from the 20<sup>th</sup> century. The goals that were specific to certain pieces tended to be linked to technical challenges within the music, such as the bounce bow stroke in the Locateli and the pizzicato in the Szymanowski. Both of these had specific strategies attached to them, focusing on the technical requirements of the music. As was the case with Elle and Will, the rest of her goals tended to be similar across all the repertoire with memorisation, intonation, and character being staple across many pieces. The strategies she identified were also not piece-specific as might be expected with such goals, and throughout the data collection process it is evident that goals with similar aims had similar strategies.

As the data was collected over the course of two academic terms, it allowed for a basic analysis of whether the progress through the academic year affected the goals that were being set for sessions. The most notable change that was evident across all three participants was that, immediately following their practical exam, they had a greater variety of repertoire that they were learning or re-learning, moving away from that which they had been working on for their exam and moving away from perfecting pieces in preference for exploring new repertoire or reworking something they had not played for a long time. This is examined in more depth in the following chapter where interviews conducted with the participants are discussed.

It is clear from this section that the goals the participants were setting were not specifically based on the piece they are playing. In general, they all tended to have overarching goals that they apply to all their pieces, mainly focusing on key elements of the learning process such as memorisation, intonation, and sound quality. Having this schema to work from may be beneficial in enabling participants to tackle new repertoire in a way that they have used before and are confident in applying. In approaching it in this manner they do not need necessarily to spend time examining the piece they are learning and assessing its challenges. Although having such a system in place may give confidence that one knows how to approach and learn new repertoire, it does not necessarily lead to the most effective use of time when practising. Assessing the needs of a piece and targeting specific areas could be a way of reducing practice time and setting more specific goals that focus on challenging elements of the piece in question. This may encourage more directed practice leading to higher attainment, especially once the player has played the piece before and had the opportunity to identify areas they find challenging.

#### 6.4 DISCUSSION

The results reported in this chapter aimed to examine the self-regulation of violinists in their weekly practice and the understanding they had of their practice processes. The results show that there are positive and negative elements to the practice of the participants in this study, with some self-regulation processes adopted and practised consistently while others could be improved upon. In the previous study (Chapters 4 and 5) only the goals set were looked at in relation to the key steps posited by Locke and Latham in their goal-setting theory. These proved to be weak in relation to the constructs outlined and so the research presented in this chapter included the strategies in the analysis to assess whether the participants were clear in their planning but did not associate it with goal setting. Once again, the goals were frequently lacking in specificity and measurability, the practice strategies added some clarity to the aims of the participants but there was still ambiguity in relation to the exact standard that was desired.

The conflict in achievement of goals, evident in the data from the practice diary, suggests that even in the minds of the participants there was a lack of clarity about the grading of achievement. There were many results that fell away from the expected time and achievement mark in the time/achievement graphs, especially in that of Will. Although it is to be expected that not all goals will be achieved in the planned time exactly, it is to be anticipated that the more practised an individual is in setting and achieving their goals, the more accurate they will become with their planning. Data such as this has not been reported

for players at lower or higher levels, so assessing the comparative planning abilities of these conservatoire violinists with another population is not possible. The two postgraduate violinists had far better abilities in this area than the undergraduate violinist, although with such a small number of participants it is not possible to know if this is generalisable. What can be said is that the results differ from the ideal, and so there is room for improvement in the understanding of planning and completing goals whereby individuals are able to set specific, measurable goals, know subjectively what level they wish to achieve, and know how long it will take them to reach that achievement.

The performance profiles showed a similar lack of understanding, with few elements being achieved to the extent expected by the end of each practice session. In its nature, the aims set out in the performance profiles identified broad areas requiring work and not specific tasks. It could be that the generality of the objectives meant that the participants were not absolute in their idea of the level they wished to achieve. It could also be that they were over-ambitious when setting the goal indicating a high standard. If this is the case, then the challenging element of the goal could itself be a motivator (Locke & Latham, 1984), providing the lack of attainment was not in itself seen as a negation of motivation. The lack of understanding of how to organise and practice effectively has been found in other research (Araújo, 2015; Pike, 2017), suggesting this may be a systemic problem requiring attention if it is to improve. Ensuring students have sufficient understanding of how to plan and execute practice, especially how to set and achieve goals, may be one way to approach this.

Constructs of focus, typicality, stimulation, satisfaction, and effectiveness of strategies were examined for relationships in the three participants, but the results varied. Research around SRL suggests that covert processes play a large role in practice quality (McPherson et al., 2013; Zimmerman, 1989) and, as such, being able to positively adapt feelings and thoughts through covert self-regulation may help improve practice effectiveness. It may be that the adaptability desirable for different individuals varies depending on the way they think and approach practice. Only Will showed a correlation between effectiveness of strategies and achievement. He was the most focused on his goals, which may explain this, as the other two participants may have felt their practice was efficient and they achieved what they wanted, but this achievement was not accounted for in the ratings they gave for goal achievement. This is supported as they discussed being more flexible with their planning and frequently changing focus in their sessions from the goals stated in the diary.

Research into self-regulation and self-determination has found that extrinsic goals produce lower motivation and achievement, especially when not assimilated to the self (Deci & Ryan, 1985; Evans, 2015), yet the difficulties surrounding setting specific goals that can be measured and planned effectively makes this challenging in music, where many requirements are subjective. The struggle of not being clear when one has reached a goal, or even what that entails, may lead musicians to rely on more extrinsic, long-term goals where they have a tangible result as feedback for their quality of playing. This is examined in the following chapter examining the goals the participants set in the mid- and long-term, and how they relate to each other.

The data collected for this chapter suggests that there is a lack of clarity in planning and evaluating performance for practice sessions. The research of Locke and Latham indicates that greater motivation could be developed if this was addressed and musicians were encouraged to make specific, measurable goals that are important and challenging to them, with clear deadlines and hierarchy. The lack of evidence for these features demonstrates that, in relation to the self-regulation cycle, a key component is weak, one which could greatly benefit overall self-reflection by providing a clear structure for the performance phase, and enable effective self-evaluation by referring to the goals set before the session. Two of the participants in this research had sustained violin-related injuries in the course of their practice before starting at the conservatoire. Although these bolstered their determination that they wanted to play the violin professionally, it is worrying that at such an early age they experienced problems due to over-practising with poor technique. They were both still unable to practise as much as they wanted and expressed a desire to play as they did before being injured. The idea that practice is good, and more practice is better, seems to dominate the thinking of the participants in this study and, although practice time has been found to relate to performance quality (Hallam, 2011; Hallam et al., 2012), other research has found more experienced musicians practise for less time than less experienced players (Araújo, 2015), or even a negative effect of practice time on musical achievement (Bonneville-Roussy & Bouffard, 2015). Other factors such as the time spent learning an instrument (Hallam, 2011), self-efficacy (McPherson & McCormick, 2006), and self-determined motivation (Evans & Bonneville-Roussy, 2015) have also been found to affect the performance quality and productivity of practice. Making practice more effective could lead to greater improvement in shorter amounts of time, meaning a possible reduction of injuries sustained due to over-playing and more time available to work on other aspects important to a career in music, or the promotion of physical and mental health.

The following chapter examines the long-term goals and performance profiles of the three participants. The video recall procedure conducted on four occasions, is examined in Chapter 8 to better understand the content of their sessions and how they practice.

# CHAPTER 7 STUDY 3 LONG-TERM PERFORMANCE PROFILES AND GOALS OF VIOLINISTS

#### 7.1 INTRODUCTION

Having examined the in-session goals set out in the weekly practice diaries, the focus of the research now looks at the longer-term goals of violinists. In sport the use of performance profiling over time has been found to assist goal setting, identify strengths and weaknesses, raise self-awareness, and focus the athlete on important factors (Weston, Greenlees & Thelwell, 2010; Weston, Greenlees & Thelwell, 2011a), as well as fostering intrinsic motivation (Weston, Greenlees & Thelwell, 2011b). It was initially developed by Butler and Hardy (1992) based on Personal Construct Theory (Kelly, 1955) which held that, although individuals could interpret situations in a similar manner, there are also unique elements to their assessment. Drawing upon this suggested need to individually tailor training programmes to individual aspects and Cognitive Evaluation Theory (Deci & Ryan, 1985), they developed performance profiling which was suggested to support the basic need of autonomy by emphasising the need for the individual to be involved in the profiling process, the need for competence by reinforcing improvements on key attributes, and the need for relatedness by encouraging the discussion of performance-related issues with teammates. In performance profiling, an individual is encouraged to identify key elements of their activity that are important for attaining long-term expertise, rate the level they must reach to be successful, and assess their current ability.

The purpose of performance profiles is to identify key aspects required in a profession or sport which provide the basis for more detailed aims. Research into self-determination theory (SDT) has found that it is important to have self-concordant goals as they encourage sustained effort leading to an increased likelihood that they will be achieved. They also bring about greater well-being benefits as they support the basic psychological needs (BPN) by fitting into an individual's interests and core values (Reinboth *et al.*, 2004; Sheldon & Elliot, 1999; Sheldon & Kasser, 1998). Goals that satisfy BPN have been found to lead to greater internalisation of motivation (Standage *et al.*, 2005; Standage *et al.*, 2006) which itself leads to higher levels of goal striving (Daley & Duda, 2006; Ntoumanis *et al.*, 2014) and achievement (Edmunds, 2006; Gómez-Miñambres, 2012; Sheldon & Houser-Marko, 2001).

Not all goals can be intrinsic and therefore it is also important to examine Organismic Integration Theory (Deci & Ryan, 1985) which concerns itself with extrinsic motivation and the internalisation of motivation to complete actions imposed from a source external to the self. In supporting BPN an action with an external causality attached to it can become internalised and assimilated to the self, making it personally important to complete.

Elements of this are accounted for in Locke and Latham's goal-setting theory, which suggests that individuals should participate in the setting of their own goals, and that goals viewed as more personally important foster improved motivation in pursuit of their attainment (Latham *et al.*, 1978; Latham & Yuki, 1975). The idea that goals should be challenging, but attainable, fits in with the idea in SDT that competence can be supported by the achievement of goals. Extra elements in Locke and Latham's theory, including deadlines, hierarchy, measurability, and specificity, are not present in SDT which is predominantly focused on the extent to which motivation for a behaviour has been internalised and how to encourage that process. These extra elements add greater clarity for goal achievement which, based on data collected in this thesis (Chapters 4 & 6), appears to be lacking for musicians. Looking at long-term goals of individuals, hierarchy becomes more important as multiple goals compete for time and energy with research showing that hierarchical goals contribute to concentration, self-observation, and self-efficacy (Hatfield, 2016). Research into self-regulated learning (SRL) has found that individuals who have a better quality of self-regulation tend to adopt hierarchical goals (Nielsen, 2001; Zimmerman, 1998).

From the research discussed so far, two major themes come out regarding the approach to and attainment of goals: why and how. The reason people choose to adopt a goal and the importance of goals has been shown to be a crucial part of influencing the motivation and effort put into achieving a goal, with intrinsic goals fostering higher levels of motivation and persistence. How a goal is to be approached should be considered in the setting and ultimate completion of goals as, if the knowledge of what is desired is precise enough to provide a clear path to the attainment of the goal, it is likely to be highly beneficial in the achievement of the goal. Having examined the practice diaries of Beth, Elle, and Will in the previous chapter, the current chapter considers their longer-term goals and ratings of key elements innate in improving their musical ability and developing a professional career. It is suggested that to have functional, beneficial goals the participants should have a clear hierarchy of goals which are specific, personally important, challenging without being impossible, and with clear deadlines to help direct their practice in the most useful way.

#### 7.2 METHOD

#### 7.2.1 Participants and Procedure

The participants in the current research were the same three violinists as discussed in the previous chapter, Beth, Elle, and Will. Data presented in the current chapter refers to the performance profiles and long-term goals the participants discussed on four occasions in which a micro-analytic procedure was conducted. For the performance profile participant musicians were asked to rate six factors based on the level required to be a professional musician. They were also asked to rate their current level in each of the four sessions when their practice was observed. On each of these occasions they were also asked to complete a goal profile outlining their short-, mid-, and long-term goals, commenting on the achievement or progress towards any if relevant, identifying the importance and difficulty of each of the goals, and examining whether each goal would benefit any of their other goals.

#### 7.2.2 Materials

The performance profile (see Appendix G) considered six factors: time management, technical expertise, goal setting, goal achievement, practice strategies, and self-evaluation. These were chosen based on the literature previously outlined in the thesis with goals, practice strategies, and self-evaluation being core components of SRL, and technical expertise and time management being frequently discussed in practice-based literature (Araújo, 2015; Bonneville-Roussy & Bouffard, 2015; Hallam *et al.*, 2012). It was decided not to ask the participants to identify six elements for themselves, as the current study is exploratory in nature, and it was desirable to collect the same data pertaining to the same factors from each candidate.

The goal profile (see Appendix H) was based around Locke and Latham's goal setting theory including measures of difficulty and importance which were held to be key factors in the motivation a goal provided. The participants were asked to indicate perceived links between their goals to assess whether a hierarchy was present. The planned deadline for each goal was also included to see whether the participants could accurately plan their goal completion. As goals became more numerous the goal profile took longer to complete when considering the links between goals, however after the second session participants understood how the process worked to a greater extent and found the process easier in the third and fourth sessions.

# 7.3 RESULTS

# 7.3.1 Performance profiles

For the six factors included in the performance profile (time management, technical expertise, goal setting, goal achievement, practice strategies, and self-evaluation), the participants were asked to rate the level they felt was required to be a professional musician during the first session of data collection. In that session and the next three micro-analytic sessions the participants were also asked to rate the level they were currently at. The performance profiles for each violinist are shown in Figure 7.1.

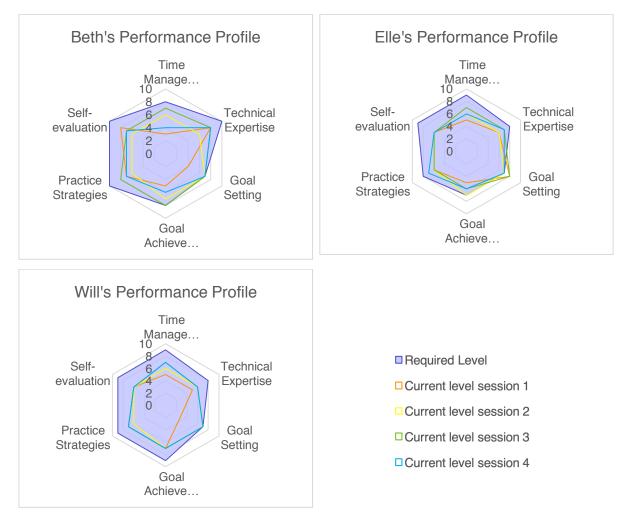


Figure 7.1 Long-term performance profiles of Beth, Elle, and Will.

Over the six months that were observed, the participants reported limited changes to their current level. In the case of Will there was no observed difference between his third and fourth sessions, he rated his self-evaluation and goal achievement as being at the same level consistently, his time management improved across the first three sessions, and the largest observed difference was in his rating of goal setting which increased from 3/10 in session 1 to 7/10 in the next three sessions. Elle's profile fluctuates up and down to a

greater degree but remains around the same level for all components, and self-evaluation received the same rating in all four sessions. Beth's performance profile demonstrated the most variety in her time management, increasing considerably over the first three sessions then dropping to 4/10 in the final session, and her goal setting starting at 4/10 and increasing to 7/10 for the second, third, and fourth sessions. The ratings given for other components varied, both increasing and decreasing between sessions. None of the participants demonstrated a linear increase in their ratings over time, nor were there systematic changes that could indicate that on some days they were generally marking themselves lower on all factors. The variation in their ratings suggest that they see the factors as separate variables themselves, and that their opinions fluctuate on their ability in these areas. In the scheme of their practice career, the 6-month period over which this study was conducted is not a long time and it could be that to see whether the players are systematically improving across factors requires observation over a longer period.

An examination of the required levels suggested by the participants shows that they did not believe that all factors had to be a perfect 10/10 (extremely good) to become a professional musician. Both Elle and Will did not feel that any of the factors required this level while Beth held that technical expertise, practice strategies, and self-evaluation did. All violinists rated goal setting as requiring the lowest level of 7/10, and the ratings Elle gave for her current level had her at or above that level already. Goal achievement, on the other hand, was considered more important with the participants rating it between 7 and 9 out of 10. Goal setting and/or goal achievement were the only factors rated by all three participants as being at the level required for being a professional musician. Time management, technical expertise, practice strategies, and self-evaluation were all seen as requiring improvement on all four occasions.

On each of the four occasions data was collected for the performance profiles, the participants were also asked to complete a goal profile focusing on their longer-term goals. Results for this research are shown in the following section.

#### 7.3.2 Goal profiles

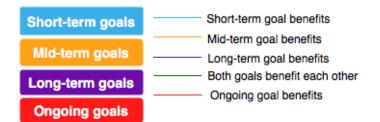
The goal profiles collected were aimed at examining the goals held by the participants beyond the in-session goals provided in the diaries examined in Chapter 6. Participants were asked to identify any short-, mid-, and long-term goals they had, when they planned to achieve them by, the difficulty level (1 = very easy, 10 = very difficult), the personal value of the goal (1 = not personally important, 10 = very personally important), any predicted

benefits the goal would have for other goals, and, where applicable, when the goal was completed and if it was successful. From this data, a goal profile was created for each violinist (see Figures 7.2, 7.3, and 7.4). All participants had certain goals that were more impactful than others. In the case of Beth, goals were linked mostly to her short-term goal of being able to practise consistently, which was held to be of benefit to many of her longer-term goals. Although she did report some benefits of her mid- and long-term goals on each other, the majority of the connections she made were between her short- and long-term goals in both directions. Elle's goals tended to converge on her long-term goal of attaining a professional orchestral trial and subsequently a position in an orchestra. Will's goals were centred around his ongoing aim to improve as a player and he identified most of his goals as having a beneficial, reciprocal relationship with this.

A hierarchy of goals was identified as being important to motivational goal setting and has been found to be a feature of goals set by best practices and continuing motivation (Locke & Latham, 2002). This has also been found in sports literature (Burton *et al.*, 2001) and was shown to contribute to concentration, self-observation, and self-efficacy in relation to SRL (Hatfield, 2016). In the goal profiles of the participants in this study, it would be expected that a goal hierarchy would be evident as short-term goals at the bottom benefit mid-term goals, which in turn benefit long-term goals at the top of the hierarchy. As can be seen from the different diagrams developed based on the goals of the participants this was not the case for any of the three violinists, although Elle was closest to this model with only a few of her mid-term goals being held to benefit short-term goals, and long-term goals assumed to benefit mid-term goals. Two of her long-term goals were also those most frequently benefitted by other goals which is the desired approach as it leads to the effect whereby effort put into short-term goals is seen to benefit long-term goals as well.

This data collection also examined the deadlines the participants set for their goals. Some of these were not specific, especially for those in the distant future which tended, to focus only on the year of attainment. The more proximal goals had more exact deadlines, especially those focusing on external events, and over the six months some of the goals identified by the participants were due to be completed. For the most part these were completed successfully (those with green text), although both Beth and Will did not achieve one of their goals in the allotted time frame. They expressed a desire to still complete them but said they would take longer than planned. Elle had a goal which she partially achieved in that she got on the reserve list for the London Sinfonietta but did not get a place. Will also failed to get into the New Generation Orchestra and, as the goal was made for a specific

year, it prohibited him from achieving it at a later date without setting a separate goal. Looking at the goals they did attain, both Elle and Will mainly had non-specific, extrinsic goals which just had to be completed and no indication of standard was suggested, the only exception in the case of Elle was the goal to be offered a place on an Erasmus scheme which, although an external goal, did require a certain standard to attain. Most of Beth's attained goals in the period observed were also external and only requiring certain actions to be completed with no implied standard. There were two, however, that were more intrinsic goals: to practise consistently, and to become more comfortable in front of audiences. She felt she had achieved both by the end of the study, being able to practise for roughly two hours a day, and reporting that just before her recital she felt more comfortable in front of audiences due to her efforts to pursue this goal.



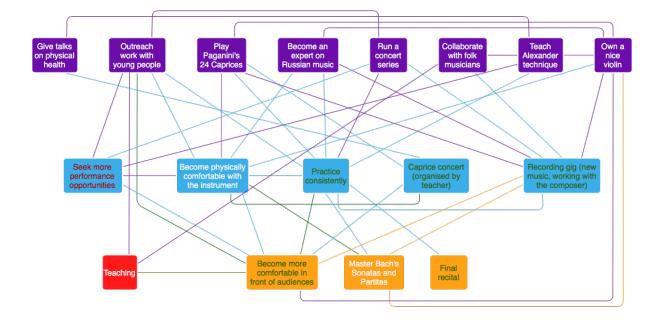


Figure 7.2 Beth's Goal Profile. Goals written in green text denote those achieved in the time planned, red text denotes those not achieved in the planned time frame.

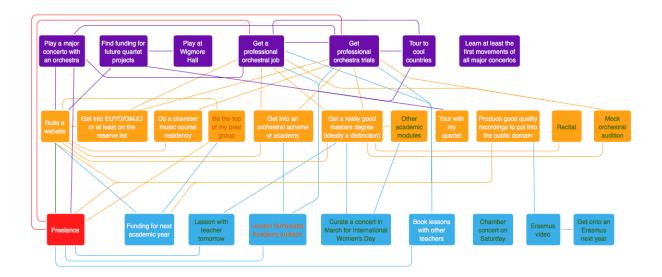


Figure 7.3 Elle's Goal Profile. Goals written in green text denote those achieved in the time planned, orange text denotes partial achievement in the planned time frame.

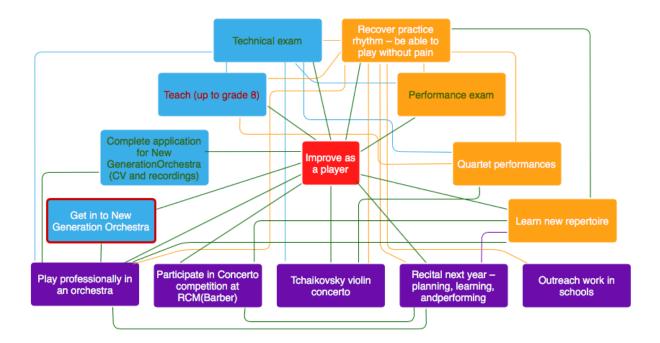


Figure 7.4 Will's Goal Profile. Goals written in green text denote those achieved in the time planned, red text denotes those not achieved in the planned time frame, and a red outline denotes those failed.

Many of the long-term goals held by the participants were intrinsic, focusing on the careers they wanted to have and the elements they would consist of, including teaching, outreach work, and performing in orchestras or chamber ensembles. Many of the more proximal goals, however, focused on extrinsic tasks set by the conservatoire. It is to be expected that, in attending such an institution, there are bound to be external pressures to

complete certain tasks such as recitals and technical exams, and natural that they feature prominently in the goals of the participants interviewed. There is, however, a lack of short-term intrinsic goals, save the desire of Beth to practise consistently after incurring an injury previously due to over-practice.

Having looked at the goal profiles in relation to the concepts of hierarchy, deadlines, and goal orientation, the elements of personal importance and difficulty are now examined. For each goal, the participants were asked to rate on a scale of 1-10 how difficult and how personally important each of the goals were to them. Results of these questions are displayed on the graphs in Figures 7.5, 7.6, and 7.7, and show that for Elle and Will there was a connection between difficulty and importance such that the goals perceived as more difficult were also generally rated as more personally important to the individual. Beth's graph shows a different set of results in which the trend is for easier goals to be considered more personally important than harder goals. Except for one of Beth's goals, to collaborate with folk musicians, all the participants responded that goals were personally important to them rating them at 5/10 or higher. This suggests that even for those goals that were extrinsically imposed the participants had internalised the motivation for completing them to some extent.

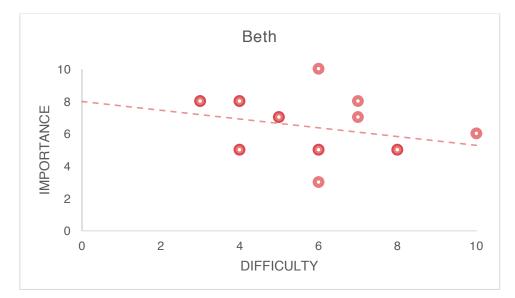


Figure 7.5 A plot of goal difficulty versus importance for Beth's goals. Darker outlined points identify results for multiple goals.

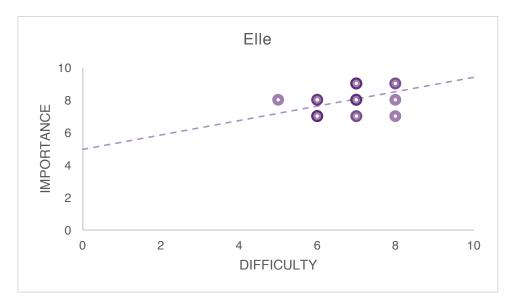


Figure 7.6 A plot of goal difficulty versus importance for Elle's goals. Darker outlined points identify results for multiple goals.

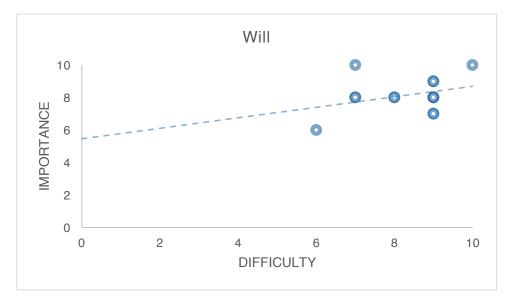


Figure 7.7 A plot of goal difficulty versus importance for Will's goals. Darker outlined points identify results for multiple goals.

## 7.4 DISCUSSION

Previous research has suggested that hierarchical long-term goals are desirable to promote self-regulation, concentration, and self-efficacy in goal striving (Hatfield, 2016; Nielsen, 2001; Zimmerman, 1989). It is evident from the results collected in the current study that the participants did not have this framework clearly mapped out, instead tending to have certain goals that were more influential or important to them as central aims. We also see from research into SDT that intrinsic goals are held to foster intrinsic motivation, which is more desirable than extrinsic motivation as it promotes greater goal striving (Deci & Ryan, 1985). The participants did identify several intrinsic goals, especially looking longer-term,

which suggests that they are pursuing the career path for the inherent enjoyment they get from playing music. They also outlined many goals which were extrinsic in nature, especially the more proximal goals. These naturally lead to extrinsic motivation but, based on the high personal importance ratings given for these goals, it would appear that the motivation had been internalised to a reasonable degree, and the need to do the tasks assimilated into the sense of self.

Looking at data gathered for the performance profiles it is of interest that the goal setting factor was regarded as requiring the lowest level in the professional world, and that goal achievement was rated as more important by two of the three participants. Of the six factors examined, goal achievement and goal setting were the only ones which the participants all rated that they were at or above the required level in at least one of the sessions. There are many reasons these findings could have come through. It could be that the participants in the current study have learnt to set good quality goals that enable them to achieve their aims. The goal profiles show that in general they did achieve the goals that they strove for in the allocated time with only a few exceptions. However, the goals in their goal profiles tended to be general and not specific as to the standard that was desired and those which did pertain to a desired level were the ones that generally were not attained or not completed to the desired standard. According to Locke and Latham (1984) specificity was a key component of goal setting and, as was the case with participants in the previous study (see Chapters 4 & 5), the longer-term goals lacked specificity suggesting that they may not be of the best quality to foster positive motivation.

Previous research has found that the goal setting of musicians could be of a better quality (McPherson *et al.*, 2019) and the research in the current chapter supports this notion. An important question to ask, however, is do musicians need to have better quality goals to attain their ultimate goals? The participants in this study intimate that they are of a standard in goal setting where they can set goals as effectively as they will be required to as professional violinists. To see if their suppositions are warranted would require a long-term study examining whether they do achieve their ultimate aims and whether they needed to become better goal setters to do so, ideally looking at a larger number of musicians. We know from previous research that musicians in professional orchestras have little time for their own commitments and that their practice focuses more on maintaining their standard than improving it (Hallam, 1995). The current research suggests that, required or not, musicians could improve their goal setting which could in turn improve the quality and efficiency of their practice leading to goals being attained at an earlier point. If this is the

case then two further questions are identified: why do musicians not appear to see the importance of goal setting? And how can effective goal setting be promoted? The sample in the current chapter was small and limited to violinists, it may be that other instrumentalists have a different relationship with goal setting and practice, so future research could focus on the views of a wider population in relation to the goals they set and whether they are effective in achieving them.

