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Enhancing Music Performance Self-Efficacy Through Psychological Skills Training

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Doctor of Philosophy

Declaration

I, Anneliese Gill, hereby declare that this submission for Doctor of Philosophy is my own work and that due acknowledgement has been made in the text to all other material used. This thesis is fewer than the maximum word limit in length, exclusive of tables, bibliographies and appendices.

Date: 4/03/2020

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Abstract

The psychological health of the performer is important to achieving performance success. Determining effective means of enabling performers to manage performance issues and enhance their musical endeavours is therefore of utmost importance. Whilst there has been a strong focus in this area within higher education there is still more to be achieved in the training of younger musicians. Self-efficacy is a strong predictor of achievement and a key factor in well-being. Yet, few interventions have targeted this construct or been designed for adolescent students. Music educators are ideally placed to enhance self-efficacy within music lessons. An intervention model was constructed using the four sources of efficacy information as a conceptual framework. A survey of 236 Australian music educators provided an understanding of how teachers intuitively develop performance self-efficacy. Qualitative analyses, coded to the four sources (mastery experiences, verbal persuasion, vicarious experience, and physiological and affective states), revealed that teachers were most likely to advise more performing and employ verbal persuasion. Pedagogical recommendations for fostering self-efficacy were outlined, further informing the intervention model. A 14-week blended learning, teacher-guided program was designed, embedding skill development into practice and lessons. It encouraged training in standard psychological performance competencies (arousal regulation, imagery, attentional control, cognitive restructuring, pre-performance routines) with an additional focus on performance simulation and self-evaluation. A pilot study (n= 8) supported the utility of this approach on performance self-efficacy, multidimensional anxiety and performance. An amended program incorporating participant feedback was subsequently tested in two main studies within class (intervention n=47; control n=25) and studio (intervention n=24; control n=7) music lessons. Self-efficacy was significantly enhanced in comparison to the controls

who completed their normal music curriculum. This was associated with improvements in anxiety, psychological performance skills and self-, teacher- and independently-evaluated music performance. Differential treatment effects were also observed for the two instruction conditions that may be related to sample-specific variables such as teaching environment or age. These results provide preliminary support for the self-efficacy intervention model developed in this study. They also indicate that music educators without specialised psychological training or self-efficacy specific knowledge can influence a range of psychological skills associated with well-being and performance, enabling preventative measures to be implemented at a young age within the adolescent music curriculum. This program provides an accessible and practical method for delivering key skills associated with success and well-being.

Table of Contents

List of Tables ..... **viii**

List of Figures ..... **xi**

Glossary of Acronyms ..... **xii**

Chapter 1. Introduction **1**

1.1 Nature of the Study 1

1.2 Theoretical Background and Framework 3

1.2.1 Self-Belief 3

1.2.2 Self-Confidence 4

1.2.3 Self-Efficacy 5

1.2.4 Sources of Self-Efficacy 6

1.2.5 Self-Efficacy and Anxiety 6

1.2.6 Curriculum-Based Music Interventions 8

1.3 Purpose of the Study 11

1.4 Organisation of Thesis 11

Chapter 2. Literature Review **14**

2.1 Anxiety and Music Performance 14

2.1.1 Musicians' Well-Being 14

2.1.2 Music Performance Anxiety 16

2.1.3 Anxiety Interventions 16

2.1.4 Multi-Dimensional Anxiety 17

2.1.5 Optimal Arousal 19

2.1.6 Directional Anxiety 20

2.1.7 Performance Enhancement 22

2.1.8 Psychological Performance Skills in Sport 22

2.1.9 Mental Skills Training 23

2.1.10 Music Interventions 24

2.1.11 Summary 25

2.2 Self-Efficacy and Performance 26
2.2.1 Self-Efficacy 27
2.2.2 Influence 29
2.2.3 Self-Efficacy and Music 30
2.2.4 Sources of Self-Efficacy 31
2.2.5 Enhancing Musical Self-Efficacy: Targeted Interventions 36
2.2.6 Summary 44
2.3 Curriculum-Based Interventions and Prevention 45
2.3.1 Tertiary Interventions 46
2.3.2 Factors Inhibiting the Success of University Programs 48
2.3.3 Prevention and Adolescent Interventions 50
2.3.4 Optimising Intervention Programs 53
2.3.5 Pedagogical Development of Performance Self-Efficacy 55
2.3.6 Summary 57

Chapter 3. Self-Efficacy, MPA, and Performance Model to Guide Intervention 59

3.1 Introduction 59
3.2 Musical Self-Efficacy 60
3.3 Self-Efficacy and Performance 61
3.3.1 Facilitating Mastery Experiences 62
3.3.2 Self-Efficacy and MPA Interaction 62
3.3.3 Summary 63
3.4 Performance Self-Efficacy and Aspects of Music Performance Anxiety 64
3.4.1 Anxiety Direction 65
3.4.2 Multidimensional Anxiety 66
3.4.3 Self-Efficacy and Perceptions of Control 67
3.4.4 Summary 68
3.5 Feedback and Self-Evaluation 69
3.5.1 Summary 71
3.6 Implications for Intervention Programs 71
3.6.1 Mapping Psychological Performance Skills to Sources of Performance Self-Efficacy 73

Chapter 4. Study 1: Pedagogical Development of Psychological Performance Skills and Self-Efficacy in Studio and Class Music Lessons 75

4.1 Introduction 75

4.2 Music Students' Health and Well-Being 75

4.2.1. Psychological Performance Skills 76

4.3 Self-Efficacy 79

4.4 Teachers' Past Experiences and Education 80

4.5 Aims of the Study 82

4.6 Method 83

4.6.1 Participants 83

4.6.2 Materials 84

4.6.3 Procedure 87

4.6.4 Coding Protocol 88

4.7 Results 91

4.7.1 Questionnaire Completion 92

4.7.2 Lesson Elements 92

4.7.3 Vignettes and Performance Issues 93

4.7.4 Instructional Condition and the Employment of the Sources of Self-Efficacy 96

4.8 Sources of Self-Efficacy and Preparation 103

4.8.1 Mastery Experiences 104

4.8.2 Verbal Persuasion 117

4.8.3 Vicarious Experience 129

4.8.4 Physiological and Affective States 134

4.9 Discussion 153

4.9.1 Self-Efficacy Sources 154

4.9.2 Preparation 158

4.9.3 Implications of Study 161

Chapter 5. The Psychological Performance Skills Program 164

5.1 Introduction 164

5.2 Instructional Scaffolding 165

5.2.1 Teacher's Role 166
5.2.2 Scaffolding Strategies 167
5.3 Target Skills 169
5.3.1 Program Structure 170
5.4 Enhancing Mastery Experiences 173
5.4.1 Simulation 174
5.4.2 Benefits of Simulation 175
5.5 Self-Evaluation 177
5.5.1 Self-Evaluation and Musical Achievement 178
5.5.2 Factors that Influence Self-Evaluation Ability 179
5.5.3 Five-Step Evaluation Process 183
5.6 Summary of Main Program Elements Mapped to Self-Efficacy Sources 184

Chapter 6. Study 2: Pilot Study of the Psychological Performance Skills Program 187

6.1 Introduction 187
6.2 Aims 187
6.3 Method 188
6.3.1 Participants 188
6.3.2 Materials 190
6.3.3 Procedure 196
6.4 Results 201
6.4.1 Questionnaire Completion 201
6.4.2 Design and Data Analysis 201
6.4.3 Program Adherence, Learning, and Feedback 202
6.4.4 Effects of the Program 210
6.5 Discussion 213
6.5.1 Challenges to Program Development, Implementation, and Completion 214
6.5.2 Learning and Evaluation 222
6.5.3 Self-Efficacy 223
6.5.4 Anxiety 228
6.5.5 Performance Ratings and Self-Evaluation 228

6.5.6 Conclusion 231

6.5.7 Implications for Main Studies....231

Chapter 7. Studies 3 and 4: Main Studies of the Psychological Performance Skills Program...233

7.1 Introduction....233

7.2 Aims....235

Study 3: Assessment of the Psychological Performance Skills Program in Studio Music Lessons....236

7.3 Method....236

7.3.1 Participants....236

7.3.2 Materials....239

7.3.3 Procedure....244

7.4 Results....249

7.4.1 Questionnaire Completion....249

7.4.2 Data Treatment and Analysis....249

7.4.3 Program Adherence and Learning....251

7.4.4 Effects of the Program....252

Study 4: Assessment of the Psychological Performance Skills Program in School Music Classes....261

7.5 Method....261

7.5.1 Participants....261

7.5.2 Materials....264

7.5.3 Procedure....264

7.6 Results....267

7.6.1 Questionnaire Completion....267

7.6.2 Data Treatment and Analysis....268

7.6.3 Program Adherence and Learning....268

7.6.4 Effects of the Program....270

7.7 Summary of Main Findings....278

7.8 Discussion....278

7.8.1 Self-Efficacy....278

7.8.2 Anxiety....283

7.8.3 Performance Evaluation....290

7.8.4 Instructional Condition, Program Delivery and Effects 295
7.8.5 Follow Up 303
7.8.6 Limitations 305
7.8.7 Conclusion 307

Chapter 8. Conclusions and Future Directions 310

8.1 Summary of Theoretical Background 311
8.2 Summary of Research Phase One: Program Development and Design 313
8.2.1 Self-Efficacy, MPA, and Performance Model to Guide Intervention 313
8.2.2 Pedagogical Development of Self-Efficacy and Psychological Performance Skills in Studio and Class Music Lessons 314
8.2.3 The Psychological Performance Skills Program 315
8.3 Summary of Research Phase Two: Program Implementation and Assessment 316
8.3.1 Pilot Study of the Psychological Performance Skills Program 316
8.3.2 Main Studies of the Online Program 317
8.4 General Conclusions 318
8.4.1 Self-Efficacy Intervention Model 319
8.4.2 Enabling Mastery Experiences 320
8.4.3 Empowering Change: Developing a Musical Self-Efficacy Psychological Performance Skills Method 321
8.5 Future Directions 323
8.5.1 Motivation, Engagement, and Adherence 323
8.5.2 Developing a Viable Methodology 325
8.5.3 Self-Efficacy and Performance 328
8.6 Final Comments 330

References 332

Appendix A: Studio-music teacher questionnaire 376
Appendix B: Class-music teacher questionnaire 379
Appendix C: Student post-performance evaluation 381
Appendix D: Teacher post-performance evaluation 382

Appendix E: Example of teacher feedback (week 3) 383

Appendix F: Student learning and program evaluation 385

Appendix G: Performance evaluation 387

Appendix H: Studio-condition program completion summary 388

Appendix I: Studio-condition knowledge and self-awareness ratings 391

Appendix J: Class-condition program completion summary 392

Appendix K: Class-condition knowledge and self-awareness ratings 395

Appendix L: Class-condition directional anxiety profile plots 396

Appendix M: Class-condition performance evaluation profile plots 397

List of Tables

Table 4.1 Demographic Profile of Studio Teachers and School Music Educators 83

Table 4.2 Questionnaire Completion Rate 92

Table 4.3 Lesson Elements 93

Table 4.4 Summary of Mastery Experiences across the Vignettes 97

Table 4.5 Summary of Mastery Experiences across the Performance Issues 97

Table 4.6 Summary of Verbal Persuasion across the Vignettes 98

Table 4.7 Summary of Verbal Persuasion across the Performance Issues 99

Table 4.8 Summary of Vicarious Experience across the Vignettes 100

Table 4.9 Summary of Vicarious Experience across the Performance Issues 100

Table 4.10 Summary of Physiological and Affective States across the Vignettes 101

Table 4.11 Summary of Physiological and Affective States across the Performance Issues 102

Table 4.12 Number of Psychological Performance Strategies Recommended by Studio Teachers in the Vignettes 103

Table 4.13 Number of Psychological Performance Strategies Recommended by Teachers in the Performance Issues 103

Table 4.14 Mean Number of Weeks: Studio Teachers' Performance-Readiness Expectations 110

Table 4.15 Teacher Identified Impediments to Performing Up-to-Ability (UTA) 136

Table 4.16 Proportion of Teachers Recommending Performing Experience without Coping Skills 142

Table 5.1 Program Topics and Modules 171

Table 5.2 Weekly Course Outline 172

Table 6.1 Weekly Program Completion Summary for Studio and Class Participants 202

Table 6.2 Studio-Participants' Mean Number (and Range) of Simulated Performances 205

Table 6.3 Studio-Participants' Mean Number (and Range) of Performance Reviews 205

Table 6.4 Studio-Participants' Ratings of the Development of Knowledge and Self-Awareness by Program Module 207

Table 6.5 Mean Teacher Ratings of Topic and Module Relevance 209

Table 6.6 Mean Scores (Standard Deviations) Pre- and Post-Intervention 210

Table 6.7 Pre- and Post-Program Performance-Evaluation Means (Standard Deviations) and Difference Scores 212

Table 7.1 Demographic and Performance Profile of Studio-Condition Groups at Baseline....238

Table 7.2 Studio-Condition Baseline Characteristics of Non-Performance Variables by Group 239

Table 7.3 Summary of Performance Quality Measures and Criterion 243

Table 7.4 Weekly Course Outline for the Main Study 246

Table 7.5 Non-Performance Mean Scores (Standard Deviations) Pre- and Post-Program and ANOVA Results for Studio Participants by Group 253

Table 7.6 State Mean Scores (Standard Deviations) Pre- and Post-Program and T-Test Results for Studio Intervention-Participants 254

Table 7.7 Pearson's Correlations Among State Anxiety and Self-Efficacy Pre- and Post-Program for Studio Participants 257

Table 7.8 Frequency of Completers' Pre- and Post-Program Performance Satisfaction 258

Table 7.9 Non-Performance Mean Scores (Standard Deviations) for Studio Intervention-Participants who completed Follow Up Measures 259

Table 7.10 Demographic and Performance Profile of Class-Condition Participants at Baseline. 262

Table 7.11 Non-Performance Baseline Means by Group 263

Table 7.12 State-Measures Baseline Means by Group 263

Table 7.13 State and Non-Performance Mean Scores (Standard Deviations) Pre- and Post-Program and ANOVA Results for Class Participants 271

Table 7.14 State Median Scores (Interquartile Range) Pre- and Post-Program and Mann-Whitney U Results for Class Participants 272

Table 7.15 Spearman's Correlations Among State Anxiety and Self-Efficacy for Pre- and Post-Program for Class Participants 274

Table 7.16 Performance Evaluation Median Scores (Interquartile Range) Pre- and Post-Program and Mann-Whitney U Results for Class Participants 275

Table 7.17 Frequency of Completers' Pre- and Post-Program Performance Satisfaction 276

Table 7.18 Performance Mean Scores (Standard Deviations) for Class Intervention-Participants who Completed Follow Up Measures 277

Table 7.19 Correlations Among State Anxiety and Self-Efficacy Pre-and Post-Intervention by Condition and Treatment Group.....286

Table 7.20 Comparison of Improved Non-Performance (Pre-Program to Follow Up) and State (Pre- to Post-Program) Mean Difference Scores (Standard Deviations) for Intervention Participants.....301

List of Figures

Figure 3.1. SEP, MPA, and performance model. 61

Figure 3.2. SEP, MPA direction, and performance. 65

Figure 3.3. SEP, MPA direction, and performance: Inverse relationship. 70

Figure 3.4. Intervention pathway for strengthening self-efficacy for performing. 72

Figure 3.5. Psychological performance skills mapped to self-efficacy sources. 73

Figure 4.1. Teachers' responses to performance issues coded to self-efficacy sources and preparation. ..94

Figure 4.2. Studio teachers' responses to vignettes coded to self-efficacy sources and preparation. 94

Figure 4.3. Studio teachers' annual frequency of simulated performance observations. 106

Figure 4.4. School music educators' annual frequency of simulated performance observations. 106

Figure 4.5. Amount of simulations recommended by studio teachers 108

Figure 4.6. Studio teachers' performance-readiness expectations. 109

Figure 4.7. Studio teachers' performance-readiness expectations by instrumental family. 109

Figure 4 8. Studio teachers' frequency of live performance observation over a year. 138

Figure 4.9. School music educators' frequency of live performance observation over a year. 139

Figure 4.10. Pedagogical framework for promoting SEP in music lessons mapped to each self-efficacy source. 162

Figure 6.1. Summary of assessment schedule. 196

Figure 6.2. Psychological performance skills mapped to self-efficacy. 224

Figure 7.1. Pre/Post-program MPSES total (solo) by group. 255

Figure 7.2. Pre/Post-program MPSES total (mixed) by group. 256

Figure 7.3. Pre/Post-program self-confidence by group 272

Figure 7.4. Extreme example of disparate student and teacher post-performance evaluation. 291

Figure 7.5. State variables and performance outcome patterns by group and condition. 293

Glossary of Acronyms

ABS	Australian Bureau of Statistics
AMEB	Australian Music Examinations Board
AMUSE	Association of Music Educators
APS	Artists Performance Survey
ASME	Australian Society for Music Education
ATAR	Australian Tertiary Admission Rank
AUSTA	Australian Strings Association
CAVE	Computer Automatic Virtual Environments
CBT	Cognitive Behavioural Therapy
CSAI-2R	Revised Competitive State Anxiety Inventory
LTAD	Long-Term Athlete Development
MPA	Music Performance Anxiety
MPSES	Music Performance Self Efficacy Scale
MST	Mental Skills Training
PAQ	Performance Anxiety Questionnaire
PPI-A	Psychological Performance Inventory-Alternative
SAC	School Assessed Coursework
PSA	Performance Skills Assessment
PSI	Performance Skills Inventory
SEP	Self-Efficacy for Performing
SMART	Smart, Measurable, Achievable, Realistic, Timely
VMTA	Victorian Music Teachers Association
VR	Virtual Reality
UTA	Up-to-Ability

Chapter 1
Introduction

1.1 Nature of the Study

Performing music can be intensely rewarding. Few experiences match the exhilaration, accomplishment, and fulfillment following a well-executed performance where the endless hours of practice and careful preparation flow into inspired and effortless playing on the day. The drive for performance excellence, however, can also be a significant source of anxiety for musicians. Intense levels of arousal, self-consciousness, concerns about being evaluated, failure to achieve or play up to one's ability, and a lack of confidence can have a significant impact on a performer's health, well-being, and motivation to succeed.

Like other musicians I experienced the highs and lows of performing music. My problem was not a lack of experience or practice. I performed quite regularly from a young age, but it always seemed to be a hit or miss experience, and I often felt as if I had no control over the final result despite my many hours of hard work. I both loved and feared performing, never quite knowing what the next performance would deliver.

My interest in performance psychology was sparked following an experience performing the Chopin *Etude Op.10 No.5* (commonly referred to as the black note study) at a school recital. Battling nerves and concerned about sweaty hands, I proceeded to wipe down the keys prior to starting in (what would turn out to be) a futile attempt to avoid slippery piano keys. It was not until well after the performance that I realised I had wiped down all of the white notes and not a single black note! Although amusing, it occurred to me in hindsight that if I could become so confused about

something so simple under pressure, then how could I rely on myself to execute or perform far more complex processes? This realisation continued to haunt me as I subsequently suffered through a series of negative performing experiences.

Throughout my musical studies, which included two performance-based university music degrees, my teachers (performers themselves) offered little advice to help me with the problems I was experiencing. In fact, they remained remarkably silent as I struggled to play even in lessons. Continuing to perform was clearly not a solution as my performances further disintegrated and I found it increasingly frustrating that there appeared to be no help readily available for such a demanding activity. Keen to improve my performances and eliminate my anxiety, I went on to study psychology. As I explored sports and performance psychology, I soon realised that I needed to dispense with the notion that I had to feel comfortable and calm in order to perform well. Facilitating optimal performance may or may not involve a reduction in anxiety as there are a range of psychological competencies that contribute to high-level performances including attentional control, appropriate self-talk, imagery, effective goal setting, resilience, and most importantly confidence. As I worked on improving my musical outcomes, I realised that these skills were unlikely to be developed in the practice room or through regular performance without specific education and training, conscious effort, and practice.

My ensuing experiences as a studio teacher also enabled me to view this issue from another perspective. I realised that unfortunately, the cycle of performance problems is perpetuated as students become teachers with inadequate understanding of how to deal with these issues for themselves let alone for their own students. This was highlighted in professional development sessions on teaching pedagogy where I observed highly trained and capable musicians who were reluctant to perform basic

repertoire to demonstrate a teaching point due to a lack of personal confidence. I began to question how teachers could be expected to develop performance confidence in their own students if they were unable to achieve this for themselves. Clearly, there were gaps in musical training that needed to be addressed and this inspired me to investigate how performance self-confidence could be nurtured within the context of music lessons. My attention was drawn to issues concerning how to incorporate performance psychology into the music curriculum to enhance well-being, facilitate optimal performance, and foster self-confidence and pleasure in music making and performing.

1.2 Theoretical Background and Framework

1.2.1 Self-Belief

What enables one individual to rise to the occasion, producing an inspired performance, whilst another, equally skilled performer, 'chokes' under the pressure of the moment? Why might a capable music teacher or student avoid performing or feel competent to perform in one situation but not in another?

These types of common scenarios have motivated researchers to investigate personal beliefs or self-conceptions such as self-esteem, self-confidence, and self-efficacy to understand their impact on behaviour and performance (Bandura, 1997; Greenberg, 1970; Pajares, 1997). Self-esteem relates to judgements of self-worth and self-respect; self-confidence refers to feelings of self-assurance and a belief in one's ability to achieve success; whilst self-efficacy reflects judgements of personal capability for a particular task within a specific situation (Bandura, 1997). These related yet different constructs of personal competence have all been examined in relation to their effects on motivation, behaviour, and achievement (Bandura, 1997; Feltz, 2007; Pajares, 1997; Zimmerman, 2000). Self-esteem judgements relate to personal feelings, that is,

whether people take pride in their achievements and like themselves, whereas self-confidence and self-efficacy beliefs reflect individuals' thoughts about their ability to perform particular tasks (Bandura, 1997). This distinction is important as "there is no fixed relationship between beliefs about one's capabilities and whether one likes or dislikes oneself" (Bandura, 1997, p. 11) or self-liking and achievement (Bandura, 1997). For instance, it is possible for individuals to have high self-esteem but lack confidence for a particular task and/or perform poorly without suffering any loss of self-worth particularly if that activity is not meaningful to them (Bandura, 1997). Thus, people need more than just high self-esteem to achieve. They must have "confidence in their efficacy to mount and sustain the effort required to succeed" (Bandura, 1997, p. 11).

1.2.2 Self-Confidence

In the performance enhancement literature, researchers have identified self-confidence as one of the most important psychological factors for optimal performance (Williams, Zinsser, & Bunker, 2015). Indeed, a consistent finding across all performance research is the association between confidence and success (Feltz, 2007). Confidence predicts achievement across a number of performance domains and is associated with personal and professional satisfaction, resilience, and effective coping processes (Feltz & Lirgg, 2001; McCormick & McPherson, 2003; OECD, 2015; Stankov, Morony, & Lee, 2013).