Having examined the long-term goals of the musicians and data collected in their weekly practice diaries the research moves on to looking at the make-up of their practice sessions to see how the findings reflect on the constitution and effectiveness of the participants practice.

# CHAPTER 8 STUDY 3 PRACTICE CONTENT OF VIOLINISTS

# **8.1 INTRODUCTION**

The current chapter continues to focus on the practice of Beth, Elle, and Will, predominantly examining their practice content, and discussions of their practice. Having looked at the practice diaries they completed across the length of the study in Chapter 6, and their long-term goals and performance profiles in Chapter 7, this chapter will examine four practice sessions which were observed for each participant, the video recall that was conducted immediately following each session, and the interview that followed.

In self-regulation, individuality is a core component (Zimmerman, 1989) and the selfefficacy and motivation of an individual should be considered when conducting in-depth selfregulation research into any subject. The principal focus was on the practice content of the three participants but their background and motivation to study music were also examined in some depth to assess how this may have affected their self-regulation and practice. Previous research has found goal setting and strategic planning affected performance achievement of musicians (McPherson & Renwick, 2011; Miksza, 2011). Miksza (2015) completed a study examining whether teaching self-regulated learning (SRL) strategies to college students would lead to greater improvements in the process of learning a new piece of repertoire. The results showed that, although both the control and test groups improved throughout the five days they had to learn two new pieces, the test group made significantly greater gains in their performance level over the control group (p=.02). Self-regulation strategies have been found to predict higher levels of performance (Araújo, 2015; Duke et al., 2009; Zimmerman & Kitsantas, 2014), although many of these studies have focused on populations other than high-level music students. The present study seeks to examine this population in detail looking at the strategies they use and how this affects their learning process.

The practice of musicians has been examined by many researchers, much stemming from the paper written by Ericsson et al. (1993) expounding the principle that amount deliberate practice is more important than the total number of hours practised to become an expert musician. Bonneville-Roussy and Bouffard (2015) considered the practice of college

music students and found formal music practice strongly predicted musical achievement. In their research, formal music practice consisted of four elements: goal direction, focused attention, self-regulation strategies, and specific practice strategies. They also found that weekly practice time was a negative predictor of musical achievement unless mediated by formal practice, indicating the time spent was positively influential when conducted in the way of formal practice.

Chaffin and colleagues examined the practice of professional musicians in great depth looking at the learning process of a professional planist learning the *Presto* from the Italian Concerto by J.S. Bach (Chaffin & Logan, 2006), and a professional cellist learning the Prelude from J.S. Bach's sixth solo cello suite (Chaffin et al., 2010). All practice sessions conducted on the repertoire were video recorded, and the musicians themselves discussed what they were thinking and aiming for during the process. The planist was observed for a period of ten months and the cellist for nearly three and a half years. The cellist reported working in stages through her learning process starting by exploring the piece, then smoothing it out, listening, reworking her technique, and finally preparing for performance. The sessions observed tended to take one of two forms: section-by-section practice, or integrative practice. The former consisted of working systematically through the piece focusing on independent sections and practising them, the latter was often organised based on sections in the piece but extended across boundaries by linking sections together, often playing through the whole piece. In some of the practice sessions conducted the cellist was found to provide reports of her intentions that were contradictory to the video evidence of what she was doing. In the case of the pianist, his practice aims also changed through his learning process starting, as the cellist did, with section-by-section practice, then going on to fluency and memory, automaticity, memorisation, polishing for performance, re-learning, increasing the tempo, polishing for performance, and maintenance as he progressed through his learning. This process is comparable to that outlined in the study of the cellist and demonstrates that there may be similarities in the process of experts learning a new piece of repertoire and preparing it for concert performances.

Nielsen (2001) used similar methods to the research outlined in this chapter when she observed the practice of two organ students on two occasions as they learnt a piece of music. Their practice was video-recorded and they were encouraged to give verbal reports during the practice session. Following these sessions, they retrospectively reported on their actions and thoughts, prompted by watching their practice back. Results showed that in the early learning period the students set themselves specific goals, mainly aimed at technical

problems, and could set varied, suitable goals and detail how they intended to achieve them. The focus of their practice differed in later learning periods, with one student continuing to focus on technical elements and the other aiming to look at more expressive challenges, although the latter did get diverted when technical issues came up, solving these before returning to expressive elements. Through this phase of practice, they also appeared able to identify and apply suitable strategies to achieve their aims. Nielsen found that they demonstrated substantial self-regulatory skills in their practice, showing awareness of their individual condition and adapting their aims based on self-evaluation of their practice. Although the processes of the students obviously differ to the cellist and pianist discussed, there are elements that appear similar including an initial focus on technical issues.

Musical achievement has been found to be predicted by self-regulation (McPherson & Renwick, 2011; Miksza, 2011), metacognition (Barry & Hallam, 2002; Hallam, 2001), motivational factors (McPherson & McCormick, 2000), time spent learning (Hallam, 2011), and deliberate practice (Ericsson et al., 1993). The long-term aim of the three violinists examined in the current research, was to become professional musicians (see Chapter 7) and to do so they must attain a high standard of playing. By examining their practice, it will enable the exploration of whether they are progressing optimally, increasing the likelihood of achieving their aims. Only a few studies have looked at the practice of college students regarding their self-regulation and motivation, and as these are key components in achievement it is prudent to focus on this topic. Although much research has been completed examining the practice of musicians, there is still little that focuses in-depth on practice content relating to SRL and the impact this could have on future career success. The following data was taken from four observed practice sessions for each of Beth, Elle, and Will. Having conducted their practice session, alongside completing the diary that was examined in Chapter 6, they were asked to watch them back commenting on the practice, and finally complete a short interview pertaining to their practice that day and other background aspects of their musical lives. Details of the procedure are outlined in Section 8.2.1 and the aim of the study was to examine the extent to which they employed selfregulation strategies in their practice, as well as examining whether, as with the cellist and the planist (Chaffin & Logan, 2006; Chaffin et al., 2010), practice content changed depending on what stage they were at with learning the piece.

### **8.2 METHODS**

# 8.2.1 Participants and Procedure

Data considered in this chapter was collected from the three violinists Beth, Elle, and Will featured in Chapters 6 and 7. In this section, the initial interview conducted with each musician and four observed practice sessions is analysed, including the video recall and the interviews that concluded each session of data collection (see Figure 8.1 for an illustration of the process & Appendix I for the interview schedule). The initial interview was used to discuss background information about the participants and explain the requirements of the research, including getting the initial readings for the long-term performance profile and goal profile, and explaining how to use the diaries. The repertoire they chose to play was entirely self-selected and for the most part, differed on each occasion for all the musicians. Practice sessions were conducted in familiar environments either at the participants' accommodation or in a practice room at the Royal College of Music.

Participants reported an initial awareness about being video recorded at the beginning of each of their sessions but all reported that after a few minutes they became less self-aware and practice was generally reported to be typical. During the first video recall procedure, a greater number of prompts were required from the researcher to encourage the participants to discuss relevant features of their practice. As participants became more familiar with the procedure fewer prompts were required and they went into more detail about their practice voluntarily.

## 8.3 RESULTS

SRL asserts that optimal regulation is dependent upon the individual. Each participant will be examined separately in the following section, initially looking at general information about them gathered from the interviews conducted, including their reasons for choosing to study music, successes and failures, education, and view of becoming a professional musician. Following this examination, the content of their practice sessions will be examined using Scribe and SYMP analysis, similar to that conducted in Chapter 5 for the violinists Rebecca and Laura. Examining data collected in this way aims to create a holistic picture of the participants involved in the study, including their motivation and their self-regulation, before looking at how the data compares to previous literature and what this study has found looking across the three participants.

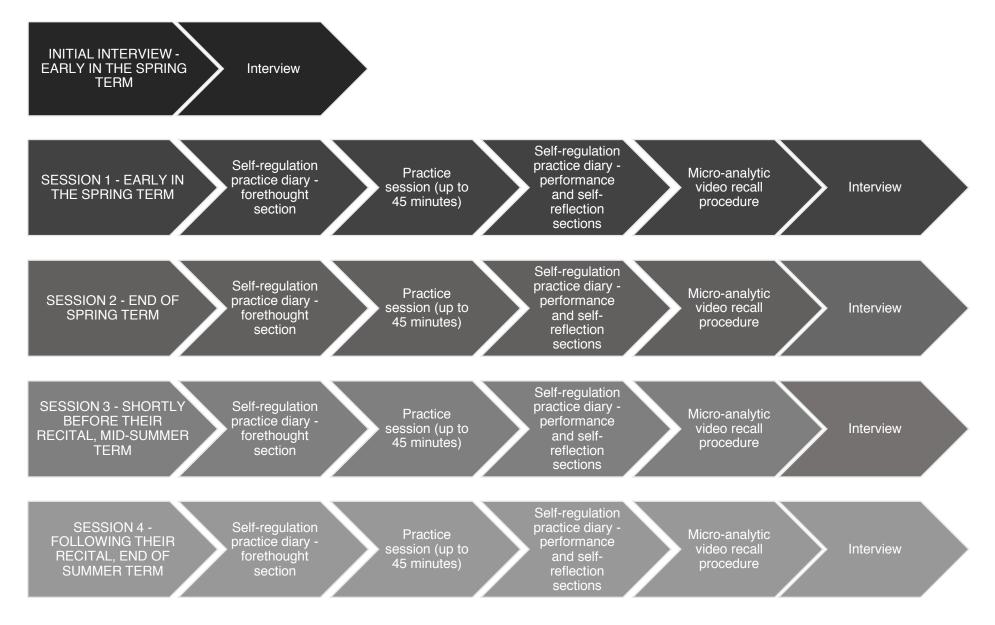


Figure 8.1 Process diagram of the data collection procedure.

### 8.3.1 Beth

In Chapter 6, it was outlined that Beth started playing the violin after seeing her mother do so and persuading her mum to let her have a private teacher. From the age of five to the time the research took place. Beth had studied with nine teachers, most of whom were Jewish, male, spoke Russian, and came from a European background. Their styles varied, but she held that most of them were good at teaching technique and made her feel cared for, within professional relationships, by the time and opportunities they afforded her. Studying at the RCM she had two professors she saw regularly whose style was a lot more rigid, were "quite supportive", pushed her, and did not offer a lot of compliments. When asked if she tended to agree with what they said, she said that she would "definitely defer to their opinion" due to the fact they had "so many decades more knowledge" (Beth, interview 3). The relationship in general appeared to follow a master/apprentice form, with Beth reluctant to ask whether they thought she was playing well, and generally accepting what they said and learning "their style", "Sometimes they give two options of how to phrase and you can pick one, but I think for the most part I learn their style of playing and I feel like I think that the great old violinists played in that way. So I'm trying to absorb that and maybe I'll make a few of my own personal stylistic things later when I have left the school". Beth was positive about this way of learning and said she was appreciative for the opportunity to learn from them and their wealth of knowledge.

Beth's earlier schooling took place in America, where she was in honours classes for most subjects. The district she lived in had an excellent arts program which she benefitted from through her school years, playing in orchestras, singing in choirs, and experiencing different musical settings such as pit work. Although her school was incredibly supportive of music, Beth felt that, in terms of her musical progression, it supplemented her one-to-one violin lessons, which were undertaken privately, and she credited those with being the main reason she continued playing. Her decision to study performance at university was partially influenced by playing in a youth orchestra and attending a music summer school, both of which had players of a high standard and introduced her to the idea that she could make a living from the violin. At university, she started studying a dual degree with violin performance and performance education, but dropped the latter a few weeks into the course as she found it did not suit her interests. While at university she also studied Hebrew and Chinese as partial credits for her course.

Beth experienced a severe injury in her left arm due to poor posture and playing technique when she was completing her undergraduate degree, which limited her ability to practise and led to her seeking professional help and going through rigorous physiotherapy to solve the issue. She aimed to practise two hours a day, at least five days a week but the injury was still causing her problems during the study, and limited her practice time to less than she desired. When asked why she chose to play the violin she said, "I think at this point it's how I identify myself as a person, you know I am the violinist to so many of my friends and people who know me" (Beth, initial interview). The idea of being a violinist as a key identifying point was reiterated in later interviews, as well when discussing reasons for continuing to play after injury and stage fright, and why she chose to focus on it as a career. When asked why she chose to practise the answer was, "I guess we just have this built-in expectation, teacher needs to hear what you're playing next week, and you've been assigned such-and-such, and when I'm not practising I feel like a horrible human being you know. [...] It's like you need to brush your teeth in the morning, you need to practise". This demonstrates a clear distinction between her view of why she plays the violin and why she practices, with practice being a necessity, often prompted by external sources, whereas playing has much more positive, intrinsically motivated connotations. She held that the quality of her practice was generally high, but what pleased her was when she could practise consistently as that was a greater problem for her due to her injury.

When asked about her successes and things she was proud of relating to playing the violin, she said her major achievements were not giving up following the physical injury she sustained or because of the stage fright she experienced when performing, "I've had like really intense stage fright throughout my life [...] Going on stage and not even knowing what I was going to play and having no memory of it afterwards" (Beth, Interview 1). She also felt she had attained a high technical level, ascribed to the quality of her teachers, and was pleased with some high-profile performances, learning a challenging piece, and developing from "playing beautifully" to "being an artistic player" (Beth, interview 2) during her undergraduate degree. The failures mentioned in interview were the physical discomfort she had experienced, "I would just get in pain and would hit brick walls medically speaking" (Beth, interview 2), general memory slips and nerves in performance undermining her confidence, a specific audition that went badly because she was not prepared, and the fact that her performances were worse than her practice. Although she had questioned her future as a musician, including what she would do, how she could make it financially viable, how to play when she was in pain, why it was important, and how it benefitted people, she also said

that she did not regret her choice to study violin performance and that there were no particular aspects of the career that she viewed to be unappealing.

Her ultimate aim was to become a musician who made a living through teaching and performing, although her observation of the Sabbath made certain elements problematic, as she was unable to perform on Fridays and Saturdays each week, meaning that being in a professional orchestra as a full-time job was unfeasible for her. Instead, her aim was to use teaching as her source for a stable income and then look for other performance opportunities:

"I think having the teaching as a main thing is just because I've been doing it for a while and [...] it's a stable income so it makes life a little bit less stressful, [...] there's obviously so much effort that I've put into learning my instrument and so many amazing pieces and I'm sort of in the process of falling in love with the music that I play and I do want to bring it to people. [...] there's an element of [...] wanting to be a musician that people can recognise in a certain area. [...] And the chamber aspect definitely, I love collaborating with people and I think it would just be amazing to get to meet musicians and to get to play with different people." Beth, interview 1

One of the things she felt was important was being flexible and inventive as a new graduate, "it's not just auditioning for orchestras, getting orchestra jobs and staying in an orchestra for fifty years. We have to be creative and see different ways that we can utilise our instrument." (Beth, interview 4). When asked whether she knew how she was going to achieve the goals, she said that she did not think that there was a clear path, nor did she have a clear picture of how she proposed to achieve them. The process, she felt, would happen more organically on its own and if she kept working slowly, she would achieve her aims. In the final session of the study at the end of her master's degree she felt that she was ready to start working as a violinist.

Table 8.1 details the five pieces Beth focused on, and some information about them. Although the Schumann was the longest in terms of performance length and number of bars, the Prokofiev had more than double the number of notes to play. The pieces Beth chose to play were all written within a century of each other but had different stylistic and technical requirements. Having looked at the background information about how and why Beth has

chosen to pursue violin performance in her education and as a future career, and how she sees that unfolding, the following section focuses on the practice sessions that were observed.

	Session 1	Session 2	Session 3	Session 4
Title	Sonata 2,	Notturno e	Sonata 1,	Sonata 1, mvmt.
	mvmt. 1	Tarantella	mvmts. 1 & 3	1/ Sonata 1,
				mvmt. 1
Composer	S. Prokofiev	K. Szymanowski	R. Schumann	L. Janáček/
				E. Grieg
Date composed	1943	1915	1851	1915/1865
Number of bars	130	417	503	108/464
Number of notes	6265	2416	2505	205/1054
Performance length	c. 8:00	c. 10:00	c. 17:00	c. 5:00/9:30

Table 8 1 Pieces	played by	v Beth in the four	observed	practice sessions.
	played b		000011000	

# 8.3.1.1 Practice Sessions

Initially an analysis was conducted on the videos of the practice sessions using Scribe 4.2, developed by Duke and Stammen (2011), focusing on the basic behaviours of playing, not playing, and annotating music (results are displayed in Table 8.2). As can be seen in the practice of Beth, she had several minutes of not playing at the beginning of each session. Most of this time was used to warm up and stretch, frequently using exercises she learnt during her physiotherapy for her arm injury. Other breaks she took were mainly to avoid tension or fatigue, because she had reached the end of a section, or because she was distracted. During longer breaks taken to avoid fatigue and tension she would analyse the score or use mental practice to run through a section.

Of interest are the similarities evident in all the sessions: the frequency of playing, not playing, and annotating music were similar across all the sessions and the percentage of time taken on each of these was also comparable, with playing making up between 72% and 78% of the sessions with an average time of 36-47 seconds, not playing accounting for 22-27% of the time spent with an average length of 10-17 seconds, and annotating music being the least frequent and having the least time spent on it making up a maximum of 1% of the practice time and averaging between 0 and 6 seconds. The similarity demonstrated between the four sessions suggests that despite playing a range of repertoire, her practice tended to be habitual, and the timelines of the practice shown in Table 8.2 demonstrate that all practice sessions had times where the practice was more consistent with fewer breaks, as well as containing sections in which she was swapping between playing, not playing, and annotating the music more rapidly, spending only a short time on each activity.

Examining the transcripts from Beth's four video recall procedures supported the notion that there were certain elements of her practice evident in all the observed practice sessions. A focus on intonation, rhythm, and use of the metronome were discussed in most of her practice sessions, this was conducted with pieces which were new to her and those she was preparing for performance in the very near future. Some elements were evident in her better-known pieces, including memorisation, mental practice, character, and nuanced bow control. In these sessions, she also discussed more targeted practice aimed at specific shifts, tuning of notes, and technique required for a few bars. As the pieces she was less familiar with tended to focus on more general goals, and specific aims became more apparent when practising pieces that were more familiar, it would suggest that Beth tended to focus her early practice on getting a picture of the piece as a whole, looking at basic principles of intonation, rhythm, and tempo, then in later practice homed in on specific challenges of the pieces as well as fine-tuning the principles focused on early in the process.

The final analysis conducted comparing the four observed practice sessions used SYMP software which generated a graphical visualisation of the practice session. The way Beth worked through her pieces can be seen in Figure 8.2.

Figure 8.2 shows that Beth's practice was similar across most of the sessions, in which she chose to work through sections of the pieces slowly, then often work through the same passage again. Her second and third sessions, in which she was practising pieces she was more familiar with, contain more evidence of playing through longer sections of the repertoire, frequently after having worked through it slowly. The third session, conducted a few days before her final recital and containing music she was planning to play in her exam, was the most different to the other sessions. In this session, she started focusing on the last movement of the piece running through longer sections working from the end of the movement to the beginning. She then chose to look back at the beginning of the first movement and work through linearly, in a fashion more consistent with her practice in other sessions, although she included run throughs of sections after she had spent time practising them.

Table 8.2 Scribe analysis of Beth's practice sessions.

Session	Behaviour	Frequency	Time	%Time	Mean(s)	SDev
1	Playing	50	32:46	75	39	41.22
	Annotating music	4	00:26	1	6	0.82
	Not playing	48	10:41	24	13	37.97
	00:00 05:00	10:00	15:00	20:00 25:00	30:00	35:00 40:00
	Subject: Basic Behaviours					
	N P P	IP N P IP IP	P P P P F	PIP PN FPP	NFNTP P NP IFN FFIP	PPPP P P P P P P P
2	Playing	49	38:16	73	47	44.97
	Annotating music	0	00:00	0	0	0.00
	Not playing	50	13:49	27	17	48.24
	00:00 05:00 Subject: Basic Behaviours	10:00	15:00 20:00	25:00 30:00	35:00 40	0:00 45:00
	N PPP NPN FPP	FP IPP P	p p p p p p	N P IP P NP NP	N P IIP P N P	P P P P P P P P P
3	Playing	61	37:04	78	36	30.54
	Annotating music	2	00:10	0	5	1.63
	Not playing	63	10:26	22	10	30.70
	00:00 05:00 Subject: Basic Behaviours	10:00	15:00 20:00	0 25:00	30:00 35:00	40:00 45:00
	N PN PIPIPN P	P IP IP P P P	PPPPPPPPPPPP	IP IP P I P F NFP	PFPP P P P	N P PP PP P FIP P PF
4	Playing	50	34:53	72	42	43.06
	Annotating music	3	00:17	1	6	3.63
	Not playing	49	13:26	27	16	53.27
	00:00 05:00 Subject: Basic Behaviours	10:00	15:00 20:00	25:00	30:00 35:00	40:00 45:00
	N PNP	P IP P	P P P P P	P I P P N	IN P P PIP	IP P P P P PIIIF P P P N P N P

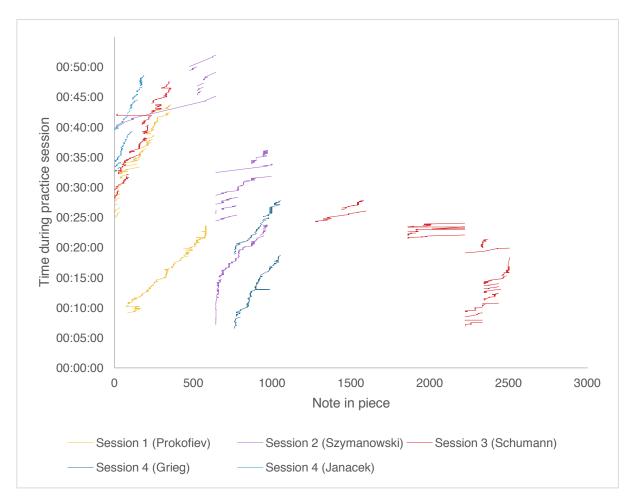


Figure 8.2 SYMP analysis of Beth's four practice sessions.

Having completed analysis into Beth's background, her basic behaviours during the practice sessions, and using the SYMP graph to look in more depth at how she worked through the pieces, the following sections examine each individual practice session. The focus is on the constituent segments within the time spent practising, as identified by Beth during the video recall section of the procedure, and analytic observation of the practice video will also be discussed.

## 8.3.1.1.1 Session 1

The Prokofiev practised in the first observed session was not well known to the musician but was one of her favourite pieces, so when asked how she felt about practising she reported, "I think I'm really engaged and interested and enjoying because I can hear it in my head and it's one of my favourite pieces ever, so it's like exciting to kind of hear the phrase come to life in your own hand." (Beth, video recall 1). Her goals for the session were familiarity with notes of movements 1 and 2, intonation, and phrasing as remembered from listening to recordings.

The session was split into two main segments in which she worked on the first two pages of the first movement. During the first segment, we see in Table 8.2 that she played for longer periods of time, and worked with few breaks, and Figure 8.2 shows she worked linearly through a section starting part way through the piece. When watching this section in the recall Beth discussed picking one of the trickier sections of the piece to start on and focusing on intonation and rhythm within her playing. She reported being concentrated and engaged throughout her practice during this segment, spending some time in mental rehearsal of a specific rhythmic passage, "instead of fumbling around playing I figure it out in my head first and then I don't waste the time with my hands and my fingers which is something I've picked up from having pain" (Beth, video recall 1). Her main aim was familiarity with the piece, but she also discussed her more recent thinking of getting difficult intonation spot on early in the learning process, "trying to get it in the first week, and then you don't have to worry about it anymore", and identified sections where she felt she did not spend enough time doing so, "if you keep on getting it incorrect five or six times and then you nail it, then you just kind of go "yeah I got it" and then you move on and you don't realise that you kind of have to stick there and just do it a few times", as well as areas she spent longer than necessary repeating, "I feel like I've just played that correct like five times in a row for no reason, you know, it sounded fine the first time. Maybe when you're practising you don't always notice". The video of her practice supported that she focused mostly on tuning and rhythm practice using open strings and rhythmic patterns most frequently.

After reaching the end of the page Beth decided to take a break to avoid excessive tension due to practising a challenging passage. After her break, she returned to the beginning of the piece and said, "I think I was making a decision to not go on because I didn't want to bite off too big a chunk at once, actually work on some things a little bit more". In the second segment of her practice Beth started by using her metronome to help with phrasing and using the mirror in the practice room to ensure her bow was straight. Part way through the segment, she took a phone call from her teacher before returning to work on phrasing linearly through the piece. She also started working on dynamics saying, "I've been trying to also, right from the beginning, incorporate as many of the elements as possible". She reported being concentrated throughout the second segment of playing and feeling like she was enjoying herself because she liked the piece. Towards the end of the segment she reported feeling tired due to working on "really high sections", and frustration was apparent when replaying a section she had practised earlier but not performing it as well. She chose

to end her practice session, seeing she had spent 45 minutes playing, which was the time allocated for the session. The video showed that throughout this practice segment she kept the metronome on, adjusting it occasionally. She still focused on tuning intermittently, but to a lesser extent than during the first segment. The Scribe analysis conducted showed that during this segment her practice had more rapid alterations between playing, not playing, and annotating music, suggesting possibly that metronome practice encouraged shorter segments to be played.

# 8.3.1.1.2 Session 2

The Szymanowski practised in the second session was initially suggested by her teacher, but Beth thought it was an amazing piece and was happy to learn it. Beth was further through the learning process for this piece, and her goals focused on memorisation of the Notturno and a passage from the Tarantella, as well as intonation and a steady tempo in the Tarantella. Both memorisation goals she felt she achieved less than expected, spending a lot more time than planned on the Notturno and a lot less on the Tarantella. Both the intonation and steady tempo goals were identified as being achieved more than expected, but also took longer than expected. This session split into three clear segments. In the first she worked in a linear way through a passage from the beginning of the Tarantella, the second focused on the same passage but consisted of playing longer sections. The final segment involved playing through the entirety of the Notturno before working on some of the final passages in the music, mainly running through longer sections.

When watching the first segment back, she discussed starting off being "super nit-picky with the chords" ensuring they were in tune. She found this practice frustrating and tension inducing at times saying, "I think because I had just started practising and I hadn't practised before that, and it's chords, so I think I got a little tight, but then I relaxed, [...] it's the same thing with getting a note in tune, there's like no reason that it should be out of tune, there's also no reason that I should be tight". Evident in the Scribe analysis (Table 8.2) was that the fine tuning of the chords led to shorter segments of playing and not playing, which became less apparent in later parts of her session. During her intonation practice, she realised that she was going to struggle to complete the whole movement, so limited her aim to completing the first page feeling it was better to focus on smaller sections than gloss over larger portions, "I think as you get older you really learn to kind of concentrate on smaller bits at a time, and those bits get really good, as opposed to swathes of music that are mediocre".

with several techniques used to aid her, including the use of open strings, removing ornamentation, bowing instead of pizzicato, and playing individual notes in a chord. When she reached the end of the first page she, paused for a break, feeling that she had other goals that were important to focus on and so stopping herself from spending the whole practice session focusing on intonation. After this, she put her metronome on and tried playing through sections that she had just practised to focus on rhythm and tempo, she also said she was listening to see where the intonation had stuck. Shortly after she decided to turn away from the music, with her metronome still on, and discussed how she was working on both playing the section at concert tempo and checking her memory of the section. Other elements came up briefly in the second segment including working on a challenging technique, clarifying bowing and fingering, and ensuring certain rhythms were being played correctly, but much of her practice was focused on memorisation and tempo. Tuning techniques evident in the video of the session were similar to those used in the first segment, with the addition of singing through passages and examining the score which were likely to be aids in memorisation.

Following the second segment Beth chose to take a break before she felt too tired, "I feel like I should just rest for a couple of minutes and that way you keep the energy more consistently rather than getting annoyed because you've reached the edge". During the break she reviewed her music, focusing on the Notturno, and mapped it out in her head by examining the beginnings of sections, a technique suggested by her teacher. When she began her practice again on the violin, she played through the entirety of the Notturno into the first two notes of the Tarantella from memory. In her recall, she identified using the play through as an opportunity to examine what needed fixing in the piece and what had already stuck, finding that she was remembering the notes well but other markings, including dynamics and tempi, were being forgotten. Having completed her run through she decided to start on a section towards the end of the piece, "the ends tend to be less polished because we often start from the beginning when we practice", working on rhythmic patterns and saying the markings out loud to assist her memorisation of them.

#### 8.3.1.1.3 Session 3

The Schumann played in the third session was the most familiar piece to Beth out of all the observed repertoire over the four sessions, as she was due to play it in her final recital a few days after the practice took place. On this occasion, she was also playing a different violin as her own required some work and she was still not completely used to the different

instrument. Her goals on this occasion were to memorise the fourth movement, and work on intonation and physical comfort in the first movement. The first of these she believed she achieved slightly less than expected in slightly more time than planned, the second she felt she achieved slightly more than expected in slightly less time than planned. The session split into four segments with the first three focusing on different areas of the fourth movement working backwards through the movement, and the final segment exploring the opening of the first movement and working through in a linear fashion with a play through of the section of the music that she had just worked on towards the end of the practice session.

The first segment of practice, according to Beth in her video recall, was aimed at memorising the last movement of the Schumann, and she chose to work from the end because she felt she already had the first section memorised "for the most part". The memorisation was at the insistence of her teacher, even though she did not need to play it from memory in her exam, but she said that the process had made her "feel a lot more confident playing it", and that it "does open up new ways of hearing your sound and realising it gives you more freedom which is also more comfort". Part way through the first segment Beth chose to take a break to stretch out her arm, which was causing her pain due to the intensity of the double stops in the section she had just been practising, "The problem is that I can't really work on it that much because it hurts, my arm is tensed getting that sound out, even that hurt just now, so that can be really frustrating when I can't work on the passage because it just causes me pain. It makes me want to cry just thinking about it". As her arm was causing her pain, Beth decided to mentally work through the section that she had just played to see if she had memorised the sections in the correct order. After this she did the same on her violin, playing through the whole section that she had worked on up to that point to see if she had it memorised. Throughout this section, Beth discussed other elements capturing her focus briefly, including rhythmic patterns, bow stroke, phrasing, and intonation, but in general she remained committed to memorising the movement in line with her first goal in the practice diary. Observation of the segment demonstrated that she spent time examining the score, playing slowly sometimes disregarding the articulation marks, and removing ornamentation when practising small passages.

The second and third segments also focused predominantly on memorising the music, although these were more familiar to her as she had been working on memorising them in a previous practice session. She discussed the frustrations of having sections she had memorised previously that then became confused, especially as she did not need to have

this music memorised for her performance saying, "I think maybe because I'm quite close to the performance and I'm supposed to, –ish, memorise this, it's more frustrating because I don't have the real commitment". This suggests that the teacher-determined goal, to have this piece memorised for performance, had not been assimilated by the musician, and as such she was not as focused on achieving it, "you're trying to find a short cut but you don't know exactly where that short cut should be so you're still practising it feeling like "do I really have to do this?"". The video showed that she spent much time looking away from the music and occasionally slowing passages down to work on them.

Beth chose to move on, because she felt that she had spent a lot of time on her first goal and so had to focus for the last part of her session on her other goals relating to the Schumann. One of these was intonation looking at a specific passage with an "uncomfortable" glissandi shift that she found hard to tune. Watching the video back she said, "It sounds a lot better than I thought it did actually. It doesn't sound that bad", suggesting that, although she had identified this part as challenging, she was playing it better than she thought. This could be because when she is playing, she is right next to the instrument whereas the sound quality on the video is different. It could also be that in the moment she was not able to detach herself fully and understand that the problem had been rectified. She said herself that, "I have a very hard time telling the guality of my sound, whether my tone is good, whether I'm playing in tune sometimes" and that using recordings was helpful because "you can actually see what you sound like". Elements of not understanding why she chose to repeat a passage also came later in the session when she said, "when you listen to the recording you're like, "it's fine six times in a row, why am I doing it 15 times in a row?", I don't know what I'm hearing in real life". This had been discussed in previous sessions but it may be that this was more pronounced in her dialogue because it was shortly before her performance she felt the need to be hyper critical in her practice, at the expense of being able to hear when she had succeeded. Examination of the video for the session showed practice techniques centred around tuning including playing notes together, using scales to find notes, playing slowly, and building chords up. Beth discussed the quantity of repertoire required for her exam and the pressure exerted upon her due to the time constraint for practice based on her injury. Given the fact that she also discussed how she over-practised sections, it would suggest that her practice could be more efficient and this could help her achieve more in a shorter amount of time, decreasing the risk of pain. By the end of the session, the musician said that she was feeling physically tired and

tense and needed a break, identifying that this tended to be due to the physical demand of the repertoire she was playing and the pain in her body.

# 8.3.1.1.4 Session 4

In the final observed session, Beth played two pieces that were self-selected and relatively new to her. Her goals for these pieces were to familiarise herself with the notes and work on some intonation in the Grieg and to work on the pizzicato and character of the Janáček. She felt she achieved as much as expected in the time planned. The practice session was divided into four segments, two focused on each piece. In the first two she worked through a passage at the end of the first movement in the Grieg Sonata, the second two segments worked from the beginning of the Janáček, nearly reaching the end of the first movement. She had not played for a week prior to the session and was preparing the repertoire for a lesson later the same day.

To start the session, the musician chose to focus on a section towards the end of the Grieg, which was melodic and slow, allowing her to warm up while practising the repertoire. Her predominant focus was on intonation, but she also acknowledged other elements including dynamics and character. In comparison to her third session she did not feel the need to spend the same amount of time perfecting her intonation, feeling able to return to it in the future, "Sometimes I feel like I hit the right note and then I'll just move on, other times I'll actually do it three or four times. [...] I repeat the whole thing and see what actually stuck and then [...] I repeat more again". Despite saying previously that she felt it was better to get the tuning accurate from the start, it appears that in approaching this piece she decided that getting through quantity was more important than perfecting small amounts. Later she indicated that this was because she had a lesson later that day to prepare for and felt it important that she find a balance between playing passages well enough and having enough content, "It's an interesting balance to try and be prepared for a lesson, but also have the section good enough but also have enough music to play".

Having reached the end of the movement, Beth decided to practise the section that she had just worked on and see how it was, aiming for a full run-through. It is clear from the SYMP analysis that she stopped to work on sections as she played through. In the video recall Beth said that she felt 30-40% of her practice previously had stuck, and that it would take a few months to get the piece ready. The video recall transcript also showed evidence of inconsistent practice, with Beth querying why she stopped and practised some sections

while ignoring others, "It's funny because I just wanted to fix that slur, but the one before it was another shift that sounded not good and I didn't stop and I don't know why", "that was fine, but why did I do this?". Observation of the two segments showed strategies like those used in previous sessions such as playing slowly, removing ornamentation, tuning against open strings, and using scales to tune notes, with limited rhythmic practice in the second segment. This supports that her dominant focus was on tuning in both segments, but the second time through she also worked on other elements including rhythm.

When Beth reached the end of the first movement, she took a break during which she had some food and analysed the form of the movement she had just played. As she had a lesson later that day, Beth decided to move on to play the Janáček, starting at the beginning of the movement focusing on the tempo changes and using her metronome to work out how it fitted. Having identified the rhythmic features Beth chose to focus on intonation again, saying that she could slow it down to work on that, but also discussing how she chose to play a section in tempo when it would have been better for her to slow it down first, "I think I'm playing it in tempo which is kind of funny. I wish I had just done it slow a couple of times first [...] for the intonation". Once again, she also worked slightly on character and dynamics on top of the intonation. When asked how she learnt a new piece, she responded that she started focusing on the more technical layers, then added in the character and artistry at a later stage. Watching the video of the practice session back, it was apparent that the musician initially sketched out the first section with a metronome before working on tuning using techniques such as playing adjacent notes as chords, bowing instead of using pizzicato, and using scales. Another technique that was evident was the use of singing in combination with the metronome to map out passages.

After finishing a section of the movement, she chose to go back and review the work she had done, once again to see what had stuck. She identified that her work on the beginning had not made a lasting improvement and returned to using her metronome to play the different sections at tempo. Having watched the section back she said, "I should have practised that much slower several times in a row instead of too many times fast", which was a recurring theme for her throughout the observed sessions. Observation of the video showed the predominant emphasis was on timing, using the metronome for most of the session at various speeds and beating out timings with her bowing arm. She was disappointed that she did not work through to the end of the movement, "It would have been nice to get to the end of the movement which wasn't that far away. I could have done it

actually, now that I'm looking at it. [...] I actually should have". At the end of the practice session she remarked her hand was sore, and that to manage it she would have to take more consistent breaks, avoid carrying heavy things, and stretch more at the beginning of her sessions.

# 8.3.1.2 Interim Discussion

A lack of attention and planning is apparent in much of Beth's practice, with her habitually practising a section and then returning to see what has been beneficial and the areas that still require work. This is indicative of reactive practice where she played first, then evaluated faults requiring work, rather than identifying before playing what she needed to improve. Beth was generally satisfied with her practice sessions because she felt that they were concentrated and that she achieved as much as could be expected. This was despite often adjusting her goals in the session and spending more time than planned on certain goals and less on others, frequently leading to goals being achieved more or less than expected. She demonstrated positive and focused work towards her goals when playing a relatively new choice of repertoire. The third practice session, in which she was playing her most well-known repertoire, was the least positive and she reported not being fully committed to her memorisation goal as it was not required for the forthcoming exam.

A large amount of time was spent reactively correcting mistakes identified in run throughs of the material, but she also reported proactively switching to mental practice to prevent tension and muscle fatigue. The reason for her use of breaks also varied between responding to fatigue and pain that had built up, and the aim of avoiding pain. External pressures clearly affected her practice, with Beth discussing feeling a lot more pressure in the third session, shortly before her performance exam, as well as pushing herself further and experiencing a higher level of pain and tension as a result. The fourth session also was not the ideal that she had described, as she had a lesson later that day and was practising for that having not picked up the violin for a week. As a result, she talked about working through longer sections of her two pieces in a less detailed manner than was evident in the first session, in which she was also learning new repertoire. Once again, she ended up with a sore arm following this session, something she felt she could avoid by taking more consistent breaks and stretching more thoroughly before playing.

Beth's playing has both positive and negative elements. Interestingly despite having a serious injury in the past Beth still appears to feel pressured into overplaying and developing

tension and pain in her hand because of extrinsic factors. Her practice, when in less pressured situations, does demonstrate many positive habits such as a thorough warm up, and breaks to avoid fatigue, rather than being brought about because of fatigue. Looking at the SYMP analysis, her practice was comparable on each of the four occasions, generally working through a segment slowly before going back through it at a more rapid pace to see what had stuck, and working on elements that required further focus.

# 8.3.2 Elle

Elle began playing the violin when she was 7, after her mother took her to a music class in which a woman suggested Elle join junior RAM, as she was a musical child. Her mother picked the instrument for her, thinking that she might enjoy leading things when she grew up. Although Elle's parents were not musical themselves and did not routinely listen to a lot of music, Elle reported listening to a wide range of musical styles, especially when she got a phone and was able to download a variety of tracks for herself. When Elle was 15, she joined the National Youth Orchestra and shortly after decided she wanted to become a violinist, crediting the decision to playing with the orchestra and finding music "can actually sound really good [...] I wanted something that I could dedicate my life to that would be productive and self-improving" (Elle, initial interview). After this, aged 16-17 she reported starting to practise properly, knowing that she would have to audition to get into a conservatoire, something she did; she had studied at the Royal College of Music since starting her undergraduate degree until the time of the current research, when she was completing her first year of a postgraduate performance degree. Elle attended a private school in London and, although she was keen to attend a music school for sixth form, her parents would not allow it, something that she still regretted.

Before attending the RCM Elle had studied under four teachers, the first introduced her to the violin but taught her some incorrect technical knowledge, the second she started studying with at junior RAM, although at that point Elle said that she, "did not really have an interest in playing the violin" (Elle, interview 2), the third she moved to when she got more serious about becoming a violinist and was her most negative experience with a teacher who was, "over-complicated and over-intellectual" (Elle, interview 2) about playing the instrument, leaving her feeling confused and paralysed. After hearing that she would not be continuing with him when she started studying at college, he stopped teaching her, leading Elle to search for a new teacher for the eight months prior to attending conservatoire and finding a woman who was excellent but with whom she only managed to have a couple of

lessons. As a result, Elle felt she arrived at college feeling "completely confused" (Elle, interview 2). When Elle started at the RCM, she had weekly lessons studying under two teachers, one male and one female, both of whom she felt she had a good relationship with and that she could contribute and discuss things with them during her lessons. She also discussed how choice of repertoire had become more collaborative as she had gotten older. Elle studied the Baroque violin at the RCM as well as the modern violin, deciding not to take it up as a second study as she did not wish to reduce her teaching hours or the time she had for her recitals on the modern violin.

During the first interview when asked about her practice habits, Elle reported playing 6-7 days a week, ideally for 4-5 hours per day, although this could be limited so where possible she would complete at least an hour of practice. The only times she reported that she would have a day off was after something very stressful, or over holidays such as Christmas, otherwise she aimed to practise every day unless external circumstances prevented her from doing so. When asked why she practised she responded, "To learn repertoire and improve my playing. And maintain it, but hopefully mostly to improve it." (Elle, initial interview). This was important in ensuring she would have a career and reach her full potential. Her reason for playing the violin was because it improved negative situations, made life meaningful, and was necessary for making a career out of it.

When asked about failures, Elle outlined many instances of external auditions where she did not get through to the next round or get a place on a course, she also regretted not practising more when she was younger and not being allowed to go to a music school for sixth form. Other things she identified going badly for her as a violinist were linked to her feeling like she had no idea how to play or practise following the teacher who undermined her confidence, and high levels of performance anxiety for 2-3 years when she started college. Her successes included successful auditions (mostly included under a blanket term and not listed as she chose to do for her failures) and sorting out her technique. The work she was most proud of was that which she was doing with her quartet at the time of interviewing, working on a Women in Music project. Aspects of becoming a professional violinist that appealed to Elle were "Playing really nice music and reaching my potential, and touring" (Elle, interview 1). The unappealing aspects were, "Musical hierarchies, so cronies within an organisation or an orchestra, people sucking up to people, how you have to promote yourself on social media. [...] Snobbishness, elitism, that people are, sometimes

don't have very varied hobbies or interests. Also, having to like organise your loo breaks around orchestral rehearsals" (Elle, interview 1).

Studying at the conservatoire, Elle's aims were to be at the top of her peer group and to learn as much of the core repertoire as she could, to stand her in good stead for her future endeavours. Having felt that she did not know how to practise when she started at the RCM and that she had a lot of catching up to do to be as good as her peers, she felt that improving and attaining a similar or better standard was still an ongoing process for her. The long-term professional aspirations she had were to make a good living in one or more high level ensembles, ultimately settling into a highly-reputed orchestra. She was unclear about how and whether she would be able to break into the profession but was moderately confident she would manage and felt that she would be more confident once she had worked with a big orchestra. She reported never regretting her decision to study violin performance and that the biggest motivator for her was the music, particularly playing at a high standard which she felt was a prerequisite for her to be happy playing. The lifestyle, sense of achievement, people, and merit-based system of the profession were also desirable to her.

During the four observed practice sessions, Elle focused on three pieces, each of a different style: Bach's Gavotte en Rondeau, Debussy's Violin Sonata, and Lutosławski's Partita for Violin and Orchestra. Details of the pieces are shown in Table 8.3. As was the case with Rebecca in the previous study, Elle also chose to begin her own diary after the first observed practice session and an example of its contents can be seen in Appendix J. Having looked at how Elle came to be studying violin performance, her experiences, and her aspirations, the following sections will focus on her practice content assessing how she worked through the pieces.

	Session 1	Session 2	Session 3	Session 4
Title	Gavotte en	Violin Sonata	Violin Sonata	Partita for Violin and
	Rondeau from			Orchestra, mvmt. 1
	Partita No. 3			
Composer	J.S. Bach	C. Debussy	C. Debussy	W. Lutosławski
Date composed	1720	1917	1917	1984
Number of bars	102	597	597	107
Number of notes	655	2280	2280	846
Performance length	c. 3:00	c. 15:00	c. 15:00	c. 4:30

Table 8.3 Pieces played by Elle in the four observed practice sessions.

# 8.3.2.1 Practice Sessions

As evident in Table 8.4, results of the Scribe analysis for Elle showed that sessions 1, 2, and 4 had a similar percentage of time spent not playing (6-10%), playing (72-83%), and annotating music (11-18%). Session 3 differed the most with more than half the time being spent not playing (52%) and the remaining time playing. The mean time spent on each behaviour showed a wider variety across the four session than was demonstrated in the practice of Beth. Looking at the timelines for each session it is also evident that the way Elle conducted her practice was different on each occasion. This was supported by discussions during the video recall where Elle talked about her practice sessions having different goals based on the stage of learning she was at with each piece: "I am at an early stage of relearning it and these are the things that I think will help me to feel more solid" (Elle, interview 1), "I was thinking about what would make a good performance" (Elle, interview 2), "the list that I came up with was very focused and precise" (Elle, interview 3). Further detail about the way she approached the different sessions and her reasons for doing so are discussed in later sections focused on each practice session individually. Unlike Beth, Elle did not appear to have a routine for her practice and the behaviours she discussed using differed across the four practice sessions, as did her reasons for using them.

Session	Behaviour	Frequency	Time	%Time	Mean(s)	SDev
1	Playing	26	38.20	83	88	80.14
	Annotating music	13	04:58	11	23	13.88
	Not playing	18	03:02	6	10	13.83
	00:00 05:00	10:00	15:00 20:00	25:00	30:00 35:00	40:00
	Subject: Basic Behaviours					
	P IP N	P PP <mark>A N</mark> P P	P <mark>NP</mark> P <mark>P</mark> PAP	NAP A P P ATAP	A P AP AP P ANP P	P <mark>A</mark> P
2	Playing	41	38:44	80	57	59.20
	Annotating music	16	5:59	12	22	25.64
	Not playing	43	3:46	8	5	10.99
	00:00 05:00	10:00	15:00 20:00	25:00 30	:00 35:00	40:00 45:00
	Subject: Basic Behaviours					
	P AN P P	A F P P P P	FP P P P <mark>/</mark> P /P	A P <mark>A</mark> P P P P P	N P A	PAP P PP AP P
3	Playing	25	23:56	48	57	78.20
	Annotating music	0	00:00	0	0	0.00
	Not playing	26	26:16	52	61	233.85
	00:00 05:00	10:00 1	.5:00 20:00	25:00 30:00	35:00	40:00 45:00
	Subject: Basic Behaviours					
	N		P	P N	P P P P	PIP FIFFP PP
ļ	Playing	45	31.36	72	42	44.79
	Annotating music	34	7:50	18	14	11.15
	Not playing	28	4:13	10	9	8.78
	00:00 05:00	10:00	15:00 2	0:00 25:00	30:00	35:00 40:00
	Subject: Basic Behaviours					AP PAP PAP
					PIP AP NA P APNP	AP PA P

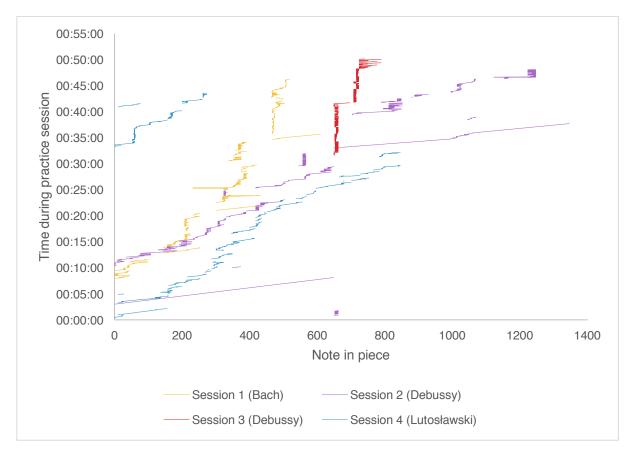


Figure 8.3 SYMP analysis of Elle's four practice sessions.

The SYMP analysis of Elle's practice supports the Scribe analysis in that sessions 1, 2, and 4 were the most similar in terms of how Elle chose to work through each piece: starting at the beginning and working through systematically. The first session varied between working on sections straight away, and playing through a segment then working on it. The second session mainly involved playing through long passages and then returning to work through them sequentially. As shown in Figure 8.3, there is some evidence at the beginning of the second practice session, and on two other occasions during the session, that she chose to focus on a short passage. The fourth session involved working through systematically from the start of the Lutosławski and then returning to work on the beginning again later in the session, demonstrating the least detailed work across the observed sessions. The third observed practice session demonstrated the greatest difference in method. She began playing over half an hour into the session, then chose to focus on two short sections (about ten notes each) for between five and ten minutes each before moving on to play through a slightly longer section of the piece. This is similar to the way she chose to work through choice segments in session 2. Overall the analysis demonstrated that Elle

used a variety of processes across the sessions, and although similarities are evident, there was a greater diversity of working style than demonstrated by Beth.

Having looked generally at the four practice sessions and compared each one, the following sections go into more detail about each individual session, focusing on how Elle chose to work through the piece, the knowledge and interest she already had of the piece, and what she discussed in the video recall procedure and interview following each practice session.

# 8.3.2.1.1 Session 1

The Bach played in the first observed practice session, held at Elle's flat, was a piece she had not played in a few years, so although she was familiar with the music, she was undertaking a process of reworking and relearning it. Her goals for the session were to decide on ornamentation, finalise bowings and fingerings, fix intonation, play at a set speed, and to improve the right hand. Much of the practice was focused on working out the fingering including whether it would suit the music when she played it on the Baroque violin. A strategy she discussed using during the video recall procedure was the use of the mirror to facilitate comfort and relaxation, as well as preventing herself from over-focusing and getting stuck, "I can get very sort of stuck by getting really over-involved in what I'm doing on the instrument and sometimes looking in the mirror can just take me away from that, which is good" (Elle, recall 1). Aside from these her lesser used strategies related to tuning, practising phrasing on open strings, correcting mistakes, and playing through sections.

Examination of Figure 8.3 indicates that the session was split into four sections, each working on material from different parts of the piece and moving through sequentially. Her approach to each section was similar, starting with a play through in all but the first segment, then working from the beginning to the end of the segment. In her recall, the processes she discussed using were similar across all the sections and her aims were also the same. As a result, it is unsurprising that the practice was similar throughout the practice session. The only breaks that Elle took during this time were to arrange or annotate her music, and at the end of her warm-up before starting work on her chosen repertoire.

Overall, Elle reported being happy with the practice session and the level of progression, achieving 90% of her goal to finalise bowings and fingerings having spent 80% of her time on this; 35% of her goal to fix intonation was achieved spending only 10% of her time in the

session on this; and having reported spending 10% of her time on improving her right hand she said she achieved 40-45% of that goal. The remaining two goals she set in the practice diary, to decide on ornamentation and to play at a set speed, were not targeted at all and she held that no improvement had been made. When asked whether she expected to achieve 100% of any of the goals she said, "I never really divide my practice into 45-minute sessions so I wasn't sure how much I'd get done in it. If I hadn't had to do any scales or anything like that I definitely could have finished my second goal, but because I started the session by playing something else it meant I didn't have as much time on this piece" (Elle, interview 1). This demonstrates that Elle does not have the knowledge of how much she is able to attain in a short, specified time frame and as such did not set goals that were realistic given the constraints. Elle did, however, during the interview, show an awareness of how much longer it would take her to complete aspects of her goals.

# 8.3.2.1.2 Session 2

During her second observed session, once again held at her flat, Elle played Debussy's Violin Sonata which she had self-selected and was included in her recital programme which was a few months later. She started learning the piece ten to eleven months prior to the practice session and was planning to play it in a performance class the next day for about ten people consisting of her teacher and peers. Her goals for the session, as written in her diary, were to be able to play through each movement as in a performance, to play with a variety of tone and colours, to look confident, to play with great intonation, and to play very expressively. She reported feeling tired later in the session, and although she enjoyed playing through sections having reached a certain standard with the piece, she also said that the tidying work could be tedious, "It's quite nice being able to play things and seeing how it works. Also it's a bit tedious because you're just sort of cleaning, yeah. You're always questioning if it's good enough as well so I guess that's a bit stressful." (Elle, recall 2). When asked what standard she wanted to be at now, compared to her desired standard for her recital, she said, "the closest I can be to that standard now" (Elle, recall 2), and when asked if she knew wat she wanted it to ultimately sound like she responded, "Fairly clear. [...] sometimes it's hard when you are doing it yourself to know how to get from A to B." (Elle, recall 2). These responses demonstrate that she did not have a well-defined idea of standard or expected progression with this piece, and that she was unclear on how to progress looking over a longer period of time than the practice session.

Once again, a variety of strategies were discussed during the video recall procedure, mainly focused on either playing through movements trying to perform them, or reactive practice correcting mistakes. This is supported by the SYMP analysis shown in Figure 8.3, which demonstrates how she would first play through a movement, then return to the beginning and work through it sequentially before moving onto the following movement. During this practice, Elle discussed aiming to get things that went wrong right five times in a row before moving on, as well as aiming to make playing feel fluent and comfortable. The SYMP analysis supports this to some extent showing many repetitions of sections before she moved on to other material. More musical elements were discussed in this session including aims to improve sound quality, dynamic shaping, and expressive playing. Alongside these areas more technical elements were looked at for certain sections, including tuning, shifts, string crossing, bow control, and left-hand articulation. The range of strategies identified seems to support the "cleaning" of the piece that Elle discussed as being her main aim of the session, trying to bring all the aspects up to a standard rather than focusing specifically on one thing in particular. The breaks she took during this session were either to adjust her clothing to be more comfortable, to annotate the music, or because she was feeling tired after her practice of the first movement.

Following the practice session, Elle was asked to reflect on the extent to which her practice was focused on each of the goals she set herself, and how much she felt she had achieved them. Elle reported that her practice was aimed mostly at her first goal, to be able to play through each movement as in a performance, with some focus on looking confident, playing with great intonation, and playing very expressively, and little aimed at her second goal of playing with a variety of tone and colours. This is unsurprising, as her practice was aimed at preparing for a performance class the next day. As to the achievement she said she felt she had attained "A bit for the first [playing through movements], tiny bit of the second [variety of tone and colours], a bit of the third [looking confident], bit of the fourth [great intonation], bit of the fifth [playing expressively]" (Elle, interview 2). She said she expected to touch on all the goals during the session but not necessarily to achieve them. She did feel she could achieve them with more time, and she was happy with her level of progress. When asked if she felt she had an idea of how much better she wanted to be after each session, she said "it's hard to quantify, I should probably quantify it more. Sometimes I have an ideal but it doesn't always materialise" (Elle, interview 2), demonstrating that she does not have a clear idea of the achievement that she is capable of in a session or a way of expressing the standard she hopes to achieve. There is an innate challenge in quantifying

musical achievement, and Elle clearly struggles to identify suitable, achievable goals for a 45-minute practice session, demonstrated by the low goal achievement reported in association with the goals set in the practice diary beforehand, compared to the fact that she was always happy with her practice sessions and what she had accomplished.