Confidence is a popular catch word, easily understood by most people across a variety of situations and within a number of different contexts (Bandura, 1997; Short & Ross-Stewart, 2009). In a more general sense, it can refer to global or general self-perceptions of ability. Whilst it may identify the strength of peoples' conviction

regarding their ability, it is imprecise at defining the intent of this belief or the specific activity at which it is directed (Bandura, 1997; Short & Ross-Stewart, 2009). Thus, depending on how it is used, measured and interpreted, it is unable to explain the complexity of self-beliefs and behaviour that can vary from one task to the next, and even within the same activity in response to changing environmental conditions (Bandura, 1997). For instance, students with high levels of confidence in their musical ability may play successfully for their teachers in a lesson but underperform when playing the same piece in front of an unfamiliar audience. It is for this reason that confidence is viewed as a 'non-descript' term, and its utility in explaining and predicting behaviour and performance is limited (Bandura, 1997; Short & Ross-Stewart, 2009).

1.2.3 Self-Efficacy

Bandura (1977) introduced self-efficacy as an important component of social cognitive theory and it is now recognised to be a key factor in theories of motivation, self-regulated learning, and achievement. Identified as the primary determinant of human behaviour it mediates cognitions, emotional reactions, motivation, and ultimately how individuals respond to a particular situation and their performance attainments (Bandura, 1997).

Self-efficacy beliefs are distinct from confidence and other self-beliefs in that they are sensitive to task and situational context. Defined as "the conviction that one can successfully execute the behaviour required to produce the outcome" (Bandura, 1977, p. 193) this self-belief reflects an individual's assessment of competence to perform a particular task and achieve a certain outcome at that specific moment. Regardless of whether performers are novice students or virtuoso musicians, what

counts in those critical moments prior to starting is how people *perceive* their ability to achieve. These judgements are not a reflection of whether they have acquired the requisite skills to perform a task but rather an indication of how successfully they think they can implement or execute them under challenging circumstances (Bandura, 1997; Feltz, Short, & Sullivan, 2008). It is therefore possible for individuals to overestimate or underestimate their actual level of competence which can impact their performance achievements (Hoy & Spero, 2005).

1.2.4 Sources of Self-Efficacy

Motivation experts have identified four main sources of information that influence self-efficacy beliefs: mastery experiences, verbal persuasion, vicarious experience and, physiological and affective states (Bandura, 1997). Mastery experiences refer to past performing accomplishments and an individual's perception of success or failure. Vicarious experience involves learning through observation and comparing oneself with others. Verbal persuasion relates to feedback and encouragement from others whilst physiological and affective states involve the quality and degree of arousal associated with the task (Bandura, 1997; Pajares, 1997). Although these four sources are believed to be a means of strengthening self-efficacy, there is a paucity of information within music contexts on how these might change and develop over time, how they could be fostered within music environments, the relative influence of each source, and their effects on performance.

1.2.5 Self-Efficacy and Anxiety

Self-efficacy also plays an important role in well-being contributing to an individual's sense of happiness, optimism, satisfaction, positive thinking, and emotional

states (Bandura, 1997; Caprara, Steca, Gerbino, Paciello, & Vecchio, 2006). Efficacious individuals experience less stress, anxiety, and depression if they believe they can manage a task and fewer adverse emotional reactions when faced with difficult circumstances (Bandura, 1997). It is therefore not surprising that self-efficacy helps frame conceptions of anxiety and has been found to be a more reliable predictor of performance achievement than arousal intensity within music, sport and academic domains (Ackermann, Kenny, O'Brien, & Driscoll, 2014; Bandura, 1997; Pajares & Kranzler, 1995; Siegal, Galassi, & Ware, 1995). Although it is believed to influence all aspects of anxiety (intensity, dimension and direction), few investigations have examined the relationship between these factors within music settings despite music performance anxiety (MPA) being one of the most common psychological problems faced by musicians. Whilst some studies have noted increases in self-efficacy following MPA interventions, this self-belief is not commonly targeted by researchers as a construct to be enhanced to facilitate performance or more positive perceptions of physiological and emotional arousal.

Since efficacy beliefs may influence all aspects of performance, fostering positive self-perceptions should become a priority for music educators and researchers (Feltz et al., 2008; McCormick & McPherson, 2003; Nielsen, 2004; Zimmerman, 2000). Despite the clear benefits of strengthening performers' beliefs in their ability, however, minimal research has been conducted into how performance self-efficacy is nurtured or could be enhanced within music settings. Although some general guidelines have been suggested for fostering this self-belief there is inadequate knowledge about how music teachers develop it within group and individual lessons. As teachers come from a diverse range of educational, performing, and pedagogical experience it would be beneficial to determine the types of strategies they use to help their students become

efficacious performers. This knowledge could then inform the development of resources to empower music educators to nurture performance self-efficacy. Determining the relationship between the four sources of efficacy information, MPA intensity, dimension, and direction, and performance outcome will contribute knowledge to the field that educators can use to develop intervention programs.

1.2.6 Curriculum-Based Music Interventions

Typically, intervention efforts have focussed on treating the debilitating effects of MPA without accounting for the fact that arousal can have adaptive and performance enhancing benefits, depending upon the intensity, dimension (cognitive and somatic), and direction (facilitative or debilitative) of the anxiety experienced (Gould, Greenleaf, & Krane, 2002; Jones, Swain, & Hardy, 1993; Kenny, 2005; Martens, Vealey, & Burton, 1990). The various combinations of these will have differential effects on achievement and will influence, or be impacted by, individuals' belief in their ability (Bandura, 1982; Gould et al., 2002; Kenny, 2005; Martens et al., 1990).

More recently the research focus has shifted to facilitating optimal performance through the development of a range of psychological and behavioural skills, an approach adopted from sports psychology (Clark & Williamon, 2011; Osborne, Greene, & Immel, 2014; Spahn, Walther, & Nusseck, 2015). This approach has traditionally involved specialist treatment or program delivery. Since the majority of music students are unlikely to seek professional help or have access to intervention programs an alternate approach is to receive training in these competencies through their school and studio music education (Spahn, Richter, & Zschocke, 2002).

Whilst there has been an increasing focus on musician's emotional and psychological health at the tertiary level it is noticeably absent in the education of

adolescent musicians. This is surprising given that this is a developmental period where performance problems often develop and escalate (Fehm & Schmidt, 2006; Jackson & Lurie, 2006; Osborne, Kenny, & Holsomback, 2005; Ranelli, Smith, & Straker, 2015). The fact that university music students not only begin their higher education with a greater prevalence of physiological and psychological problems compared with non-music majors, but are also at risk of further decline in their first year of study, infers that implementing proactive measures earlier could be of benefit (Brandfonbrener, 2009; Esplen & Hodentt, 1999; Ingles, 2013; Miller & Chesky, 2004; Spahn, Nusseck, & Zander, 2014; Zander, Voltmer, & Spahn, 2010). The few interventions that have targeted adolescents or secondary-school age students, however, have focussed on reducing MPA rather than targeting self-efficacy, facilitative anxiety or performance outcome (Braden, Osborne, & Wilson, 2015; Gratto, 1998; Osborne, Kenny, & Cooksey, 2007).

The standard format of these health and well-being initiatives can also present a number of challenges. As they usually involve class-based instruction there may be a tendency to focus on education and theory leaving the practical application and long-term development of, what are often abstract concepts, to be devised by the learner. Not only do students struggle with self-awareness and motivation but they often fail to translate knowledge into action without individual guidance (Hatfield & Lemyre, 2016; Ingles, 2013; Koopman, Smit, de Vugt, Deneer, & den Ouden, 2007). Additionally, these 'one-off' programs do not provide opportunities for follow up or further skill acquisition and development. Another difficulty is encouraging students to participate in and/or complete these courses as they are often an optional part of the curriculum and musicians can be reluctant to engage in activities that may encroach on practice time even if they recognise them to be beneficial (Clark & Williamon, 2011; Ingles, 2013;

Osborne et al., 2014). Finally, they can usually only be accessed by a small minority of students as these programs are not available to the general public.

Many of these challenges may be overcome if music educators were able to deliver this training in their class and studio music lessons enabling them to become a driving force in preventing performance issues. Over the last 25 years there have been numerous recommendations to integrate key coping and psychological performance skills into the standard music curriculum (Cohen & Bodner, 2017; Ingles, 2013; Robson & Kenny, 2017). Researchers have advised educating teachers in cognitive attentional techniques (Kendrick, Craig, Lawson, & Davidson, 1982) and suggested that although they are not specialised therapists they are essential to promoting well-being and early intervention (Barton & Feinberg, 2008; Brugues, 2011; Hunnicutt & Winter, 2011). Teachers can only achieve this if they have the necessary skills and knowledge (Kenny, 2011). Since most have come through a self-perpetuating music education system that has failed to address these issues there is likely to be a substantial lack of education and teacher training.

Many researchers have advocated for a prevention-oriented pedagogy highlighting the need to empower teachers so that they can support their students' emotional and psychological well-being in conjunction with their musical growth (Ingles, 2013; Kendrick et al., 1982; Nagel, 2009). Yet, a systematic and practical method for incorporating core psychological performance skills into the music curriculum has yet to be developed to meet these needs. Such a resource could target self-efficacy (via the four sources of information), facilitative interpretations of anxiety, and performance outcome through a multi-faceted program adopted from the sports domain that embeds skill development into lessons and daily practice, promotes long term stepwise skill development, requires minimal time commitment, and is easily

accessible and cost-effective. This would enable young musicians to develop the necessary performing skills to facilitate optimal performance, enhance self-efficacy, and foster a positive sense of well-being.

1.3 Purpose of the Study

The purpose of this study was to:

1. survey pedagogical approaches to fostering performance self-efficacy and coping skills within adolescent class and individual music lessons;
2. define pedagogical approaches that would promote the development of performance self-efficacy and equip students with a range of behavioural, cognitive and affective skills that allow them to manage or cope with the challenges of performing; and,
3. use this information to:
    a. develop a framework for integrating these skills into the standard music curriculum by designing a pedagogical resource or methodology that can be broadly implemented within adolescent class and studio music lessons by music teachers without specialist psychological training or self-efficacy specific knowledge; and,
    b. assess the impact of this methodology on self-efficacy, anxiety and performance.

1.4 Organisation of Thesis

This chapter described the foundations of this thesis and the nature and purpose of the research. Chapter 2 presents a review of the literature pertaining to MPA, self-efficacy and interventions and is divided into three sections: the first section, Anxiety

and Performance Enhancement covers MPA, the different components of anxiety (including intensity, dimension (cognitive and somatic), and direction (facilitative or debilitative), their effect on performance, and intervention approaches aiming to reduce MPA and/or enhance performance, highlighting current trends in adopting a sports-based approach; the second section, Self-Efficacy and Performance focusses on self-efficacy and the sources of efficacy information, why interventions would benefit from targeting this construct, and ways that standard mental skills training (MST) programs could be broadened to enhance self-efficacy sources; and, finally, Curriculum Based Interventions and Prevention explores programs that have been introduced as compulsory or voluntary components of music education. It discusses the challenges encountered with implementation, engagement, and adherence highlighting the need to be delivering these skills at the secondary school age level as an integrated part of the music curriculum.

The next three chapters discuss the first research phase which involved the design and development of the pedagogical method.

Chapter 3 presents a model of the interaction between self-efficacy, music performance anxiety and performance achievement to inform the structure and implementation of the intervention. Chapter 4 discusses the first research study, an investigation of the pedagogical development of psychological performance skills and self-efficacy in adolescent class and individual music lessons in Australia. This was undertaken to understand how teachers intuitively nurture students' self-beliefs and determine the optimal means by which positive self-perceptions and subsequent musical achievement could be most effectively fostered within music environments. Qualitative analyses were conducted on open-ended responses to a questionnaire requiring teachers to respond to vignettes depicting common student performing scenarios and to share

their strategies for helping their students cope with key performance issues. The results (coded to the four self-efficacy sources) and implications for music pedagogy are discussed. Chapter 5 discusses the instructional method and an online program resource. It also outlines the competencies targeted by the program, with a particular emphasis on simulation and self-evaluation which were identified through the literature review, model, and teacher study to be an important means of broadening current interventions to enhance self-efficacy and skill development.

The second phase of the research, the implementation and assessment of the psychological performance skills program, is covered in Chapter 6 and Chapter 7.

Chapter 6 presents the results and discussion of a pilot study of the program (study two). This was conducted to test the efficacy of the program and gain feedback. The effects on anxiety, self-efficacy, and performance were also examined. Chapter 7 presents the results of the main investigation which examined the effects of the program on music students receiving the program via their studio music lessons (study three) or through their school music classes (study four).

The concluding chapter (Chapter 8) reflects on the findings and provides recommendations for future directions.

Chapter 2
Literature Review

2.1 Anxiety and Music Performance

Music performance has been described as a euphoric and joyous experience with the potential to temporarily transport both performer and audience to 'another world' (Jourdain, 1997). For the listener, music performance offers a heightened affective experience (Woody & McPherson, 2010). It inspires, gives pleasure, entertains, promotes relaxation, regulates moods, enhances well-being, and provides an 'escape' from the realities of everyday life (McFerran & Rickard, 2012). Conversely, the physical and psychological demands of playing for an audience can induce a range of emotional extremes in the performer. Whilst producing one's best on stage can be exhilarating, the intense pressure to achieve is often accompanied by debilitating anxiety that not only negatively impacts the quality of the performance, but can have long-lasting effects on a musician's health, happiness and career (Reubart, 1985; Steptoe, 2001).

2.1.1 Musicians' Well-Being

The psychological well-being of the performer is a critical factor in achieving performance excellence (Kenny & Ackermann, 2009; Williamon, 2004b). Yet, musicians are rated in the top five occupational groups at most risk for mental illness (Colligan, Smith, & Hurrell, 1977). It is estimated that about 75% of professional musicians and 50-60% of music students suffer from occupationally–related disorders (Hildebrandt, 2009; Rosset-Llobet, Rosines-Cubells, & Salo-Orfila, 2000). Aside from

having to cope with the high levels of performance anxiety, musicians are faced with a number of pervasive occupational stressors throughout their career that may also affect their mental health and well-being (Wristen, 2013). These include: a competitive work environment; failure to achieve career goals; continuously imposed self-discipline; constant exposure to criticism (from self and others) and demands of perfection; irregular work hours; long periods of isolated practice; a high workload that often does not reap an appropriate amount of reward; financial insecurity; and, playing-related musculoskeletal disorders that are caused in part by excessive anxiety and over-practice (Hildebrandt, Nubling, & Candia, 2012; Ranelli et al., 2015; Wristen, 2013).

To deal with the rigours of their profession, musicians may resort to legal and illegal substance-based coping strategies, placing themselves at risk of addiction and negative side effects (Kenny, Driscoll, & Ackermann, 2012; Vaag, Bjørngaard, & Bjerkeset, 2016). The more advanced musicians are in their career the more likely they are to use medications, such as beta blockers, on a regular basis, often without medical supervision (Kenny et al., 2012; Sasso, 2010). Alcohol consumption has also been associated with debilitating music performance anxiety (MPA), particularly when excessive arousal has negatively impacted on a musician's career or study (Clark & Agras, 1991; Kenny et al., 2012; Simoens, Puttonen, & Tervaniemi, 2015). Performers unaware of alternate effective coping methods or simply seeking a 'quick fix' will often favour these substance-based approaches for their ease of application and perceived instant provision of relief. This may have a detrimental effect on their health and compromise their future prospects.

2.1.2 Music Performance Anxiety

Developing effective psychological and behavioural coping strategies can help musicians to optimize their well-being and enjoy and long a fulfilling career. Traditionally intervention efforts have focused on alleviating MPA as it is one of the most common problems faced by musicians (Kenny, 2011). Although estimates vary, studies indicate that up to 70% of professional musicians experience anxiety levels severe enough to `impair musical performance and/ or well-being (Fishbein, Middlestadt, Ottati, Strauss, & Ellis, 1988; James, 1998; Kirchner, Bloom, & Skutnick-Henley, 2008; van Kemenade, van Son, & van Heesch, 1995). University music students, adolescents, and even children show similar patterns of prevalence (Esplen & Hodentt, 1999; Miller & Chesky, 2004; Wesner, Noyes, & Davis, 1990). Age and gender are high-risk factors with women and musicians under the age of 30 more likely to develop mental health issues as a result of debilitating MPA (Kenny et al., 2012).

2.1.3 Anxiety Interventions

Music performance anxiety has traditionally been viewed as aversive or detrimental to performance (Cox & Kenardy, 1993; Niemann, Pratt, & Maugan, 1993). High levels of MPA can be distressing, uncomfortable, and have the potential to severely impair coordination, control, and concentration. Consequently, most therapeutic efforts have focussed on reducing its negative impact with minimal emphasis on the actual outcome of the performer's efforts. This was highlighted in a review of MPA interventions which indicated that 50% of the studies did not include a measure of performance quality (Kenny, 2005).

Interventions that have assessed performance have shown inconsistent patterns in relation to anxiety. Some have found that reductions in MPA have not led to greater

achievement. For example, cognitive-behaviour therapy (CBT) programs incorporating psychoeducation, goal setting, cognitive restructuring, and relaxation training have alleviated MPA and improved preparation and resilience, without any beneficial effects on musical outcomes (Braden et al., 2015; Osborne et al., 2007). Conversely, others such as hypnotherapy, mental skills training (MST), and, eye movement desensitising and reprocessing have demonstrated improvements in MPA and performance (Brooker, 2018; Clark & Agras, 1991; Hoffman & Hanrahan, 2012; Kendrick et al., 1982; Roland, 1992; Sweeney & Horan, 1982; Valentine, Fitzgerald, Gorton, Hudson, & Symonds, 1995).

These equivocal results may in part be due to a failure to account for the two dimensions of anxiety (cognitive and somatic) and their differential effects on achievement and the fact that a certain amount of arousal is necessary for optimal performance (Kenny, 2005).

2.1.4 Multi-Dimensional Anxiety

Multidimensional anxiety theory which has been widely applied to the study of competitive sports anxiety, posits that anxiety consists of a cognitive and a somatic dimension (Martens et al., 1990). The somatic component relates to performers' cognitive interpretation or perception of their physiological response, rather than the actual physiological arousal itself (Deffenbacher, 1980; Gould et al., 2002). This is important as physiological symptoms, such as increased heart rate, are in and of themselves non-specific, and can be associated with challenging tasks, pleasurable events, or threatening situations depending on how individuals interpret what they are experiencing (Steptoe, 1989). This distinction thus enables a greater understanding of

anxiety and how it relates to performance than general models of arousal that do not account for subjective perceptions of this response.

Cognitive anxiety is believed to exert the greater influence since it generally manifests as worry, negative expectations, and negative self-evaluations, diverting attention away from the task at hand (Martens et al., 1990). It has been shown to exhibit a negative-linear relationship with outcomes so that as cognitive arousal increases performance quality decreases (Chamberlain & Hale, 2007; Woodman & Hardy, 2003). The somatic dimension tends to display an inverted-U relationship to performance and is less problematic, particularly if it follows the expected response pattern of peaking immediately prior to starting, gradually dissipating once the game or competition begins (Chamberlain & Hale, 2007; Martens et al., 1990).

Within the somatic dimension musicians may be susceptible to a state of *hyper-vigilance* or heightened sensitivity to sensory experiences and physiological changes because of the fine motor skills involved in playing an instrument (Salmon & Meyer, 1998). Consequently, somatic anxiety may become more significant in musical settings as there is the potential for minor changes in physiological state to become highly salient under pressure resulting in unpleasant and distracting sensations that can adversely affect instrumental mastery (Salmon, 1992). It is therefore not surprising that musicians primarily focus on distressing physiological changes that are perceived to impact aspects of technique specific to their particular instrument, for example, dry mouths for wind players and vocalists, and finger tremors and lack of finger control for string players and pianists (Patston & Loughlan, 2014; Wolfe, 1989).

In support of this multi-dimensional approach, musicians commonly report both somatic (racing heart, nausea, sweating, breathlessness) and cognitive (negative thoughts, worry, and difficulty concentrating prior to and during a performance) anxiety

components (Salmon, 1990; Steptoe, 2001; Wesner et al., 1990). Whilst a number of studies have indicated that it is appropriate to assess MPA according to this theory only a few have investigated how these two dimensions actually relate to musical outcomes (Clark & Williamon, 2011; Gill, Murphy, & Rickard, 2006; Miller & Chesky, 2004; Steyn, Steyn, Maree, & Panebianco-Warrens, 2015; Yoshie, Shigemasu, Kudo, & Ohtsuki, 2009). Preliminary findings suggest that the cognitive dimension exerts the greatest influence, with higher levels interfering with technical accuracy and impairing global performance (Brooker, 2018; Yoshie et al., 2009). Furthermore, reductions in cognitive anxiety, following therapy, have been associated with enhanced piano performance even when somatic symptoms remain stable (Brooker, 2018).

2.1.5 Optimal Arousal

Anxiety can be beneficial to performance even when it 'feels' uncomfortable . High-arousal performances have been judged, by expert audiences, as 'superior' to those occurring under more relaxed conditions. This is despite the performers perceiving their subjective discomfort to have had a negative impact on their efforts (Hamann, 1982; Hamann & Sobaje, 1983). Similarly, anxiety has been shown to facilitate execution for performers with high task mastery, resulting in greater levels of achievement (Hamann & Sobaje, 1983).

Models of the arousal-performance relationship state that a certain degree of anxiety will enhance performance as it has an adaptive function generating a state of readiness and awareness in the performer (Kenny, 2011). This response activates mental and physical resources helping the performer to be extra alert and perform their best and is necessary for experienced performers to achieve peak performance (Simoens et al., 2015; Steptoe, 1989). Low levels of arousal are associated with sub-optimal

mental and physical activation potentially resulting in sub-par performances (Simoens et al., 2015; Wilson & Roland, 2002). The often quoted inverted-U-hypothesis states that low or extremely high arousal impairs performance with moderate levels leading to the best outcomes. Although appealing this model has been criticised for being too simplistic and failing to explain why performance is impaired below or above these optimal levels (Jones, 1995; Neiss, 1988). It has since been extended or replaced by more complicated theories that suggest there are a number of moderating factors influencing the anxiety-performance relationship such as individual skill level, situational factors, physiological and psychological adaptability, and individual perceptions of anxiety (Hancock & Ganey, 2003; Wilson, 1997).

2.1.6 Directional Anxiety

Individuals' positive or negative interpretation of their anxiety may have a greater effect on performance than the actual intensity of the symptoms experienced (Gould et al., 2002). Alpert and Haber (1960) originally differentiated between facilitative and debilitative anxiety in test performance and this distinction has generally been shown to be a better predictor of achievement than general measures of this response (Jones, 1995; Munz, Costello, & Korabik, 1975). Debilitative anxiety has been associated with lower attainment, ineffective coping and increased anxiety, worry, and distraction in academic settings (Raffety, Smith, & Ptacek, 1997).

Defined as the 'direction' dimension this concept has been thoroughly explored with sports competitive anxiety. Elite athletes and those who perform well in the sports arena have been found to have more facilitative and less debilitative perceptions of their arousal despite experiencing equivalent levels of intensity when compared to their non-elite or 'inferior performance' counterparts (Jones, Hanton, & Swain, 1994; Jones et al.,

1993). Additionally, directional interpretations positively predict outcomes and there is some evidence that they explain a larger portion of performance variance than the intensity of the anxiety experienced (Chamberlain & Hale, 2007; Grobbelaar & Coetzee, 2006; Jerome & Williams, 2000; Kais & Raudsepp, 2004; Raudsepp & Kais, 2002; Swain & Jones, 1996).