# 8.3.2.1.3 Session 3

In the third observed session, Elle once again practised the Debussy at her flat; this was in the week prior to performing it as part of her recital programme, and nearly two months after the previous observed session. On this occasion, her goals were to listen back to the recording, to take notes, to target less solid areas, to practise shifts, and to improve tone production. She had recorded her lesson the previous day, so decided to start listening to that, with an aim to pinpoint areas for improvement, get an impression of the sound, and understand what her teacher had said and why they made various comments. On this occasion, Elle said that she had adapted her goals after listening to the recording of her practice, "if I hadn't listened back and taken those notes I probably would have gone straight into doing all the different shifts instead of working through the list of the different bars where I wanted to work on things" (Elle, interview 3). She also said that the goals set in the practice diary were longer-term aims, in spite being defined as goals, "to achieve in this session" in the diary, and she did not expect to achieve them in the practice session. Overall, Elle was satisfied with the progress that she made during the session given the time constraint, and thought it was a good thing that she adapted her goals having listened to her previous practice, "I changed them because three of them were quite long-term and vague, just improving areas of weakness. [...] Whereas the list that I came up with was very focused and precise so I thought I could address things better by following that." (Elle, interview 3).

The SYMP analysis (Figure 8.3) shows that during this session Elle worked on two specific sections of the piece (neither of which were targeted in the previous observed practice), repeating the same short segment multiple times. During the recall procedure, Elle discussed using rhythmic practice most frequently, which was particularly evident in the video for the initial practice focused on each segment. Other behaviours she discussed were the use of the metronome, which was seen to be used only in practising the first segment towards the end, building up scalic passages one note at a time, and staccato practice. During this session, Elle took breaks to check her phone and go to the toilet, and these were longer than in previous sessions with a maximum of 5 minutes 24 seconds. Watching the video and making notes gave the practice focus and direction, and it is noteworthy that

before starting the session Elle was unclear as to the content the session would be likely to contain shown by the general, longer-term goals set in the diary.

# 8.3.2.1.4 Session 4

The final observed practice session took place at the musician's flat again, after her recital had taken place and shortly before the end of the academic year. For this session, Elle identified two pieces that she might work on, Ysaÿe's fourth violin sonata or Lutosławski's Partita for violin and orchestra. Both were at an early stage in the learning process, although she had not played the section of the Lutosławski she intended to look at before, whereas she had initially worked through the Ysaÿe. The goals she set in the diary were to play longer sections of the Lutosławski to check fingerings and bowings, to get all the Ysaÿe at one speed, and to make the double-stopped passages in the Ysaÿe legato. Once the practice session had started, Elle decided to focus on the Lutosławski because she felt it would be more relaxing, "I thought because with the Ysaÿe, if I'm improving what I already know on it, it's going to be quite intensive practice, and with the Lutosławski I knew the first thing I needed to do with this long bit was just check all the fingerings and bowings. So that would be a more relaxing way to start the practice session" (Elle, recall 4).

The practice session was split into three main segments, with a short initial section in which she ran the first part of the movement, focusing predominantly on fingering, "at first I'm just concentrating on where my fingers are going and I'm not really concerned about my bow use. [...] There are different dynamics and flautandos and stuff but I wasn't really paying attention to any of those" (Elle, recall 4). Having played through the first segment, she goes back through the score, writing in things that she was confused about and clarifying markings that were already in the score from a previous violinist. She then moved on to her second segment of playing, in which she worked through the whole section of music that she wished to look at that day, focusing predominantly on fingering again with an aim to develop a picture of the whole movement, mark up the score, and develop a knowledge of the work required, "just to have a picture of the movement in my head. Otherwise you're just looking at a page and you don't know what it would sound like or how it will feel to play at all. So now I have a map in my head basically of the movement and what I need to do, and what it will sound like, and how it will feel to play, so it will help me then structure my practice elsewhere" (Elle, recall 4). Elle reported feeling shaky and on edge at the beginning of the practice session, likely due to caffeine, which made her hands feel tense and uncomfortable throughout the practice session, "I can remember feeling quite

frustrated because I didn't feel really relaxed. I felt quite tense and shaky and that's not very nice to read through this sort of music for the first time" (Elle recall 4). It may be that choosing to work on this piece because she perceived that it would be more relaxing than the Ysaÿe was a misnomer and she was not aware of the effect it would have. It could also be that, in the mood she was in, it was the more relaxing of the two pieces but not enough to counter the shakiness.

The final segment of Elle's practice session followed a break taken when she reached the end of the music she wanted to work on and precipitated by hearing her phone go off. She chose to return to the beginning of the movement, and conducted more focused work on where her hands were going in shifts, and intonation practice in more challenging sections. As can be seen in the SYMP graph (Figure 8.3), at one point she chose to jump back to the beginning for a play-through of a short segment, before returning to the part of the piece she had been working on. She said, "I just wanted to play a bit like that to make it sound nice and to consolidate it a bit" (Elle, recall 4); given she had reported her practice up to this point was frustrating due to the fact she felt shaky and like she did not know the piece, it was likely that she thought playing the first section in a more musical manner would be conducive in improving her mood. She finished the practice session towards the end of the segment that she intended to work on but was stopped before she could play the same section again, which she said was her plan had the time been longer.

There was only one goal in the diary that Elle identified, relating to the Lutosławski, which was to play longer sections, checking the fingerings and bowings. Having been unclear about what she intended to practise before the session, Elle felt satisfied with the amount that she had achieved, having developed a picture of the whole movement, and marked the whole score up. She did feel that she could have covered more if she had not felt so shaky. The additional work on shifts and intonation were not goals at the beginning of the session but something that she chose to do in the moment, "I think I've got a map now of the piece", "I've got all the markings in now so I can do more detailed practice" (Elle, interview 4).

It was clear in this session that Elle did not have a clear idea of what she wanted to focus on or achieve beforehand, and the added factor of feeling shaky led to a tense practice that felt unsatisfying while she was playing. She reported that she was much happier with the practice having listened back to it, as it did not sound as bad as she thought it did when she

was playing. Her practice was generally reactive, and she chose what work to do in the moment based on what she felt like at the time, rather than adhering to her earlier plan or thinking about it more beforehand.

# 8.3.2.2 Interim Discussion

Overall, Elle demonstrated a wider variety of practice methods than Beth, which appear to vary based on how well she knew the piece that she was working on. For those with which she was still in an early learning phase, the Bach and the Lutosławski, she tended to focus on technical aspects, working sequentially through the music. The two sessions she spent on the Debussy had greater evidence of playing through longer sections, with focused work on specific passages; this was especially prevalent in the third session shortly before her recital.

In all four of the sessions, Elle tended to focus predominantly on a single goal, spending most of her time on that, with less or no time spent on other aims. She also often changed her goals mid-session based on how she felt things were going, or due to other circumstances, such as the notes she took when listening back to her performance in the third session. She seemed to struggle with accurately planning the amount that she could achieve in a 45-minute time slot, frequently saying that she was unsure how long things would take. Elle was generally satisfied with the amount of work that she did manage to complete and felt that, given more time, she would be able to achieve the other aims that she had set. The inability to accurately plan her time, while not necessarily a problem, demonstrated that Elle consistently underestimated how long it would take to achieve certain goals. The fact she was always content with her achievements showed that planning and achieving goals was not considered highly important in her practice.

# 8.3.3 Will

Will started playing the violin aged 5, after taking part in an early years music class from the age of 4, which he attended with his brother. After a year, he was asked if he wanted to learn an instrument and he chose to learn the violin, "once the teachers recognised that I had certain rhythm and talents they said, "does he want to play an instrument?" and I only knew that the trumpet and the violin existed so I said violin" (Will, initial interview). Although his parents took him to the music class, they were not musical themselves and listened to little classical music, but Will reported his dad listened to music a lot, especially jazz. Most of Will's musical education occurred outside of school, at three Spanish conservatoires which

progressed from young, beginner instrumentalists through to a 'superior conservatoire' which was akin to music schools in the UK. To progress to the next conservatoire, children had to pass an exam. The conservatoires provided not only on individual instrumental lessons, but also classes in practical musicianship, analysis, theory, historical studies, as well as orchestral and chamber ensemble rehearsals and performances. Will participated in these activities outside of school, spending three or four afternoons a week at the conservatoire, totalling between 7 and 12 hours of studying. He reported that the timings of this could be hard to work out, as his school day necessitated him taking later classes at the conservatoire, sometimes not finishing until half past nine in the evening.

When asked what professional aspirations he had growing up, Will reported having to choose between violin performance and engineering in sixth form. When he chose violin, he said, "I kind of started ignoring sixth form a little bit, concentrated a bit more on the violin to do auditions" (Will, initial interview). His biggest inspiration to become a professional violinist, came from playing with a youth orchestra in Valencia where he grew up, which made him understand that he could become a professional and make a living playing violin, and his choice to study violin performance was something he had never regretted.

Will had studied under five music teachers during his time learning the violin: four at the conservatoires in Spain and one at the RCM. He reported feeling that he had good relationships with all his teachers and felt able to question and ask for assistance and received suitable explanations when he did. Will also reported a less formal teaching style in Spain, where his teachers, were highly involved in his lessons, "in Spain it generally is first name basis very friendly kind of thing. It's not a teacher sitting in the corner and watches you. They come up and be quite active in the teaching so it was nice" (Will, interview 4).

In relation to practice, Will said that on a good day he managed to do so for two to three hours, which he would split into shorter lengths of an hour to an hour and a half, with five to ten minutes break between each. Within the shorter lengths, he reported breaking the time up into 20-minute blocks. This had been radically altered from his previous practice habits as he had sustained a serious injury to his left forearm, including some nerve damage, due to over-practice and high levels of physical tension, which led to him not being able to move his fingers without pain. He found a physiotherapist who specialised in treating musicians and was given exercises to help treat the injury. Before the injury, he was able to practise for about seven hours a day, split into a two-hour technical practice in the morning, a three hour

block in the afternoon, and a further two hour block after a rest. In spite of feeling the practice managed in the 20-minute blocks was more effective than his previous sessions where he would play for three hours, Will still felt limited in his achievement, "I feel it's probably better to do what I'm doing now. I mean I still feel I might not be achieving as much as I was doing before, but I don't know if that's psychological because I know my hand is not in top form" (Will, initial interview). When asked why he chose to play the violin, he stated that mostly it was to meet deadlines of performances or exams, but also to get better and improve as a player. In response to being asked why he practised, he said he did so to get repertoire ready in a specified amount of time.

Regarding his successes and failures as a violinist, Will reported his only major achievements to be getting into the youth orchestra in Valencia and his successful audition for the RCM, "that is about it [...] I don't have anything else" (Will, interview 3). The failures discussed were more numerous and included exams not going well and unsuccessful auditions for orchestras and music colleges. Discussions about the appealing aspects of being a musician included playing good music in an orchestra, playing in a chamber group when everything goes well and the group is working together, he also discussed enjoying working with young people and inspiring them as a positive part of his potential future career. Unappealing aspects included the risk of injury, hours of practice, the uncertainty of the future and the necessity to continually look for different things to be part of, and the idea of being reliant upon "gigs" until he managed to find a steady job. Will also talked about the management aspect of working as a freelance musician, neither indicating it to be a positive or negative aspect, but a necessity for solo and chamber work including booking rehearsal spaces, sorting taxes, and booking gigs.

The aims discussed by Will in the interviews conducted tended to be shorter-term and focused on extrinsic targets such as exams and performances, "I would love to get a first next year", "if I get to next term or to the first term with something ready to either play in a masterclass or a performance class then I can start straight away trying to play things in front of people", "do that concerto competition next year" (Will, interview 4). His predominant focus throughout the project was on recitals with his most important goal being the recital just after his third observed practice session, changing to working towards his third-year recital in the final interview. He also stated he wanted to improve as a violinist but this was secondary to exam success, "improving as a violinist. But it is mainly playing the exam." (Will, interview 3). Despite much of his practice centring around preparing for the recital, Will

reported feeling under prepared in the third session due to injury, and although he was content with the low 2:1 result, he would have liked to get a higher mark.

He described his ultimate aim as playing in an orchestra, supplemented by some chamber performance and teaching, located close to where his girlfriend ended up working. He felt that he could achieve this by practising, auditioning for many different orchestras, and playing as much as he could in a variety of orchestras. He had some uncertainties based on the audition process, and whether his ability would develop in time. In general, Will felt the goals he set for himself were not incredibly difficult, but occasionally were challenging. He sometimes struggled with identifying how hard a goal was going to be, "it is one where I do not actually know if it's inside my capabilities" (Will, interview 1). He also reported using similar strategies across his general practice which were not necessarily the most efficient due to "lack of knowledge", and that he felt he would like to vary them more frequently ideally, "there is probably something out there that would be slightly more productive than what I do [...], or maybe varying them. [...] I don't shift too much" (Will, interview 1).

Will focused on four pieces in the observed practice sessions, a Paganini Caprice, Franck's Violin Sonata, Barber's Violin Concerto, and a Mozart Violin Concerto including a cadenza written by Leopold Auer. As can be seen in Table 8.5 these ranged in length but were mostly 8-10 minutes long, and the number of bars and notes varied across the repertoire. Having discussed Will's background and experiences the focus will now be on how he worked through the pieces in his practice sessions.

	Session 1	Session 2	Session 3	Session 4
Title	Caprice No.	Violin	Violin Concerto, mvmt 1/	Violin
	20	Sonata,	Violin Sonata, mvmt 2/	Concerto,
		mvmt. 2	Concerto 2, mvmt 1 &	mvmt 2
			cadenza	
Composer	N. Paganini	C. Franck	S. Barber/ C. Franck/	S. Barber
			W.A. Mozart	
Date composed	1817	1886	1939/1886/1775	1939
Number of bars	57	229	216/229/152	108
Number of notes	433	994	1059/994/1315	378
Performance length	c. 3:30	c. 8:00	c. 10:30/c. 8:00/c. 9:00	c. 9:00

Table 8.5 Pieces played by Will in the four observed practice sessions.

#### 8.3.3.1 Practice Sessions

As evident in the Scribe analysis of Will's practice sessions (Table 8.6), most of his practice sessions had a similar makeup in terms of the time spent playing, not playing, and annotating music, as was the case with Beth and Elle. Across the four sessions Will spent 83-90% of his time playing, and the average length of playing segment was between 40 and 46 seconds in sessions 2, 3, and 4. The first session had a slightly longer mean playing segment of 62 seconds. Not only were the percentages of time spent playing similar, but the frequency was also close across groups with the lowest shown in session 1 with 41 playing occasions (unsurprising given that his playing segments in that session were on average longer than those in the other sessions), with other sessions ranging between 52-59 playing attempts. The time Will spent not playing in the sessions was also incredibly similar at 10-14% of the overall session time, and a mean of between 6 and 14 seconds. Annotating the music was only evident in sessions two and four, with a mean of 7-8 seconds, accounting for 3-4% of the overall practice. The timelines show that Will's practice on each occasion followed a similar routine, tending towards short playing segments and short periods of not playing. Compared to the other two musicians in this study, Will played for a larger percentage of the session, although maintained a similar mean segment length to that of Beth and Elle.

The SYMP analysis conducted on the four observed practice sessions (Figure 8.4) shows that sessions 1, 2 and 4 were similar in their construction in that Will chose to work through the repertoire in a linear fashion, improving segments as he went before moving on. In sessions 2 and 4 he chose to return to the beginning of the repertoire he had played in the session and work the same passage in a similar, albeit speedier, manner. In session one, Will spent nearly ten minutes on a single eight note passage, which he returned to for a few minutes at the end of the session. This passage was one of the two specific points that he outlined in the goals set in his diary as requiring work. The third session showed the most variety for Will. As was the case with Beth and Elle, the third session took place shortly before his performance exam and the three pieces he chose to focus on were the first movement of Barber's Violin Concerto, the second movement of Franck's Violin Sonata, and the first movement of Mozart's second Violin Concerto with a cadenza written by Auer. In this session, he produced play throughs of longer segments than was usual, especially in relation to the Barber. He chose to work backwards through the Mozart, finishing with a play through of the material he had covered, but the work he conducted on each section appears to be similar to that evidenced in previous sessions in which he plays through segments

linearly, correcting errors and making improvements reactively. The practice conducted on the Franck was similar to that seen in other sessions, working systematically from the beginning of the piece.

Having looked at the general elements of Will's practice, the individual sessions will be examined in more detail, particularly focusing on his reports in the video recall and the interviews conducted after each practice and comparing these with the evidence from the videos of his sessions.

#### 8.3.3.1.1 Session 1

The Paganini that Will chose to play in his first observed practice session was a relatively new piece, which he reported learning quickly to a standard that meant he felt he could play it in front of peers in his performance class. He had mostly memorised the piece, which he liked to do in the early stages of learning saying, "It just helps me think about what I'm actually doing as opposed to sort of reading notes. I much prefer practising by memory" (Will, recall 1). His goals for the session were to work on the tuning in the slow and fast sections, to learn the piece off by heart, to work on the octaves in bars 40-43, particularly the shift and tuning, and finally, to work on the shift in bar 37.

There were three sections to Will's practice; the first lasted for much of the session, in which he worked linearly through the piece spending the most time on bars 40-43, which was one of the sections he had identified in his goals as requiring specific work. He reported working through the first section for ten minutes then completing a run-through of that segment although, as can be seen in Figure 8.4, the run-through he was discussing actually occurred about 6 minutes into his practice. This shows a lack of awareness of how long he had spent playing, despite checking his watch to monitor the time. Other reported behaviours included simplification by removing the top or bottom notes from chordal sections, bowing practice, tuning, playing under tempo, and listening to the sound. Between piece segments, he would take breaks to stretch and mentally distinguish the sections of practice, "I thought I'd kind of stretch to get looser and just separate it a bit in my mind" (Will, recall 1). He also reported using reactive breaks or pauses to prevent continued errors on a segment, "It's like paint drop on a piece of paper. Every time you do a shift is a paint drop and you want it to fall as many times in the right place as possible and so what stopping does is you blow on that paint and where it hasn't fallen many times, which is in theory

where it's been wrong, [...] what you did right stays more than what you didn't just because you managed to do it more times. Ideally obviously!" (Will, recall 1).

The other two segments of practice occurred towards the end of Will's session, the first of which focused on the shift in bar 37 which he had identified in his goals and also included some work on bars 40-43. Behaviours discussed in the recall were similar to those in the earlier practice but also discussing the need for more fluency in playing the section. Feeling the practice was not effective, he decided to move on "as I've spent so much time on this I'm kind of like, "why's it not working?". So I thought, right forget that, quick recap of the beginning" (Will, recall 1). In this recap, his aim was to play some of the piece up to speed as "a nice way to finish the practice", as well as a means of consolidating some of the work that he had done in the session.

When discussing the extent to which he felt he had achieved his goals, he remarked that he felt he should have made more improvement, but he did feel 90% of his practice session was aimed at the goals set out in the practice diary. He also felt that the level he identified in the diary as desirable should have been achievable, indicating he was slightly unsatisfied with his progress. This was supported in his completion of the practice diary, where he marked two of his goals as achieved as much as expected, two slightly less, and one a lot less.

#### 8.3.3.1.2 Session 2

The piece in the second session, Franck's violin sonata, was also relatively new to Will. He only had a few fingerings written in and had read through it, but not worked on it, before the observed practice session. The goals he had for the session were to learn the notes, keep tuning in mind, no tension in the left hand clarifying that when sight reading he tended to tense a lot, and sound quality focusing on keeping a straight and even bow. The last of these four goals was added after he had warmed up on the violin and spent a little time looking in the mirror at his playing, which precipitated him to writing the goal in the diary.

Session	Behaviour	Frequency	Time	%Time		Mean(s)	SDev		
1	Playing	41	42:27	90		62	56.10		
	Annotating music	0	00:00	0		0	0.00		
	Not playing	42	04:31	10		6	8.88		
	00:00 05:00	10:00	15:00	20:00	25:00	30:00	35:00	40:00	
	Subject: Basic Behaviours	P P P PFP NIP	p p p	NP NP NF		N P P P		PIP P	
		P P P P P F P F P N II P	9 9		F	N P P P			P P P P
2	Playing	52	40.11	83		46	31.20		
	Annotating music	15	02:06	4		8	3.54		
	Not playing	51	06:02	13		7	15.13		
	00:00 05:00	10:00	15:00	20:00	25:00	30:00	35:00	40:00	45:00
	Subject: Basic Behaviours		P P P P	P P NIP P			P P P P P	N PPPP	PPPP
3	Playing	59	39:25	86		40	44.57		
	Annotating music	0	00:00	0		0	11.15		
	Not playing	59	06:27	14		14	0.00		
	00:00 05:00	10:00	15:00	20:00	25:00	30:00	35:00	40:00	
	Subject: Basic Behaviours	NP P III	ΡΡΡΡΡ					PP P N P	ñ
									•
4	Playing	55	40:08	85		44	41.93		
	Annotating music	8	01:32	3		7	12.48		
	Not playing	52	05:40	12		11	5.17		
	00:00 05:00	10:00	15:00	20:00	25:00	30:00	35:00	40:00	
	Subject: Basic Behaviours								
	PIP IPIFFPIP P	PP N P <mark>IA</mark> F	P <mark>/</mark> P/P P	P P FIA	P P <mark>N</mark> P F	P P P P	P <mark>N</mark> PP NPP	P P P P N	P P N P P P I F

Table 8.6 Scribe analysis of Will's practice sessions.

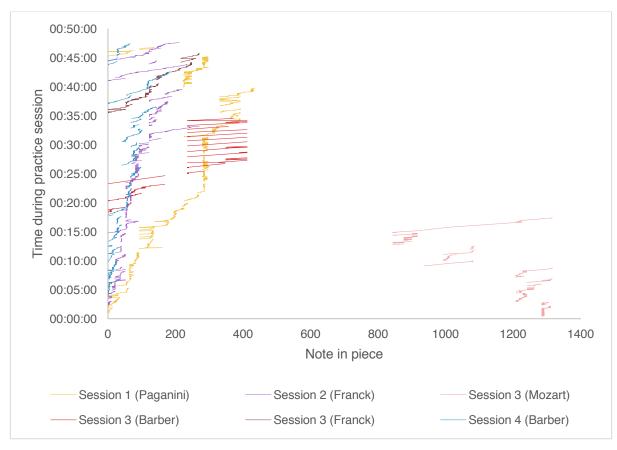


Figure 8.4 SYMP analysis of Will's four practice sessions.

The majority of Will's practice session consisted of working through the first section of the Franck, and during the recall he discussed focusing on the elements written in the diary including consolidating fingerings, improving sound quality, bow control, tuning, and reducing tension. There were very few other behaviours discussed, and the video of the practice showed that he often used the mirror or open string practice at times when he discussed working on bow control, carefully tuned against open strings in shifts, and occasionally played under tempo. He got to a section of the piece where he felt fed up and that he had reached his concentration limit, demonstrated by the fact he started playing through sections rather than working on them. At this point he chose to stop, get a drink, then go back to the beginning of the piece to consolidate the work he had done, adding the aim to play more fluently through the section and focus more on releasing tension, "I think I'd again gone forward a bit to look at things that I

shouldn't, and I kind of got to the end of my maximum concentration I think so I just popped out and had a little drink, and then came back and sort of went back from the beginning and tried to remember everything" (Will, recall 2).

There was evidence of reactive practice on many occasions during the session, one obvious example being when he added the goal of keeping a straight, even bow after warming up and noticing in the mirror that his bow control could be improved. Another was when he chose to stop and have a break because he found his concentration lacking. He also reported getting fed up and letting off steam after a section of practice before continuing, "I got fed up. I just thought I'd do something stupid and then carry on" (Will, recall 2). The video of the session showed that Will often would play rapid scales or patterns between practice segments to refocus or distract himself from unrewarding practice.

After the session, Will reported that it had been quite productive with 90-95% of the time being aimed at the goals laid out in the diary. All goals in the diary were marked as being achieved slightly less than desired, and in the interview Will said that they had been achieved between 60 and 70%. When asked whether he felt the goals he set were realistically achievable in the 45-minute time frame stipulated he replied in the affirmative stating, "If I have a really good practice session I think so, yes, which is why I set those goals, knowing that in an ideal situation at my best level of playing I could probably achieve them" (Will, interview 2).

#### 8.3.3.1.3 Session 3

In the third observed practice session, Will focused on three pieces which he was preparing for his recital coming up within the next week. For the Franck Sonata, he was specifically aiming to improve fluidity in phrasing and tuning issues. He set three other goals which were aimed at all the pieces he played: to make the more important or harder sections of the pieces more secure and improve them where he could, to run through small sections of the repertoire, and to relax his left hand.

Will chose to spend 15-20 minutes on the Mozart and the Franck, with a shorter section of the practice session of about ten minutes devoted to the Barber. In the Mozart, he chose to start with the cadenza, focusing on a specific run and shift that he felt could be improved and ensuring he had it memorised. As can be seen on the SYMP graph he also performed several

run throughs of sections he practised, finishing with a longer segment covering all the sections he had been working on. In the recall following the session he discussed working on his bow control, imagining that he was playing in front of an audience in preparation for his exam, and using a metronome to ensure he maintained a steady tempo. When asked what he was aiming for in his practice following the work on the run and shift at the beginning of the session, he said, "Mistakes basically because I worked on this little bit beforehand. So I just played it through once basically and heard that horrible "mwa, mwa", so I worked on that a little bit" (Will, recall 3). Much of his following practice on the Mozart was also aimed at mistake correction identified during run throughs.

When focusing on the Barber, Will chose to initially run through the first section before using most of the time on run throughs of a later section. In the recall, he discussed aiming to improve the connection of sounds and string crossings, and tuning. To approach these, he reported using rhythmic practice and using a metronome to systematically increase the speed of his playing, starting at a tempo under the marking on the score. This was demonstrated in observations of the video with rhythmic practice being the most frequently used technique.

The final section of Will's practice focused on the Franck which was the only piece for which Will had set specific goals. He started by saying he was focusing on sound quality and tuning, "starts from the beginning doing without vibrato and slightly under tempo, just for sound and tuning purposes" (Will, recall 3), he also chose to work on specific string crossings, as he did when practising the Barber, aiming to develop an even sound. Other elements that he reported working on were tuning and shift practice in various sections. The SYMP graph shows that for this piece Will completed far fewer run throughs of sections, working through in a linear fashion correcting mistakes as he came across them.

Separate behaviours that were evident in the session included stretching and moving around in breaks to refocus and remove physical tension. At one point, he said that he chose to stop and wiggle; when asked why he replied, "Just to break the practice up and because I needed to move about a bit. Tension and pain." (Will, recall 3). He went on to discuss how the increase in stress and practice due to the pending exam had negatively affected his injury, causing excess tension to be apparent in his arm. Other behaviours that were apparent in the observation of the practice video, but not mentioned in the recall, included the frequent

adjustment of his chin rest, and rapid scales and arpeggio patterns played between practice segments. Judging from discussions in previous sessions (Section 8.3.3.1.2), it is likely that this also served the purpose of either refocusing or distracting from dissatisfying practice.

Will reported that, once again, 90-95% of his practice was aimed at the goals which he had set in the practice diary before the session. After watching his practice back, he reported that some sections did not sound as good as he had thought they did in the practice, this demonstrates that to some extent he was not aware of the sound he was making. When asked about whether he felt that he had made progress in the session, he replied, "I don't know if I'd call it progress. Probably I've done some consolidating, some reassuring stuff, just making sure it all works [...] doing the exercises on a regular basis just to make sure it stays and my fingers are ready for it in the exam basically." (Will, interview 3). This shows that in this particular practice session, due to its proximity to his exam, Will was not necessarily aiming to improve his playing, but to secure it. He also said that he did not feel that he had achieved as much as he would have liked to but that he felt he was better than before the session. Clearly, Will makes a distinction between practice to improve and consolidatory practice, such that despite feeling he was better at the end of the session than he was at the beginning, it was not classed as progress per se but maintenance.

#### 8.3.3.1.4 Session 4

In his final observed practice session, Will was playing the second movement of the Barber Violin Concerto. This was something he had not played before, and he reported not having a clear picture of what he wanted it to sound like during his practice session, "let's see what this sounds like more than, I want it to sound like this, because I don't know it well enough yet to know exactly what I want it to sound like" (Will, recall 4). His goals for the session were to read through and start learning the movement, listen out for tuning, make sure he had a good sound, and to watch out for tension in his arms and back.