Given the importance of this direction dimension it is surprising that only a small body of research has distinguished between these two aspects of anxiety in music performance. Feelings of arousal, intensity, confidence, and competence are perceived as facilitative factors for musical outcomes whilst apprehension, nervousness, self-consciousness, and distractibility impair performance (Wolfe, 1989). Interventions such as biofeedback, coping strategies (muscle relaxation, breathing awareness, performance-coping imagery) and MST programs have successfully reduced levels of debilitative MPA and increased facilitative interpretations, in some instances without affecting intensity levels (Clark & Williamon, 2011; Niemann et al., 1993; Sweeney & Horan, 1982). It also appears that reducing negative interpretations of anxiety may lead to improved performance (Sweeney & Horan, 1982). This is important given that 66% of tertiary-level students tend to interpret their arousal unfavourably with cognitive anxiety perceived to be more debilitative than somatic anxiety (Gill et al., 2006).

Although there is some indication that facilitative interpretations of anxiety are associated with greater artistic expression, technical accuracy, and superior performance in pianists there is still more to be understood about how these subjective perceptions relate to achievement in music (Yoshie et al., 2009). Determining the factors that lead to directional anxiety interpretations and their effects on performance would be of great benefit in structuring treatment programs.

2.1.7 Performance Enhancement

As MPA has typically been considered to be non-beneficial, intervention efforts have largely focussed on alleviating its debilitating effects to enhance performers' well-being. Musicians, however, are ultimately focussed on the outcome of their efforts and successful performances " will have a self-reinforcing, confidence-enhancing effect on future performances, obviating the need for further treatment" (Kenny, 2005, p. 205). Depending on the individual, optimal performance may or may not involve a reduction in MPA as there are a number of psychological factors that have been identified across all performance domains that contribute to high-level performances. In this respect, the sports psychology literature represents one of the main forefronts of research into peak performance (Harmison, 2006; Kenny, 2011). The overarching goal of sports psychology is to achieve performance excellence, "to help people consistently perform in the upper range of their capabilities and more thoroughly enjoy the performance process" (American Psychological Association, 2011, p. 9). It is a performance-based approach, helping people reach their potential, rather than treating mental health issues or clinical pathology (Williams & Krane, 2015).

2.1.8 Psychological Performance Skills in Sport

Studies of elite athletes have revealed that the ideal mental and physical state for optimal performance consists of high self-confidence, expectations of success, being energised yet relaxed, feeling in control, being focussed and attending to detail, and experiencing positive emotions towards the performance (Krane & Williams, 2015). In contrast, poor performances are associated with self-doubt, inattention, low concentration, and poor arousal management (Krane & Williams, 2015). Superior performers commonly use goal setting, imagery, pre-performance routines, cognitive

restructuring, performance simulation, attentional control and arousal management strategies to deal with negative thoughts and emotions and switch into an optimal performance mindset (Harmison, 2006; Krane & Williams, 2015). These are learned skills requiring conscious effort and practice to develop proficiency (Harmison, 2006; Krane & Williams, 2015). Specific education in these techniques is referred to as psychological or mental skills training (MST).

2.1.9 Mental Skills Training

Mental skills training in sports performance encompasses a much broader approach than has typically been delivered within music interventions. Most studies of musicians have investigated a limited number of strategies to determine the effectiveness of each technique. Additionally, much of the research has focussed on an attenuated range of skills such as cognitive restructuring, attentional control, and relaxation strategies. Imagery training, pre-performance routines, facilitative anxiety, and performance simulation techniques have yet to be fully explored (Clark & Williamon, 2011; Steyn et al., 2015).

Given that elite and student musicians do not appear to have specific or detailed mental preparation plans for practicing and performing, a more comprehensive, multi-faceted approach is warranted (Hatfield & Lemyre, 2016; Talbot-Honeck & Orlick, 1998). There is a strong argument that intervention programs that include a broader range and greater number of skills will be more effective as each individual will have a unique need for, and response to, a particular technique (Clark & Williamon, 2011; Steyn et al., 2015). Currently, there is insufficient empirical knowledge about the effects of these broad intervention programs within different music contexts or for students of varying ages and ability (Clark, 2010).

2.1.10 Music Interventions

Sport and music performance share a number of common elements. Both domains require disciplined and rigorous training programs, and intense concentration to master motor skills that are then executed within a competitive environment under intense pressure (Martin, 2007; Osborne, 2016; Steyn et al., 2015). It is only relatively recently, however, that music research has started to adopt a performance-based approach, incorporating sports psychology techniques and practices to optimise outcomes through multifaceted, MST courses with university music students. These programs, which have ranged from brief interventions (three weeks) to semester long subjects, have demonstrated significant gains on a number of key psychological performance skills including: improved preparation and practice habits, confidence, concentration, resilience, and imagery vividness (Clark & Agras, 1991; Osborne et al., 2014; Steyn et al., 2015); a reduction in anxiety (cognitive and somatic) and negative effect (Cohen & Bodner, 2017; Osborne et al., 2014; Steyn et al., 2015); and, an increase in arousal-regulation, coping skills and facilitative anxiety interpretations (Cohen & Bodner, 2017; Osborne et al., 2014; Spahn et al., 2015; Steyn et al., 2015). Some participants have even reported greater control and more favourable perceptions of arousal without an actual reduction in cognitive or somatic anxiety intensity (Clark & Williamon, 2011). This indicates that further exploration of directional anxiety may prove to be fruitful in future research. The beneficial effects observed with this type of training demonstrate the efficacy of a focussing on facilitating achievement through emphasising the positive aspects of arousal in tandem with developing core coping strategies and psychological performance skills.

Mental skills training has also been found to be important for instrumental practice enhancing self-regulated learning, self-evaluation, technical proficiency, and

quantity of instrumental practice (Clark & Williamon, 2011; Hatfield & Lemyre, 2016). These programs can help music students change their practice activities and behaviours through increased self-awareness of effective performance preparation and confidence to employ a greater range of strategies such as mental rehearsal and goal setting (Clark & Williamon, 2011; Hatfield & Lemyre, 2016). Participants have also observed that they are better organised and able to use their practice time more efficiently (Clark & Williamon, 2011).

Although these multifaceted, MST programs have been shown to be effective at improving self-regulated practice and core psychological performance skills it is difficult to determine the effects of this type of training on musical outcomes. Performance quality has either not been assessed in these studies, or the results have been rendered unusable due to low inter-rater reliability (Clark & Williamon, 2011; Osborne et al., 2014; Steyn et al., 2015). Encouragingly, two recent interventions have observed significant improvements in self-evaluated audition performances (Spahn et al., 2015) as well as independently assessed musical quality (Cohen & Bodner, 2017; Spahn et al., 2015). The 14-week program developed by Spahn et al. (2015) for string musicians included video feedback, MST, relaxation, and cognitive strategies and body awareness exercises. Similarly, Cohen and Bodners' (2017) 11-week program consisted of four components: MST; physiological awareness; musical communication; and, simulation.

2.1.11 Summary

Providing training for musicians in key psychological and coping skills known to be involved in the execution of a successful performance has the potential to improve well-being and enhance musical outcomes. Recent innovations that incorporate a multi-

faceted, performance-based approach are promising. The impact of these broad programs on performance quality, however, has yet to be fully assessed. Furthermore, there is still more to be understood about the efficacy of these programs for younger musicians as the majority of investigations have targeted adults. The different aspects of MPA (dimension and direction) also warrant further exploration, in particular how each of these relate to musical achievement. Understanding the interrelationships among these components will help determine the factors that might lead to an optimal mental and physical state for performance. Treatment can then be targeted appropriately, for example, by increasing facilitative perceptions of anxiety and/or reducing the intensity of cognitive arousal.

2.2 Self-Efficacy and Performance

Whilst there are numerous factors that contribute to optimising outcomes, self-confidence has consistently been observed to be associated with success across a variety of performance domains (Feltz, 2007; Krane & Williams, 2015; Spink, 1990). Confidence predicts academic achievement, career accomplishment, and sport and music performance (Feltz & Lirgg, 2001; McCormick & McPherson, 2003; OECD, 2015; Stankov et al., 2013). It is believed to facilitate achievement through its positive effect on thoughts, feelings and behaviours contributing to a performers sense of well-being (Vealey, 2001). High levels of this self-belief promote pleasant emotions such as enjoyment and happiness, positive thinking, effective decision making, emotional control, appropriate focus, resilience in the face of adversity, and effective coping processes (Creswell & Hodge, 2004; Hays, Lane, & Thomas, 2016; Hays, Maynard, Thomas, & Bawden, 2007). Performers who feel confident also tend to interpret their anxiety positively, feeling excitement rather than fear (Jones & Hanton, 2001).

2.2.1 Self-Efficacy

Confidence represents judgements of ability to achieve or be successful (Williams, Zinsser, et al., 2015). It is a motivating force, guiding behaviour in efforts to strive for favourable results (Bandura, 1977; Ericsson, Krampe, & Tesche-Romer, 1993). This self-belief is often used to describe general or global self-perceptions of capability and as such has limited utility for explaining or predicting behaviour and performance across varying tasks and contexts (Bandura, 1997; Short & Ross-Stewart, 2009). Self-efficacy, which can be viewed as situationally specific self-confidence, is a far more precise construct that relates to the ability to perform a specific task successfully, 'in the moment', in reference to some type of goal (Pajares, 1997).

Self-efficacy stems from a branch of social cognitive theory that is used to explain motivation, behaviour and performance (Bandura, 1989, 1997; Feltz et al., 2008). This theory states that personal belief systems regulate motivation, style of thinking, emotions, feelings, actions, and accomplishments (Bandura, 2001; Pajares, 1997; Short & Ross-Stewart, 2009). When individuals assess the outcomes of their actions in a given situation, they either reinforce, or create new beliefs about their capability to manage similar situations in the future. These self-beliefs interact with situational factors to influence behaviour and subsequent performance in a reciprocal process that reflects this interplay of personal factors, conduct, and environment (Pajares, 1997; Short & Ross-Stewart, 2009). Individuals do not just react to their environment, rather, they act as agents in their own lives, intentionally making things happen, and exercising control over their motivation and behaviour depending on self-perceived ability to achieve a particular outcome or carry out an action successfully (Ritchie & Williamon, 2011; Short & Ross-Stewart, 2009).

An important component of this belief system is self-efficacy. Defined as "beliefs in one's capabilities to organise and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3) self-efficacy perceptions are specific to distinct domains such as music. These beliefs can also fluctuate within a particular discipline in response to the current task or demand (Feltz et al., 2008; Short & Ross-Stewart, 2009). For example, a musician may be highly efficacious in their expressive or interpretive skills but lack efficacy in their technique. This is because each of these distinct aspects of musicianship require different psychological and physical abilities with varying degrees of difficulty. Furthermore, it appears that self-efficacy for acquiring skills or learning specific tasks can be quite distinct from individuals' belief in their ability to implement or perform them (Schunk, 1996, April).

Self-efficacy beliefs are judgments about what people believe they can accomplish under a variety of circumstances. These self-perceptions are not so much about whether they possess the skills, although this is important, but rather, what they think they can do with them in that particular moment (Bandura, 1997; Feltz et al., 2008). Self-doubt can easily undermine this process. As a consequence, equally skilled musicians may perform poorly, or superbly depending on the situation and what they *believe* they have achieved and can accomplish (Bandura, 1997). "People often fail to perform optimally even though they know well what to do and possess the requisite skills to do it" (Bandura, 1997, p. 37).

Schunk (1996, April) proposed making a distinction between self-efficacy for learning and self-efficacy for performing. Learning self-efficacy relates to peoples' belief in their ability to acquire the necessary skills or knowledge to execute a task. Performing self-efficacy centres around individuals' perceived capability in implementing these skills to successfully perform the task (Schunk, 1996, April). This

differentiation has been observed within music contexts, as students' belief in their ability to learn and perform within this domain have been associated with varying levels of self-efficacy, and different musical skills and attributes (Ritchie & Williamon, 2010).

2.2.2 Influence

Efficacy beliefs enhance accomplishment and well-being. High levels of self-efficacy are associated with both personal and professional satisfaction enabling individuals to pursue challenging goals, face difficult circumstances, and persevere through setbacks (Bandura, 2001; Burgoyne et al., 2007). Efficacious individuals attribute failure to lack of effort or insufficient knowledge and skills (both of which can be addressed through heightened effort and therefore under individual control) rather than to personal deficiencies. Conversely, people with low self-efficacy are more prone to worry about things going wrong and engage in self-sabotaging behaviours, avoiding challenging tasks, expending less effort, and giving up in the face of failure (Feltz et al., 2008). These individuals often link poor performance with lack of aptitude and are quick to doubt their ability (Bandura, 1997). This can lead to stress and depression (Bandura, 1997).

The capacity to process and cope with stress and anxiety is also influenced by efficacy beliefs (Bandura, 1991). Performers with a strong belief in their ability to cope under pressure experience lower levels of anxiety and/or perceive their emotional arousal as facilitative rather than debilitative (Gill et al., 2006; Hatice, 2015; Treasure, Monson, & Lox, 1996). Undergraduate music students, for example, who perceived themselves to have more control over their internal emotions experienced lower levels of arousal (cognitive and somatic) and displayed more favourable interpretations of their somatic anxiety (Gill et al., 2006). Similarly, a study of trainee music-education

teachers found that as performance self-efficacy increased, levels of MPA decreased (Hatice, 2015). Higher levels of self-efficacy can 'boost' performers' efforts in the moment, helping them stay focussed rather than worrying about failing or the aversive symptoms of arousal (Feltz et al., 2008; Simoens et al., 2015).

In summary, efficacy beliefs will influence all aspects of performance including motivation, effort, physical proficiency, the cognitive processes involved in managing pressure and anxiety, setbacks, distractions, and the utilisation of effective performance strategies (Feltz et al., 2008). Thus, self-efficacy beliefs are "strong determinants and predictors of the level of accomplishment that individuals finally attain" (Pajares, 1997, p. 4).

2.2.3 Self-Efficacy and Music

Investigations within the music field certainly reflect this finding. Self-efficacy has been found to be the most important predictor of achievement in assessed music exams for young music students (9-18 years) leading to the conclusion that "students who display high self-efficacy expectations will be more likely to achieve in a difficult performance area, such as a formal music examination, than their peers who display the same level of skill but lower personal expectations" (McPherson & McCormick, 2000, p. 37). This self-belief has also predicted self- and independent-ratings of performance quality in adult musicians, including temporal and technical accuracy and artistic expression (Ritchie & Williamon, 2010; Yoshie et al., 2009). Within music practice it has been shown to mediate the selection of cognitive strategies, practice time, practice regulation, and formal and informal practice among young and adult musicians (McCormick & McPherson, 2003; Nielsen, 2004). Perhaps most importantly,

efficacious students are more likely to be cognitively and meta-cognitively involved in the learning process (Nielsen, 2004).

2.2.4 Sources of Self-Efficacy

There are a variety of sources of information believed to be responsible for the formation of self-efficacy beliefs. Bandura (1977, 1997) has categorised these sources as:

- mastery experiences;
- verbal persuasion;
- vicarious experience; and,
- physiological and affective states.

Mastery experiences.

Performance accomplishments are believed to be the most influential source of self-efficacy information (Bandura, 1997). This is because actually executing the behaviours that result in a successful outcome is the most powerful way to build self-efficacy (Maddux & Lewis, 1995). Each time individuals perform they reinterpret judgements about their capability based on the outcome or experience of their efforts which in turn influences their next performance. Mastery experiences are those that are perceived to be successful or a positive experience, through accomplishing a goal, and/or achieving a certain outcome (for example, receiving a high mark in an exam or winning a competition; Short & Ross-Stewart, 2009). These raise self-efficacy perceptions for future performances. Unsuccessful or negative performing experiences will undermine this self-belief (Bandura, 1997).

There has been overwhelming support for the efficacy-performance relationship in sports research. Self-efficacy relates to achievement regardless of whether it is measured before the event as a predictor, after the performance as an outcome measure, across various types of success and failure manipulations, and/or as a result of mastery-based interventions (Moritz, Hall, Martin, & Vadocz, 1996; Short & Ross-Stewart, 2009). Interestingly, there is some evidence to show that as a performer becomes more experienced, their accomplishments become the strongest predictor of self-efficacy rather than vice versa (Bandura, 1997; Short & Ross-Stewart, 2009). The influence of mastery experiences on this self-belief is also moderated by a number of other factors such as perceived task difficulty, patterns of success and failure, the amount of effort involved, perceptions of capability to acquire the necessary skills, and even the age of the performer (Bandura, 1997; Feltz et al., 2008).

Verbal persuasion.

Verbal persuasion is persuasive communication that conveys belief in an individual's ability. It can be in the form of evaluative feedback relating to a performance or progress, pep talks, reassurance, confidence building phrases, expectations, advice (on coping strategies or performance techniques), and other cognitive strategies (Feltz et al., 2008; Short & Ross-Stewart, 2009). Although it is generally regarded as a weaker source of information than mastery experiences and by itself has limited influence, sports coaches believe it to be one of the most effective ways to increase athletes' efficacy (Bandura, 1997; Vargas-Tonsing, Myers, & Feltz, 2004). This may be because the influential effect of verbal persuasion will likely be strengthened if the information comes from a credible, expert, and trusted source such as a teacher or coach (Bandura, 1997; Feltz et al., 2008). In addition, the persuader's

comments need to be realistic (an accurate evaluation rather than empty praise), measure success in terms of self-improvement rather than results, and attribute this success to ability (rather than luck, an easy task, or even effort; Feltz et al., 2008).

Self-efficacy may be increased via verbal persuasion if individuals believe or are convinced that they can acquire the necessary skills to perform the task rather than attributing failure to a lack of ability or inherent aptitude (Lirgg, George, Chase, & Ferguson, 1996). Whilst positive persuasions can encourage and enhance self-efficacy, the negative effects of the wrong type of persuasion may far outweigh any potential benefits to be gained from this source as it is far easier to weaken self-efficacy (through negative appraisals for instance) than it is to instil strong beliefs with encouragement (Bandura, 1997; Pajares, 1997).

Verbal persuasion is often perceived as persuasory information from other people but it also includes self-talk. One of the functions of self-talk is to 'build confidence' so it is not surprising that it enhances self-efficacy (Hanton & Jones, 1999). Performers often report increases in negative internal dialogue and irrational thinking prior to performances, undermining self-belief and potential for success, essentially persuading themselves that they are unable to cope with the situation or perform up to their ability. Positive self-talk statements can be used as a form of self-persuasion to accomplish goals, focus attention, control irrational thoughts and emotion, and direct effort (Feltz et al., 2008; Short & Ross-Stewart, 2009).

Vicarious experience.

Vicarious experiences involve observing and comparing oneself with others. Watching others achieve their goals, reach a certain standard, or cope with challenging situations can raise observers' beliefs in their own ability. This can be particularly

influential if they perceive themselves to be similar or comparable in terms of performance or personal characteristics to the model, are unsure of their own ability, and/or have limited previous experience with the task (Feltz & Chase, 1998; Pajares, 1997). Seeing others who are of similar or slightly higher ability achieve can inspire, motivate and instil the observer with self-belief (Bandura, 1997). The opposite is also true. Observing someone fail may negatively impact self-efficacy unless the onlooker feels they are more capable than the model (Brown & Inouye, 1978). An individual can also use self-modelling to enhance efficacy beliefs by repeatedly viewing their own successful past performances (Dorwick & Dove, 1980).

Physiological and affective states.

Performers also judge their ability to cope depending on how they feel physically and emotionally as they are engaging with the performance situation. Positive mood states such as happiness and excitement enhance self-efficacy whereas negative emotions (sadness, anxiety, and depression) will erode these judgements of capability (Maddux & Meier, 1995; Treasure et al., 1996). This often depends on how individuals interpret these feelings. For example, if high arousal signals to performers that they lack the skills to perform then they are likely to respond with fear and self-doubt. In contrast, associating this state with readiness to perform or being 'psyched' can lead to feelings of excitement and self-belief (Feltz, 2007; Schunk, 1995). Performance accomplishments play an integral role in how performers perceive their current emotional and physical state. Past successes coupled with positive emotions lead to efficacious interpretations whilst past failures associated with negative mood states result in low self-efficacy (Bandura, 1997; Feltz, 2007).

Another important factor that influences facilitative or debilitative interpretations of emotional states are perceptions of control. Performers who have low efficacy in their ability to cope with the symptoms that signal anxiety, are more likely to experience its debilitative effects. Positive expectancies of being able to cope and bring arousal under control lead to facilitative perceptions (Jones, 1995). Although these states affect capability assessments, self-efficacy can in turn have a powerful influence on physiological and affective states. This emphasises the importance of developing automatic coping skills. Negative reactions to physiological symptoms and/or emotional states will not only lower perceptions of capability and self-efficacy, increasing debilitative anxiety, but induce further stress and agitation resulting in impaired performance (Pajares, 1997).

Influences of the sources.

One of the defining characteristics of self-efficacy is that it is "dynamic and malleable" (Berry & West, 1993, p. 353) changing according to the task, situation, social context, and current state of the individual (Bandura, 1986; Berry & West, 1993). Individuals are therefore quite capable of altering their beliefs through specific training in a number of performance psychology techniques that relate to mastery experiences, verbal persuasion, vicarious experience, and physiological and affective states. Ultimately these sources could form the basis for understanding and constructing effective interventions to enhance self-efficacy. In this regard gaining mastery experiences should be a first priority as these have been consistently shown to exert the strongest influence on overall self-efficacy and achievement in music, sport and academic settings (Feltz, 2007; Usher & Pajares, 2006, 2008, 2009). There is, however, some evidence to suggest that the pattern of influence among the sources can vary. This

may depend upon the sequencing and temporal proximity of the efficacy information, how far in advance it is assessed in relation to the event, and the degree to which the performer can draw upon past experience (Wise & Trunnell, 2001; Zelenak, 2019). When a performance context is unfamiliar or novel, such as an audition, verbal persuasion may even become a stronger predictor of achievement (Bandura, 1997; Zelenak, 2019).

Although the strength and pattern of influence may vary, each one of these sources makes an important contribution to self-perceptions of capability (Usher & Pajares, 2008; Zelenak, 2011). Within music, mastery experiences have been shown to exert the strongest influence, but the correlations between the other sources and their composite are still moderately high (verbal persuasion, *r*=.85; vicarious experience, r= .71; physiological state, r=.77) indicating that they should not be ignored (Zelenak, 2011). Hence, appropriate intervention efforts would be those that are directed towards strengthening all of these sources to enhance self-efficacy (Maddux & Lewis, 1995; Zelenak, 2011).

2.2.5 Enhancing Musical Self-Efficacy: Targeted Interventions

Numerous studies have explored the relationship between self-efficacy and music consistently recognising the importance of this construct in musical achievement, learning, and use of practice strategies (McCormick & McPherson, 2003; McPherson & McCormick, 2006; Nielsen, 2004). Whilst a few investigations have noted an increase in self-efficacy following behavioural exposure, cognitive behavioural therapy, muscle relaxation training, mindfulness, and MST, the goal of these interventions was a reduction in MPA rather than specifically targeting self-efficacy as a construct to be enhanced (Kendrick et al., 1982; Osborne, 2016; Roland, 1992; Steyn et al., 2015).

Furthermore, insufficient procedural information and the use of self-efficacy measures that were dependent upon the performer's level or control of anxiety make it difficult to determine the exact effects of these programs on this self-belief (Kendrick et al., 1982; Roland, 1992; Steyn et al., 2015).