As can be seen from the SYMP graph (Figure 8.4), Will took longer to warm up than he had in other sessions focusing on stretches and finger warm ups on the violin itself. The practice of the piece itself consisted of working through about half of the movement before returning to the beginning and playing through the same section again, then spending the last five minutes on the beginning section. In the first section, which lasted for most of the practice session, Will

discussed mainly focusing on working out fingerings and improving sound quality (predominantly through bow control practice). He chose not to play it rhythmically accurately so he could focus on these elements, he also said that he was aiming to avoid learning mistakes at this early stage of practice, "it's just trying to make sure basically that I don't do things wrong from the start [...] I'm sure it's happened to everyone when you're reading a piece and you read a wrong note for some reason and then you keep playing that wrong note until someone points it out to you and then it feels almost impossible to change it" (Will, recall 4).

Will returned to the beginning just over 35 minutes into the practice session, to make sure he could put the work together that he had been doing: "It's easy to just think about one thing and do it, but when you have to keep moving on and doing it sometimes if you do too much of just individual stuff then it sounds wrong when you put it together" (Will, recall 4). Having played through part of the movement, Will reported trying to play sections properly, but that each time it did not quite feel right, so he jumped to the section before to connect the music. Each time he did this, he felt he found more things that were wrong and reported, "going in circles a little bit. Which I at some point I think realise" (Will, recall 4). Shortly after this, he took a break to reduce the build-up of tension before returning to the double-stopped section he had been practising, attempting to play it through and stopping only to correct mistakes.

The last section of his practice was conducted with a metronome, as he felt that he needed to look at the rhythmic elements of the movement which he had, thus far, been ignoring in favour of sound quality and fingering. To do this, he chose to use a metronome set to the full tempo of the piece and run through, correcting mistakes, until the tempo of the music changed at which point he returned to practise the beginning of the movement.

Unlike in the other observed practice sessions, Will did not use his goals as a method of structuring this practice session. Instead he felt that he used them as a means to prevent him ignoring those features throughout the session, and to remind himself of what he wanted to aim for. In terms of his achievement, Will felt he got quite far with fingerings and working out the notes, but not far with his goals for tuning and releasing physical tension. Overall, he stated that he did not achieve any of the goals to the extent that he wanted to which was reflected in his ratings in the practice diary which were all less than expected.

#### 8.3.3.2 Interim Discussion

The observed practice sessions had a lot of similarities, with the majority of time spent working linearly through pieces correcting mistakes before returning to the beginning of a section to consolidate the practice that had been done. The most varied session was the third practice session, just before Will completed his recital, which looked at three pieces and was reported to be predominantly focused on correcting errors that occurred and consolidating rather than improving. With the exception of the final session, Will reported using the goals and timings in his diary to structure his session and reported 90-95% of his practice sessions were aimed at achieving these goals. In all the practice sessions completed he reported being dissatisfied with the level of progress made, and said he thought he could have achieved more on a better day. Although challenging, perceivably achievable goals have been shown to provide the most motivation and achievement (Locke & Latham, 1984), it would be of interest to see whether the persistent setting of goals that were not attained due to an imperfect session impacted negatively on an individual's motivation. It is rare to have an ideal practice session and Will consistently felt that he underachieved but that he could have succeeded had he played his best. This indicates that when setting his goals Will was unaware of his affect at the time and the likelihood that it would impact his achievement, only setting idealistic goals that would be achievable when playing his best, something few people are able to consistently do in every practice.

Throughout all four practice sessions, Will showed evidence of using breaks and stretching to relieve both physical and mental tension. The Scribe analysis demonstrated that the breaks themselves tended to be of short duration averaging between 6 and 14 seconds, clearly showing Will did not allow a lot of time to stretch despite his previous injury that he discussed monitoring carefully in the sessions.

#### **8.4 DISCUSSION**

The individual practice of Beth, Elle, and Will has been discussed in detail, alongside information about their backgrounds. The section following will focus on consolidating the data gathered about the three participants and drawing conclusions relating to their motivation, self-regulation, and practice quality.

There were many similarities in the participants' backgrounds, despite spending their younger years in different countries. Neither Elle nor Will had musical parents, and although Beth's mum played the violin, she reported that it was not to a high level. They started at a young age, with Elle and Will both having their musical aptitude spotted by someone leading an early years music class and suggesting they started to learn an instrument. For all the participants, a major feature that inspired them to study violin performance was playing with a high standard youth orchestra as teenagers; a choice that they all reported not regretting despite feeling uncertain about the makeup of their future careers, how they can achieve their ultimate aims, and whether they will be sufficiently skilled to do so. Most relationships with teachers had been positive and were of the master-apprentice persuasion, although Elle reported having more problems with her teachers and the quality of her tuition before attending the RCM. In general, the failures discussed were more specific and numerous than the successes, which themselves tended to be based on more important events for the participants. The fact that they outlined more, less-important failures (such as specific unsuccessful auditions) compared to the general tendency to report fewer, more noteworthy successes (such as getting into the conservatoire), suggests either that they viewed their perceived failures as more important than their equivalent successes, or that to be viewed as a success, something had to be more momentous with lower level achievements not being considered. This may have an impact upon motivation, as achievements can help to boost motivation whereas failures can have the opposite effect (Deci & Ryan, 2000; Locke & Latham, 1984; McClelland et al., 1953; Zimmerman, 2000). If the participants are perceiving more failures than successes, then this may have a long-term impact on their motivation, unless this is countered by the greater significance of the achievements they choose to acknowledge.

Beth and Elle were both studying a postgraduate degree, and reported that the reason they chose to play the violin on a day-to-day basis was because it was a part of their identity and they could not conceive of not playing regularly. Also of note is that Will and Beth had both sustained serious injuries in their left arm due to over-playing with poor technique, which had necessitated them seeking expert medical assistance to overcome. Although this was the case, both reported a desire to be able to go back to practising how they could before they experienced the injury, even though they reported their new practice regime was more focused and efficient. Both also reported over-practising during the study and not taking enough frequent breaks leading, to fatigue and tension in their arm. This demonstrates the challenges of

behaviour change as, in spite of having medical advice pertaining to managing their injuries, both pushed themselves too hard and attempted to play more like they had previously. It may be partially that they wanted the option to play as much as they used to, and the injury preventing them from doing so drew their attention to the fact that they could not, rather than they felt their old practice was of better quality, however this still demonstrates the reluctance to change practice habits.

This reluctance to change habits is interesting given the findings of Pike (2017) and Jørgensen (2000) who both found participants in their studies felt they had not been taught how to practise or were not confident that they could do the right things to improve. This was demonstrated by Will, who felt that his own practice was limited in terms of strategy usage and that he tended to use the same strategies due to a lack of knowledge, rather than because they were the most effective. All participants discussed not knowing exactly what they wanted their playing to sound like over the course of the research and were, on occasion, surprised watching the video of their practice back, saying that it sounded much better or worse than they thought it did in the session. They all demonstrated a limited ability to plan their 45-minute sessions accurately, frequently changing their goals in the session or not accurately estimating the time it would take to complete their aims. Will used the goals set in the practice diary to structure his practice to a greater degree than Beth and Elle, who both used them as focus points rather than structural aids. Elle demonstrated the most adaptations within her practice sessions and least accurate planning.

Run-throughs served a dual purpose for the participants as consolidation and error identification. All three participants used run throughs, either at the beginning of a practice segment to identify passages requiring work, or after working through a section to check what corrections had remained and what still required work. They showed some variety in strategy or aims based on their familiarity with the piece, but certain aspects were consistent across all practice sessions for the three participants, particularly working chronologically through a section of a piece stopping to correct errors. On occasion, choices were made based on the participants' affect, such as Elle choosing to play the Lutosławski as it would be a more relaxing start to the session, Beth choosing a slow melodic piece to play as she needed to warm up, or Will playing through sections after completing frustrating detailed practice. This was, however, scarce and indicates that participants were more likely to be retrospectively aware of their affect

and change their playing accordingly, than to think about it beforehand and plan their session with that in mind. Research into SRL has demonstrated that an individual's affect can influence the quality of their self-regulation (Zimmerman, 1989), and that understanding and being able to control affective processes can aid learning processes (McPherson *et al.*, 2013). The participants, to a limited extent, could organise and adapt their practice based on their affective state, but this was rarely evidenced and limited to times when they felt highly frustrated at their practice. Perhaps earlier intervention and understanding in the participants could lead to practice structure based on their affect which could potentially improve their performance.

The timings of practice were also reasonably consistent across the participants, with much practice time taken up with playing the violin. Will had the highest playing percentage, averaging at 86% of his sessions, next was Elle averaging at 78% (excluding the session in which she watched her practice back during the session as it was not demonstrative of how she usually worked when playing), and Beth averaged 75%. Interestingly, although Will reported taking regular breaks due to his injury, he still amassed more playing time than the two postgraduates in his sessions, and although his frequencies were higher than Elle, indicating he took more breaks, they were generally shorter in length than Beth, who had sustained a similar injury.

External events were shown to affect practice content, with different focal points discussed depending on whether there was an imminent performance of the material such as a lesson, performance class, or recital, or whether they felt they had plenty of time to prepare the material they were working on. This is demonstrated most clearly in the third session of all the participants, which was the most distinctive from their other sessions and shortly prior to their end-of-year recital. Elle chose to listen back to previous practice so she could isolate segments that required most work, Will focused on a greater range of repertoire performing more run throughs, and Beth performed more run throughs and worked backwards through one movement, something she did not do on any other occasion.

Each participants demonstrated preferences for certain practice behaviours and styles which they had developed over their years of learning, which is unsurprising as it is likely that few strategies will work well for all violinists (Nielsen, 2008b). Many of the practices were reactive and aimed at mistake correction. In the early stages of learning a piece, the participants discussed avoiding learning mistakes as a method to save time at a later stage, and Beth in

particular was keen to include as much detail as she could in the early learning process to automate the playing process rather than having to then add in elements such as dynamics at a later point. Will tended to memorise his pieces early in the learning process so that he could better hear what he sounded like during practice sessions. Elle discussed initially focusing on basic technical requirements such as fingerings, before getting a picture of the piece as a whole, early in the learning process. Once this was completed, most practice was frequented by error identification and correction in anticipation of performing the piece in public.

Beth and Elle, and in a more limited capacity Will, demonstrated learning processes comparable to those examined by Chaffin and colleagues when investigating the practice of professional players (Chaffin & Logan, 2006; Chaffin et al., 2010). In both articles the professional players tended to start with section-by-section practice moving to more frequent integrative practice as they became more familiar with the music. They also started by developing basic requirements of the piece before moving on to developing fluency, memory, and polishing for performances. Beth's routine was to get a basic picture of the piece early on and focus on more specific challenges of the repertoire later in the learning process, including characterisation and completing run-throughs in preparation for the performance. Elle also discussed working on basic requirements in the initial learning period and looking at more musical and expressive requirements for repertoire she was more familiar with. Will developed his memorisation of pieces earlier than the others reported but discussed maintaining his standard shortly prior to his performance, which was akin to the practice of the pianist (Chaffin & Logan, 2006). The professional players followed similar yet distinctive paths in learning and memorising their repertoire, demonstrating that there are multiple ways to achieve a desirable outcome. Although the practice of the participants examined in the current chapter has some similarities, they also have many differences with each other and that outlined in the research into the practice of professionals. It is likely that some of this is due to individual preference, but it could also be that their practice is not as well-honed as that of the professionals, as they are operating on a schedule organised around development and learning rather than perfecting and performing.

Practice is a large part of conservatoire musicians' day-to-day life and key for their progression as players leading to their ultimate goals to become professional performers. As this is the case, students reporting a lack of knowledge around how to practise effectively

(Jørgensen, 2000; Pike, 2017) are likely to limit the improvements they make within their practice sessions. It has been found that greater expertise levels are linked to more effective practice strategies (Jørgensen & Hallam, 2009; Hallam *et al.*, 2012), and the participants observed in the study discussed over the last three chapters used many practice strategies between them, but their planning and goal setting, which has been shown to lead to significant differences in performance achievement (McPherson & Renwick, 2011; Miksza, 2011), were limited. The research questions in this thesis concern themselves with the goals and self-regulatory strategies identified in the practice of musicians, their effect, and whether they are adapted depending on the stage of learning. Based on the research outlined, limited self-regulatory strategies are being used, especially in the forethought area, with a tendency towards reactive, habitual practice, using similar strategies to correct errors across the learning process. Times when strategies were adapted based on the stage of learning were when the participants focused on new goals such as memorisation or character, and the way of working chronologically through a piece was only observably altered in the sessions shortly before the performance recitals of the participants.

The last three chapters have looked in depth at the practice of three violinists working on a variety of repertoire. The study discussed in Chapters 4 and 5 focused on a similar process but following a single piece for each of the two violinists who took part. The in-depth nature of these studies will be examined against the broader questionnaire analysed in Chapter 3 in the following chapter, to assess what conclusions can be drawn from the findings presented in this thesis.

### CHAPTER 9 DISCUSSION GOALS IN PRACTICE

#### 9.1 INTRODUCTION

This thesis examined three research questions based on research into using goals as a motivational technique (Locke & Latham, 1985), self-regulated learning (SRL; Bandura, 1986; Zimmerman, 1989), and self-determination theory (SDT; Deci & Ryan, 1985). This chapter focuses on bringing together the research outlined in the thesis so far and examining the holistic picture of previous literature and data collected in the three studies. Although participant numbers for the studies described in Chapters 3-8 were comparatively low, the in-depth nature of much of the analysis provides a detailed understanding of the processes involved for the individuals examined and adds to knowledge in the areas of practice quality, goal setting, and SRL. By using a wide variety of methods across the studies in this thesis, a comprehensive data set was developed, which has led to a thorough understanding of the participants' practice habits in a way that has not been reported in previous literature.

This chapter initially focuses on the three theories and how the conclusions in previous chapters fit with other research that has been published, as well as examining the links between the theories. Following that, the three research questions outlined in Chapter 1 are reconsidered examining the development of knowledge in relation to them. These were; what goals and self-regulation strategies do musicians use during their practice? How effective are the goals and self-regulation strategies used by musicians during their practice for improving performance skills? And do goals and self-regulation strategies change at different times during individual practice sessions and over the course of the learning process required to take on a new piece of music? And if so how? In the conclusion, the model set out in the first chapter linking the three theoretical perspectives is discussed.

#### 9.2 GOALS

The main theory used in the examination of goals for this thesis was Locke and Latham's (1984) theory that goals could be used as a motivational device. The findings from previous

research into the subject found specific, challenging goals produced better achievement than "do your best" and that personal involvement in goal setting led to more challenging goals being set and higher achievement rates (Latham & Baldes, 1975; Latham, Mitchell & Dossett, 1978). Unclear in these studies was the distinction between increased productivity and actual goal achievement. Some research found that actual goal achievement was no higher, but because the goals set were more challenging, the employees were more productive (Latham, Mitchell & Dossett, 1978).

The goals of musicians as a population have been examined to a limited degree, but findings have shown that higher achievement in practice is related to mastery-approach goals, more strategic, goal-directed practice, and less impulsivity (Miksza, 2009; Miksza, 2011). It has also been found that although conservatoire students understood the goals and strategies required to improve, they did not plan how to implement them (Araújo, 2015). In the third study in this thesis, violinists were asked to rate the required level of time management, technical expertise, practice strategies, self-evaluation, goal setting, and goal achievement required as a professional musician. Interestingly, goal setting and goal achievement were rated as requiring the lowest levels for professional musicians. These were also the only ones in which the violinists rated themselves as achieving as much or more than required for a professional career during the course of the study. The other elements were all rated as requiring a higher level which they had not yet reached. The findings of the diaries completed by the same violinists demonstrated a lack of understanding relating to goal setting and goal achievement with conflict evident relating to actual goal achievement, and frequent inability to accurately plan how long insession goals would take to achieve.

One aim of this thesis was to provide a detailed understanding of the goals conservatoire musicians set and the effect this could have on their practice quality and achievements. The likelihood of achieving intrinsic and extrinsic longer-term goals examined in the survey (Chapter 3) was predicted by the extent to which respondents had internalised the motivation to practice. Examination of the long-term goals of the violinists found that each had a different goal profile, although there were some common aims across participants including getting into an orchestra and completing more performances. They all also had a central intrinsic goal that was deemed most important, although what this was, and when they hoped to achieve it, was different for each violinist. The two violinists examined in Chapter 4 showed no clear path from their mid- to

their long-term goals, and while one placed the most importance on her long-term goals, the other placed the most importance on her mid-term goals, especially as her recital drew closer. In the case of the three violinists in Chapter 7, there was a positive relationship between goal difficulty and importance for two participants, while the third tended to rate easier goals as generally more personally important.

All goals outlined in the long-term goal profiles of both sets of violinists lacked one or more elements of specificity, measurability, deadlines, hierarchy, difficulty rating, and importance rating. This was despite the third study adding in elements requiring ratings of importance, difficulty, connections between goals, and when they wanted to achieve them by. In this instance, the most common specific deadlines were due to external pressures, and although they discussed what they wanted to achieve, often a desired standard was not identified – for instance, the aim to complete their final recital but not stipulating what mark they desired. It is clear that greater specificity in goal setting is likely to benefit goal motivation and achievement as many of the aims seem to have an implied "do your best" standard desired. Based on the required standard in a professional performance career, which was rated by the three violinists in the third study, for goal setting, goal achievement, time management, technical expertise, practice strategies, and self-evaluation, the participants felt most required a high level but only one violinist rated three of the factors at the full 10 (of 10). All other ratings were lower, which suggests the players could quantify the desired standard but clearly did not when assessing their current standard and, more importantly, how to improve and achieve their ideal standard.

Other sections in the thesis examined the in-session goals through the use of a microanalytic protocol enabling an in-depth understanding of the processes that occur during practice. Looking at the five violinists examined in this way some commonalities were evident: in general, practice was driven by implicit, reactive goals that were not outlined in the diary or discussed in the video recall. The goals they set tended to be slightly more specific for pieces with which they were more familiar; however, in general, goals lacked specificity and measurability. All the violinists tended to identify general goals in the diary common across repertoire and stage of learning based on their personal habits, these personal habits varied for each violinist, and data collected for the second study was limited to three occasions for the two violinists focusing on a single piece each.

The third study looked in more depth at the achievement of goals and demonstrated that violinists were rarely able to plan their sessions accurately with goals taking more or less time than anticipated, being achieved to greater or lesser degrees, and often being adapted within the session. The three violinists also had between 17% and 27% of their goals demonstrating a conflict in achievement suggesting that they did not have a clear idea of what standard they desired to achieve.

These findings bring to light that much of the practice in the violinists' sessions was structured around habitual behaviours and reactive based on the mistakes that were made rather than with the aim of completing a predetermined goal. This supports the findings of Araújo (2015) that musicians were not able to implement effectively their strategies to achieve the goals they outlined. Within music practice it is to be expected that sometimes unexpected errors are made when playing, and that these require work that was not expected beforehand; the findings of the current research suggests, however, that many of these elements may be unidentified due to a lack of forethought and consideration, with most players preferring to start practising without setting any goals whatsoever. The conflict in achievement in the third study may support the notion that unclear goals do not promote the highest rate of achievement. It is apparent that the short-term goals themselves do not provide motivation to practice for the violinists generally, as few of them are focal points of practice. The longer-term goals may provide a higher rate of motivation, but as they lack clarity and a clear path for achievement, it is expected that the motivation here would be non-optimal. The findings of these studies have revealed that although many goals that are set are intrinsically important to the individuals in the studies, they are not necessarily of a good quality in other aspects, something that has not been frequently discussed in previous research.

As motivation is a key part of the research in this thesis, the following section focuses on SDT, specifically looking at the extent to which motivation to practice and achieve the short- and long-term goals had been internalised. This is done by examining data collected relating to the support of basic psychological needs (BPN), internalisation of motivation, previous goals that have enthused the violinists to achieve as much as they have already, and the way goals were approached in their practice.

#### **9.3 SELF-DETERMINATION THEORY**

SDT is a theory of human motivation that suggests that, by supporting BPN of autonomy, competence, and relatedness connected with a certain action, the motivation to complete that action will be internalised and perceived as personally important to an individual (Deci & Ryan, 1985). The research presented in this thesis was chiefly concerned with two of the mini-theories encompassed within the meta theory: Cognitive Evaluation Theory which deals with intrinsic motivation and social factors that explain the differences between people; and Organismic Integration Theory focusing on properties, determinants, and consequences of extrinsic motivation.

Previous research has shown that striving for mastery goals is associated with intrinsic interest in a task (Ames, 1992) and that intrinsic motivation to complete an action is connected to higher achievement (Evans & McPherson, 2014). The survey data (Chapter 3) found that perceived support of BPN in relation to practice positively correlated with the internalisation of motivation to practice, supporting the findings of previous research that students who perceived their needs were met had more autonomous motivation to practice (Evans & Bonneville-Roussy, 2015). The same research also showed positive correlations between current goal attainment and internalisation of motivation to practice, suggesting higher perceived goal achievement affects the motivation to complete future goals.

Considering the data collected from the five violinists, it is evident that one common motivator for choosing a performing career was that they all started very young and as teenagers, played in a youth orchestra which they felt was at a high standard. In the third study the violinists tended to rate their long-term goals as between somewhat important and very important with 5 (of 10) being the lowest rating. This suggests that, at least to some extent, goals were assimilated to the self even if set by an external body. The three violinists in this study did, however, show clearly that external pressures affected how they practised with some discussion of a lack of commitment to a goal set by a teacher that was not perceived as necessary, and all adjusted their practice in the session shortly before their performance.

The two violinists who had been injured pushed themselves to practise until they felt fatigued, suggesting at that time their goal to complete their recital was more important than their goal to look after their physical health. As previously student musicians have reported

higher pain levels than other students in tertiary education in (Kreutz *et al.*, 2008b; Ginsborg *et al.*, 2009), it is concerning that the violinists in this study were prioritising their recital results over their physical wellbeing.

Of interest to the current research is the connection between theories as outlined in Figure 9.1. The stipulation that goals should be achievable yet challenging (Locke & Latham, 1984) fits with research into SDT which has found more challenging goals are set when BPN are met with support of the need for competence, enabling individuals to feel a goal is achievable (Standage, Duda & Ntoumanis, 2005; Evans, 2015). The finding that goals set in conjunction with employees produced a higher challenge level and greater performance (Latham, Mitchell & Dossett, 1978) is also akin to the need for autonomy in SDT suggesting that self-set, intrinsic goals are likely to have more effort exerted to achieve them (Ryan & Deci, 2000a). Research presented in this thesis has suggested that the goals outlined for in-session and longer-term are lacking in achievability due to a deficiency in understanding of how a goal may be achieved. To examine this more fully it is pertinent to examine other aspects of self-regulated learning (SRL) looking at the performance of practice and self-reflective activities that are undertaken and how this may provide a greater understanding of the phenomenon.

#### 9.4 SELF-REGULATED LEARNING

Research into SRL has found many different strategy types which have been categorised as rehearsal, elaboration, organisational, critical thinking, evaluation, conduct, goal setting, environmental structuring, and seeking help strategies among others (Zimmerman, 1989; Nielsen, 2002; Jørgensen & Hallam, 2005). These strategies fall under the three identified types of self-regulation (covert, behavioural, and environmental) or within the phases of forethought, performance, or self-reflection (Zimmerman, 1989). One supposition presented is that knowing how one is doing without the presence of a goal and adopting a goal without knowing how one is doing, have no lasting motivational impact as the goal and feedback are key for the support of durable motivation (Bandura, 2001). This was based on research that found increased performances in groups receiving goals and feedback on tasks, over those in goal-only, feedback-only, or control conditions (Bandura & Cervone, 1983).

In relation to music practice, it has been found that using a wider variety of SRL strategies has led to faster improvement in the performance of pieces (Renwick & McPherson, 2002;

Bathgate *et al.*, 2012), but students sometimes reported using a greater variety of strategies than were observable (Pike, 2017). Musicians achieved better performances when they were identified as being able to identify and handle errors accurately (Duke *et al.*, 2009), but students at an advanced level were found to lack flexibility in adapting their practice when it was not going well (Pike, 2017). In research by Miksza, secondary students tended to rate their practice efficiency higher than college students (Miksza, 2007; Miksza, 2011), suggesting that the more advanced students felt they were practising less effectively than their younger counterparts.

For the violinists in the present research, practice sessions in the two micro-analytic studies were rated as moderately to highly effective with some exceptions. From the higher quantity of data gathered in the second study, it was clear that Beth and Elle both felt their practice was fairly standard in terms of its effectiveness, whereas Will reported more frequent lower ratings, and felt he lacked knowledge of practice strategies which limited his practice quality. A lot of the practice observed appeared formulaic and reactive based on error identification and correction. This slightly altered with more familiar pieces encouraging proactive approaches; however, this tended to be for short periods focused at the beginning of a practice segment, after which practice reverted to reacting to mistakes. In the second study, Rebecca changed her practice habits after the first session, and subsequent observations demonstrated a much more proactive approach to practice, more so than all other violinists observed. Although the students tended to practise in the same way in each session, there was variety between subjects with some generally playing through longer sections, some warming up at the beginning of a session, and some completing run-throughs at the end of their practice.

The makeup of the practice sessions observed was similar with the majority of practice time spent playing, up to 27% not playing, and little time spent annotating music (although this was much higher when looking at new repertoire). There were odd occasions which demonstrated radically altered practice, such as Elle listening to a recording of her lesson for half a session, and Rebecca choosing to stop after 27 minutes; however, there was also stunningly similar practice displayed, such as Laura's first and last observed sessions in which the SYMP graph developed was similar for both sessions (see Section 5.3.2). It is to be expected that after more than ten years of practising certain habits become ingrained and processes automatic, it is also understandable that mistakes made are going to prompt reactive practice. The habitual approach apparent in the violinists observed in this thesis, however, seems ineffective,

especially actions such as playing through early in a session to find areas requiring work when attempting to improve well-known repertoire.

Session planning for the violinists was weak; this was especially noticeable in the third study, with Beth and Elle frequently adjusting their goals in-session and not taking the time they had planned when attempting to achieve a goal. In the case of Will, although he followed the timings he set more accurately, he frequently did not achieve as much as he thought he would when striving for his goals. This was also represented within the sessions themselves as all three violinists said they often did not know how they wanted their music to sound before they played it, indicating a tendency to play and then analyse without consideration of what they wanted beforehand.

This ties in with findings from the third study in which violinists were asked what their successes and failures had been as violinists. There were few successes detailed, and these tended to be of high importance, such as getting into a conservatoire, whereas mistakes were more numerous in their reporting, and for less important events such as lower marks than desired in exams and memory slips. This, alongside the fact that practice was predominantly mistake driven, suggests music practice and achievements are more commonly examined from the negative viewpoint, constantly striving to improve but not necessarily acknowledging successes and understanding how to reach the level desired. Research into perfectionism has shown some aspects of striving for perfection were associated with more intrinsic motivation and higher effort and achievement. The same research, however, also found negative reactions to imperfection associated with extrinsic motivation and higher distress, suggesting that negative views of imperfections identified were unhealthy (Stoeber & Eismann, 2007). The high levels of criticism violinists focused on themselves may not lead to healthy perfectionistic striving.

Having looked at the SRL processes related to the forethought, performance, self-reflection cycle it is important to also examine the covert, behavioural, and environmental forms of regulation that were apparent in the studies of this thesis. For all violinists in the micro-analytic studies, the dominant focus was on behavioural regulation with some violinists considering their affect to a limited extent. Unsurprisingly, environmental regulation was rarely discussed as sessions were conducted in spaces that were familiar to the violinists and suited the purpose.

Affective regulation was discussed more by Rebecca who changed her sessions based on how she felt including cutting the last one short as she was not focusing well. The diary data collected as part of the third study showed the violinists had correlations between different elements of their affect and the effectiveness of practice although there was no commonality between them indicating that the link between perceived affective states and effectiveness is dependent upon the individual.

Previous research has shown more varied use of practices strategies is associated with greater achievement (Renwick & McPherson, 2002; Bathgate *et al.*, 2012; Peynircioglu *et al.*, 2014); however, the observed violinists did not demonstrate individually a large range of strategy use, tending to employ similar strategies across their sessions, and one commenting that he felt his practice was limited as he did not know enough strategies. The limited strategies discussed and observed, with little strategy adaptation across sessions, supports the findings of previous research into a younger population of musicians demonstrating a lack of flexibility and understanding of strategies (Pike, 2014). Effectiveness of strategies has been shown to increase with expertise (Jørgensen & Hallam, 2009), and it may be that the strategies used are perceived as effective in producing improvement, regardless of the repertoire and stage of learning. It also may be that, although the strategies outlined are similar, their implementation within a session varies with the stage of learning or repertoire, something which was not examined in detail for this thesis.

Much of the practice was viewed to be focused and directed at improvement as discussed by the violinists in the studies. It is clear that a wide variety of strategies are known about in general even though in practice violinists chose a limited range to use. The current research has suggested that there are still improvements that can be made by encouraging more awareness of practice content, quality, and aims as well as an understanding of personal affect and how it may influence practice attainment. This could lead to higher levels of SRL and improve the productivity of practice sessions.

#### 9.5 RESEARCH QUESTIONS

Having examined the findings in this thesis in relation to the three key theories the following section focuses on the three research questions stipulated at the end of the first chapter

focusing on the goals and self-regulation of musicians, their effectiveness, and their changeability. Each question is examined individually based on the data collected.

#### 9.5.1 What goals and self-regulation strategies do musicians use during their practice?

A wide variety of strategies were demonstrated across the violinists, although each tended to predominantly use only a few regularly, with the odd addition on occasion. Most strategies were concerned with behavioural regulation with limited focus on affective regulation and almost no use of environmental regulation. There were few strategies concerned with the forethought phase of the cycle with the most effort put into the performance phase and some focused on the self-reflection. Strategies exhibited within sessions were more often reactive than proactive.

The in-session goals set were limited in quality tending to be general and non-specific, often the drive of practice was aimed at inherent undisclosed goals. Outlined goals were often not used to structure or focus the practice sessions and were frequently adapted within the session in favour of correcting in-the-moment errors. The long-term goals set were generally intrinsic but lacked a clear structure, and participants frequently identified being unsure if or how they would achieve their goals. Consideration of these goals within a practice session tended only to appear when striving for an extrinsic goal such as a performance, and as such the intrinsic aims did not clearly support the practice in terms of providing an aim, structure, or motivation in-themoment.

## 9.5.2 How effective are the goals and self-regulation strategies used by musicians during their practice for improving performance skills?

None of the studies in the thesis included a measure for objective achievement, instead focusing on personal ratings of those examined. Violinists in the micro-analytic studies tended to either be pleased with the progress they made, feeling they had achieved as much as they could, or dissatisfied and felt they could have achieved more on a better day. In terms of strategies, a lack of planning meant that a portion of time in the practice session was spent identifying errors requiring work, given at the end of each session violinists discussed having certain areas still requiring work this would suggest this time was not necessary and so practice time was not optimally used.

There was much conflict in the achievement of goals with many goals in the diary study (Chapter 6) being marked as both achieved and not achieved. This suggests that goals are not being used effectively to provide clear aims and feedback allowing optimal improvement. The scope of the research carried out was limited in time and so a more in-depth analysis of long-term goals and their effect on achievement was not possible to assess, what was found was that current achievement of goals was linked to more intrinsic motivation and that, in turn, more intrinsic motivation correlated with a higher likelihood of achieving goals.

# 9.5.3 Do goals and self-regulation strategies change at different times during individual practice sessions and over the course of the learning process required to take on a new piece of music? And if so how?

Goals became slightly more specific through the learning process and in some cases the relative importance of longer-term goals changed based on the proximity of performances or other aims. Within the practice session, it was common for some violinists to adapt their goals, usually because they were not clear beforehand what they wanted to achieve and so used some of the session to identify where improvements were necessary.

Habitual practice dictated that often the strategies used were similar throughout the learning process and across a variety of repertoire with limited adaptions based on the style or familiarity of a piece. Certain violinists showed a higher propensity for adapting their strategies depending on their stage of learning but this was not common across the population. Pieces requiring a specific technique tended to have a greater variety of strategies to account for the infrequent requirements and, although similar strategies were outlined, earlier in the learning process, familiarisation was often the goal with expression coming later in the process. Aims of practice were more focused on maintenance and tidying shortly before performances, however, this appeared to be mostly due to the external performance pressure rather than the familiarity of a piece.

#### 9.6 LIMITATIONS

Although the goals and SRL strategies identified by the violinists in the second and third studies were in line with those identified in other literature (Chaffin & Logan, 2006; Ginsborg *et al.*, 2006; Chaffin *et al.*, 2010; McPherson *et al.*, 2017), the practice of only eight violinists in total was considered in the studies and, although they have all achieved a high standard, their

practice is not necessarily of good quality compared with their peers. The lack of a measure to assess the violinists comparative standard meant that all judgments of improvement in ability were assessed based on the violinists' opinions which are likely to be biased. Although this was done based on the theories the research was grounded in, it would be of use for future research to also take this factor into account. The violinists were also observed on only three or four occasions over the course of the data collection, either focusing on a single piece or a variety of pieces, so reliable conclusions cannot be drawn about their practice in general or how they approach different repertoire or stages of learning. The questionnaire had only a small number of respondents and so to increase the reliability of the data collected it would be important to increase the number of participants before findings could be generalised.

Overall the studies in this thesis sought to examine a complicated model combining three theories and based around the premise that people are individuals and so will be more effective in different situations. To examine this in detail and generate generalisable conclusions will necessarily take more than the content of a thesis permits, and although it is based on a strong theoretical backing of previous research, the practice of musicians still requires a lot more study to develop a complete understanding of how it works and what practises are most effective.

#### 9.7 IMPLICATIONS FOR FUTURE RESEARCH

Future research could benefit from identifying a clearer quantification of achievement, while still linking to the individual's perceptions. Evidence collected in the studies suggested violinists felt they were capable of identifying the extent to which they wanted or expected to achieve goals but also showed an inability to recognise whether or not they had achieved them during their practice. One possibility to clarify the effectiveness of strategies and goals would be to conduct more controlled research where musicians are asked to complete goals and strategies designed by the researcher. This would enable variables to be more controlled than they were in the studies of this thesis, as the motivational quality would not need to be assessed in the same manner. The in-depth examination of practice identified that violinists reacted to inherent aims that were not outlined explicitly in the diaries or in the video-recall procedures. It would be of interest to look at whether automatic processes are beneficial in that they save time in the forethought stages of SRL, or whether they encourage inefficient strategies to be used out of habit in the performance phase and make the learning process to take longer than necessary.

In order to assess whether the findings in this thesis are generalisable to a wider community of musicians examining a larger number of participants and a greater range of instruments would be beneficial. It would also be of interest to consider the differences between younger musicians, conservatoire students, and professional musicians to examine whether goals and self-regulational strategies affect commitment and expertise at different stages of learning. More specifically, examining whether the use of higher quality goals and SRL strategies leads to greater performance achievements at all levels of playing.

#### 9.8 APPLICATIONS FOR TEACHING AND LEARNING

In order to improve students' use of practice time teachers could benefit from advising their students to take more time to plan their sessions before starting them and encourage the creation of specific, achievable goals. Some participants indicated that they were unsure of how to practice well and felt that their teachers had not explained this to them. Although teachers in previous research have indicated that they think they are discussing practice strategies, one method to ensure effective communication would be through demonstration of them in the one-to-one lessons, taking the time at the beginning of a lesson to discuss the aims for the lesson and encouraging the student to discuss what they feel requires work and how they could approach it. The SRL practice diaries were identified as being useful by all the violinists studied in the thesis so teachers and students developing a practice diary that suits the personal motivation and regulation of the student could be beneficial in directing practice towards desirable areas.

A key thing that did come up in the research was consideration of students' readiness to change their behaviour. Two of the violinists were at a point where they wanted to adapt their practice behaviours to improve them, two others had sustained injuries and were desirous of being able to return to their previous playing regime. Although this does not directly provide an actionable plan for teachers to follow, it is worth considering how to approach suggested changes in practice habits based on how ready individuals are to change their behaviours. It may be that those who are enthusiastic to adapt and learn new techniques can have meaningful discussions with their teachers about the different options and be encouraged to try them out, while those at a stage where they are less willing to change need to have more time discussing potential options and how they could be of benefit rather than being pushed to change something in a way they consider to be undesirable and to therefore have a negative reaction.

#### 9.9 CONCLUSIONS

As conservatoire students, the participants in the studies presented in this thesis have already achieved a very high standard of playing and much of that is due to their practice and commitment to becoming professional musicians. The research was completed with the understanding that, despite this level of work and commitment, musicians were not commonly practising in the most efficient way they could, and that by improving this, it would enable higher levels of achievement accompanied by less time spent playing, reducing the risk of instrumentrelated injuries and increasing the amount of time that could be used to further other aspects of the individual's life.

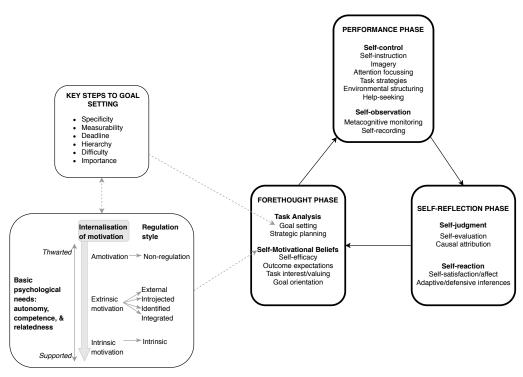


Figure 9.1 Model of the relationship between SRL, SDT, and goal setting.

The model proposed in Chapter 1 (figure 9.1) combined the three main theories focused on throughout this research using the key steps to goal setting and SDT to inform SRL. From the research conducted it is clear that the use of goal setting is limited in quality for both short- and long-term aims. This would suggest a less than ideal set up for continuing the SRL process. Clear short-term goals would provide a means of organising a practice session efficiently and evaluating progress after. Specific long-term goals would aid an understanding of the desired

outcome and the steps required to achieve it. Research identified in the literature review tended to focus on SRL, SDT, or goal setting, with very few examining a combination of two elements, and none looking at all three. As was identified in Chapter 1, the goals of musicians are rarely specified beyond mastery/learning and performance (Harackiewicz *et al.*, 2000; McPherson, 2009), intrinsic and extrinsic (Evans, 2015; Evans & Bonneville-Roussy, 2015), or approach and avoidance (Elliot & McGregor, 2001; Miksza, 2009). This thesis added in the element of examining goals using a method that provided more in-depth information than those used previously and that has not been considered before.

In the model, the link between goals and SDT was suggested to be bidirectional with the goals set influencing the motivation to complete them as well as motivation influencing the goals that are set. Research has found that goals enhance motivation in some settings (Locke & Latham, 1984; Vidic & Burton, 2010) and that the type of motivation affects the effort put into goals, with intrinsic motivation encouraging higher levels of effort and achievement than extrinsic motivation (Evans & McPherson, 2014; Evans & Bonneville-Roussy, 2015). Further to this, increases in productivity have been found when people are involved in their own goal setting feeding into the BPN for autonomy (Zukerman et al., 1978; Stone, Deci & Ryan, 2009; Gómez-Miñambres, 2012), and setting achievable yet challenging goals, shown to be more effective than "do your best" goals, could support the BPN for competence should they be completed (Locke, 1968; Latham & Baldes, 1975). It is also likely that feelings of competence will lead to more challenging goals being set and that, if an individual feels their BPN are supported relating to the area requiring improvement, they are likely to put more effort into achieving a goal and increase the chance that they will do so. This was supported in the research finding that respondents who had higher internalisation of motivation also felt it more likely that they would achieve their long-term goals (Chapter 3).

SDT is a theory of human motivation and, as such, it is supposed that the main link to SRL is also in the forethought section of self-regulation under self-motivational beliefs. The goal orientation is usually viewed as intrinsic or extrinsic in relation to SRL, and so SDT allows a much greater understanding of that dichotomy. There are also links between other items such as self-efficacy and outcome expectations relating to competence. Task interest and value is likely to be associated with the extent to which the motivation to complete it has been internalised.

The forethought stage of the self-regulation cycle has been the predominant focus as it was the belief before conducting the research that high-quality planning would enable more effective performance and self-reflection. There was also a lack of in-depth research to understand the phenomenon clearly in musicians, leading to the three studies completed for this thesis. Findings have shown a lack of planning and effective goal setting with the performance phase predominantly being reactive for most violinists examined, tying in with previous research finding that students do not necessarily adopt effective practice strategies (Austin & Berg, 2006; Miksza, 2006; Nielsen, 1999, 2001), and reactive practice is exhibited by musicians (McPherson *et al.*, 2019). In relation to the goals set, comments often indicated a lack of clarity about how to achieve in-session goals or whether they were achievable at all, some violinists even felt they did not know how to practise well. This fits with much research on musician's learning processes with learning strategies not remembered, generalised poorly, or not used proactively (Pressley & McCormick, 1995), and although teachers believe they are teaching practice skills (Barry & McArthur, 1994) students reported not being taught to any great extent (Jørgensen, 2000; Schatt, 2011).

Focus during the practice sessions has been found to be dominated by behavioural regulation (Santos & Gerling, 2011) which was certainly the case in the studies presented here, although a lack of forward planning was evident, with frequent comments suggesting a lack of awareness of what a piece should sound like before playing. This fits with research into a younger population of musicians which found young musicians were not aware how music should sound when they were practising it, and that the majority of those observed did not always know what to do when they practised or encountered difficulties (Pike, 2017). In terms of the self-reflection phase of the cycle, it is clear that musicians often quantify their practice based on the length of time they have been playing or would like to play for, despite this previously being shown not to relate to achievement, let alone produce positive improvements relating to deliberate practice (Ericsson *et al.*, 1993; Pike, 2017). With higher achievement being shown to link with practising in a strategic, goal-directed manner (McPherson & Renwick, 2011; Miksza, 2011) it would suggest that a more appropriate way of practising would be to focus on achievement of aims over time spent.

Considering this possibility, further consideration is required linking to the willingness to implement behaviour change. Practice time is an easily understood, frequently encouraged measure, and as such, it would require a large shift in the conceptualisation of practice to encourage the population of musicians to change their viewpoint and adapt to a system in which goals were central to practice achievement. Two of the violinists observed had sustained injuries in the course of playing, admitted their new practice regime was more efficient as they were not able to practice as much, and yet they still desired to be able to practise in the way they did before sustaining an injury. Partly the motivation may be due to not being able to play the violin the way they used to, and it may, in part, be the tacit external expectation to practise for a certain length of time in the conservatoire environment they were in. The severity of the injuries sustained was not enough to motivate lasting change with both violinists overstraining to practise more intensely before performances and causing themselves pain or fatigue in the process.

Two other violinists, however, did demonstrate a readiness to change practice habits, with Rebecca completely altering the profile of her practice after the first session. Both Rebecca and Elle started a practice diary of their own, using it to track specific segments requiring improvement in their pieces, as well as more general aims for their repertoire (see Appendices D & J). Both violinists were completing a postgraduate degree, and when discussing their use of a diary the common feature was that they felt they were becoming more, or entirely, independent in their practice and were no longer able to rely on teachers identifying points for improvement. Both felt they did not understand how to practise well and had not been taught but found the use of the diary helpful in the first observed session and so took it up, adapting it to suit their purposes. All five observed violinists said the diary helped them to focus their practice however only two took it upon themselves to create one of their own, suggesting a motive force compelling them to do so that was not present in the other players.

To return to the equation quoted in the introduction: "If in circumstance C and state S, then behaviour B has outcome O with probability  $\rho$ " (Seligman *et al.*, 2013). Focusing on the circumstance of a practice session with a desired outcome determined by a particular goal, it suggests that the behaviours and state of an individual affect the probability of successful achievement. Studies have found that increases in expertise are linked to more effective strategy understanding and use (Araújo, 2015; Jørgensen & Hallam, 2009), and so their

behaviours may increase the likelihood of attainment, but musicians sometimes do not consider the state (Santos & Gerling, 2011), including their affect and preparation, suggesting a lower probability of successful completion. Considering there is also research demonstrating advanced music students often do not adopt effective strategies (Austin & Berg, 2006; Miksza, 2006; Nielsen, 1999; 2001), this lowers the probability further.

This being the case, it is important to understand in more detail how advanced students' progress into professional careers and what could be suggested to aid them on this journey. Although findings in this thesis were based on in-depth research, only a small cohort was studied and to see if the results are generalisable across the wider population of musicians, further research would be beneficial examining a larger number and focusing on a wider variety of instruments. It is hoped that the ever-increasing body of literature around this topic, augmented by the contents of this thesis, will lead to an understanding of practice that will enable musicians to understand how to practise effectively, enable them to reach a higher standard in less playing time, and decrease risks of instrument-related injury.

Studies into the health of musicians have found over a third of surveyed students reported experiencing injuries before attending a conservatoire that left them unable to practise for at least three months (Kreutz, Ginsborg & Williamon, 2008b), and that musicians reported more sites of pain and severity of pain in the spine and parts of both arms and hands than other students of a similar age (Ginsborg *et al.*, 2009). As two of the five observed violinists had experienced severe injuries before attending the conservatoire it is of concern that more is not being done to examine and pre-emptively teach practice strategies that will help avoid such injuries. The research in this thesis has highlighted one possible approach to continue developing applicable knowledge that can help musicians avoid pain while maintaining a high level of progress. This would be to encourage instrumentalists of all ages to consider how they practice based on what it is that they want to achieve and to take time to consider the best methods they could use to do so without putting undue strain on the body.

The research contained within this thesis has considered the goals, self-regulation, and motivation of conservatoire music students through a unique model that has not been previously considered. Use of a combination of the three theories has increased collective understanding of conservatoire musicians' practice quality and motivation and the methods used to collect data

were unique with micro-analysis of violinists' practice focusing on SRL components combining self-regulated practice diaries, video-recorded practice sessions, video-recall procedures, and interviews to provide a depth of information focusing on individual practice sessions and the background of the violinists. The in-depth analysis of practice demonstrated that it tended to be conducted in a habitual way, independent of stage of learning and repertoire. Although other research has suggested this in the past, the SYMP analysis of the practice sessions, combined with the video-recall procedure, allowed for the consideration not only of what was happening in the session, but also how the violinists viewed what they were doing and how it worked. As discussed in the literature review, the goals of musicians have not previously been examined in detail with research tending to take a dichotomous view of goals such as performance or mastery, or intrinsic or extrinsic. The research within this thesis has gone some way towards enhancing our knowledge of goals by using six elements to analyse goals and considering how they could affect the learning process. It is hoped that future research can build on this, alongside research completed previously, in order to further our understanding of practice and find the healthiest ways in which to approach it.

It seems that musicians are imperfect seekers of unattainable perfection. In this context, there is still much to be done in order to understand how best to improve efficiency while maintaining a high quality of motivation. Goals are a potential link between these factors providing a structure to drive effortful behaviour efficiently and ensure that strivings are directed towards intrinsic ultimate aims.

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# **APPENDIX A: STUDY 1 OMP SURVEY**

#### Research project title

Goals in Practice

#### Invitation paragraph

You are being invited to take part in a research project. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. If there is anything that is not clear or if you would like more information please ask me. Take time as much time as you require deciding whether or not you wish to take part.

#### What is the purpose of the project?

The project looks into the practice habits of classical musicians, focusing on the way in which they use goals and strategies to direct their practice.

#### Why have I been chosen?

All tertiary level students studying a performance course and professional players are invited to take part in the questionnaire that is distributed. In addition to this violinists are invited to take part in a further phase of data collection examining their practice habits.

#### Do I have to take part?

It is up to you to decide whether or not to take part. Refusal to take part will involve no penalty or loss of benefits to which you are otherwise entitled. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time, without penalty or loss of benefits, and without giving a reason.

#### What will happen to me if I take part?

This project will be investigated by means of an online questionnaire distributed to student and professional classical musicians.

#### What are the possible disadvantages and risks of taking part?

It is not expected that there will be any discomfort or disadvantages as a result of taking part in this study. If, however, any unexpectedly occur then these will be brought to your attention at the earliest opportunity.

#### What are the possible benefits of taking part?

For those completing only the questionnaire there are no immediate benefits, however it is hoped that this project will lead to greater understanding of the practice environment and how to make practice more efficient. Violinists who take part in the second phase of data collection will get to have a practice sessions videoed and watch it back in great detail enabling you to get instant feedback about your practice strategies and their effectiveness.

#### What happens if the study has to be terminated?

If for any reason the study has to be terminated then an explanation will be available for all who have taken part.

#### Will my taking part in this project be kept confidential?

All information collected about you during the course of the research will be kept strictly confidential. Any information about you that is disseminated will have your name and address removed so that you cannot be identified by it.

#### What happens immediately after data collection?

Following data collection you will be fully debriefed and provided with any further information that you would like to know concerning the study.

#### What will happen to the results of the research project?

The data will be presented in a PhD thesis, national and international conferences and may be published in academic journals. All information about participants will remain anonymous. Collected data may be used for additional or subsequent research. If you are interested in the results of the research please contact me for further information (see below).

#### Who has reviewed the project?

This project has been reviewed by my supervisory team and members of the CUK Research Ethics Committee (CUK REC).

#### Contact for further information

For further information, please contact:

Katharine TaylorEmail: kate.taylor@rcm.ac.uk

### Thank you for agreeing to take part in this project!

Allow the School of Music to share your grades?									
	The researchers may access my music performance examination grades from the School of Music (optional)								
Please provid	le your CUK	Student ID.							
Student ID									
How to comp	plete this su	rvey							
Most items as	sk you to rate	e from 1 to 7							
1 means you	do not agre	e with the s	tatement at a	all.					
7 means you	strongly ag	ree with the	statement.						
Got it!									
Why do you s	tudy music a	at a conserv	atoire?						
(1 = strongly disag	ree; 7 = strongly a	agree)							
1	2	3	4	5	6	7			
Because I will	feel ashamed	of myself if I	didn't study m	usic					
Because I war	t to become a	better music	ian						
Because being	g a music stud	ent will help r	ne increase m	y skills					

Because my parents, teachers, or peers expect me to be a music student

1	2	3	4	5	6	7
Because it is imp	ortant to my fu	iture		<u> </u>	<u> </u>	<u> </u>
Because I am su	posed to be a	a music studen	t			
Because I will fee	l bad or guilty	for not being a	music stude	nt		
Because it is fun	to be a music	student	_	_	_	_
Because being a	music student	t is interesting				
Because I enjoy b	being a music	student				
Because being a	music student	will be useful	for me			
Because I want p	eople to think	I'm good at mu	isic			
Because I love be	eing a music s	tudent				
So I can show off	if I do well					
Because I have n	o other choice	e than to be a r	nusic student		_	
Because I have to	be a music s	tudent				
Think about you	rself as a mu	usic student a	and rate you	rself on the f	following sca	les:
(1 = strongly disagree			-			
1	2	3	4	5	6	7
I am able to think	through a nur	nber of possibl	e options to a	assist me in a	new situation	
I am able to revis	e the way I thi	nk about a nev	v situation to	help me through	gh it	

1	2	3	4	5	6	7
I am able to ad	just my thinkin	g or expectati	ons to assis	t me in a new s	ituation if ne	cessary
I am able to se with new situat		ormation, help	ful people,	or useful resour	ces to effecti	vely deal
In uncertain sit way of asking o				of going about me through	things (e.g.,	a different
To assist me in	a new situatio	n, I am able to	change th	e way I do thing	s if necessa	Ŋ
I am able to rec	duce negative	emotions (e.g	., fear) to he	elp me deal with	uncertain si	tuations
When uncertain	nty arises, I an	able to minin	nise frustrat	ion or irritation	so I can deal	with it best
To help me thro enjoyment, sat		tions, I am ab	le to draw o	on positive feelin	ngs and emo	tions (e.g.,
		$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$
As a music stu	udont					
(1 = strongly disagr		aree)				
(**************************************		<u>.</u>				
1	2	3	4	5	6	7
I feel a sense o	of choice and fr	reedom in the	things I und	lertake		
I feel that my d	ecisions reflec	t what I really	want			
I feel my choice	es express who	o I really am				
I feel I have be	en doing what	really interest	s me			
Most of the thir	ngs I do feel lik	e "I have to"	$\frown$	$\frown$	$\frown$	$\frown$
I feel forced to	do many thing	s I wouldn't ch	noose to do			
I feel pressured	d to do too mar	ny things				

1	2	3	4	5	6	7
My daily activitie	s feel like a cha	ain of obligatio	ns			
I feel that the pe	ople I care abo	ut also care ab	out me			
I feel connected	with people wh	to care for me,	and for whon	n I care		
I feel close and o	connected with	other people v	who are impor	tant to me		
I experience a w	arm feeling wit	h the people I	spend time wi	ith		
I feel excluded fr	om the group I	want to belong	g to			
I feel that people	who are impor	rtant to me are	cold and dist	ant towards m	ne	
I have the impres	ssion that peop	le I spend time	e with dislike r	ne	<u> </u>	
I feel the relation	ships I have ar	e just superfic	ial			
I feel confident th	nat I can do thir	ngs well				
I feel capable at	what I do				<u> </u>	
I feel competent	to achieve my	goals		<u> </u>	<u> </u>	
I feel I can succe	essfully comple	te difficult task	s			
I have serious do	oubts about wh	ether I can do	things well	<u> </u>	<u> </u>	
I feel disappointe	ed with many of	f my performar	nces	_		
I feel insecure al	oout my abilitie	S				

1	2	3	4	5	6	7
l feel like a fail	ure because (	of the mistake	es I make			
Think about y	our current	instrumenta	l or vocal tea	acher.		
(1 = strongly disagr						
1	2	3	4	5	6	7
l get along wel	_		4	5	0	'
					$\square$	$\square$
My teacher rea	Illy listens to y	what I have to	) sav	$\bigcirc$	$\bigcirc$	$\bigcirc$
					$\square$	$\square$
My teacher is i	nterested in r	ne	$\bigcirc$	$\bigcirc$	$\cup$	$\bigcirc$
				$\square$	$\square$	$\square$
My teacher giv	es me the he		rtIneed	$\bigcirc$	$\bigcirc$	$\bigcirc$
				$\square$	$\square$	$\square$
	$\bigcup$	$\bigcup$	$\bigcup$	$\cup$	$\bigcup$	$\bigcup$
During my les	sons with m	iy instrumer	ntal/vocal tea	acher:		
(1 = strongly disagr	ee; 7 = strongly	agree)				
1	2	3	4	5	6	7
l let my teache	r know what l	need and wa	ant			
l express my p	references ar	nd opinions				
When I need s	omething dur	ing lessons, l	'll ask the tea	cher for it		
I ask questions	to help me le	earn				
I let me teache	r know what	am intereste	ed in			

What mark do you think you will get at the end of the term on your performance examination?

Please enter a mark from 0 to 100

This set of items is about why you practise on your instrument or voice.

The main reason I practise is:

(1 = strongly disagree; 7 = strongly agree)

1	2	3	4	5	6	7
Because I enjoy	practicing					
Because I love p	racticing	<u> </u>				
Because it is fun	to practice					
Because practice	is interesting	_	_	_	_	
Because practici	ng will help me	increase my	skills	_	_	
Because practicin	ng is useful for	me				
Because I want to	o become a be	tter musician				
Because practice	e is important to	my future				
Because I want p	eople to think l	'm good at m	usic			
So I can show of	f if I do well					
Because I will fee	el bad or guilty	if I don't pract	ice			
Because I will fee	el ashamed of r	nyself if I don	't practice			
Because I have r	no other choice	but to practic	e	_	_	
Because my pare	ents, teachers,	or peers expe	ect me to prac	tice	_	
						$\bigcirc$

1	2	3	4	5	6	7		
Because I am supposed to practice								
Because I have to practice								

How long (in minutes) did you practice yesterday?

#### Examples:

- If you practiced for 1.5 hours, enter 90.
- If you did not practice at all, enter 0.