Despite convincing research linking self-efficacy to learning behaviours and achievement, few interventions have targeted this construct (and its sources) as a way of improving music performance, and/or increasing facilitative anxiety and self-regulated learning. Only one study appears to have investigated the effects of a MST program on these factors. Music conservatory students participating in Clark and Williamons' (2011) 9-week MST program attended weekly group and individual sessions covering motivation and effective practice, relaxation and arousal control, goal setting, imagery, mental rehearsal, and performance preparation and enhancement. Following the intervention students demonstrated significant changes in practice behaviours, self-regulated learning, imagery vividness, and self-efficacy for musical performing. It should be noted, however, that in this instance self-efficacy was measured in the context of a hypothetical rather than 'real' world performance and performance quality could not be assessed due to poor inter-rater reliability.

Interestingly, although self-efficacy for performing increased, there was no change in cognitive and somatic arousal intensity. Participants, however, did verbally report greater levels of facilitative anxiety and heightened control over its debilitating aspects following the intervention (Clark & Williamon, 2011). Given that individuals' directional perceptions may be more important to performance than the actual intensity of the anxiety experienced it would be interesting to investigate what effects MST has on facilitative anxiety and how this relates to self-efficacy and musical outcomes (Gould et al., 2002).

Self-efficacy intervention models.

Despite the clear benefits to enhancing self-efficacy few interventions have been designed around this construct. Using the sources as a conceptual framework, specific skills and strategies could be selected that map to each information category. A number of competencies commonly developed in MST programs such as pre-performance routines, attentional control, refocussing skills, thought monitoring, restructuring self-talk, and arousal management equip the performer with coping strategies that will moderate perceptions of physiological and affective states. Self-talk strategies will also enhance positive self-perceptions through verbal persuasion, whilst imagery can be a form of simulation contributing to mastery experiences and vicarious experience. More attention, however, could be directed towards strengthening mastery experiences.

Simulation.

Ensuring that students have enough mastery experiences to build efficacy requires extensive 'performance practice' in conjunction with the development of core psychological performance skills to make sure that they are experiencing success. In music, the opportunities to play in front of an audience and gain mastery experiences are often limited. This is problematic because "the high degree of independent learning and the relative infrequency of assessed solo performance increase the importance of each success or failure, as each performance experience will contribute to perceived self-efficacy" (Ritchie & Williamon, 2012, p. 339). To counteract this, it is paramount that students are exposed to regular, practical experiences if they are going to become efficacious performers. There are, however, obvious logistical difficulties in accessing formal performance settings. Thus, the most achievable approach for gaining this experience may be through simulation where the conditions of the actual event are

recreated at home or in lessons.

Simulation has been shown to be effective in a number of fields including public speaking, aviation, medicine, sport, and music (Williamon, Aufegger, & Eiholzer, 2014). These virtual reality experiences develop important skills enabling students to become more familiar with performance situations, including pre- and post-performance procedures, and to learn how to manage a number of common issues such as anxiety, distractions, and mistakes (Aufegger, Perkins, Wasley, & Williamon, 2016; Bissonnette, Dube, Provencher, & Sala, 2015; Orman, 2003, 2004).

One of the main reasons that performers may not play up to their ability is the novelty of the performance situation when compared to practice, exposing the performer to a number of unfamiliar internal and external stimuli. The ability to maintain focus is associated with superior achievement but can easily become impaired if the performer is distracted by the foreign environment and conditions (Orlick & Partington, 1988). Simulated experiences can expose the performer to the same kinds of distractions they may be subjected to in the actual performance. This creates a sense of familiarity, reducing the likelihood of impairment through lapses in concentration and focus (Williams, Nideffer, Wilson, & Sagal, 2015). These 'virtual' environments also aid learning, providing opportunities for performers to identify their strengths, address their weaknesses, and gain mastery experiences across an unlimited number of trials (Williamon et al., 2014).

Music performance simulation training has been found to decrease levels of anxiety and enhance self- and externally-assessed performance quality when used alone (that is without any other form of intervention) and in combination with MST or cognitive behaviour therapy (CBT; Bissonnette et al., 2015; Cohen & Bodner, 2017; Kendrick et al., 1982; Spahn et al., 2015). Music students also value instruction in these

techniques. Participants in a single session audition anxiety workshop found the realistic mock auditions that included unexpected interruptions and unsettling judges' responses to be the most helpful component of the class (Gratto, 1998). Although performance quality was not measured in the audition workshop, 91% of participants indicated that they were more relaxed and comfortable in subsequent 'real world' auditions.

Competencies that are developed through MST will benefit from repeated successful applications in a performance context. This is more likely to occur if simulated environments mimic real-world performance conditions (Orman, 2003; Suinn, 2005). Although musicians have recognised the benefits of simulation training few intervention studies have emphasised the importance of this type of performance practice. It is possible that self-efficacy could be enhanced through frequent simulations that are subjectively experienced as successful (mastery experiences). The fact that numerous studies have not found effects on performance quality as a result of MST or MPA interventions could simply be due to the fact that participants did not have the opportunity to gain enough mastery experiences using the techniques they had learned. Ensuring that there is a practical application of skills by integrating them into daily musical activities and linking them to performance situations could enhance the benefits of these programs (Clark, 2010; Clark & Williamon, 2011).

Self-recording and self-evaluation.

Intervention programs might also consider further strengthening vicarious experience using peer- and self-recordings. For example, participants could view videos of instrumentalists coping with and overcoming fear and performing in different contexts. This formed part of successful CBT program for MPA (Kendrick et al.,

1982). Although vicarious experience is usually associated with observing and/or listening to others an individual can also take advantage of self-modelling which maximises the model-observer similarity, a factor believed to further enhance self-efficacy (Bandura, 1986, 1997).

Imagery is one form of self-modelling (for example, the performer visualises executing a successful performance) that has been investigated in various studies to enhance skill development, practice and performance (Clark & Williamon, 2011; Coffman, 1990; Esplen & Hodentt, 1999; Kendrick et al., 1982). Self-recording provides another means for the performer to act as their own model. Watching oneself perform (simulated or real) can boost self-efficacy through repeated observations of the successful execution of skills and/or viewing progress that has been achieved from one recording to the next (Feltz, 2007).

Self-recording followed by analysis and self-evaluation will also contribute to verbal persuasion through internal feedback. Accurate feedback reduces task ambiguity increasing the accuracy of efficacy judgements (Beattie, Woodman, Fakehy, & Dempsey, 2015). Feedback is often sought from teachers, peers, or audiences. These external comments may be biased and/or inaccurate (particularly if received from peers) and their effectiveness as a form of verbal persuasion depends on how successfully and frequently they are communicated and how well they are received or interpreted by the performer (Baker-Jordan, 1999; Petrovich, 2004). Self-recording provides feedback that is "accurate and valid because it is direct and bypasses the interpersonal communication process" (Baker-Jordan, 1999, pp. 22-23). Additionally, it is a source of feedback that can be easily utilised on a regular basis in a non-threatening environment without relying on an audience or external listener (Juslin, Friberg, Schoonderwaldt, & Karlsson, 2004).

Music students can rely too heavily on external feedback and may not engage in adequate self-evaluation of their playing, presentation, and performance skills (Daniel, 2001; Lindstrom, 2003). Concerned that their students were not taking enough responsibility for their learning and development as performers James Cook University trialled a new performance assessment method that mandated self-reflection and analysis as part of its music course requirements (Daniel, 2001). After viewing a self-recorded performance in concert class students critically commented on their personal presentation, musical issues, how the actual performance compared to the perceived performance, progress since previous performance, and set goals to improve and enhance their efforts (Daniel, 2001). A review of this new assessment method one year after it was initiated revealed that 83% of students felt that recording and evaluating was a valuable process. It enabled them to notice things that they had not realised they were doing, identify more errors and performance issues that they could address in subsequent practice, and provided a sense of anticipation as they observed improvements from one self-recording to the next (Daniel, 2001).

Self-recording and evaluation were also part of audition intervention program devised by Spahn et al. (2015). Pre-program audition performances were videotaped and then presented in the first intervention session. Performers were required to reflect on the musical quality of their performance and stage presentation. Feedback was also presented from other members of the group regarding nonverbal expression, communication with the jurors, playing movements, and musical criteria, highlighting areas for improvement in their post-program audition performance. Over the course of the 14-week program video-feedback was utilised in half of the sessions culminating in improved preparation, ability to cope with MPA, performance quality and perhaps most importantly self-satisfaction with their performance achievement. Although a well-

executed performance, positive feedback from others, or receiving a certain grade would all seem to meet the criteria for a mastery experience it will ultimately depend on performers' perception of their efforts. Great performances can still be an aversive experience for individuals in the spotlight (Kenny, 2011). Thus, there may be a disjunct between the observed performance and how that event is perceived by the performer.

Self-ratings of performance could be key indicators of mastery experiences. Yet, tradition favours objective performance assessment as the most valid and reliable measure of an intervention's success. This method of evaluation has been shown to be problematic due in most part to the difficulty in obtaining valid rating criteria and acceptable inter-judge reliability (Thompson & Williamon, 2003). A number of intervention studies have not been able to assess performance due to these factors (Braden et al., 2015; Clark & Williamon, 2011; Osborne et al., 2007; Reitman, 2001).

The inherent difficulties with measuring musical achievement may be overcome or perhaps circumvented by including self-ratings of performance. Kenny (2005, 2011) criticises the over reliance on self-report measures due to socially desirable responding (which may affect the credibility of the response), and the fact that this type of evaluation can restrict the breadth of focus needed to enable a true measure of change to be observed (Paulhus & Vazire, 2007). Nevertheless, self-report questionnaires are still widely utilised because they are practical, efficient, and cost-effective. They are also favoured because they capture self-perceptions that may or may not be accurate but will have a strong influence on how individuals behave and interact with their environment (Paulhus & Vazire, 2007).

Investigations of performance achievement rarely incorporate self-rated measures. Interestingly, however, performance self-efficacy has been found to predict students' self-evaluations of performance quality, accounting for up to 11-25% of the

variance (Ritchie & Williamon, 2012). If the goal is to enhance self-efficacy and performance through mastery experiences then one way of obtaining relevant and valid 'proof' of these accomplishments could be musicians' subjective perceptions and evaluation of their efforts. Including self-ratings of performance as an outcome measure in intervention programs could supplement measures of performance quality. This form of assessment would also potentially bypass some of the issues surrounding objective judgements and the expenses associated with recording performances and hiring external assessors.

2.2.6 Summary

Given the key role of self-efficacy in driving perceptions of anxiety and performance attainments it is surprising that there is a paucity of research examining the relationship between these factors. Determining if performance self-efficacy can be enhanced by strengthening the four sources of information and whether this has follow-on effects on musical outcomes could be valuable for optimising MST programs. Clarifying the relationship between the four sources of self-efficacy, MPA intensity, type (cognitive and somatic) and direction (facilitative or debilitative), and achievement would also aid in developing more targeted interventions and educational approaches.

Self-efficacy theory and the four sources of efficacy information provide a framework to guide the appropriate choice of skills and strategies to include in these programs. Current MST programs which typically develop imagery, concentration, goal setting, and arousal-regulation skills could be enhanced by incorporating regular simulation paired with self-recording and self-analysis to strengthen mastery and vicarious experiences, and verbal persuasion. As such, they could be viewed as broad

psychological performance skills training programs as they encompass a wider range of elements than that implied by ‘mental’ skills training.

2.3 Curriculum-Based Interventions and Prevention

There has been a growing awareness of the need to provide musicians with support that moves beyond the development of music skills and instrumental mastery. Researchers are increasingly focussing on musicians’ health and well-being to determine the most effective means of delivering instruction in key coping skills that will help to moderate MPA and enhance performance. The reality is, however, that only a small minority of performers will actually receive help with these types of issues. There are many people throughout the broader population who engage in music-making with varying degrees of expertise and experience. Performing is a natural part of this process whether it be in community bands or choirs, exams, school concerts, or in front of family and friends (Wolfe, 1989). As psychological performance skills training is not part of standard teaching curriculum, many musicians are left vulnerable to experiencing high levels of stress and anxiety, sub-par performances, and diminished enjoyment of their musical endeavours.

Although there are a number of options available for those seeking help (including psychological interventions, Alexander Technique, and biofeedback) most involve specialist treatment. Few musicians actually consult professional services, indicating that these sorts of treatments are not practical, easily accessible, or perhaps culturally acceptable (Spahn et al., 2002). Often advice is only sought once a significant problem has developed by which point it can be quite entrenched and difficult to treat (Brugues, 2011; Kenny, 2011).

Self-help books and online programs offer alternate options that are more accessible, convenient, and relatively inexpensive. These, however, may be too generalised (that is, non-music specific) and/or directed towards professional musicians or adult performers. They also require a high degree of self-motivation, patience, and well developed self-assessment and self-teaching skills. These course are therefore not suitable for many musicians (particularly students where even daily practice can be an ongoing struggle) or teachers wanting to know how to develop these skills in their pupils in the same way that they would develop technique and artistry.

2.3.1 Tertiary Interventions

One potential solution is for musicians to receive training in these skills through their music education. An encouraging and relatively recent trend has been the focus on musicians' health in tertiary music settings exposing music students to interventions through their music degrees. An increasing number of higher education music institutions are offering wellbeing courses to address the myriad of psychological and physiological problems faced by their music students (Brandfonbrener, 2009; Esplen & Hodentt, 1999; Ingles, 2013; Miller & Chesky, 2004). Although of varying length and content, most of these include topics related to physical and psychological health and practice habits.

The Julliard School of Music, for example, offers 'nutrition health' advice for students, occupational and physical therapy, and runs a *Performance Enhancement for Musicians* course using sports psychology techniques to assist students in achieving optimal performance (The Juilliard School, 2019). Promising innovations are also being implemented within Australian music institutions. Queensland Conservatorium, Griffith University instigated a compulsory, three-semester course *My Life as a*

Musician for first- and fourth-year undergraduate students that includes information on health and well-being (Griffith University, 2019). This is supported by a performance manual *The Musician's Body: A Maintenance Manual for Peak Performance* released in collaboration with Guildhall and the College of Music Catalunya (Rosset-Llobet & Odam, 2007). The University of Melbourne offers a 12-week *Peak Performance Under Pressure* unit that focuses on developing an understanding of the mental factors that facilitate peak performance and core performance enhancement strategies (Osborne & Immel, 2016). This is accompanied by *Musicians Health* focussing on prevention of performance-related musculoskeletal pain, injuries, nutrition, and exercise and sleep for sustained high-level performance (Osborne, 2018). Additionally, although not institutionally based, a unique six-module, web-based health promotion course *Sound Performers* covers anatomy and physiology, posture, performance, practice habits, biomechanics, performance psychology, and injury prevention (Ingles, 2013).

These performance health courses are important for supporting music students in their university music training since they not only begin their tertiary studies with a higher prevalence of health problems than their non-music counterparts but are at risk of experiencing a further decline in their psychological state during their first year of study (Spahn et al., 2014; Zander et al., 2010). Such programs may reduce the numbers of students needing professional help during their early years at university (Burkholder & Brandfonbrener, 2004). This is important as performance difficulties, loss of confidence, and personal issues have been identified as some of the main reasons that students may withdraw from their music courses (Gavin, 2012). Although only a small number of these programs have been evaluated, there is some evidence that they do have positive effects on psychological health, showing improvements in anxiety, depression, performing self-efficacy and musical preparation (Osborne et al., 2014;

Spahn, Hildebrandt, & Seidenglanz, 2001; Zander et al., 2010).

2.3.2 Factors Inhibiting the Success of University Programs

Although well received by students, there are a number of factors that may limit the success of these tertiary programs:

1. Integration within the curriculum.

Many studies report on the difficulty in engaging students to participate in and/or complete the intervention programs (Clark & Williamon, 2011; Ingles, 2013; Osborne et al., 2014). This seems to be particularly problematic for courses that are voluntary or scheduled as an extra-curricular activity, and/or that require a commitment that may encroach on practice time. Perhaps reflecting the prevailing culture, students are unlikely to prioritise health and well-being at the expense of their music commitments even though they may be well aware of the benefits of these programs to enhancing their artistic endeavours (Clark & Williamon, 2011). Even the convenience of online delivery, which allows participants to timetable these interventions around their individual schedules, has proven to be problematic with the *Sound Performers* program reporting low participation and completion rates (Ingles, 2013). Only four of the initial twenty-five participants actually finished the program. This was partly due to the course being administered during a high workload period of exam and recital preparation. Ensuring that these courses are integrated into the core curriculum and a compulsory part of students' training would send a key message that health and well-being are at least as important as other standard areas of the curriculum and perhaps foster a cultural shift over time (Nagel, 2009).

2. Insufficient emphasis on the development of psychological performance skills.

Most of these courses cover a broad range of topics relating to varied health issues such as anatomy, injury prevention, body-oriented exercises, nutrition, hearing health, and optimising performance, leaving inadequate time for the development of psychological performance competencies. The *Sound Performers* program, for example, includes one 40-minute module on performance psychology covering mental skills, dealing with emotions, concentration, and the psychological aspects of injury (Ingles, 2013). Similarly, *Health Issues for Music Majors* presented by Northwestern University, Chicago, Illinois devotes one (out of ten classes) to performance factors (Manchester, 2007). This approach appears to be standard amongst programs that have a generic focus on health and well-being. Given the wide range of techniques proven to be effective in sports programs, one short module, could only give a broad introduction to the topic, covering an attenuated range of skills. Since intervention research has highlighted the need for multi-faceted skill development over longer periods (up to 16 weeks) to acquire mastery in these competencies tertiary programs may benefit from expanding their course content and length (Clark & Williamon, 2011).

3. Failure to translate knowledge into action.

Although these courses may develop students' knowledge and understanding of the importance of these skills, learning about what they need to do is vastly different to actually doing it. Although students may have some theoretical foundations for preventing injuries or planning their practice sessions this does not translate into appropriate behaviours when actually playing their instrument (Hatfield & Lemyre, 2016; Ingles, 2013; Koopman et al., 2007). As Bull, Albinson and Shambrook (1996)

state in relation to athletes “it is not always enough to simply teach…relevant mental skills…. there is a need to assist with the actual integration…[and development of these skills] into existing… routines…. so that athletes will stick with [strategies]” (p.188) and realise their full benefits. Many of these courses may be teaching theory and facts with insufficient emphasis on practical application and stepwise development in daily practice.

4. Targeting university students.

University is a time that students are faced with a number of extra challenges financially, academically, and socially (Ingles, 2013). Many students are living independently for the first time and are often balancing work demands with study commitments (Wristen, 2013). This may not be the ideal time to be introducing new skills and adding to the already high workload that students are contending with as they adapt to the extra challenges of university life. Since most music students enter their tertiary music degrees already experiencing a number of performance-related issues it may be far more beneficial to be introducing these skills at an earlier stage of their music training (Spahn et al., 2014).

2.3.3 Prevention and Adolescent Interventions

Whilst there is increasing focus on musician’s performance health at the tertiary level there is still more that can be achieved in the education of younger musicians (Barton & Feinberg, 2008; Fehm & Schmidt, 2006; Ingles, 2013; Kenny & Ackermann, 2009; Patston, 2013). Research indicates that students are not provided with serviceable coping strategies during their pre-tertiary music training (Esplen & Hodentt, 1999; Fehm & Schmidt, 2006; "Health promotion courses for music students: Part III [Special

issue]," 2007; Ingles, 2013; Studer, Gomez, Hildebrandt, Arial, & Danuser, 2011). This may be a reflection of the prevailing culture that emphasises physical preparation and skills often to the detriment of health and well-being (Esplen & Hodentt, 1999; Young, Burwell, & Pickup, 2003; Zhukov, 2008). Performance difficulties are not formally acknowledged in the same way that technical and musical problems are addressed in lessons, and students have few choices of techniques for relieving stress (Gratto, 1998; Studer et al., 2011; Young et al., 2003; Zhukov, 2008). Students struggling with MPA are often advised to improve their preparation which can lead to over practicing, playing-related injury, and further psychological problems (Gratto, 1998; Ingles, 2013).

The frequent incidence of playing related health problems, such as injury and problematic anxiety, reported by university music students suggests that these issues are well entrenched by the time they pursue higher education. Music performance anxiety is thought to increase around 15-16 years of age with up to 55% of adolescent music students reporting to be negatively affected by elevated levels of anxiety (Clark & Agras, 1991; Fehm & Schmidt, 2006; Osborne & Kenny, 2005; Osborne et al., 2005; Shoup, 1995; Sweeney & Horan, 1982). Mid- to late-adolescence is a period where students become more self-reflective and their capacity for self-evaluation, and inevitably self-criticism, emerge which can drive anxious responding (Fehm & Schmidt, 2006; Jackson & Lurie, 2006; Osborne et al., 2005; Ranelli et al., 2015). It is also a time when students are likely to become more serious about or personally invested in their music studies (Talbot-Honeck & Orlick, 1998). So, it is not surprising that the secondary school years can be a critical period for the escalation of performance problems. This could be the ideal time for students to develop coping skills as 'prevention' is the best form of treatment and strategies for managing performance difficulties should be learned early in one's musical education (Spahn, 2012).

Only a few interventions have been developed for secondary-school students. The main focus for all of these was a reduction in MPA. For instance, an audition anxiety workshop that included psychoeducation, training in arousal management, visualisation, and simulated audition scenarios helped performing arts high-school students feel more comfortable and relaxed in subsequent auditions (Gratto, 1998). Another intervention for senior school music school students (15-18 years) covered relaxation strategies, goal setting, time management, and positive self-talk strategies (Lemon, Frydenberg, & Poole, 2004). The seven-week program resulted in an increase in coping strategies (especially relaxation techniques and positive self-talk) and problem solving, and a decrease in non-productive coping (for example, worry and self-blame). Neither of these interventions included a measure of performance anxiety or quality.

More recently, two studies have delivered psychological skills programs for MPA within the school setting (Braden et al., 2015; Osborne et al., 2007). Both of these compared CBT with a behavioural–exposure-only control group and shared a number of common elements such as psychoeducation, goal setting, cognitive restructuring, and relaxation training, resulting in significant reductions in MPA that were not only maintained at follow up but continued to improve. Gains in performance resilience, general musical self-efficacy and preparation were also observed.

These studies highlight the potential for delivering psychological performance skills training at the secondary school level. Earlier intervention can equip students with coping strategies before significant problems arise and escalate. Notably, however, these programs did not initially target self-efficacy, facilitative anxiety, or, for two of the studies, performance outcome. Another limitation is that they were delivered by external specialists as extra-curricular programs. Providing training in this manner can be prohibitive as it can involve considerable cost and require extensive support from

teaching staff, parents, and participants. Interventions of this nature also disrupt the time-tabled curriculum or expect participants to commit to after school attendance which in itself raises another set of logistical difficulties (transportation and conflict with other after school commitments; Osborne et al., 2007). It is clear that in this format relatively few students would have access to or be willing to commit to this sort of help. Therefore, an important consideration in optimising the design of these programs is that they involve minimal expense, time commitment, and disruption to normal schedules (Clark & Williamon, 2011).

Programs delivered via this format also provide limited opportunity for ongoing development and follow up. Without consistent guidance it is unlikely that students will continue to develop these skills or even explore additional ones on their own, as this requires high levels of self-awareness, motivation, and self-direction. Psychological performance skills should be developed in the same way that technique, repertoire and any other musical or even academic skill is taught, that is, in lessons and with the support and guidance of teachers (Bull et al., 1996).