Please rate your practice yesterday on the following items:

(1 = strongly disagree; 7 = strongly agree)

1	2	3	4	5	6	7
l enjoyed my p	oractice					
During my pra	ctice, I felt g	ood				
I felt interested	d during my	oractice				
I stayed focus	ed the whole	e time				
I practised as	much as I ha	ad planned				
I eliminated dis	stractions be	fore I started pr	actising			
I thought about	t the effectiv	eness of my str	ategies			
I thought about	t different wa	ays to help me i	mprove			
I made progre	ss during my	/ practice				

1	2	3	4	5	6	7		
I used tools (e.	.g., metronon	ne) to help me	during my pra	actice				
The main point of my practice was to improve performance								

How long (in minutes) did you practice the day before yesterday?

#### Examples:

- If you practiced for 1.5 hours, enter 90.
- If you did not practice at all, enter 0.

Rate your practice the day before yesterday on the following items:

(1 = strongly disagree; 7 = strongly agree)

1	2	3	4	5	6	7
l enjoyed my p	oractice					
During my pra	ctice, I felt g	bod				
I felt interested	d during my p	oractice				
I stayed focus	ed the whole	time				
I practised as	much as I ha	ad planned				
I eliminated dis	stractions be	fore I started p	ractising			
I thought about	t the effectiv	eness of my str	rategies			
I thought about	it different wa	ays to help me	improve			
I made progre	ss during my	practice				

1	2	3	4	5	6	7		
I used tools (e.	.g., metronon	ne) to help me	during my pr	actice				
The main point of my practice was to improve performance								

Please select your gender

Female

Male

Other

Do not wish to say

How many full terms have you completed of conservatoire study in music? (e.g., if this is your first term, enter 0)

How many years have you had formal music lessons? (i.e., regular lessons with a teacher on your instrument or voice)

Which day is it today?

Sunday

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

#### What instrument do you play?

What is your date of birth?

(dd/mm/yyyy)

#### **Aspirations Index**

Everyone has long-term Goals or Aspirations. These are the things that individuals hope to accomplish over the course of their lives. In this section, you will find a number of life goals, presented one at a time, and we ask you three questions about each goal. (a) How important is this goal to you? (b) How likely is it that you will attain this goal in your future? and (c) How much have you already achieved this goal thus far? Please use the following scale in answering each of the three questions about each life goal.

Life-goal: To (1 = not at all; 7 =	-	usic with any	audience.						
1	2	3	4	5	6	7			
How importar	How <i>important</i> is this to you?								
How likely is i	it that this will	happen in you	r future?						
How much ha	ave you alread	<i>ly attained</i> this	goal?						
Life-goal: To (1 = not at all; 7 =	-	large audiend	ces.						
1	2	3	4	5	6	7			
How importar	nt is this to yo	u?							
How likely is i	it that this will	happen in you	r future?						
How much ha	ave you alread	<i>dy attained</i> this	goal?						

#### Life-goal: To play for the love of it.

(1 = not at all; 7 = very)

1	2	3	4	5	6	7						
How importal	nt is this to you	l?										
How <i>likely</i> is it that this will happen in your future?												
How much ha	How much have you already attained this goal?											

#### Life-goal: To earn lots of money performing.

(1 = not at all; 7 = very)

1	2	3	4	5	6	7							
How important	t is this to you	l?											
How likely is it	How <i>likely</i> is it that this will happen in your future?												
How much have	How much have you already attained this goal?												

Life-goal: To express myself artistically through my work as a performing musician.

(1 = not at all; 7 = very)

1	2	3	4	5	6	7					
How importar	nt is this to you	?									
How likely is i	t that this will I	nappen in yo	ur future?								
How much ha	ive you alread	y attained thi	s goal?								
Life-goal: To become a world-renowned musician.											
(1 = not at all; 7 =	very)										

1	2	3	4	5	6	7						
How importar	<i>nt</i> is this to you	?										
How likely is	How <i>likely</i> is it that this will happen in your future?											
How much ha	ave you alread	y attained this	s goal?									

(Optional) If you have any comments, or if the researcher has asked you to supply additional information, please provide them here.

# **APPENDIX B: STUDY 2 SELF-REGULATION PRACTICE DIARY**

Name	Date	BEFORE STARTING MY PRACTICE										
		The p	iece l'n	n workir	ng on ir	n this se	ssion is	:				
in general terms (e.g., "wo touch left hand in bars 8-1.	ve set for this practice session. These should <b>not</b> be written rk on technique"). Be as specific as you can (e.g., lighter 2/section B; effectively play through an 8-bar section of a s been identified as important).	1										
<ol> <li>What do you need</li> <li>Do you have any piece/section/pass</li> </ol>	you believe will be critical for optimizing your performance. I to do to accomplish these goals? <u>particular plans</u> for how to learn/perform this sage? (e.g., using a strategy of first slowing the tempo, reasing it as performance is accomplished).	1 2 3 The ex	xtent to									
		<u>Notata</u> 0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	Completely 100%
If you are complet repertoire in this p confidence that yo session then circle	r level of confidence that you CAN do something. ely confident that you can be successful in mastering your practice session then circle 100%. If you have no ou can master your practice repertoire in this practice 0%. If your confidence lies somewhere in between, then age that matches your confidence.	My co <sup>No</sup> <u>Confide</u> 0%		20%	I CAN r 30%	naster t 40%	he repe	ertoire I 60%	practice	e in this 80%	90%	n is: Complete <u>Confidence</u> 100%
		My pr	edictio	n that I	WILL m	naster m	ny repei	rtoire by	y the pe	erforma	nce is:	
performance examination?	successfully master your repertoire by the end of semester	Unlikely 0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	Highly Likely 100%

TASK INTEREST How much do you like the repertoire you are practising in this session?	ly personal interest in the repertoire	personal interest in the repertoire I am about to practise is:							
	terested		nterested						
	1 2 3 4 5	5 6 7 8 9 1	0						
TASK VALUE How relevant is this repertoire to your personal long-term goals as a musician?	he <u>longer term</u> value I place on the								
	ot at all elevant		lighly Relevant						
	1 2 3 4 5	5 6 7 8 9 1	0						
	DUR	RING MY PRACTICE							
<ul> <li>SELF-CONTROL</li> <li>Explain the ways you maintained your concentration and interest whilst using your planned strategies.</li> <li>Concentration can include: <ul> <li>specific tactics you used that related to the piece you were practicing</li> <li>instructions you gave yourself about the piece as you were practicing it</li> <li>how you organised the information in your mind</li> <li>how you planned your time during practice</li> <li>how you structured or modified your practice environment to get better results if you asked for help, and if so, who/what did you consult?</li> </ul> </li> </ul>	focused my concentration by:								
<ul> <li>SELF-OBSERVATION</li> <li>What did you do to judge how effective your practice strategies were?</li> <li>This can include: <ul> <li>your self-talk, the things you were saying to yourself as you were working through the piece and problem solving</li> <li>ways you kept a record of your progress (e.g., using your phone to record your playing)</li> </ul> </li> </ul>	monitored my practice by:								

#### AFTER MY PRACTICE WAS COMPLETED

SELF-EVALUATION	My practice was (circle the number that most applies)										
How did you go in this practice session? Evaluate how productive and effective your strategies were,	Not at Effectiv	all	was (ciro	cie the h	umper t	nat mos		<i>5)</i>			Highly Effective
e.g., I didn't practice effectively today because the strategies I identified weren't appropriate	0	1	2	3	4	5	6	7	8	9	10
e.g., learning that 8-bar section was easy today; perhaps next time I can be more ambitious about what I fit into a practice session	Why?	?									
			e practio	ce sessio	on by ra	ating the	e follow	ing woi	rds:		
	Differe	nt									Typical
	0	1	2	3	4	5	6	7	8	9	10
	Unfocu	ised									Focused
	0	1	2	3	4	5	6	7	8	9	10
	Stimula	ating									Tedious
	0	1	2	3	4	5	6	7	8	9	10
	Frustra	iting									Satisfying
	0	1	2	3	4	5	6	7	8	9	10
	The s Not at Effective	all	es I cho	se to ac	chieve n	ny goals	s were:				Highly Effective
	0	1	2	3	4	5	6	7	8	9	10
SELF-SATISFACTION/AFFECT Explain the reasons you feel your practice was satisfying or disappointing.	My practice session was: Completely Disappointing							Completely Satisfying			
	0	1	2	3	4	5	6	7	8	9	10
	My overall estimate of the percentage of this practice session that was focused a concentrated is:								focused an		
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
	For t	his <u>sess</u>	<u>ion</u> I pra	actised	for:		(mins)				

# **APPENDIX C: STUDY 2 INTERVIEW SCHEDULE**

Stage	Questions	Probes
Introduction	Introductions	Can you
(at the	Check if they have read the information sheet and outline	expand a little
beginning of	the study	on this?
the session)	Sign the consent form	
	Remind of anonymity and seek permission to record	<ul> <li>Can you tell</li> </ul>
Starter	Do you ever video your practice sessions and watch them	me anything
Questions	back in this manner?	else?
	What do you look/listen for?	
	How have you found this process?	Can you give
Main Section	Having watched the video how pleased are you with your	me some
	practice today?	examples?
	<ul> <li>Would you say it was any better or worse than a typical</li> </ul>	
	practice session	<ul> <li>Can you</li> </ul>
	<ul> <li>Was it any better or worse than you thought before you</li> </ul>	explain that to
	watched it back?	me?
	• To what extent do you feel you have attained the goals you	<ul> <li>Can you</li> </ul>
	set for yourself at the beginning of the session?	please tell me
	Did you expect to reach them all in one session?	a bit more?
	Did your goals adapt or change during the practice	
	session?	<ul> <li>Why do you</li> </ul>
	Generally do you set goals or aims for your practice	think?
	sessions?	
	<ul> <li>Why (not)?</li> </ul>	<ul> <li>Would it be</li> </ul>
	• Would they typically be similar to the ones you set today	fair to say
	or not?	?
	<ul> <li>Do you find doing this to be useful? How so?</li> </ul>	
	<ul> <li>Do you think it would be helpful to do so?</li> </ul>	
	Do you usually set yourself deadlines for achieving your	
	goals?	
	<ul> <li>Does this depend on the type of goal?</li> </ul>	
	What level of difficulty would you say that the goals you	
	have are?	
	<ul> <li>Are they challenging?</li> </ul>	
	<ul> <li>Do you complete them easily?</li> </ul>	
	<ul> <li>Do you ever not achieve them?</li> </ul>	
	Did setting goals in the diary affect your practice in any	
	way?	
	• How?	
	Did you find setting these goals for the practice session	
	today was beneficial or not?	
	• Did you think about the goals you set in the diary during	
	your practice session?	
	<ul> <li>Did this affect your practice in any way? How?</li> </ul>	
	Did you have any other aims in mind during your practice	
	session today?	

	Т
	<ul> <li>To what extent did you feel your practice was aimed towards [GOALS WRITTEN IN DIARY]?</li> <li>What practice strategies do you use to improve your</li> </ul>
	What practice strategies do you use to improve your playing?
	<ul> <li>Repeating bar/section/whole piece</li> </ul>
	<ul> <li>Breaking the piece down and building it up gradually</li> <li>Slowing</li> </ul>
	<ul> <li>Varying pitch/articulation/rhythm</li> </ul>
	<ul> <li>Playing something different</li> </ul>
	<ul> <li>Singing or whistling</li> </ul>
	<ul> <li>Use of other equipment</li> <li>Do you feel confident that you could identify the most</li> </ul>
	appropriate goals and strategies for improving different
	aspects of a piece?
	How frequently do you practice?
	<ul><li>Did you practice yesterday?</li><li>Was there anything specific that you wanted to accomplish</li></ul>
	in your practice yesterday?
	What is most of your practice aiming towards?
	<ul> <li>Aside from those goals you set today do you have any other goals or aims?</li> </ul>
	o Short-term?
	<ul> <li>Mid-term?</li> </ul>
	○ Long-term?
	<ul> <li>How close are you to achieving these goals?</li> <li>Do you think you will achieve them given time?</li> </ul>
	<ul> <li>Which of these goals are most important to you?</li> </ul>
	Do you understand how your performance is judged?
	Does knowing you are going to be judged or assessed in a performance affect the way you practice before it?
	<ul> <li>Do you have any plans for your next practice session?</li> <li>Will you set any specific goals for your next practice session?</li> <li>When will you do this?</li> </ul>
	Did you find using the diary helped or hindered your
	practice in any way today?
	<ul> <li>Would you consider using a similar method in your future practice?</li> </ul>
	<ul> <li>How do you think it could be amended for day-to-day use?</li> </ul>
Follow-up	Is there anything else you feel is relevant to your goals or
	ambitions that we haven't discussed? • Do you feel that I have led you to the answers you have
	given today in any way?
Close	Thank the participant
	Results
	<ul> <li>Ask if they have further questions about the study</li> <li>Goodbye</li> </ul>

## APPENDIX D: STUDY 2 REBECCA'S PERSONAL PRACTICE DIARY

(90-103) - D fingerings 90-195 20 mins MI 17-18 intonation string crossings 13/09/17 BI) 55 - 85 - clarity string crossing) int. co-ord. 10 mins 60-63 10 mms Breatlying Comfort 66-69- 7 mills 69-70 - 7 mulis 71-72 -

11/09/17 BI Slow down 31/08/17 Bach 2nd page Double Beginning Beginning → lightness af touch (both arms) → string crossings Bar 63 15 mins - Breathing Right shoulder - why so teure? 71 6 mins ~ 72 9 mins V Mode audition 73 8 mins - slow down 74 5 mins - Prusical to your shoulders - musicality 71-75 -p characters 12/09/17 How does one develop coafidence in themselves willout violin? 10-12 With violin -> back, to barres - peula trust with violin -> finger action -> sthing crossings -> intonation 5/5/14/15/12/10 N's - how to hold the viden Nipart Fow weds Belax / go with characters Bring bounce back to boes Bp16 78-87 -DLH position - ostring crossing 8 ver 8 ver - ostring crossing 8 10/10/10

# **APPENDIX E: STUDY 3 PRACTICE DIARY**

## **Practice Diary**

#### Section 1

Date: \_\_\_\_\_

The repertoire I am practicing today is: \_\_\_\_\_

#### Planning

On my *first goal*, I will spend roughly \_\_\_\_ minutes. On my *second goal*, I will spend roughly \_\_\_\_ minutes. On my *third goal*, I will spend roughly \_\_\_\_ minutes. On my *fourth goal*, I will spend roughly \_\_\_\_ minutes.

My personal interest in the repertoire I am about to practise is:

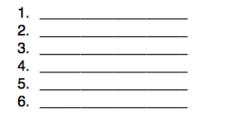
Not	at all	Passion								
inte	rested								inter	ested
0	1	2	3	4	5	6	7	8	9	10

The longer-term value I place on the repertoire I am practising today is:

	at all vant									emely levant
0	1	2	3	4	5	6	7	8	9	10

#### Performance profile:

In relation to the planned content of my practice session today the most important factors are:



With 0 being very poor and 10 being ideal what level am I currently at?

1.	
2.	
З.	
4.	
5.	
6.	

With 0 being completely unimportant and 10 being ideal what level would I like to get to by the end of this practice session?

1.	
2.	
З.	
4.	
5.	
6.	

### Section 2

My overall estimate of the percentage of this practice session that was focused and concentrated is:

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

Describe the practice session by rating the following dimensions:

Different Typical										
0	1	2	3	4	5	6	7	8	9	10
Unfocused Focuse								used		
0	1	2	3	4	5	6	7	8	9	10
Stimulating Tedio										
<u>Stir</u>	mulati	ing							Ted	lious
<u>Stir</u> 0	mulati 1	ing 2	3	4	5	6	7	8	Ted 9	lious 10
0		2	3	4	5	6	7	8		10
0	1	2	3	4	5	6	7 7	8	9	10

My practice was:

Not	Not at all								н	lighly
effe	ctive								effe	ective
0	1	2	3	4	5	6	7	8	9	10

The strategies I chose to achieve my goals were:

	at all ctive									ighly ctive
0	1	2	3	4	5	6	7	8	9	10

My overall estimate of the percentage of this practice session that was focused and concentrated is: 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Were any of your goals completely achieved today? If so which ones?

The extent to which	l achieved my	first goal is:
---------------------	---------------	----------------

Not				A	s muc		Much mor			
at a	11			as	expec	ted		th	an exp	ected
0	1	2	3	4	5	6	7	8	9	10

### The extent to which I achieved my second goal is:

Not				A	s muc		_	Much	more	
<u>at a</u>	11			as	expec	ted		than expected		
0	1	2	3	4	5	6	7	8	9	10

#### The extent to which I achieved my *third goal* is:

Not				A	s muc	Much more				
<u>at a</u>				as	expec	ted		th	an exp	ected
0	1	2	3	4	5	6	7	8	9	10

#### The extent to which I achieved my fourth goal is:

Not				A			Much	more		
at a	11			as	expec	ted		th	an exp	ected
0	1	2	3	4	5	6	7	8	9	10

#### The extent to which I achieved my fifth goal is:

Not				A		Much more				
at a				as	expec	ted		th	an exp	ected
0	1	2	3	4	5	6	7	8	9	10

### On my first goal I spent:

Mud	ch long	jer		As long as				Much shorter			
thar	n plann	ned			planne	ed		tł	nan pla	nned	
0	1	2	3	4	5	6	7	8	9	10	

### On my second goal I spent:

Mud	ch long	er		4	s long	as		N	luch sł	orter
thar	n plann	ed			planne	ed		th	nan pla	nned
0	1	2	3	4 5 6		7	8	9	10	

### On my third goal I spent:

Muc	ch long	er		A	s long	as		Much shorter				
thar	n plann	ed			planne	ed		than planne				
0	1	2	3	4	5	6	7	8	9	10		

### On my fourth goal I spent:

Mud	ch long	jer		l l	As long	as		Much shorter			
thar	n plann	ned			planne	ed		tł	nan pla	nned	
0	1	2	3	4	5	6	7	8	9	10	

#### On my fifth goal I spent:

Mud	ch long	jer		4	As long	as		Much shorter			
thar	n plann	ned			planne	ed		tł	nan pla	nned	
0	1	2	3	4	5	6	7	8	9	10	

### Performance profile:

Looking back at the most important factors I outlined at the end of section 1, with 0 being very poor and 10 being ideal what level have I achieved at the end of this practice session?

 1.
 \_\_\_\_\_

 2.
 \_\_\_\_\_

 3.
 \_\_\_\_\_

 4.
 \_\_\_\_\_

 5.
 \_\_\_\_\_\_

 6.
 \_\_\_\_\_\_

Total length of practice session in minutes: \_\_\_\_\_

Total number of breaks: \_\_\_\_\_

Total length of breaks in minutes: \_\_\_\_\_

# **APPENDIX F: STUDY 3 PIECE TABLES**

### Beth

Prokofiev Sonata in D	Familiarity with notes of mvmts 1 & 2	Slow play through - repeat short sections to make sure all notes are correct.
	Intonation	Slow playing - practising shifts and high note sections one or two bars at a time.
	Phrasing as I remember from listening to recordings throughout	
	childhood and now	
Szymanowski <b>Notturno</b> e Tarantella	Memorise the Notturno	Look away from music often while practising then test small sections without music, then play through and mark where memory not confident.
	Feel physically relaxed and confident so the playing is not strained	Check in, mentally, while playing to notice if excess tension.
	playing to not of alloca	Find comfortable position for difficult chords/shifts/etc.
	Perfect my pizz technique in the Notturno	Practice it with various angles of finger to find best pizz. sound.
Prokofiev Sonata in D	Get comfy with notes of movement – Prokofiev	Learn tricky passages slowly.
Wieniawski Op. 10 no. 5 Alla Saltarella	Play rhythmically and at tempo = 80 (the concert tempo) – Prokofiev	Hum/tap tricky rhythms, practice bumping up tempo: 70, 72, 75, 80.
	Great intonation – Prokofiev	Slow practice.
	Solidify memory – Wieniawski	Look away while practising Focus on tricky line or two.
	Play with great character - Wieniawski	Play characterful slowly then up to speed: exaggerate!
Locateli, Harmonic Labyrinth	Memory	Look away while practising, make mental map where patterns change.
	Intonation	Practice difficult shifts in isolation.
	Bounce bow stroke	Find correct part of bow and speed for the stroke.
Szymanowski Tarantella	Learn all notes, intonation (Prokofiev)	Slow practice starting from end of movement because less familiar.
Prokofiev Sonata No. 2, mvmt 4	Get parts up to tempo (Prokofiev)	Take small sections, work up metronome faster and faster up to tempo.

	Memory (Szymanowski)	Slow practice of most difficult sections.
	Intonation (Szymanowski)	Look away while practising, test self on certain sections.
Szymanowski Notturno e	Notturno - play from memory	Review mentally the map of the piece then play without music.
Tarantella	Tarantella - intonation	Slow practice of small sections at a time.
	Tarantella - tempo steady	Metronome practice.
	Tarantella - first 2 pages memorised	Think through mentally - map out music, then try without music to play through.
Bartok Concerto No. 1, mvmt 1	Refresh Bartok, comfy physically with the movement, see where I	Play through - focus on body, pause and adjust if tension.
Schumann Sonata in Am, mvmt 1	am with memory	
Prokofiev Sonata No. 1 in D, mvmt 4	Refresh Schumann - practice all the dynamics and character	Play through page by page - note verbally markings to remain conscious/conscientious of all of them.
	Learn notes of Prokofiev, mark/map trickiest passages to work on	Slow playing, starting from end of mvmt, circle or star difficult parts.
Prokofiev Sonata in D, mvmt 4 Szymanowski Notturno	Prokofiev - learn rest of notes and dynamics, intonation	Start at end of movement, work backwards, spend more time on tricky phrases (don't move on if it doesn't sound good), check all dynamics in section before continuing.
	Szymanowski - gauge memory, polish intonation	Play from beginning without music, see where fuzzy memory.
Szymanowski Tarantella	Memory (Szymanowski)	Look away while practising. Test medium size sections by playing them through without music.
Gerschwinn 3 Preludes arr.	Intonation (Szymanowski)	Practice shifts, slow careful listening.
Heifetz	Character (Szymanowski)	Pay attention to dynamics and markings.
	Refresh notes (played it 5 years ago) (Gerschwinn)	Play slowly through all.
Gerschwinn, 3 Preludes	All notes learned	Play through each prelude - check shifts, slowly practice difficult double stops/passages.
	Character and tempi solid	Note all dynamics, exaggerate the gestures.
Tarantella (Szymanowski)	Memory	Look away often while practising, then test small sections for memory - if time play through whole page(s) at a time.
	Intonation	Slow practice trickiest shifts, listen carefully to self.

Szynamowski, Notturno et Tarantella	Notturno: Play through with music, check all rhythms, notes, intonation	Listen carefully, don't look away while playing, repeat passages that need a little intonation fix etc.
	Notturno: Play through from memory, check any spots	Don't look at music, then after play through, repeat spots where not totally comfy with memory. Play through towards end, then same.
	Tarantella: Memorise	Look page at a time, map in mind how the music is divided into sections, test section by section with music and memory.
Szymanowski Tarantella	Intonation (Szymanowski)	Slow practice difficult shifts and double stopped chords.
Prokofiev mvmt 4	Memory (Szymanowski)	Take small chunks, scan music mentally, have mental map and test by playing through chunk - identify trickiest/least confident sections.
	Intonation (Prokofiev)	Same as 1.
	Good sound quality (Prokofiev)	Slow steady practice and observing contact point of bow.
Szymanowski Tarantella	Memory (Szymanowski)	Play through sections - check if memory 100%, work on any unconfident spots.
Prokofiev Sonata 2	Character and sound quality (Prokofiev)	Work on small sections, exaggerate - check contact point for sound.
Schumann Sonata	Memorise last movement of sonata (Schumann)	Play small sections, check occasions, repeat different sections.
Szymanowski Notturno and Tarantella	Intonation 1st and 3rd mvmts (Schumann)	Slow practice difficult shifts/sections with no vibrato.
	Play through memorised whole piece	Check spots of uncertainty, play just before and after those sections.
Schumann Sonata	Schumann mvmt 4 - memorise	Start where I am less confident. Repeat small sections.
	Schumann mvmt 1 - intonation and physical comfort	Slow practice of difficult shifts and passages - relax shoulder, neck, arm every few lines.
Schumann Sonata	Schumann 1st and 2nd mvmt, intonation	Slow practice shifts and double stops.
Prokofiev Sonata	Prokofiev sound quality and character	Check bow angles, smooth bow changes, good quality sound even with characters.
Beethoven Sonata 1, mvmt 2 & 3	Review old music	Play through - brush up intonation, focus on expressivity.
Kreisler Mollyon the Shore and Melodie	Check memory of 'Molly' and Melodie	Play through with music, try without Practice tricky spots.

Grieg Sonata Op.45, mvmt 1	Familiarise self with notes - intonation (G)	Play through as much of mvmt 1 as I can, practice slowly difficult passages.
Janáček Sonata, mvmt 1	Pizzicato and character (Janacek)	Practice pizz. phrases and exaggerate markings/dynamics for character.

## Elle

Bach Gavotte en Rondeau	Decide on ornamentation	Listen to recordings, experiment and write in.
Hondeau	Finalise bowings and fingerings	Mark up score, compare editions, play on both violins.
	Fix intonation	Isolate chords, build up, record myself.
	Play at set speed	Use metronome.
	Improve right hand	Play with open strings.
Debussy Sonata mvmts 1 & 2	Get mvmt 2 up to speed	Use a metronome.
	Play through mvmt1	N/A
Debussy Violin Sonata	Be able to play through each movement at speed like a performance	Play through each movement.
	Play with a variety of tone and colours	Use the bow creatively.
	Look confident	Have good posture.
	Play with great intonation	Relaxed but articulated left hand.
	Play very expressively	Energy and contrast.
Orchestral excerpts	Get current metronome markings	Use metronome.
	Finish fingering and bowing	Experiment and watch videos.
Takemitsu Distance de Fee	Play with metronome with finalised markings (Takemitsu)	Use metronome.
Debussy Violin Sonata	Find tone and line in melodies (Takemitsu)	Record.
	lsolate shifts (Takemitsu and Debussy)	Repeat slowly and relaxed.
Prokofiev Violin	2 with metronome	Use metronome.
Sonata 1, mvmts 2&3	Address 2 tricky areas	Play slowly.
	3 improve tone and line in melodies	Record myself.
	Work through shifts slowly	Isolate and play slowly.
	Play all with metronome	Use metronome.

Orchestral excerpts	Isolate shifts (Takemitsu and Debussy)	Repeat slowly.
	Use correct articulation and bow strokes	Exaggerate and play slowly.
	Use rhythms on passages	Isolate and change rhythms.
	Tune with open strings/chords	Play slowly with references.
Debussy Violin Sonata	Listen back to recoding	Listen to zoom.
Contaid	Take notes	Write down observations.
	Target less solid areas	Practice bars I have written down.
	Practice shifts	Isolate shifts, slow and solid.
	Improve tone production	Observe use of bow and vibrato.
Bach Partita 3, Minuet 1&2 (Baroque violin)	Good intonation	Slow practice, listening, playing chords as separate notes.
(_0.0400.00)	Relaxed hand shape without pressing thumb	Pause between changes in hand position of chords to relax hands.
	Good rhythm	Metronome.
	Minuet feel	Hierarchy of bar, plan weight of bows/attack.
Ysaye 4, I	Minuet feel Play through movement with metronome	Hierarchy of bar, plan weight of bows/attack. Use metronome.
Ysaye 4, I	Play through movement	
Ysaye 4, I	Play through movement with metronome	Use metronome.
Beethoven	Play through movement with metronome Bring out lines	Use metronome. Practise with open strings.
Beethoven Grosse Fuge	Play through movement with metronome Bring out lines Make shifts feel secure	Use metronome. Practise with open strings. Repeat and isolate shifts.
Beethoven	Play through movement with metronome Bring out lines Make shifts feel secure Finger and bow all music	Use metronome. Practise with open strings. Repeat and isolate shifts. Experiment.
Beethoven Grosse Fuge Elgar Piano Quintet Maconchy	Play through movement with metronome Bring out lines Make shifts feel secure Finger and bow all music Secure shifts and intonation Locate tunes and improve	Use metronome. Practise with open strings. Repeat and isolate shifts. Experiment. Use drone app and isolate and repeat slowly.
Beethoven Grosse Fuge Elgar Piano Quintet	Play through movement with metronome Bring out lines Make shifts feel secure Finger and bow all music Secure shifts and intonation Locate tunes and improve	Use metronome. Practise with open strings. Repeat and isolate shifts. Experiment. Use drone app and isolate and repeat slowly.
Beethoven Grosse Fuge Elgar Piano Quintet Maconchy Quartet 5	Play through movement with metronomeBring out linesMake shifts feel secureFinger and bow all musicSecure shifts and intonationLocate tunes and improve sound qualityIsolate tricky passages and	Use metronome. Practise with open strings. Repeat and isolate shifts. Experiment. Use drone app and isolate and repeat slowly. Isolate and focus on bow use and vibrato.
Beethoven Grosse Fuge Elgar Piano Quintet Maconchy Quartet 5	Play through movement with metronome         Bring out lines         Make shifts feel secure         Finger and bow all music         Secure shifts and intonation         Locate tunes and improve sound quality         Isolate tricky passages and get up to speed         Improve resonance and	Use metronome. Practise with open strings. Repeat and isolate shifts. Experiment. Use drone app and isolate and repeat slowly. Isolate and focus on bow use and vibrato. Use metronome.