2.3.4 Optimising Intervention Programs

One potential means of overcoming these challenges is to integrate psychological performance skills training into the standard music curriculum. Almost 30 years ago Kendrick et al. (1982) recommended educating music teachers in standard cognitive attentional techniques so that they could help their students with MPA. Nagel (2009) advocated for performance and health programs to become a core part of the music curriculum whilst Brugues (2011) states that music teachers are essential to preventing performance issues. Although there have been many calls for interventions to be implemented at an earlier age relatively few have focussed their attention on

adolescent musicians. It is also rare to utilise the pedagogical expertise of music teachers and the convenience and practicality of the lesson format.

Class and studio teachers are ideally placed to develop these skills. Music educators are often a central figure in their student's life representing "both a parent-substitute and a professional model" (Nagel, 2009, p. 16). They have regular contact with their students that enables them to monitor progress, set goals, ensure compliance, and promote positive attitudes towards health awareness and prevention (Barton & Feinberg, 2008). Students are also more likely to seek advice from their teachers than approach an unknown medical professional (Dews & Willimans, 1989; Kaspersen & Goetestam, 2002). Given that a large proportion of adolescent students are requesting more help with performance difficulties teachers should be encouraged to assume responsibility for addressing these issues within lessons (Braden et al., 2015; Fehm & Schmidt, 2006). Indeed, they could play a principal role in educating and motivating students to employ preventative measures (Garcia & Weisz, 2002) as the quality of the therapeutic relationship is considered to be a key component in the success of any intervention or treatment (Creed & Kendall, 2005; Kendall & Chu, 2000; Shirk & Karver, 2003).

Music educators and researchers have recognised the importance of promoting a cultural shift toward a prevention oriented pedagogy. Towards this end teachers could play an important part in improving their students' performance success, psychological health, and well-being but they can only do this if they have the skills and knowledge (Kenny, 2011). As most have come through a *self-perpetuating* music education system that has not addressed these issues there is a lack of education and teacher training. Many studies advocate the importance of incorporating psychological performance skills into music instruction as part of the curriculum and highlight the need to empower

and train teachers so that they can support their students to cope with the pressures and demands of performing. A standard, systematic method for embedding these skills within lessons and practice has yet to be developed to meet these needs (Ingles, 2013; McPherson & McCormick, 2006; Nagel, 2009; Patston, 2013).

2.3.5 Pedagogical Development of Performance Self-Efficacy

The ideal music teaching performance curriculum would develop a broad range of psychological performance skills within an educational model that is designed to nurture self-efficacy via the four sources of efficacy information. Such a curriculum would be widely applicable since it is believed that instruction techniques to foster this self-belief can be generalised across a variety of ages, instruments, and music settings (Zelenak, 2015). This is because music students have reported similar self-perceptions of their music experiences regardless of grade level or ensemble type (string, band, and chorus; Zelenak, 2015). Self-efficacy enhancing teaching methods within academic settings have demonstrated improvements in this construct and highlighted the importance of self-perceptions to students' development of self-regulated learning strategies and achievement (Berry, 1987, September; Schunk, 1981). Music instruction relating to strengthening this self-belief, however, has not received much attention.

One example of a school-based teacher intervention using general teaching methods to build self-efficacy in the music classroom was implemented by Long (2016). Over an eight-week period, class music teachers were advised to use peer models, assign moderately difficult but achievable tasks, give students specific learning strategies, allow some flexibility within the curriculum for students to make their own choices, and impart frequent, focussed feedback. Although some class teachers observed improvements in musicality, behaviour, and class performances, the music

performance self-efficacy of students receiving the intervention did not significantly improve compared with the control group. This may be because teachers naturally incorporate general self-efficacy enhancing techniques into their lessons so that there was actually no difference in instruction between the control and experimental groups (Long, 2016). Additionally, the strategies may have needed a more performance-based focus directed specifically at the development of performance skills.

Long's (2016) study highlighted the fact that there is inadequate knowledge about *how* and *if* music teachers intuitively develop performance self-efficacy within group and individual lessons. It would therefore be of benefit to develop a greater understanding of the strategies or methods employed by music teachers to help their students become efficacious performers. This knowledge would aid in determining how present methods could be extended or enhanced so that effective techniques for building self-efficacy can be naturally integrated within the curriculum.

Currently, there are some general guidelines for music educators for developing self-efficacy within music settings (Hendricks, Smith, & Legutki, 2016; Zelenak, 2011). These include: helping students develop mastery experiences by encouraging them to set goals, self-select activities (including repertoire), perform simpler pieces or ones that are well within their capability, and gradually increase the difficulty of the performance task (Hendricks, 2016; McPherson & McCormick, 2006; Renwick & McPherson, 2002; Zelenak, 2011); strengthening verbal persuasion through praise and positive reinforcement that is authentic, specific, task related, and follows a successful performance (Pitts, Davidson, & McPherson, 2000); increasing vicarious experiences by observing other students of the same instrument and similar age and ability but, being careful not to place them in situations where they will be compared with others (Hendricks, 2014, 2016); and, fostering positive thought patterns, monitoring self-talk,

and developing coping strategies to help reduce stress and anxiety to ameliorate the negative effects of physiological and affective states (Hendricks, 2016; Zelenak, 2011).

The utility of these recommendations is impeded by the omission of specific means by which teachers can achieve these outcomes. For instance, *how* do teachers provide more mastery experiences when performance opportunities are limited? They also assume that music educators know how to develop psychological performance skills (such as, arousal regulation) and have an understanding of effective, evidence-based cognitive and behavioural strategies. Students' self-efficacy beliefs are more likely to be enhanced through regular and consistent application of strategies. One potentially effective way to achieve this is to integrate specific activities into music lessons and daily practice. As Long (2016) concluded teachers may benefit from more concrete strategies and specific instructions (for example, a lesson plan outlining the use and implementation of each strategy) to enhance students' performance efficacy, further substantiating the need for the development of a resource that may empower teachers to nurture these self-beliefs.

2.3.6 Summary

Optimal performance and psychological coping skills are likely to be facilitated by an educational intervention that targets self-efficacy. There are well-established pedagogical methodologies for developing technique, sight-reading, and virtually every other musical ability but there is no framework to assist teachers in integrating psychological performance skills training or specific self-efficacy techniques within the standard music curriculum. A multi-faceted program adopted from the sports domains that embeds skill development into lessons and daily practice, promotes long-term, stepwise development, requires minimal time commitment, and is accessible and cost-

effective, may help promote early intervention and prevention, nurturing a range of skills associated with well-being and success.

Chapter 3
Self-efficacy, MPA, and Performance Model to Guide Intervention

3.1 Introduction

Few music performance interventions have been designed to enhance performance self-efficacy. Traditionally they have targeted the debilitating effects of music performance anxiety (MPA) or more recently facilitating optimal performance via training in psychological performance skills (Clark & Williamon, 2011; Osborne et al., 2014; Spahn et al., 2015). Although reduced levels of MPA and the development of a psychological performance skills may improve musicians' well-being and coping skills, there have been mixed findings as to whether these lead to enhanced performance suggesting that there are other factors involved in this relationship (Cohen & Bodner, 2017; Hoffman & Hanrahan, 2012; Osborne et al., 2007; Reitman, 2001; Spahn et al., 2015). Self-efficacy is believed to be a key factor in well-being and success, mediating anxiety and predicting performance (Ackermann et al., 2014; Bandura, 1997; Caprara et al., 2006; Pajares & Kranzler, 1995). Thus, one of the goals of this research was to design an intervention that would foster self-efficacy for performing (SEP). The following chapter explores the interactions between self-efficacy, MPA, and performance achievement to guide the structure and implementation of the intervention program used in the second phase of this research.

3.2 Musical Self-Efficacy

Self-efficacy beliefs are judgements of personal competence about what one individual can accomplish at a particular moment (Bandura, 1986). They are situation and task-specific. This means that within music, performers' assessment of their ability to acquire musical artistry, technique, and instrumental mastery (musical learning self-efficacy) can be quite distinct from perceptions of capability to successfully implement these skills in a performance (SEP; Ritchie & Williamon, 2010; Schunk, 1996, April). These beliefs will also vary depending upon the context of the situation and can be influenced by the environment (audience, setting), type of performance (judged/non-judged), repertoire demands and perceived importance of the event to the performer (Papageorgi, Hallam, & Welch, 2007; Ritchie & Williamon, 2010; Zimmerman, 2000). Performance self-efficacy has been generally associated with the ability to manage stress and performance anxiety (which relates to physiological and affective states) and performance accomplishments (mastery experiences; Bandura, 1997; Papageorgi et al., 2007; Ritchie & Williamon, 2010). Due to minimal quantitative research the relative contribution of each of these and the other two sources of self-efficacy (verbal persuasion and vicarious experience) to SEP across varied performance contexts (for example, solo versus ensemble) remains unclear.

Figure 1 outlines a general model of the SEP-MPA-Performance relationship, based on Bandura's (1977) self-efficacy theory. It depicts a number of the interactions between these main variables and moderating factors related to mastery experiences, verbal persuasion and physiological and affective states.

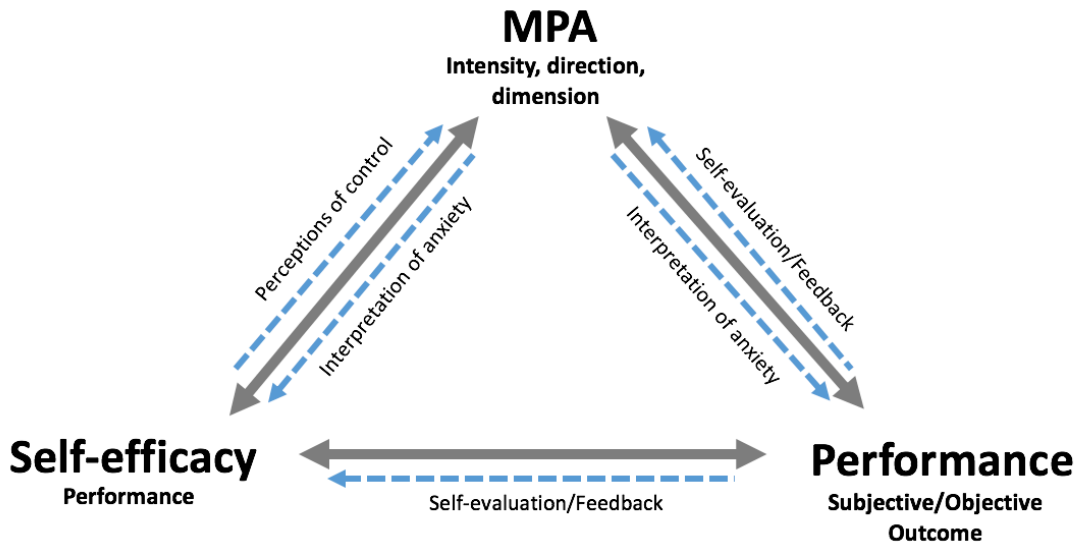

Figure 3.1. SEP, MPA, and performance model.

3.3 Self-Efficacy and Performance

Perceptions of capability have been found to be a more reliable predictor of performance achievement than levels of anxiety (Hardy, Jones, & Gould, 1996; Pajares & Kranzler, 1995; Siegal et al., 1995). Self-efficacy theory states that initially this self-belief will be the strongest predictor of performance but as the performer becomes more experienced, the nature of the relationship reverses so that performance may predict self-efficacy (Bandura, 1997; Short & Ross-Stewart, 2009; Figure 3.1). This emphasises the importance of experiencing situations that one feels competent in having mastered a particular skill. As Bandura (1977) states, "mastery expectations influence performance and are, in turn, altered by the cumulative effect of one's efforts" (p.194). This can lead to upward spirals in performance whereby self-efficacy gained from a good performance can inspire an even better subsequent performance, or downward spirals where poor performance leads to self-doubt and further failure (Feltz et al., 2008).

3.3.1 Facilitating Mastery Experiences

As mastery experiences are believed to exert the strongest influence on self-efficacy (Bandura, 1997) the primary goal in the construction of this intervention model was to ensure that performers achieve more mastery experiences to facilitate the development of SEP. This presents two challenges:

1. providing performers with frequent performing opportunities; and,
2. ensuring that performances are interpreted as mastery experiences.

Since performance opportunities are limited the most practical way for students to gain frequent performing experience is through simulation. Although these may not contribute to mastery experiences in the same way or to the same degree as 'real-world' performances they do provide opportunities for students to practice performance skills and become more familiar with performance situations. Frequent performing, however, will not guarantee mastery experiences or increased SEP as this is dependent upon *how* individuals subjectively interpret their performing experience (real or simulated; Bandura, 1997; Petrovich, 2004). Whether individuals perceive their musical efforts to be successes (enhancing self-efficacy) or failures (undermining self-efficacy) may not even be related to the *actual* outcome of those performances. Self-perceptions can be skewed by inaccurate self-evaluations, a component of verbal persuasion, and the subjective levels of distress and anxiety experienced due to the nature of the performance situation which relates to physiological and affective states (Figure 3.1; Beattie et al., 2015; Bergee, 1997; Hewitt, 2007; Kenny, 2011).

3.3.2 Self-Efficacy and MPA Interaction

Self-efficacy is believed to play a pivotal role in an individual's capacity to regulate emotions and has been established as a predictor of MPA (Bandura, 1997; Barrows, Dunn, & Lloyd, 2013; Endler, Speer, Johnson, & Flett, 2001; Liston, Frost, &

Mohr, 2003; Tahmassian & Moghadam, 2011). Self-efficacious students experience less stress and anxiety when they believe they can manage a task and fewer adverse emotional reactions when faced with difficult circumstances (Bandura, 1997; Tahmassian & Moghadam, 2011). According to Bandura (1982) "perceived inefficaciousness in coping with potential threats leads people to approach such situations anxiously and experiencing disruptive arousal may further lower their sense of efficacy that they will be able to perform skilfully" (p. 140*)*. Inversely, high self-efficacy is associated with lower anxiety intensity (Figure 3.1; Bandura, 1991, 1997; Robson & Kenny, 2017).

MPA will also influence SEP via information conveyed through physiological and affective states (Figure 3.1; Bandura, 1997; Martens et al., 1990; Nielsen, Studer, et al., 2018). High levels of anxiety can be debilitating and may signal a lack of competence. When performers feel they have inadequate control over their emotional state and/or interpret their arousal as a sign of low skill, SEP will decline (Feltz, 2007; Schunk, 1995). This source of efficacy information may even exert a stronger influence on SEP within music contexts than would be predicted from investigations of this relationship within other performance domains such as test-taking (Usher & Pajares, 2008; Zelenak, 2010). This is because excessive physiological arousal can disrupt the fine motor control needed to successfully execute a musical performance (Altenmuller, Ioannou, & Lee, 2015; Gill et al., 2006; Magill, 2011; Osborne & Kenny, 2008; Robson & Kenny, 2017).

3.3.3 Summary

SEP, MPA and performance form a feedback loop with SEP predicted to be the dominant influence. Mastery experiences are important to enhancing SEP, however,

these may be difficult to achieve due to infrequent performance opportunities, MPA, and performers' subjective evaluation of their performance. Thus, two important sources of efficacy information that could be targeted to support mastery interpretations and SEP are verbal persuasion and physiological and affective states.

3.4 Performance Self-Efficacy and Aspects of Music Performance Anxiety

The SEP-MPA-Performance interaction can be further expanded by considering directional and multi-dimensional anxiety (Figure 3.1). As self-efficacy beliefs are believed to be the dominant influence in the SEP and MPA interaction they will help determine levels of cognitive and somatic anxiety and how performers interpret this arousal, that is, whether it will facilitate or impede their efforts (Bandura, 1997; Barrows et al., 2013; Orbach, 1999).

Music performance is psychologically similar to sports performance (Mesagno, Mornell, & Quinn, 2016) and the competitive sports anxiety literature is often used to understand how musicians may experience aspects of MPA. The next part of the model (Figures 3.2 and 3.3) draws upon this knowledge to outline the interactions between SEP, MPA (direction), and performance. Most of the sports investigations, however, have examined the effect of confidence rather than self-efficacy on anxiety and performance. In sports, the Revised Competitive State Anxiety Inventory (CSAI-2R; Cox, Martens, & Russell, 2003), a measure of competitive state anxiety in athletes, is commonly used to assess the intensity and direction of cognitive and somatic anxiety as well as levels of self-confidence (Cox et al., 2003). It was deemed appropriate to incorporate the knowledge gained from studies employing this measure since it has been proposed that self-efficacy can be viewed as situationally specific self-confidence

(Feltz, 1988). Both SEP and self-confidence (as measured by the CSAI-2R) are assessed immediately prior to a performance using similar statements relating to performers' beliefs in how they feel they will perform.

3.4.1 Anxiety Direction

Directional perceptions may be a more reliable predictor of sports performance than the actual intensity of the anxiety experienced (Jones & Swain, 1995; Jones et al., 1993; Munz et al., 1975; Swain & Jones, 1996). Self-efficacy beliefs will influence these subjective interpretations with efficacious individuals experiencing more facilitative rather than debilitative anxiety (Figure 3.2; Perry & Williams, 1998; Treasure et al., 1996). This can occur even when the performer is experiencing high levels of arousal (Jones et al., 1993). Performers who are less efficacious are likely to interpret their anxiety as an impediment to their efforts and an indication of their inability to cope with the demands of the situation (Feltz et al., 2008; Hardy et al., 1996).

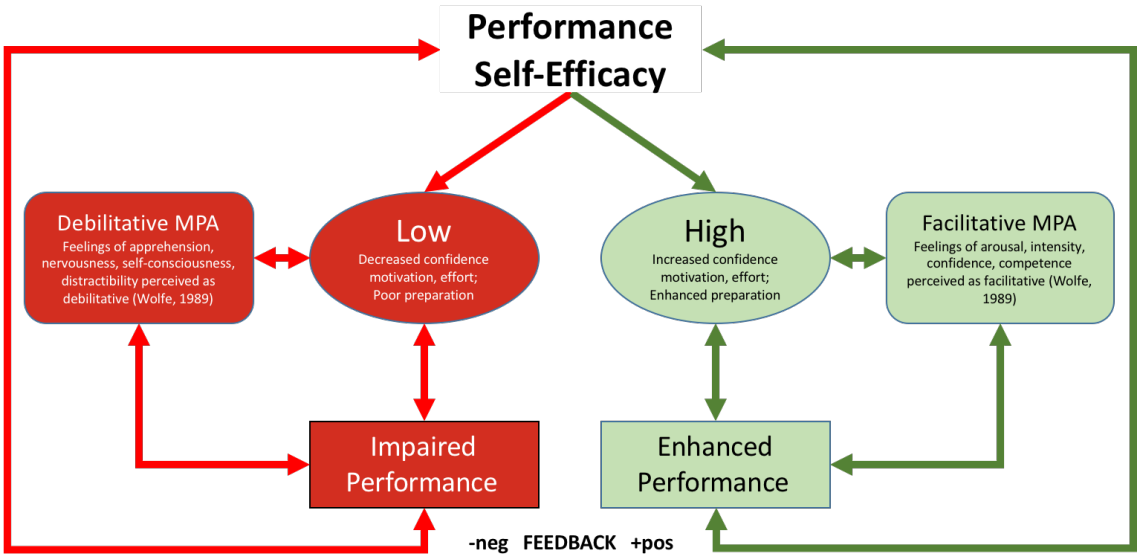

Figure 3.2. SEP, MPA direction, and performance.

High SEP drives motivation and effort leading to improved preparation and positive perceptions of arousal, intensity, confidence, and competence (facilitative MPA) resulting in enhanced outcomes (Bandura, 1986; Hanton, Mellalieu, & Hall, 2004; Pajares, 1996a; Papageorgi et al., 2007; Wolfe, 1989; Zimmerman, 2000). Conversely, low SEP results in decreased motivation and effort leading to poor preparation, feelings of apprehension, nervousness, self-consciousness, and distractibility (debilitative MPA) impairing achievement (Hanton et al., 2004; Papageorgi et al., 2007).

3.4.2 Multidimensional Anxiety

Cognitive and somatic anxiety can also impede or enhance performance depending upon levels of self-efficacy and the interaction between these components (Besharat & Pourbohlool, 2011; Edwards & Hardy, 1996; Hardy et al., 1996). Performance models of multidimensional anxiety suggest that high-cognitively anxious performers will respond poorly if somatic anxiety is also elevated but may perform optimally when this dimension is low (Edwards & Hardy, 1996; Hardy et al., 1996).

Although there have been mixed findings regarding the actual influence of dimensional anxiety on performance, evidence suggests that cognitive anxiety is more likely to disrupt the automatic execution of motor skills and lead to performance impairment (Gould, Petlichkoff, & Weinberg, 1984; Larrouy-Maestri & Morsomme, 2014; Yoshie et al., 2009). In support of this, the cognitive dimension has been shown to hinder vocal accuracy in singers and negatively predict technical accuracy and artistic expression in piano performance (Larrouy-Maestri & Morsomme, 2014; Yoshie et al., 2009). Directional interpretations may modify this interaction with facilitative

perceptions of cognitive anxiety positively predicting artistic expression, technical accuracy, and global music performance (Yoshie et al., 2009).

Efficacious performers outperform those with less positive self-perceptions across various combinations of cognitive and somatic anxiety intensity (Orbach, 1999). Thus, high levels of self-efficacy may reduce the negative effects of dimensional anxiety on achievement and may even protect against performance breakdown when arousal is excessive (Hanton et al., 2004; Orbach, 1999).

3.4.3 Self-Efficacy and Perceptions of Control

One factor that may mediate the feedback loop between SEP and MPA is perceptions of control (Figure 3.1; Orbach, 1999). According to Bandura's (1991) self-efficacy concept of anxiety, performers' *perceptions* of their ability to exercise control over threatening events will influence the intensity of their arousal. It has also been found to predict directional anxiety. Performers with low levels of confidence in their ability to control both themselves and their environment experience more debilitative anxiety (Clark & Agras, 1991; Jones, 1995; Mor, Day, & Flett, 1995). On the other hand, positive expectancies of control over the situation (regardless of an individual's *actual* control) lead to more facilitative interpretations of this response (Hanton, O'Brien, & Mellalieu, 2003; Jones, 1995; Skinner, 1996).

Perceived control is viewed as a multi-dimensional construct relating to individuals' beliefs in their power to influence internal emotional reactions and threatening external events (Rapee, Craske, Brown, & Barlow, 1996). It has been suggested that perceptions of control over internal reactions positively influence somatic anxiety direction and exhibit a negative relationship with cognitive and somatic intensity (Gill et al., 2006). In support of this, musicians who strengthened their

efficacy in their ability to control anxiety when performing, using cognitive behavioural therapy, experienced reductions in MPA and improved performance (Kendrick et al., 1982). The effectiveness of this approach was attributed to the participants perceiving that "they had serviceable coping skills available to them" (Kendrick et al., 1982, p. 360). Furthermore, symptoms of arousal that are perceived to be under control are viewed as having a positive effect on performance and have also been linked with enhanced SEP (Clark & Williamon, 2011).

This further emphasises the need for interventions to enhance perceptions of control or self-efficacy over internal reactions. Training a variety of psychological performance skills that target performers' ability to control, modify or change their physiological and affective state may reduce anxiety intensity and negative appraisals or, alternatively lead to more favourable interpretations (Gill et al., 2006; Neil, Mellalieu, & Hanton, 2006).

3.4.4 Summary

SEP and MPA form a reciprocal relationship. Although levels of SEP will influence how a performer experiences MPA (intensity, type and direction), these aspects of anxiety may also be mediated by perceptions of control over internal reactions. Insufficient coping mechanisms will leave performers vulnerable to the negative effects of MPA leading to self-doubt and reduced SEP.

Conditions of high self-efficacy, facilitative anxiety, and low somatic anxiety are proposed to lead to the best outcomes. Although excessive cognitive anxiety may interfere with performance, high self-efficacy, the development of skills to moderate physiological arousal and facilitative interpretations, may act as a buffer to any negative influences. As much of the research has focused on sports performance these

relationships may vary for musical achievement due the fine motor skills involved and taxing memory requirements. These factors may increase the influence of anxiety on performance and relative contribution of physiological and affective states to SEP.

3.5 Feedback and Self-Evaluation

Post-performance feedback contributes to performers perception of mastery experiences (Figure 3.2; Papageorgi et al., 2007). Therefore, genuine, positive appraisal can enhance self-efficacy judgements. When this type of feedback is consistent and precise musicians can also gain a clear understanding about how they can improve which informs subsequent goals, and drives motivation and effort (Beattie et al., 2015). Feedback may also be summative with consistent assessment received over numerous performance trials leading to less ambiguity and potentially more mastery determinations (Beattie et al., 2015).

Problems may arise when feedback is insufficient (that is, not enough performance trials or mastery experiences), inaccurate, or ambiguous, leaving the performer unsure of how to improve (Beattie, Fakehy, & Woodman, 2014; Beattie et al., 2015). When individuals cannot monitor their performance "they are at loss to know what skills enlist, how much effort to mobilize, how long to sustain it and when to make corrective adjustments in their strategies" (Bandura, 1997, p. 66). This can lead to poor performance and an inverse relationship between these factors whereby high levels of SEP mismatch the performers *actual* capabilities resulting in a miscalculation of the amount of effort required to meet the demands of the situation (Figure 3.3; Vancouver, Thompson, & Williams, 2001).

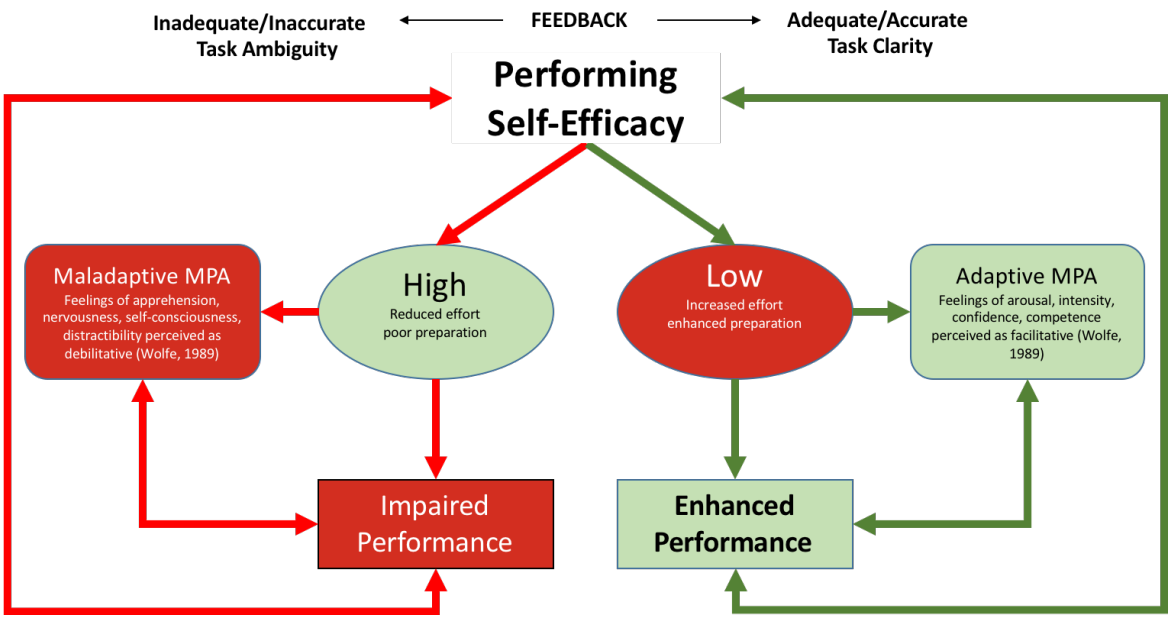

Figure 3.3. SEP, MPA direction, and performance: Inverse relationship.

Ambiguous performance tasks will also influence this inverse relationship. Performers may be unsure of the expected level of achievement or task requirements which can be due to the type of feedback received, and/or unfamiliarity with the performance situation (again as result of insufficient performance trials or mastery experiences). Consequently, they may underestimate or overestimate the performance demands, the scope of preparation, and/or their own capabilities until they gain more familiarity with the situation (Feltz et al., 2008). Thus, feedback and task clarity can affect motivation and lead to reduced effort, or complacency, resulting in inadequate preparation, debilitative MPA and poor performance (Feltz et al., 2008). In this model performance may be enhanced when low SEP drives motivation, efforts to improve, and facilitative anxiety (Feltz et al., 2008).

Feedback can be received externally (from others) or internally through self-monitoring and self-evaluation. Internal assessments are open to misinterpretation and misjudgement particularly if performers experience high levels of MPA (basing their judgements on how they felt as opposed to how they actually performed), have

mediocre self-evaluation skills, or if there is an absence of moderating objective external feedback (Baker-Jordan, 1999; Petrovich, 2004). Secondary school and tertiary level music students are poor at evaluating their own performances and often underestimate their achievements which will diminish SEP (Bergee, 1993, 1997; Byo & Brooks, 1994; Hewitt, 2002, 2005, 2015). Even accurate external feedback can be miscommunicated, misinterpreted by the receiver or undermined by negative self-talk (Baker-Jordan, 1999; Petrovich, 2004). To enhance this form of verbal persuasion it is important that students develop strong self-evaluation skills and learn to monitor their self-talk.

3.5.1 Summary

Explicit and consistent performance feedback will clarify performance tasks, enabling performers to accurately monitor their progress and preparation and gain mastery experiences. This will enhance SEP and facilitative interpretations of anxiety. Negative self-talk and inaccurate self-evaluations will undermine this process. Intervention programs could benefit from targeting these two elements of internal verbal persuasion. Ensuring that there are an adequate number of simulated performance trials will provide more opportunities to receive this feedback (externally and internally), develop self-evaluation skills, and familiarise the performer with the performance task leading to more accurate self-efficacy judgements and a positive SEP – performance relationship (Beattie et al., 2015).

3.6 Implications for Intervention Programs

Self-efficacy is an important determinant of performance outcomes and appears to moderate the anxiety-performance relationship (Bandura, 1982, 1991, 1997). Figure

3.4 proposes an intervention pathway, derived from the general model (Figure 3.1), to enhance SEP via three of its information sources. It shows that this self-belief could be targeted through:

1. enhancing perceptions of control and facilitative anxiety interpretations by developing skills that allow the performer to manage or feel in control of their arousal (Bandura, 1991; Gill et al., 2006; Orbach, 1999);
2. improving self-evaluation ability, and quantity and quality of feedback (Beattie et al., 2015; Feltz et al., 2008; Papageorgi et al., 2007); and,
3. increasing mastery experiences through regular performance practice that provides training in simulation techniques, enables participants to develop the psychological performance skills learned throughout the program, and encourages systematic self-evaluation (Bandura, 1997).

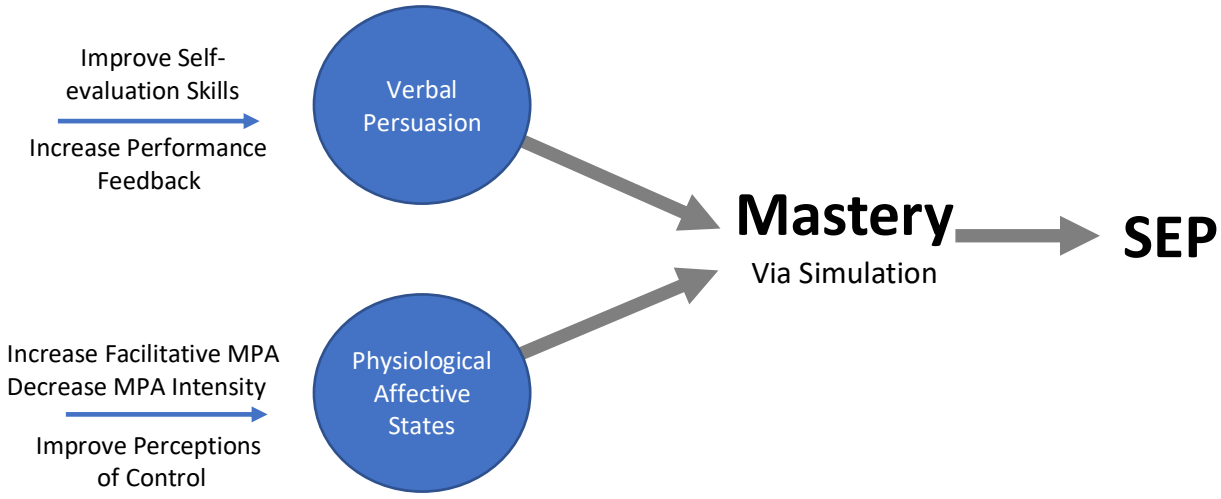

Figure 3.4. Intervention pathway for strengthening self-efficacy for performing.

3.6.1 Mapping Psychological Performance Skills to Sources of Performance Self-Efficacy

Although few interventions have specifically targeted performance self-efficacy (Clark & Williamon, 2011) a number of skills commonly employed in psychological or mental skills training (MST) programs do map to each of its sources. Figure 3.5 maps the skills routinely targeted by intervention programs and ways to broaden these approaches to increase SEP via each of the efficacy sources.

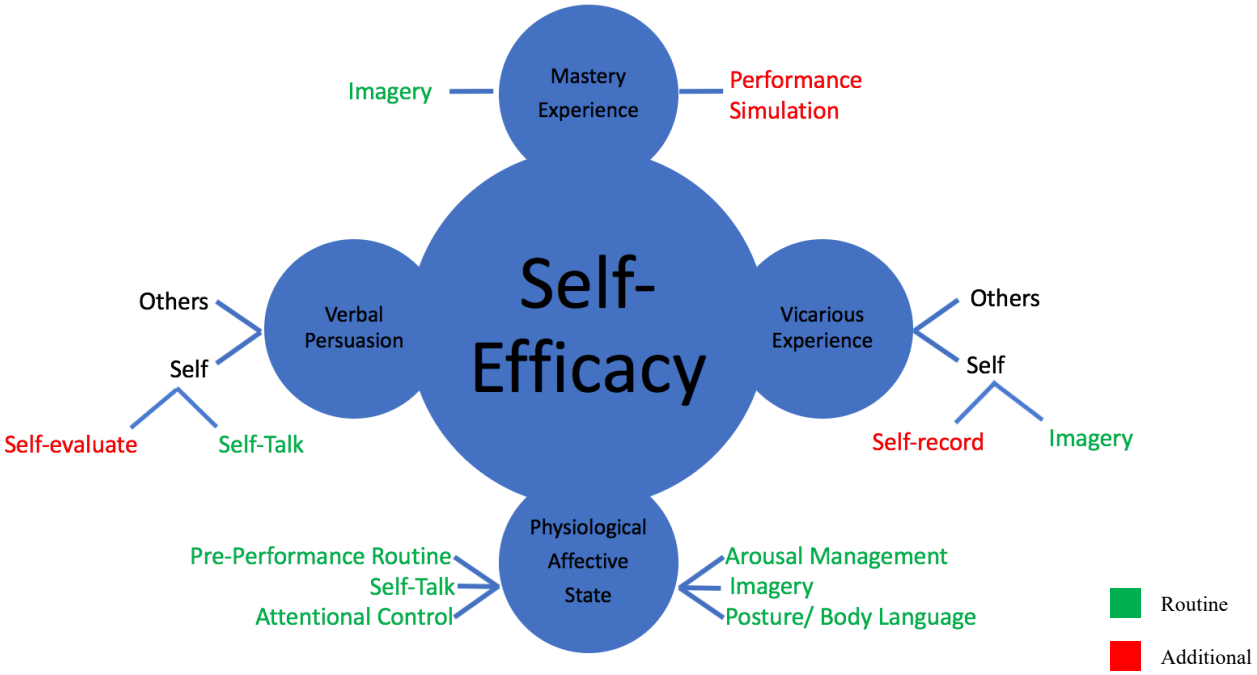

Figure 3.5. Psychological performance skills mapped to self-efficacy sources.

As Figure 3.5 shows each source can potentially be strengthened in a variety of ways:

- Mastery experiences: Although imagery can influence mastery experiences through visualising successful performances the development of this source could receive more focus. This could be achieved by incorporating regular simulations into these programs, enabling participants to apply and develop confidence in using the skills

they are learning and become more familiar with performance situations. Ensuring that participants are able to accurately assess their performances and recognise successful efforts may also contribute to the accumulation of these experiences.

- Verbal persuasion: Self-talk is a form of verbal persuasion and can thus be employed to enhance this source. Linking self-recording and self-assessment with performance simulations would create more opportunities to receive feedback and improve self-evaluative ability, further strengthening this source.
- Vicarious experience: Imagery can influence vicarious experience via self-modelling. Self-recording simulated performances would also enhance this source enabling participants to view incremental improvements and successful efforts.
- Physiological and affective states: Pre-performance routines, attentional control, refocussing skills, monitoring of thoughts and self-talk, and arousal management strategies can equip the performer with coping strategies that will moderate perceptions of this source.

Chapter 4
Study 1: Pedagogical Development of Psychological Performance Skills and Self-Efficacy in Studio and Class Music Lessons

4.1 Introduction

Chapter 3 outlined a model for a psychological performance skills resource that broadens the scope of interventions to encompass skills that emphasise the development of performance self-efficacy. The next step towards developing a program that could be implemented within school and studio music curriculums was to understand how music teachers naturally foster self-efficacy and to what extent they develop psychological performance skills within their music instruction. This knowledge would help determine optimal pedagogical practices that would promote the development of performance self-efficacy (SEP) within a lesson context.

This phase of this research investigated the current status of the pedagogical development of performance-skills and self-efficacy for performing in adolescent class and studio music lessons in Australia.

4.2 Music Students' Health and Well-Being

Instrumental mastery and performance excellence involve the coordination of a complex array of physical, psychological, and musical skills (Williamon, 2004b). Yet, music teaching typically focuses on the development of technique and artistry. Since music students face a number of pervasive stressors that can impair their playing and lead to serious issues, such as anxiety and depression, they may benefit from instruction in physical and psychological preparation within their training (Hildebrandt, 2009;

Hildebrandt et al., 2012; Wristen, 2013). It is anticipated that incorporating pedagogical strategies to develop performance self-efficacy and key coping skills within the music curricula will enhance musical outcomes, improve enjoyment and satisfaction, and boost emotional resilience. This may then reduce the risk of long-term adverse consequences to students' health and well-being as they progress with their musical studies.

4.2.1. Psychological Performance Skills

Performers who have greater control over their physical and mental state are more likely to experience performance success and satisfaction rather than distress (Krane & Williams, 2015; Williamon, 2004b). Preparation that focuses on multi-modal skill development will foster SEP as musicians develop skills to manage their physiological and psychological state and the performance situation (Bandura, 1997; Clark & Williamon, 2011; Feltz et al., 2008). Although a number of tertiary music curriculums now offer programs that educate musicians about these competencies they are often short-term, temporary interventions that focus on developing theory and knowledge, rather than a practical application of skills. Consequently, students may not know how to integrate what they have learned in class into daily practice.

Since psychological performance skills, like any other musical ability, will only be acquired through deliberate long-term training, one approach would be to actively teach students how to systematically embed them into their playing (Williamon, 2004a). As it is difficult for students to incorporate new practice techniques or strategies without instruction, this approach would ideally be guided and reinforced by their music teacher during lessons (Zaza, 1993).

One difficulty with this approach is that instrumental teaching prioritises the development of musical skills, in particular, technique, interpretation, tone, and repertoire (Young et al., 2003; Zhukov, 2008). Even if teachers realise that their students are experiencing performance-related problems they may be reluctant to systematically address them in the same way that they would facilitate musical skill development.

Efforts to understand how professional singers and teachers cope with the performance situation have revealed that even though vocal pedagogues might be aware of and even witness their students struggle with music performance anxiety (MPA) they rarely tackle this problem directly. Rather, their preference is to focus on the acquisition of vocal technique (Saluperea & Ross, 2012). This does seem to reflect a general tendency within the music profession to avoid confronting performance issues relying instead on good preparation and instrumental mastery to ensure a successful outcome (Kenny, 2011; Nagel, 2009; Patston & Loughlan, 2014; Petrovich, 2004; Robson & Kenny, 2017).

Given that the development of coping skills is not a formal part of lessons it is unlikely that students receive long-term training and systematic mastery of these competencies. This is despite the fact that 67% of adolescent students are requesting more help in managing performance difficulties (Fehm & Schmidt, 2006). Failure to adequately address these sorts of concerns will have a negative impact on students' self-perceptions of their capability.

It has been suggested that some of the reasons why teachers may not prioritise the development of skills that would enable students to manage their physiological and psychological state is due to a lack of knowledge or understanding of effective strategies and/or lesson time constraints (Atkins, 2013; Zelenak, 2015). In an

investigation of occupational health and well-being within UK conservatories, Atkins (2013) found that although teachers understood the importance of promoting physical and mental health in their students, they were concerned with how they could overcome the challenges of embedding it within the curriculum: "You know, I have a lot of stuff to prepare just for their playing and their instrument lessons are taken up with that...there just isn't the time.... It probably would be good for me to know more about the health stuff" (p. 246). Furthermore, self- and external-evaluations of teachers' musical, pedagogical and psychological competencies indicate that they lack confidence in their ability to help students overcome or manage MPA (Chmurzynska, 2009).

As students are most likely to seek help from their teacher it is important that music educators have the knowledge and resources to guide interventions (Dews & Willimans, 1989; Kaspersen & Goetestam, 2002). Although it is not advocated that they take on the role of a specialised therapist, teachers are more than capable of dealing with performance and health issues in an educational context by implementing techniques adopted from sport and performance psychology (Hunnicutt & Winter, 2011; Nagel, 2009). Thus, they can play an important role in shaping both the musical and general development of their students (Chmurzynska, 2009; Gliniecka-Rekawik, 2007).

Encouragingly, educators are also willing to expand their pedagogical approach. Teachers who received training in physiologic content (including musicians' sensory and psychomotor systems, posture and playing-related movements) were able to modify their instructional style and implement appropriate therapeutic and preventative strategies within lessons (Hildebrandt & Nubling, 2004). This is promising because for many students this may be the only opportunity they have to receive guidance in these traditionally more 'specialised' areas. Knowing how to integrate the development of psychological performance skills into lessons alongside musical development will

empower teachers to act proactively, foster performing self-efficacy and positively impact student's health and well-being (Chmurzynska, 2009; Gliniecka-Rekawik, 2007; Hunnicutt & Winter, 2011).

4.3 Self-Efficacy

Music educators play an important role in helping students become efficacious performers (Hendricks, 2016). Teachers' motivational strategies, instructions, encouragement and expectations influence the development of this self-belief. As they focus on nurturing playing ability, however, teachers may not pay enough attention to their students' self-perceptions and the powerful influence these have on motivation, effort, performance achievement, and emotional reactions (Hendricks, 2016; McPherson & McCormick, 2006). Although students may have the skills to perform a piece, without a strong belief in their ability to meet that challenge they are likely to experience anxiety and impaired performances (Bandura, 1982, 1997; Hendricks, 2016). Indeed, it is common for students to feel that they are not capable of meeting the demands of the situation preventing them from enjoying performing and leaving them dissatisfied with the outcome (Wrigley & Emmerson, 2011b). As judgements of capability are often better predictors of subsequent achievement than actual abilities, raising teachers' awareness of students' self-perceptions and determining effective pedagogical strategies to enhance self-efficacy would be of benefit (Hackett & Betz, 1989; Hendricks, 2016; McPherson & McCormick, 2006).

The four sources of efficacy information provide a tangible framework for developing and evaluating effective methods and approaches. Whilst many educators would agree that good pedagogical practice would involve strengthening self-efficacy, there is inadequate knowledge of the types of strategies teachers employ and how they

utilise the four sources of information. As music instruction relies heavily on verbal persuasion it would be expected that feedback, instructions, encouragement, and praise are a natural part of lessons (Short & Ross-Stewart, 2009), whilst demonstration, listening to recordings and observing other students' efforts would contribute to vicarious experiences. Teachers may help their pupils to develop mastery experiences by encouraging participation in school and studio concerts, exams and competitions. These, however, may be difficult to acquire due to infrequent performance opportunities, and students' subjective perceptions of their effort which can be undermined by inaccurate self-evaluation or MPA. In this regard, the development of psychological performance skills that would affect physiological and affective states may be a source that is under-utilised as teachers prioritise the development of musical skills (Saluperea & Ross, 2012). Around these broad assumptions there is a lack of understanding of how self-efficacy is fostered within music environments from both a teaching and student perspective.

4.4 Teachers' Past Experiences and Education

Teachers come from a diverse range of educational, performing and pedagogical experience. The studio music teaching industry (defined as non-classroom, instrumental music instruction delivered in schools or private teaching studios; Victorian Music Teachers' Association, 2014) in Australia is unregulated and thus there are no mandatory qualification or professional development requirements (Lierse, 2007). Most state music associations provide accreditation across a number of membership categories that cover a diversity of experience and qualifications ranging from tertiary music degrees down to intermediate Australian Music Examinations Board (AMEB) grade levels, resulting in a varied range of competence and knowledge.

The majority of studio music teachers will not have had formal pedagogical training. Playing skills are often used as teaching qualifications and this can even be the case for those employed in music conservatories (Purser, 2005). As a result, many are self-taught in terms of their instructional style, method, and strategies that they employ (Purser, 2005). They also report that their pedagogical approach is largely influenced by their own experience as a music student and the tradition and methodology passed down by their own teachers. "Teachers appear to analyse the strengths and weaknesses of their various teachers and create their own teaching method that also draws heavily on other influences, including any initial training that they have received, and … through conversation with other teachers" (Mills & Smith, 2003, p. 22). Teachers also draw on knowledge gained from their own performing and teaching experiences to guide their methodology (Mills & Smith, 2003; Purser, 2005). Consequently, it is not possible to determine the level of knowledge or understanding that music educators have of performance psychology, the skills involved in optimal performance and effective pedagogical strategies for enhancing performance self-efficacy and outcomes.

Given that music education has historically not prioritised the development of self-efficacy and psychological performance skills it is likely that the majority of teachers have minimal formal training or experience in how to optimally address performance issues. Since many teachers frequently work in professional isolation determining effective pedagogical strategies can be a process of trial and error and their approach may be based on intuition or myth rather than evidence-based practice (Mills & Smith, 2003; Purser, 2005). Hence, they may benefit from a readily accessible resource that could expand their current level of knowledge.

Developing a greater understanding of how teachers employ the four sources of efficacy information and teach psychological performance skills in class and individual

lessons would inform pedagogical practices aimed at nurturing students' self-beliefs and enhancing musical outcomes. This would help determine the optimal means by which positive self-perceptions and subsequent musical achievement can be most effectively fostered within music environments.