	Shape harmonically	Do harmonic analysis of chord progression.
Ysaye 4/Lutoslowski Partita (planned to do one or the	Play longer sections of Lutoslowski to check fingerings and bowings	N/A
other but did not decide before	Get all Ysaye at one speed	Metronome.
session)	Make double stop passages legato	Play single lines, shift slowly back and forth.
Mozart Violin Concerto No.5,	All at same speed	Use metronome.
cadenza	Pure sound and intonation	Practise shifts.
	Both hands confident and relaxed	Check in mirror.
	Able to perform	Perform, video and check back.

### Will

Pagannini Caprice 20	Tuning in slow section	Slow legato, listening to double stops.
	Tuning in fast section	Slow legato, double stops.
	Learn off by heart	Rhythms and repetition.
	Bar 40-43 octaves - shift and good tuning	Slowly repeat and increase speed but no break between notes. Accustom the hand to 2-4 octave shape.
	Bar 37 shift	Slowly repeat and increase speed.
Mozart Violin Concerto No.2	Improve tuning of fast sections	Use open strings and slowly play through everything, with slow tempo on metronome.
	Improve articulation of fast sections	Slowly articulate on open strings with special attention to where the movement is coming from and keeping a constant tempo.
	Improve sound of fast sections	Experiment with points of contact, bow speed, and intention of passage.
	Release tension in left arm for fast sections	When practising slowly pay close attention to where the movement in my fingers is coming from. Consciously remove tension and integrate the correct movement from a slow tempo to a fast one.
Pagannini Caprice 20	Improve tuning of slow sections	Use open strings and slowly play through everything, with slow tempo on metronome.
	Improve articulation of fast section	Slowly articulate on open strings with special attention to where the movement is coming from and keeping a constant tempo. Experiment with different movements and bow areas. Slowly speed up with metronome.
	Improve speed of fast sections	Use metronome from slow tempo to fast. In each tempo use dotted rhythms to improve agility.
	Release tension in left arm for fast sections	When practising slowly pay close attention to where the movement in my fingers is coming from. Consciously remove tension and integrate the correct movement from a slow tempo to a fast one.
Franck Violin Sonata, mvmt 2	Learn notes (first time reading through) Tuning - keep in mind	Play slowly, repeat a few times. Check with open strings, slowly repeat.
	No tension In left hand (when sight reading I tend to tense a lot)	Concentrate and think about it.

	Sound quality - straight and equal bow ( <i>added after tuning up</i> )	Mirror.
Franck Violin Sonata, mvmt 2	Improve articulation of first section	Slowly move bow on open strings with attention to where the movement is coming from and keeping the tempo constant with a metronome.
	Improve tuning of first sections	Use open strings and slowly play through everything, with slow tempo on metronome.
	Improve sound of first sections	Experiment with points of contact, bow speed, and intention of passage.
	Release tension in left arm for first sections	Relax (even if it sounds obvious) all the movements. Do them slowly before speeding them up and make sure that the movement is coming from the top of the hand and not the base of the arm.
Franck Violin Sonata, mvmt 2	Read through the middle and fast section	Sing the notes and name them, then play with violin. Trying to make sure I know what it is going to sound like, both from having listened to the piece and from having sung it.
	Try to stay relaxed (mainly the left arm)	When sight reading, or looking at a piece or section for the first time, I tend to push releasing tension to the back of my mind. All I have to do is try and keep thinking about it and avoid tensing too much. Things can be done slowly to make sure the movement is good, but the idea of a first read is not to stop and do detailed things, but try and get through.
	Try and keep a good sound	Experiment with points of contact, bow speed and intention of passage, both by thinking what I want the sound to be like before playing, and then possible alternatives after having played a section.
	Try and make sure I learn the notes in tune	It is easy to just play through a section and put the fingers on the string, but caution is to be taken when doing this because we could be playing something out of tune and then it becomes a habit right from the start, making it harder to notice or correct further on in the process of practising the piece.
Mozart Violin Concerto no. 2	Improve tuning opening section	Use open strings and slowly play through everything, with slow tempo on metronome.
	Improve articulation of fast section	Slowly articulate on open strings with special attention to where the movement is coming from and keeping a constant tempo. Then slowly increase speed on metronome. This goal was specifically for a passage with a combination of articulations of the bow over various strings, so

		integrating the movement by muscle memory had to be done from slow to fast.
	Recover memory of fast section	It has been a while since I have practiced this piece, and my teacher said I should, so I needed to recover the ability to play it off by heart, for I felt I couldn't have done it straight away.
	Relax left arm for both sections	When practising slowly pay close attention to where the movement in my fingers are coming from. Consciously remove tension and integrate the correct movement from a slow tempo to a fast one.
Mozart Violin Concerto no. 2, Cadenza (by Leopold Auer)	Improve tuning of thirds	Slowly play each note with any open strings it has, then add third. Develop hand shape for thirds by doing scales in one position and two different strings, always checking intonation with other notes.
	Work on memorising it	Relax (even if it sounds obvious) all the movements. Do them slowly before speeding up and make sure that the movement is coming from the top of the hand and not the base of the arm.
	Release tension in left arm	No tension in shoulder and neck when doing thirds, for this is very easy to forget.
C. Franck Violin Sonata, mvmt 2.	Read through all adding new fingerings	My teacher sent me a copy of music with some suggested fingerings, so this practice session is dedicated to testing, changing and adding fingerings while still keeping previous work up, but focusing mainly on the fingering.
	Try to stay relaxed (mainly the left arm)	When sight reading, or looking at a piece or section for the first time, I tend to push releasing tension to the back of my mind. All I have to do is try and keep thinking about it and avoid tensing too much. Things can be done slowly to make sure the movement is good, but the idea of a first read is not to stop and do detailed things, but try and get through.
	Try and keep a good sound	Experiment with points of contact, bow speed and intention of passage, both by thinking what I want the sound to be like before playing, and then possible alternatives after having played a section.
	Try and make sure I learn the notes in tune	It is easy to just play through a section and put the fingers on the string, but caution is to be taken when doing this because we could be playing something out of tune and then it becomes a habit right from the start, making it harder to notice or correct further on in the process of practising the piece.

C. Franck Violin Sonata, mvmt 2.	Work on difficult passages	For these passages, I must take them slowly and with a metronome. Ideally, they would be memorised, but that will happen with time. I use dotted rhythms for muscle memory and try and do it relaxed, so that the muscle memory is relaxed, not tense. Then slowly bring up the speed.
	Try to stay relaxed (mainly the left arm)	When working on precision passages like this, I tend to push releasing tension to the back of my mind. All I have to do is try and keep thinking about it and avoid tensing too much. Things can be done slowly to make sure the movement is good.
	Try and keep a good sound	Experiment with points of contact, bow speed and intention of passage, both by thinking what I want the sound to be like before playing, and then possible alternatives after having played a section.
	Work on tuning	Use open strings and dotted rhythms to work on the tuning, making sure it stays in the muscle memory as well as in my head. From slow to fast.
Mozart Violin Concerto no. 2, Cadenza (by Leopold Auer)	Improve tuning of thirds	Slowly play each note with any open strings it has, then add third. Develop hand shape for thirds by doing scales in one position and two different strings, always checking intonation with other notes.
	Improve sound	Constantly check for different bowing alternatives, including different weight in bow. Also work on releasing bow arm and producing sound from the correct movements, not the tension and grip.
	Release tension in left arm	Relax (even if it sounds obvious) all the movements. Do them slowly before speeding up and make sure that the movement is coming from the top of the hand and not the base of the arm. No tension in shoulder and neck when doing thirds, for this is very easy to forget.
Mozart Violin Concerto no. 2, Cadenza (by Leopold Auer)	Improve tuning of thirds	Slowly play each note with any open strings it has, then add third. Incorporate techniques talked about in class, including more focus on the lower line, more sound and constant flow of sound so tuning happens more naturally.
	Improve sound	As mentioned before, look closely at sound of lower line, and play it a few times on its own, making sure there is a good connection. Then check the balance of sound with added thirds. Also work on releasing bow arm and producing sound from the correct movements, not the tension and grip.

	Release tension in left arm	Relax (even if it sounds obvious). Do the thirds slowly before speeding up and make sure that the movement is coming from the top of the hand and not the base of the arm. Maybe best to do separate lines first then add together. No tension in shoulder and neck when doing thirds, for this is very easy to forget.
C. Franck Violin Sonata, mvmt 2.	Work on expressive passages	For these passages, I need to work on them slowly with no vibrato but still in time, so with a metronome. I need to listen carefully to the changes of string and try to make them sound as even as possible. Take bits out of context and play at different speeds and rhythms to consolidate the connection between notes. Then add vib
	Try to stay relaxed (mainly the left arm)	When working on vibrato and expressive passages like this, I tend to push releasing tension to the back of my mind, because the type of vibrato needed is a very intense and energetic one. All I have to do is try and keep thinking about it and avoid tensing too much. Things can be done slowly to make sure the movement is good.
	Try and stay connected to the piece	Experiment with points of contact, bow speed and intention of passage, both by thinking what I want the sound to be like before playing, and then possible alternatives after having played a section. Think about the overall idea I want to transmit in the line and make sure it comes across in the playing (not just my movements and facial expressions).
	Work on tuning	Use open strings and dotted rhythms to work on the tuning, making sure it stays in the muscle memory as well as in my head. From slow to fast.
Barber violin concerto, mvmt 1	Work on fast sections	Slowly play each note with any open strings it has, always play in time, so take metronome and work from slow to fast, building muscle memory. Make sure 4ths are in tune. Do dotted rhythms for precision and agility.
	Improve sound	Work slowly from source of movement. Make sure movement is coming from wrist, not whole arm. Open strings with rhythms to make sure arm knows where to go. Also work on releasing bow arm and producing sound from the correct movements, not the tension and grip.
	Release tension in left arm	Do everything slowly and with double stops making sure it all comes from the right place, and do with double stops, because when speed increases it will feel almost like holding a chord.

		Make sure this is not a source of tension, for the more relaxed I can play it, the easier it will be.
Mozart Violin Concerto 2 in D, mvmt 1	Improve tuning of fast section	Slowly play each note with any open strings it has, then add other finger and make sure interval is in tune. Work on section by removing rhythm and just doing basic repetition of notes.
	Better sound and articulation	Work slowly on releasing bow arm and producing sound from the correct movements, not the tension and grip. Listen to different sounds with different bow speeds and jumps and articulation. Work on open strings and with rhythms.
	Release tension in left arm	Open hand and drop into place where the notes need to go, repeat various times making sure it is in tune. Then play double stops and make sure left hand is relaxed.
Samuel Barber Concerto 1	Fluidity in phrasing and sound (mainly Franck Sonata)	Taking notes out of context and listening for sound - make as even as possible.
C. Franck Violin Sonata, mvmt 2	Tuning issues (mainly Franck Sonata)	No vibrato, slow, open strings if necessary.
Mozart Concerto 2, mvmt 1 & cadenza	Particular sections of all pieces (harder or more important bits) – make better/secure	Different techniques depending on section, e.g. slow w/metronome, rhythms, etc.
	Run-throughs of small sections	Run-through.
	Relax hand (left)	Think about it, do not ignore.
Mozart Violin Concerto no. 2, Cadenza (by Leopold Auer)	Improve tuning	I normally play things slowly and with open strings, but this time I am going to avoid open strings and rely on my ear. I also use double stops but only with notes that are on the score and are part of the harmony. Especially in the fast bits and in chords.
	Improve sound	Play with different bowing alternatives, even if they are not the final decision, because it will improve movement, agility and memory of section. Work on releasing bow arm and producing sound from the correct movements, not the tension and grip.
	Reduce tension in left arm	Relax all movements. Do them slowly before speeding up and make sure that the movement is coming from the top of the hand and not the base of the arm. No tension in shoulder and neck when doing thirds, for this is very easy to forget.

Kreutzer Etude 14	Work on bowing	Play with open strings and pay particular attention to where the movement is coming from and make it as smooth as possible.
	Work on sound	Again, all this work is in the bow (and playing in tune). Work on a constant sound, no sudden movements, and remove from context and work on string crosses and bow changes.
	Avoid tension in left arm	Relax arm, make sure movement of fingers is coming from hand and not base of arm.
Barber Violin Concerto, mvmt 2	Read through and start learning movement	
	Listen out for tuning	Slow mediated practice, with open strings where possible.
	Make sure good sound	Listen and experiment with bowings and different fingerings.
	Watch out for tension in both arms and back	Focus on relaxing, because it is difficult to do so when reading the music for the first time.

# **APPENDIX G: STUDY 3 PERFORMANCE PROFILE**

Time mana									
How good a Not at all	are you a	at mana	aging yo	our prac	tice tim	e <u>at the</u>	momer	<u>nt</u> ?	Extremely
good									dood
0 1	2	3	4	5	6	7	8	9	10
How good o	do you n	eed to	be as a	profes	sional m	nusician	?		
Not at all									Extremely
good									good
0 1	2	3	4	5	6	7	8	9	10
Technical									
How good i	is your te	echnica	l exper	tise <u>at t</u>	ne mom	ent?			
Not at all									Extremely
good									boop
0 1	2	3	4	5	6	7	8	9	10
How good	does it	need t	o be a	s a pro	fession	al musi	ician?		
Not at all	4000 h		u						Extremely
good									good
0 1	2	3	4	5	6	7	8	9	10
	-	5	r	5	2		5	5	
Goal setti	-							-	
How good	are you	u at <i>set</i>	tting ac	als for	yourse	lf at the	e mome	ent?	
Not at all					-				Extremely
good									boop
0 1	2	3	4	5	6	7	8	9	10
Llow coord	do		ha ca -	nucl-	alonal		2		
How good	ao you n	eed to	be as a	protes	sional m	iusician	1		
Not at all									Extremely
good D 1	2	3	4	5	6	7	8	9	<u>good</u> 10
J 1	2	3	4	5	б	/	8	9	10
Goal achie									
How good a	are you a	at <i>achie</i>	eving yo	our goal	s <u>at the</u>	momen	tt?		
Not at all									Extremely
good									boop
0 1	2	3	4	5	6	7	8	9	10
How good o		eed to	he as a	nrofee	sional m	usician	2		
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good 0 1	0	2		F	e	7	0	0	<u>good</u>
0 1	2	3	4	5	6	7	8	9	10
Practice st	trategie	5							
	-		ifving o	nd usin		nriato n	ractico	etrotoc	ice at the mome
	are you	atiuent	nying a	nu usin	y appro	priate p	actices	siraleg	ies at the mome
Not at all									Extremely
good	<u> </u>	<u>^</u>		-	<u> </u>	-	0	~	boog
0 1	2	3	4	5	6	7	8	9	10
How good		eed to	he as a	nrofee	sional m	usician	2		
Not at all	uo you n	000 10	50 as a	pioles	sionai II	usiciali	•		Extremely
good									good
0 1	2	3	4	5	6	7	8	9	10

<u>good good</u> 0 1 2 3 4 5 6 7 8 9 10 Self-evaluation

How Not at a good		are you	at evalu	lating y	our per	formand	e <u>at the</u>	mome	<u>nt</u> ?	Extremely
0	1	2	3	4	5	6	7	8	9	10
How Not at a good	<b>•</b>	do you r		be as a	·		nusician	?		Extremely good
0	1	2	3	4	5	6	7	8	9	10

## **APPENDIX H: STUDY 3 GOAL PROFILE**

Today's date	Goal	Planned completion date	Short-, medium-, or long-term	Difficulty (1, very easy – 10, very difficult)	Personal value of goal (1, not personally important – 10, very personally important)	Other goals this will benefit and how	Date completed
	1.						
	2.						
	3.						
	4.						
	5.						
	6.						
	7.						
	8.						
	9.						
	10.						
	11.						
	12.						
	13.						
	14.						
	15.						

# **APPENDIX I: STUDY 3 INTERVIEW SCHEDULES**

### Initial Interview

Stage	Questions	Prompt
Introduction	Introductions	Can you expand
(at the	Check if they have read the information sheet and	further on this?
beginning of the	outline the study	
session)	Sign the consent form	Can you tell me
	Remind of anonymity and seek permission to record	anything else?
Basic	How long have you been playing violin?	
Information	<ul> <li>How old were you when you started playing?</li> </ul>	<ul> <li>Can you give me</li> </ul>
	Why did you start playing the violin?	some examples?
	<ul> <li>How frequently do you practice?</li> </ul>	
	<ul> <li>Do you play any other instruments?</li> </ul>	Can you explain that to me?
	Did you listen to much music when you were	
	growing up?	<ul> <li>Can you please</li> </ul>
	<ul> <li>What kind of music did you listen to growing up?</li> </ul>	tell me a bit more?
Motivation	When did you decide to study performance?	
	<ul> <li>Why was this?</li> </ul>	• Why do you think
	<ul> <li>How satisfied are you with that decision?</li> </ul>	?
	Why did you choose to study violin particularly?	
	On a day-to-day basis why do you choose to play	Would it be fair to
	the violin?	say?
	<ul> <li>What is good about playing violin?</li> </ul>	
	Why do you practice?	
	<ul> <li>Why is that important?</li> </ul>	
	Are there any other reasons?	_
Goal setting	I would now like to discuss the goals that you have	
	as a musician and create an outline with you.	
	Complete goal profile document below	_
Performance	To finish this session off I would like to create what	
profile	we call a performance profile where you feel you are	
	regarding certain aspects of your playing and where	
	you would ultimately like to be.	
Fallan	Complete performance profile document below	-
Follow up	<ul> <li>Is there anything else you feel is relevant to your</li> </ul>	
	goals that we haven't discussed?	
	<ul> <li>Do you feel that I have led you to the answers you have given today in any way?</li> </ul>	
Close	<ul><li>have given today in any way?</li><li>Thank the participant</li></ul>	-
Close		
	<ul> <li>How the goal/performance profile will be used</li> <li>Ask if they have further questions about the study</li> </ul>	
	<ul> <li>Ask if they have further questions about the study</li> <li>Goodbyo</li> </ul>	
	<ul> <li>Goodbye</li> </ul>	

### **Observed Practice Session Interviews**

Stage	Questions	Probes
Introduction (at the beginning of the session)	<ul> <li>Introductions</li> <li>Check if they have read the information sheet and outline the study</li> <li>Sign the consent form</li> <li>Remind of anonymity and seek permission to record</li> </ul>	<ul> <li>Can you expand a little on this?</li> <li>Can you tell</li> </ul>
Starter Questions	<ul> <li>Do you ever video your practice sessions and watch them back in this manner?</li> <li>What do you look/listen for?</li> <li>How have you found this process?</li> </ul>	me anything else? • Can you give
Quality of practice session	<ul> <li>How typical do you feel the practice session was today compared to your other practice sessions?</li> <li>How focused was it compared to other sessions?</li> <li>How productive was it compared to other sessions?</li> <li>Was it more or less productive?</li> <li>Having watched the video how do you think your practice went today?</li> <li>Would you say it was any better or worse than a typical practice session?</li> <li>Was it any better or worse than you thought before you watched it back?</li> <li>Do you feel that you have made progress in the session?</li> <li>What progress have you made?</li> <li>Are you satisfied with the level of progress?</li> <li>Could it have been better? How?</li> <li>Why might it not have improved?</li> <li>What elements of your practice today do you feel went well?</li> </ul>	<ul> <li>me some examples?</li> <li>Can you explain that to me?</li> <li>Can you please tell me a bit more?</li> <li>Why do you think?</li> <li>Would it be fair to say?</li> </ul>
Practice session goals	<ul> <li>What elements of your practice today do you reer went went?</li> <li>What elements went less well?</li> <li>Do you know why this might be?</li> <li>Did you think about the goals you set in the diary during your practice session?</li> <li>Did you have any other aims in mind during your practice session today?</li> <li>To what extent did you feel your practice was aimed towards [GOALS WRITTEN IN DIARY]?</li> <li>To what extent do you feel you have attained each of these goals?</li> <li>Did you expect to achieve them all in one session?</li> <li>Did your goals adapt or change during the practice session today?</li> <li>Did setting goals in the diary affect your practice in any way?</li> <li>How?</li> <li>Did you find setting these goals for the practice session today was beneficial or not?</li> </ul>	

Practice content	<ul> <li>Generally do you set goals or aims for your practice sessions? <ul> <li>Why (not)?</li> <li>Would they typically be similar to the ones you set today or not?</li> <li>Do you find doing this to be useful? How so?</li> <li>Do you think it would be helpful to do so?</li> </ul> </li> <li>Do you set yourself deadlines for achieving your goals? <ul> <li>Does this depend on the type of goal?</li> </ul> </li> <li>What level of difficulty would you say that the goals you have are? <ul> <li>Are they challenging?</li> <li>Do you ever not achieve them?</li> </ul> </li> <li>What practice strategies do you use to improve your playing?</li> <li>Repeating bar/section/whole piece</li> <li>Breaking the piece down and building it up gradually</li> <li>Slowing</li> <li>Varying pitch/articulation/rhythm</li> <li>Playing something different</li> <li>Singing or whistling</li> <li>Use of other equipment</li> </ul> <li>What do these strategies help you to achieve?</li> <li>Do you feel confident that you could identify the most appropriate goals and strategies for improving different aspects of a piece?</li> <li>How efficient do you think you were in your practice today?</li> <li>Could you have been more so?</li>	
	What do you think most of your practice is aiming towards?	
Diary improvement	<ul> <li>How are you finding using the diary in your practice sessions?</li> <li>Would you consider using a similar method in your future practice?</li> <li>Are there any improvements that you could think of for future versions?</li> </ul>	
Additional	See below for extra content*	
questions		
Goal profile	In our initial interview, we discussed some of your longer term goals. I'd like to look through the outline we created and update them, looking at any developments, alterations or achievements. <i>Amend goal profile document</i>	
Performance profile	In the final section of this interview I would like to look at the performance profile that we created and see where you feel you are currently. <i>Complete performance profile document – current information only</i>	

Follow-up	<ul> <li>Is there anything else you feel is relevant to your goals that we haven't discussed?</li> <li>Do you feel that I have led you to the answers you have given today in any way?</li> </ul>	
Close	<ul> <li>Thank the participant</li> <li>Results</li> <li>Ask if they have further questions about the study <ul> <li>Goodbye</li> </ul> </li> </ul>	

## **Additional Questions**

\*To be included in the second interview

Achivations	Where do you have to be in the next 10 years?
Aspirations	<ul> <li>Where do you hope to be in the next 10 years?</li> </ul>
	<ul> <li>How do you think you can achieve this?</li> </ul>
	<ul> <li>When you were younger what did you want to be?</li> </ul>
	<ul> <li>When did you decide you wanted to be a musician?</li> </ul>
	<ul> <li>How have your aspirations changed over the years?</li> </ul>
	What do you hope to do as a career?
	<ul> <li>Do you intend to become a professional violinist?</li> </ul>
	<ul> <li>Why do you want to do this?</li> </ul>
	<ul> <li>What aspects of the profession are appealing to you?</li> </ul>
	<ul> <li>What aspects do not appeal to you?</li> </ul>
	Do you think you will achieve this?
	<ul> <li>Why are you so sure?</li> </ul>
	<ul> <li>What makes you doubt this?</li> </ul>
	Are you clear on how you will achieve this?
	What do you think your job will comprise of?
	• Do you think you have a clear understanding of how to achieve these
	things?
	<ul> <li>How will you do this?</li> </ul>
	<ul> <li>When did this develop?</li> </ul>
	<ul> <li>Has your understanding changed over time?</li> </ul>

## \*To be included in the third interview

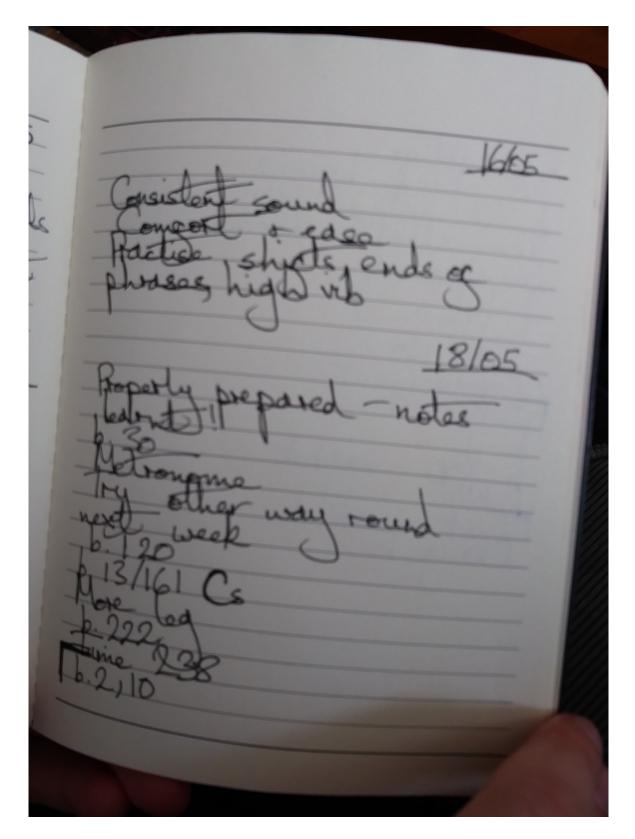
Success/failures	<ul> <li>What have your major achievements been as a violinist?</li> <li>What moments are you most proud of?</li> <li>Have you experienced any failures? <ul> <li>What are these?</li> </ul> </li> <li>Can you think of any times where things went badly for you as a violinist?</li> </ul>
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## \*To be included in the fourth interview

Education	•	I'd like to talk a little about your educational background if that's ok.
		Where did you undertake your primary education? And your
		secondary education? (Tertiary if on postgraduate course).
	•	What subjects did you study (sixth form level)?

	a Did you take part in any musical activities whilet at echool?
	<ul> <li>Did you take part in any musical activities whilst at school?</li> </ul>
	<ul> <li>What were these?</li> </ul>
	<ul> <li>Did you enjoy it/them?</li> </ul>
	<ul> <li>Do you think they were at a good level of difficulty?</li> </ul>
	<ul> <li>Did you learn an instrument as part of a school program?</li> </ul>
	<ul> <li>Do you feel that your education supported your musical interests?</li> </ul>
	<ul> <li>Do you feel that your education prepared you for your current</li> </ul>
	performance course?
Teachers	<ul> <li>How many teachers do you have lessons with on a regular basis currently?</li> </ul>
	<ul> <li>What sort of relationship do you have with them?</li> </ul>
	<ul> <li>Do you feel able to contribute during lessons?</li> </ul>
	<ul> <li>Who decides what to do during the lesson?</li> </ul>
	<ul> <li>How many teachers have you had previously?</li> </ul>
	What kind of relationship did you have with them?

# APPENDIX J: STUDY 3 ELLE'S PERSONAL PRACTICE DIARY



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