4.5 Aims of the Study

This study explored the pedagogical development of performance-skills and self-efficacy for performing in adolescent class and individual music lessons in Australia. The aim was to understand the ways that teachers develop psychological performance skills and performing self-efficacy via the four sources of information within music lessons to enable their students to cope with the demands and challenges of performing. More specifically it sought to determine:

1. what teachers do in lessons to develop psychological performance skills and performance efficacy;
2. their knowledge of cognitive processes underlying performance issues, range of skills to develop, and effective strategies;
3. how they foster self-efficacy (via the four sources) to enable students to manage the psychological and physiological arousal that accompanies performance situations; and,
4. how their approach compares with best practice as documented in the self-efficacy and performance enhancement literature.

4.6 Method

4.6.1 Participants

Studio music teachers and school music educators were recruited from a number of sites across Australia through each state's music teaching association, and other music organisations such as AMUSE (Association of Music Educators (Vic), ASME (Australian Society for Music Education), and AUSTA (Australian Strings Association) via a global or personal email sent to teacher members, a web-link on the association's website or a notice in their e-newsletters. Information regarding this study was also sent directly to music directors or the music department at the top 100 secondary schools in each state (as identified by various school directory and education information websites) to distribute to their staff. It is estimated that information regarding this study would have reached approximately 5,000 teachers.

Contextual information concerning the studio teachers and school music educators who participated in this study is presented in Table 4.1.

Table 4.1

Demographic Profile of Studio Teachers and School Music Educators

	Studio Music Teacher	School Music Educator
Years Teaching	M=25.3 (SD=12.43)	M=16.78, (SD=10.78)
Gender: %Female	76.70%	64.84%
Instrumental Family		
Keyboard	53.41%	28.91%
Orchestral[a]	38.06%	53.91%
Voice	8.53%	10.94%
		6.25%
Undetermined		Music Director (40.62%)
		Assistant Music Director (2.34%)
		Class Teacher (44.53%)
		Other[b] (12.50%)

Note. [a]Woodwind, brass, string and percussion. [b]Mix of small-group studio teachers and ensemble directors.

Table 4.1 shows that a large proportion of the respondents were female. Although this could indicate a gender response bias it is consistent with the Australian Bureau of Statistics (ABS) data (Australian Bureau of Statistics, 2011, Table 1) that indicates that around two-thirds of studio music teachers within this country are female.

4.6.2 Materials

Two open-ended questionnaires were developed; one for studio teachers conducting individual instrumental lessons, the other for school music educators teaching class or group lessons (Appendices A and B). Both questionnaires asked teachers to complete demographic and performance information (for example, how often their students have an opportunity to perform solo) and share their strategies for helping their students cope with key performance issues such as developing confidence (Confidence: Appendix A, item 14; Appendix B, item 9), dealing with MPA (MPA: Appendix A, item 13; Appendix B, item 8), and having a poised and confident start (Starting: Appendix A, item 15; Appendix B, item 7). They also identified factors that prevent students from playing up to their ability (Up-to-Ability: Appendix A, item 12; Appendix B, item 6).

Since studio teachers have regular one-on-one contact with their students and provide more detailed and explicit instrumental and musical instruction than class teachers they were also asked to respond to four vignettes depicting common student performing scenarios. Two of the these depicted students that were already experiencing problems (*Sub-Par Performances* and *Negative Experience*) to determine how teachers might interpret, react to and deal with performance issues once they arise. The others (*Exam* and *First Concert*) described students facing performance situations that have the potential to trigger MPA and self-doubt which could result in an aversive

performing experience. These were devised to ascertain to what extent studio teachers might for-see potential problems and enact proactive measures.

Vignette 1 (*Sub-Par Performances*):

The goal of this vignette was to discover how teachers address performance difficulties that cannot be attributed to poor or insufficient preparation. It describes a student displaying some typical characteristics of perfectionists who appear to be the ideal students. They are usually motivated, hard workers, good learners, reliable, and excel in practice. Due to overly high expectations and concerns around making mistakes, negative evaluations, and failing they can often struggle in performances (Kenny, 2011).

> Kate is a model student. She is conscientious, completes all her practice tasks and is well prepared for her lessons. She is an experienced performer but doesn't seem to play up to her ability in a performance. What would you do to help her? (Appendix A, item 8)

Vignette 2 (*Exam*):

The second vignette sought to understand two aspects of exam preparation: how teachers effectively build performance efficacy as well as ensure adequate preparation; and, whether they consider that their students may react quite differently to this situation compared to non-evaluative performances.

Self-doubt and anxiety are often triggered by a fear of negative evaluation (Osborne & Franklin, 2002; Robson & Kenny, 2017; Wilson & Roland, 2002). Judged performance situations such as exams are more stressful and potentially more threatening as they combine close scrutiny and evaluation by an expert and

often intimidating audience. Exams also require extensive preparation to ensure that a program of pieces, technical work, and other mandatory sub-components are mastered simultaneously which can place pressure on both the teacher and student.

> Tom is sitting for an important music exam in 6 weeks' time. What would you advise him to do over the next 6 weeks? What do you focus on in lessons and what do you expect him to do at home? (Appendix A, item 9)

Vignette 3 (*Negative Experience*):

This vignette aimed to determine how teachers balance musical development and performance preparation with the psychological needs of the student. Anxious performers who have had negative experiences may need to develop better practice habits, but they will also require coping mechanisms to manage the anxiety engendered by the performance situation if they are to build performance efficacy (Petrovich, 2004). This scenario depicted a student who was experiencing anxiety that may or may not be due to his preparation leading up to a performance.

> Ethan is performing in a school recital. He is quite anxious because he froze during his last performance and had a number of memory lapses. He is really worried about making mistakes. Once he makes a mistake he finds it difficult to continue and/or his performance is thrown right off track. Often, he has to start again. How would you help him to build confidence for his upcoming performance? (Appendix A, item 10)

Vignette 4 (*First Concert*):

The fourth vignette sought to discover how teachers prepare students for their first performing experience. Mastery and past performing experiences are believed to exert the strongest influence on self-efficacy (Bandura, 1997). When students are facing their first performance they do not have the benefit of past experience to guide or inform them. Thus, the performance task is unfamiliar and ambiguous making it difficult to make capability judgements. This means that they will need to rely more heavily on the other three sources of self-efficacy. Although first-time performers are often young and novice students the importance of that initial experience should not be underestimated. Not only does it become *the* mastery experience that informs subsequent performances and efficacy but it has the potential to trigger a negative cycle of MPA and other performance issues if it is an aversive event (Brugues, 2011; Osborne & Kenny, 2008; Robson & Kenny, 2017).

> Sarah is preparing for her first concert. She doesn't really know what to expect and is a little concerned. How do you help her prepare? (Appendix A, item 11)

4.6.3 Procedure

Data were collected anonymously using SurveyMonkey, an online survey software provider. To be eligible to complete the questionnaire participants were required to have taught music for a minimum of three years, have experience teaching secondary-school age students (12-18years), and be at least 18 years of age.

The links to both versions of the questionnaire were included in the recruitment email enabling participants to select the most relevant option: music teachers conducting individual or private music lessons; or, school music

educators teaching class or group music lessons. Prior to completing the survey participants were directed to a statement explaining the purpose of the study and were required to provide online consent.

4.6.4 Coding Protocol

The thematic analytical approach for the open ended responses (vignettes and performance issues) was both theory-driven and data-driven (Braun & Clark, 2006). Self-efficacy theory provided the theoretical framework for the initial coding of the data resulting in four source themes: mastery experiences, verbal persuasion, vicarious experience, and physiological and affective states (Bandura, 1977,1997). A further main theme of preparation was also identified. Each open-ended response was coded into these main themes with sub-themes identified using both an inductive and deductive process from the data and extant literature. Ten percent of responses were double coded by the primary PhD supervisor for thematic verification. Disagreements were resolved by consensus and applied to subsequent data.

Ambiguous responses (such as ‘as above’ or ‘as previously explained’) were not coded and the respondent was removed from the data set for that particular question resulting in a slightly different sample size for each vignette and performance issue. The number of ambiguous responses was less than five for all vignettes and performance issues except for Confidence (with 11 ambiguous responses).

The coding protocol for each of the main themes is outlined below.

Mastery experiences.

Responses were coded within this category if teachers recommended gaining performing experience through simulation or real-world performances. The main sub-categories included within mastery experiences were:

- Perform - implying ‘real-world’ (as opposed to simulated) performance opportunities with an audience (other than family and friends); and,
- Simulation - implying a performance or informal run through, that typically occurs at home, in practice or a lesson, without an audience, or, in front of their teacher, family and friends. This category included references to ‘practice performing’ or ‘playing through’.
    - unfamiliar - this sub-category of simulation included references to incorporating unfamiliar elements such as distractions, playing on a different instrument or in unknown venues, starting without a warm-up and other elements that may be novel to live performance situations.

Verbal persuasion.

The main sub-categories included within verbal persuasion were:

- Feedback - indicating a focus on evaluating performance (as opposed to the constant feedback teachers would provide naturally during a lesson) through:
    - external evaluation (mostly from peers and teachers) in lessons or class; and,
    - self-evaluation.
- Anxiety – reflecting discussions of :
    - performance psychology
    - thoughts and feelings; and,
    - coping strategies.

Responses coded within this sub-theme were distinct from those that implied a practical application of strategies to manage anxiety (which were coded within physiological and affective states).

- Mistakes – with a focus on:
    - mistakes are normal and to be expected; and,
    - putting them into perspective.
- Goal Setting.

Vicarious experience.

Responses were coded to this source if teachers recommended students listen to recordings or observe good quality performances (by attending concerts or watching videos), other musicians dealing with performance issues (including teacher demonstrations) and self-recorded performances.

The main sub-categories included within vicarious experience were:

- External - observing or listening to others' performances; and,
- Self - observing or listening to self-recorded performances.

Physiological and affective states.

Responses were coded under this source if teachers referred to developing psychological performance skills (cognitive and behavioural) that would moderate physiological and affective states.

The main sub-categories coded within this category included:

- Anxiety management - breathing, relaxation or meditation strategies.
- Focus - involving changing the focus of attention before and/or during the performance. This included planning what to think prior to and

during the performance and having key words and thoughts to help maintain focus (for example, being involved with the music by becoming a character or telling a story).

- Self-Talk - this included developing positive self-talk, having set statements, and restructuring or rationalising thoughts to change perspective.
- Imagery - this included visualisations of successful or positive performing experiences or using mental rehearsal to visualise notes as a memory strategy.
- Performance Routines - these incorporated strategies:
  - to be used immediately prior to starting a performance; and,
  - to use across the day of the performance (for example, when waiting backstage or entering the performance space).

Preparation.

Responses were coded under this category if teachers referred to students being well prepared and knowing their repertoire well. This also included strategies for improving preparation through improvisation, strengthening memory, dealing with mistakes, musical analysis, technique, and appropriate choice of repertoire (that is, within the student's capability).

4.7 Results

The following section presents a general overview of the main findings. This is followed by an in-depth analysis and interpretation of the results in relation to best practice as suggested by the performance enhancement and self-efficacy literature.

4.7.1 Questionnaire Completion

Table 4.2 presents the questionnaire completion rate for studio teachers and school music educators.

Table 4.2

Questionnaire Completion Rate

Questionnaire	Studio Music Teacher	School Music Educator
Section 1: Demographics/ Performance Information	*N*=176	*N*=128
Section 2:	Vignettes*:* *n*=138	Performance Issues: *n*=98
Section 3:	Performance Issues: *n*=126	

4.7.2 Lesson Elements

Studio teachers were most likely to focus on developing technique, expression, music literacy, pitch, and repertoire (Table 4.3). This corresponds with previous studies of lesson content that have shown technique and expression to be the predominant areas of focus in instrumental lessons (Young et al., 2003; Zhukov, 2008). Only a small proportion of teachers incorporated psychological performance skills such as simulation, stage craft, and/or dealing with performance issues (for example, nerves) indicating that this is not an area that is developed consistently over the longer term.

Table 4.3

Lesson Elements

Element	% of Teachers	Description
Technique	72.73%	Breathing, posture, technique, technical work
Expression	41.48%	Dynamics, expression, phrasing, style, interpretation, musicality, communication, understanding emotional context
Music Literacy	34.66%	Aural, analysis, general knowledge, theory
Pitch	32.39%	Intonation, sight-reading
Repertoire	30.11%	Acquisition, review
Rhythm	17.05%	Counting, subdivision, stability, energy,
Practice Techniques	17.05%	Memory, accuracy, difficult sections
Performance	13.09%	Psychological performance skills, preparation, issues (nerves), stage craft, performance practice
Improvise/Compose	9.09%	Improvisation, composition, chord work
Enjoyment	7.39%	Love of music and instrument, engagement, fun and relevant (music they like and that inspires them)
Ensemble	3.98%	
Modelling	0.57%	Use of recording

Note. Percentages were calculated as the proportion of studio teachers from the total sample size (*N*=176) whose item 6 (Appendix A) responses were coded within each lesson element.

4.7.3 Vignettes and Performance Issues

A summary of the vignette and performance issue results is presented in Figures 4.1 and 4.2. Percentages are based on the proportion of teachers from the total sample within each performance issue or vignette whose responses were coded within this category.

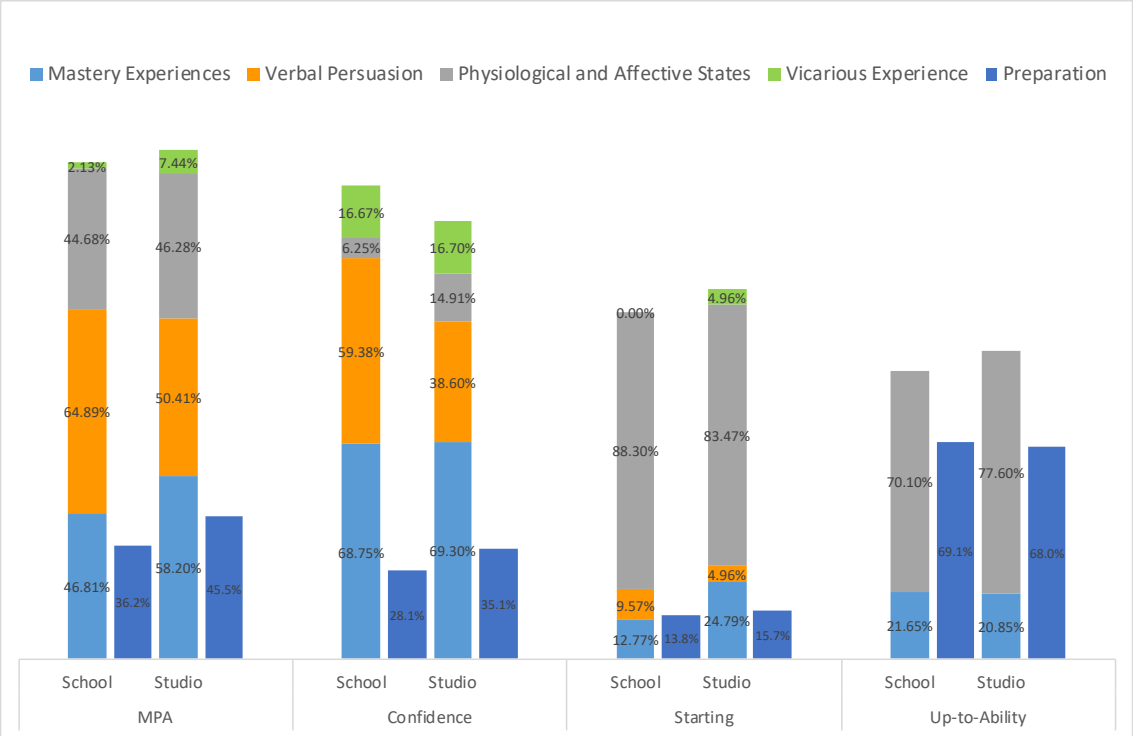

Figure 4.1. Teachers' responses to performance issues coded to self-efficacy sources and preparation.

Figure 4.2. Studio teachers' responses to vignettes coded to self-efficacy sources and preparation.

In the vignettes, *Sub-Par Performances* refers to a well prepared and conscientious but under-performing student, *Exam* reflects teachers thoughts on what students should focus on in the six weeks prior to this event, *Negative Experience* represents an anxious student who is confronted with an upcoming performance, and *First Concert* relates to a student's first performing experience. In the performance issues, Starting relates to strategies for poised and confident starts and Up-to-Ability (UTA) represents elements that prevent students from playing up to their ability.

In summary, these figures show that teachers were most likely to:

- focus on mastery experiences by recommending more performing (studio 44.53–75.18%; school 46.81-68.75%); and,
- use verbal persuasion (studio 17.52-59.38%; school 38.60-64.89%),

and less likely to:

- develop vicarious experience (studio 7.44-24.09%; school 2.13-16.67%); and,
- influence physiological and affective states through the development of psychological performance skills (studio 8.03-46.28%; school 6.25-44.68%)

to improve MPA and confidence and deal with common student scenarios. Music educators were most likely to consider physiological and affective states when helping students cope with MPA and having a confident start, although for this performance issue the sole focus was on developing a pre-performance routine.

Within the UTA issue teachers nominated factors (such as, anxiety and worry about being evaluated) that prevent students from playing their best. As such the high percentage for physiological and affective states in this issue does not represent teachers use of psychological performance skills but rather an indication of the importance of

developing these competencies as these are elements that would be benefit from training in this area. Self-consciousness was identified as the main problem followed by self-belief (studio teachers) and worries about being judged (school educators; refer Table 4.15).

4.7.4 Instructional Condition and the Employment of the Sources of Self-Efficacy

There were some differences in the way that school and studio music teachers encouraged mastery experiences, employed verbal persuasion, and developed vicarious experience and the psychological skills to manage physiological and affective states across the performance issues and vignettes.

Chi-square independence tests evaluated the effect of teaching condition (studio and school music educator) on performance preparation and use of self-efficacy techniques.

Mastery experiences.

In the vignettes studio music teachers were more inclined to recommend gaining performing experience through simulation (Table 4.4). All teachers favoured 'real' world performing experience to combat MPA and build Confidence (Table 4.5).

Table 4.4

Summary of Mastery Experiences across the Vignettes

	Sub-Par Performance	Exam	Negative Experience	First Concert
Mastery Experiences	68.75%	61.48%	44.53%	75.18%
	N=83	*N*=83	*N*=61	*N*=103
Perform	29.55%	50.60%	44.26%	23.30%
	n=26	*n*=42	*n*=27	*n*=24
Simulation	88.64%	68.67%	68.85	87.38%
	n=78	*n*=57	*n*=42	*n*=90
Unfamiliar	50%	33.33%	47.62%	53.33%
	n=39	*n*=19	*n*=20	*n*=48

Note. Sub-Par Performance *N*=135; Exam, Negative Experience, First Concert *N*=137.

Table 4.5

Summary of Mastery Experiences across the Performance Issues

		MPA	Confidence	Starting
Mastery Experiences	School	46.81%	68.75%	12.77%
		N=44	*N*=66	*N*=12
	Studio	58.20%	69.30%	24.79%
		N=71	*N*=79	*N*=30
Perform	School	65.91%	75.76%	
		n=29	*n*=50	
	Studio	63.38%	81.01%	
		n=8	*n*=64	
Simulation	School	40.91%	36.36%	100%
		n=18	*n*=24	*n*=12
	Studio	54.93%	37.97%	100%
		n=39	*n*=30	*n*=30
Unfamiliar	School	22.22%	25%	
		n=4	*n*=6	
	Studio	30.80%	20%	
		n=12	*n*=6	

Note. School total MPA *N*=94, Confidence *N*=96, Starting *N*=94, Up-to-Ability *N*=97; Studio total MPA *N*=121, Confidence *N*=114, Starting *N*=121.

Verbal Persuasion.

A summary of the use of verbal persuasion and the sub-categories of feedback, anxiety, mistakes, and goals across the vignettes and performance issues is presented in

Tables 4.6 and 4.7. Sub-category percentages throughout the following tables are calculated as the proportion of teachers from each self-efficacy source whose responses were also coded within that sub-category.

Table 4.6

Summary of Verbal Persuasion across the Vignettes

	Sub-Par Performance	Exam	Negative Experience	First Concert
Verbal Persuasion	37.78%	17.52%	35.04%	57.66%
	n=51	*n*=24	*n*=48	*n*=79
Feedback	49.02%	58.33%	12.50%	7.59%
	n=25	*n*=14	*n*=6	*n*=6
Anxiety	13.73%	8.33	18.75%	13.92%
	n=8	*n*=3	*n*=9	*n*=11
Mistakes	5.88%	8.33%	47.92%	11.39%
	n=3	*n*=2	*n*=23	*n*=9
Goals	3.92%	8.33%		
	n=2	*n*=2		

Note. Sub-Par Performance *N*=135; Exam, Negative Experience, First Concert *N*=137.

Table 4.7

Summary of Verbal Persuasion across the Performance Issues

		MPA	Confidence	Starting
Verbal Persuasion	School	64.89%	59.38%	9.57%
		N=61	*N*=57	*N*=9
	Studio	50.41%	38.60%	4.96%
		N=61	*N*=44	*N*=6
	School	13.11%	67.86%	
Feedback		*n*=8	*n*=38	
	Studio	13.11%	34.09%	
		n=8	*n*=15	
	School	45.90%	3.51%	
Anxiety		*n*=28	*n*=3	
	Studio	26.23%	11.36%	
		n=16	*n*=5	
	School	18.03%	3.51%	
Mistakes		*n*=11	*N*=2	
	Studio	24.59%	11.36%	
		n=15	*n*=5	
Goals	School	3.28%	7.02%	
		n=2	*n*=4	
	Studio		6.82%	
			n=3	

Note. School total: MPA *N*=94, Confidence *N*=96, Starting *N*=94; Studio total: MPA *N*=121, Confidence *N*=114, Starting *N*=121.

Teachers employed more verbal persuasion when dealing with performance issues such as MPA, building confidence, and preparing students for their first concert (Tables 4.6 and 4.7). School music educators were significantly more likely to discuss anxiety when dealing with MPA, $\chi^2(1, n = 122) = 5.12$, $p = .02$, $\phi = .21$, and use feedback to build confidence than studio music teachers, $\chi^2(1, n = 101) = 10.57$, $p = .001$, $\phi = .32$ (Table 4.7).

Vicarious experience.

Studio music teachers preferred using vicarious experience to deal with specific student scenarios rather than the broader performance issues (Tables 4.8 and 4.9).

Within this source, teachers favoured self- over external-modelling across all of the issues except for preparing students for their *First Concert* and Starting.

Table 4.8

Summary of Vicarious Experience across the Vignettes

	Sub-Par Performance	Exam	Negative Experience	First Concert
Vicarious Experience	19.26% *N*=26	24.09% *N*=33	12.41% *N*=17	21.90% *N*=30
External	34.62% *n*=9	36.36% *n*=12	29.41% *n*=5	76.67% *n*=23
Self	76.92% *n*=20	66.67% *n*=22	76.47% *n*=13	30% *n*=9

Note. Sub-Par Performance *N*=135; Exam, Negative Experience, First Concert *N*=137.

Table 4.9

Summary of Vicarious Experience across the Performance Issues

		MPA	Confidence	Starting
Vicarious Experience	School	2.13% *N*=2	16.67% *N*=16	
	Studio	7.44% *N*=9	10.53% *N*=12	4.96% *N*=6
External	School	50% *n*=1	31.25% *n*=5	
	Studio	22.22% *n*=2	41.67% *n*=5	66.67% *n*=4
Self	School	50% *n*=1	75% *n*=12	
	Studio	77.78% *n*=7	58.33% *n*=7	50% *n*=3

Note. School total MPA *N*=94, Confidence *N*=96, Starting *N*=94; Studio total MPA *N*=121, Confidence *N*=114, Starting *N*=121.

Physiological and affective states.

Within the vignettes studio music teachers were more likely to employ psychological performance skills when a student was already experiencing problems

(*Sub-Par Performance* and *Negative Experience*; Table 4.10). They were less inclined to implement these strategies to prevent potentially aversive performing experiences (*Exam* and *First Concert*). Overall, teachers preferred to use psychological performance skills when dealing with MPA or when implementing a pre-performance routine, and rarely considered these strategies as a means of building confidence (Table 4.11).

Table 4.10

Summary of Physiological and Affective States across the Vignettes

	Sub-Par Performance	Exam	Negative Experience	First Concert
Psychological Performance Skills Total	45.93% *N*=62	13.14% *N*=18	23.36% *N*=32	16.09% *N*=22
Anxiety Management	41.94% *n*=26	16.67% *n*=3	40.63% *n*=13	13.64% *n*=3
Focus	29.03% *n*=18	27.78% *n*=5	34.38 *n*=11	18.18% *n*=4
Imagery	30.65% *n*=19	50% *n*=9	28.13% *n*=9	59.09% *n*=13
Self-Talk	16.13% *n*=10	11.11% *n*=2	6.25% *n*=2	4.55% *n*=1
Performance Routine	16.13% *n*=10	22.22% *n*=4	12.50% *n*=4	18.18% *n*=4

Note. Sub-Par Performance *N*=135; Exam, Negative Experience; First Concert *N*=137.

Table 4.11

Summary of Physiological and Affective States across the Performance Issues

			MPA	Confidence	Starting[a]
Psychological Performance Skills	School	Total	44.68% *N*=42	6.25% *N*=6	88.30% N=83
	Studio	Total	46.28% *N*=56	14.91% *N*=17	83.47% N=101
Anxiety Management	School		66.67% *n*=28	33.33% *n*=2	50.60% *n* = 42
	Studio		69.64% *n*=39	17.65% *n*=3	52.48% *n* = 53
Focus	School		19.05% *n*=8	16.67% *n*=1	25.30% *n*=21
	Studio		28.57% *n*=16	52.94% *n*=9	27.72% *n*=30
Imagery	School		16.67% *n*=7	16.67% *n*=1	44.58% *n*=37
	Studio		21.43% *n*=12	11.76% *n*=2	59.41% *n*=60
Self-Talk	School		21.43% *n*=9		7.23% *n*=6
	Studio		7.14% *n*=4	5.88% *n*=1	2.97% *n*=3
Pre-Performance Routine	School		16.67% *n*=7	16.67% *n*=1	
	Studio		16.07% *n*=9	11.76% *n*=2	

Note. School Total MPA *N*=94, Confidence *N*=96, Starting *N*=94; Studio Total MPA *N*=121, Confidence *N*=114, Starting *N*=121. [a]Coded as internal elements of a pre-performance routine.

Number of recommended strategies.

Teachers generally only recommended one psychological performance strategy for each performance issue (Confidence and MPA) or vignette although they were more likely to consider using multiple strategies (>2) for managing MPA and developing pre-performance routines (Starting; Tables 4.12 and 4.13).

Table 4.12

Number of Psychological Performance Strategies Recommended by Studio Teachers in the Vignettes

Number of Strategies	Up to Ability	Exam	Negative Experience	First Concert
1	66.13% *n*=41	66.67% *n*=12	68.75% *n*=22	68.18% *n*=15
2	19.35% *n*=12	16.67% *n*=3	15.63% *n*=5	18.18% *n*=4
3	6.45% *n*=4	5.56% *n*=1	9.38% *n*=3	4.55% *n*=1
4	1.61% *n*=1			
Undetermined[a]	*n*=4	*n*=2	*n*=2	*n*=2

Note. [a]Strategy number was coded as undetermined when teachers implied more than one strategy or recommended general mental skills preparation; Up-to-Ability *n*= 62, Exam *n*= 18, Negative Experience *n*= 32, First Concert, *n*= 22.

Table 4.13

Number of Psychological Performance Strategies Recommended by Teachers in the Performance Issues

Number of Strategies	MPA School	MPA Studio	Confidence School	Confidence Studio	Starting School	Starting Studio
1	54.76% *n*=23	53.85% *n*=28	66.67% *n*=4	88.24% *n*=15	39.13% *n*=27	49.45% *n*=45
2	33.33% *n*=14	30.77% *n*=16	16.67% *n*=1	5.88% *n*=1	49.28% *n*=34	45.05% *n*=41
3	9.52% *n*=4	13.46% *n*=7			11.59% *n*=8	6.59% *n*=6
4	2.38% *n*=1	1.92% *n*=1				
Undetermined		*n*=2	*n*=1	*n*=1		

Note. School Total MPA *N*=42, Confidence *N*=6, Starting *N*=69; Studio Total MPA *N*=52, Confidence *N*=17, Starting *N*=91.

4.8 Sources of Self-Efficacy and Preparation

The next section of results presents an in-depth analysis and interpretation of responses to the performance issues and vignettes according to the four sources of self-efficacy: mastery experiences, verbal persuasion, vicarious experience, and

physiological and affective states; and, preparation. Implications of these findings for music pedagogy are also considered.

4.8.1 Mastery Experiences

A summary of mastery experiences and the main sub-categories of perform and simulate across the vignettes and performance issues is presented in Tables 4.4 and 4.5.

A common challenge faced by teachers when it comes to developing SEP is students' lack of experience and unfamiliarity with the performance situation. Musicians spend the vast majority of their time practising rather than playing in front of an audience which explains why students have more confidence in their ability to learn music rather than perform it (Ritchie & Williamon, 2012). As one teacher noted, pupils often do not play up to their ability because they:

> Lack of understanding of the difference between practicing a piece, and practicing PERFORMING a piece. (Studio Teacher [ST] 176)

Although many teachers were advising more performing it was hard to determine how often students (and their teachers) followed through with this advice since the amount of performing and/or simulation recommended was often unspecified ranging from as 'as many times possible' to 'regularly':

> Try to have as many practice performances/ concerts in front of other students, parents as possible. (ST122)

> I would suggest Kate gives performances for family and friends on a very regular basis. (ST18)

Even when the amount was specified the number of recommended performance trials was quite low:

> We would make opportunities (perhaps 3 or 4) to play her programme for a small audience of family or friends or for another student preparing for an exam. (ST79)

> I would ask her to put on a performance for her family, and also ask her friends to come and listen to her once or twice before the main performance. (ST93)

Many of these performances also appeared to occur outside of lesson times.

Simulation.

It can be challenging for teachers to provide regular or sufficient opportunities for pupils to perform (Mills & Smith, 2003). As it is difficult to organise frequent real-world performances relying on these live experience will limit the number of mastery experiences a student can access and the potential to build self-efficacy. Simulation can compensate for this infrequent performance exposure. It enables students to experiment with and develop confidence in their performing skills in a risk-free situation and become familiar with the performance environment across an unlimited number of trials (Williamon et al., 2014). In sport athletes have identified practice situations as a more important source of self-efficacy information than actual games (Chase et al., 2003).

Figures 4.3 and 4.4 show the number of times that teachers indicated they had the opportunity to observe a student perform in a practice or simulated performance over the course of a year.

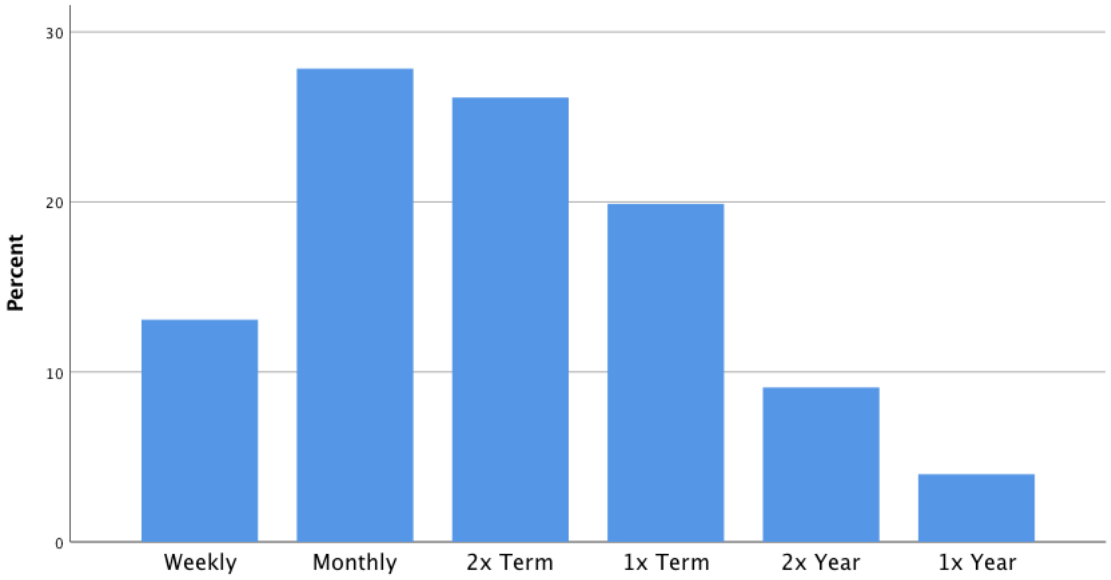

Figure 4.3. Studio teachers' annual frequency of simulated performance observations.

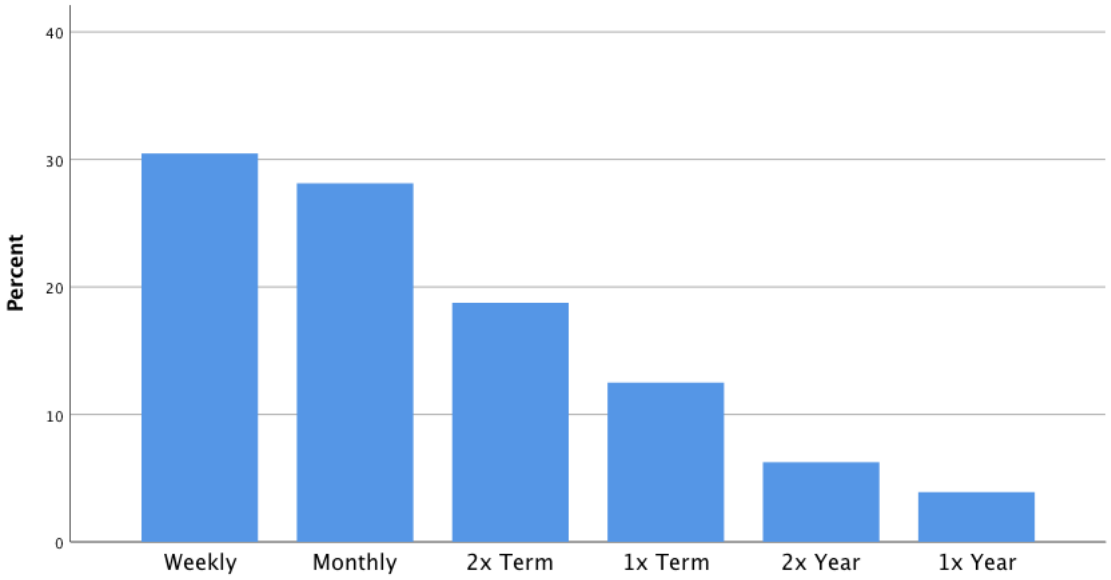

Figure 4.4. School music educators' annual frequency of simulated performance observations.

Approximately 50% of school music educators and 40% of studio teachers indicated that they were observing students in a practice performance on a regular basis (at least once a month). There was still a number of teachers (25-33%), however, that were viewing simulated performances infrequently (at most, four times a year). This suggests that some pupils rarely rehearse performing in their lessons or classes and could be missing valuable opportunities to improve self-evaluative ability and develop performance skills and experience.

When asked how many times they would expect students to practice performing their piece or program (that is, dress rehearsal, cold run through or simulation) leading up to the main event around 55% of studio teachers responded one to four times (Figure 4.5). Although there is no established protocol for what constitutes the right amount of trials to build self-efficacy, students should experience favourable outcomes (particularly self-evaluated success) more often than failure or dissatisfaction and across multiple sessions before they are exposed to a public performance. The low number of simulations may not allow students to gain a sufficient number of positive experiences to boost SEP. If students can go into an actual performance with at least 10 self-evaluated, simulated mastery experiences they are likely to feel more confident and well prepared (Beattie et al., 2015). As only a small proportion of teachers were recommending this number of test runs ensuring accurate self-evaluation becomes even more important so that students can make the most of the limited opportunities they may have to gain mastery experiences.

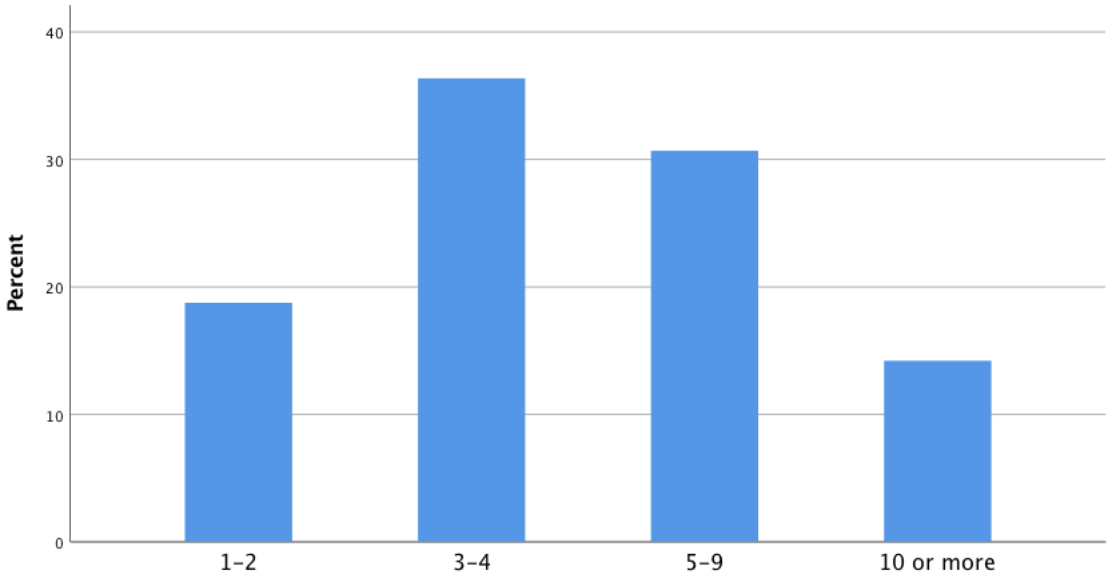

Figure 4.5. Amount of simulations recommended by studio teachers

One challenge faced by students is having their piece or program ready far enough in advance to allow time for a sufficient amount of simulations before their actual performance. When asked how many weeks prior to the main event they expected their students to have learned their performance piece, 20.5% of studio teachers indicated one to two weeks with a further 44.9% indicating three to four (Figure 4.6). Overall, approximately 50% of vocal and 20% of orchestral teachers believed one or two weeks ahead of time was adequate (Figure 4.7).

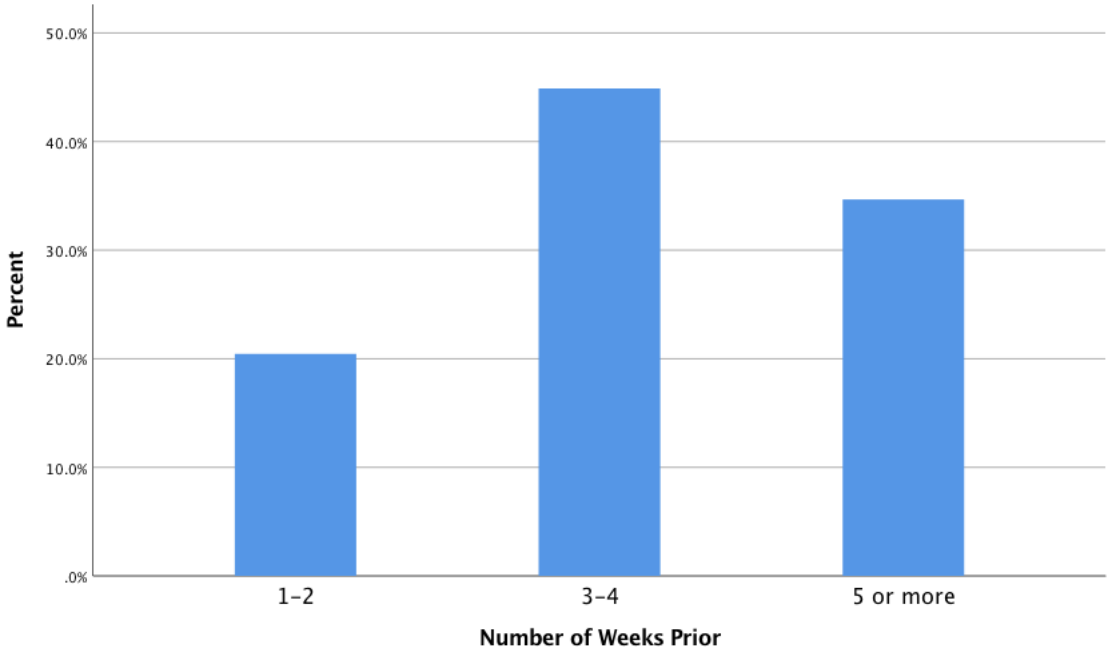

Figure 4.6. Studio teachers' performance-readiness expectations.

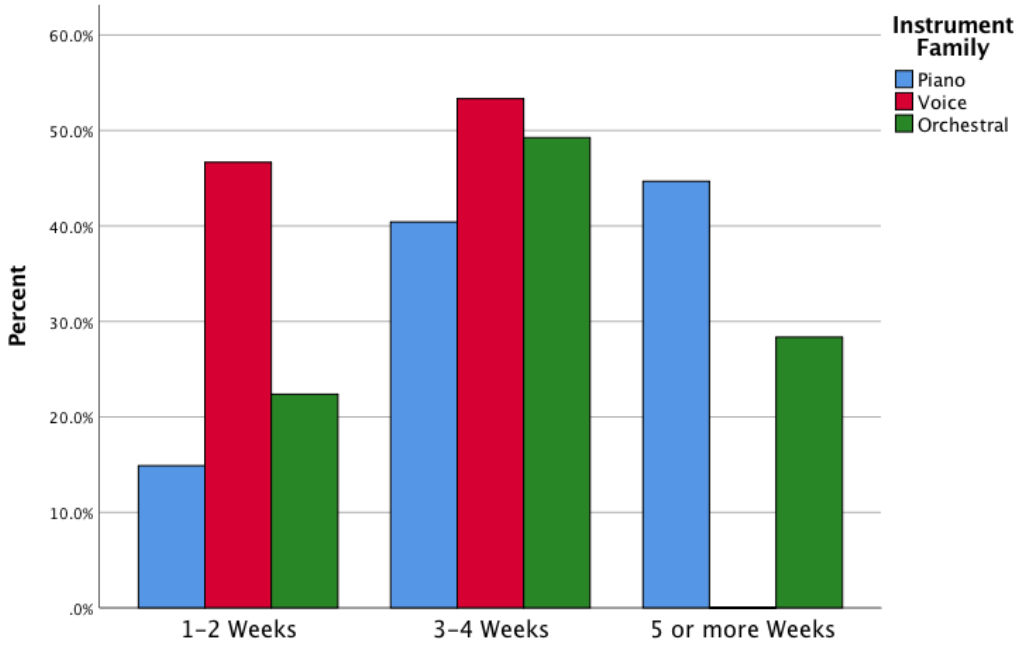

Figure 4.7. Studio teachers' performance-readiness expectations by instrumental family.

Keyboard teachers expected their students to have learned their piece significantly further ahead of time than orchestral or vocal teachers $\chi^2(4, n = 176) =$

16.21 $p = .003$, $\phi = .30$ (Table 4.14). This probably reflects the different learning and psychomotor repertoire demands. Keyboard players, for example, have to master and often memorise multiple notes bi-manually compared with the single melodic line of instrumental and vocal pieces.

Table 4.14

Mean Number of Weeks: Studio Teachers' Performance-Readiness Expectations

	M	*SD*
Keyboard	5.71	4.22
Voice	2.73	0.80
Orchestral	4.16	2.15

Note. Data did not meet assumptions for parametric analysis.

Although performance simulations will often push a piece that is 'almost there' into readiness there needs to be enough time available for this process to take place. In this instance teachers were referring to repertoire that was not quite 'performance ready', that is, it still required refining technically and expressively and was not yet up to tempo. Thus, the small leeway recommended by many teachers may not allow for optimal preparation. It also conflicts with an instructional focus on being well-prepared (as well as questions music educators' definition of preparedness) that was understandably a main theme underlying teachers' responses. Ideally, students should be able to conduct a sufficient number of simulations to identify issues, fix errors, and leave room for a tapering off period (at least one week) prior to the performance.

The virtual environment.

Teachers intuitively recognised the convenience and potential benefits of performance practice, encouraging pupils to play in low-pressure or familiar situations (for example, at home for family and friends, or in lessons), select easier repertoire, or participate in collaborative efforts such as duets and ensemble performances:

> Do lots of mock performances in front of friends, family. (ST71)

> If it is a case of nerves, then perhaps practicing with a home audience might help. (ST7)

> I would build up her confidence by suggesting she performs for family and friends regularly. (ST42)

> Also give her some pieces to perform that were technically easy, possibly including duets with me the teacher. (ST102)

They were also concerned with ensuring that these experiences were positive and successful referencing non-threatening, informal, low stress or low-pressure performances contexts:

> Encourage to find positive, low key performance opportunities.
> Start with more low-key audience, e.g. Friends, parents, gradually increase the level. (ST33)

> Sarah should have some low-anxiety performance experiences prior to this, whether it be sitting family down to hear, or participating in a studio concert, which is a non-threatening and known environment. (ST170)
>
> Give her relatively low stress performance opportunities during lessons such as playing to students before and after her, performing for me the teacher, both sections of her pieces and whole piece solo. (ST102)

> Encourage her to play it for others in informal settings, other students, the dog. many teenagers HATE playing for parents; find others who are OK by her. (ST73)

It was unclear, however, as to what they meant by these terms, since informal or non-threatening might imply performing at home, in class, or in a music studio. Depending on the student, these situations could be perceived as high-pressure because of the proximity of the audience or playing in front of peers. Furthermore, as noted by one teacher, teenagers may not want to play for their family, yet this was often a recommended scenario.

The intent for these performances to be relaxed and potentially mastery experiences was clear (even if that may not be the outcome) and teachers do not have many options for providing alternative forms of performing experience. As these will only build self-efficacy to the degree that they are self-perceived to be successful, developing a greater awareness of students' perceptions regarding different types of performances (through guided self-evaluations and performance debriefs) could enable teachers to individually tailor their pupils' experiences to foster self-belief:

> There is nothing better for an anxious student than a positive performance experience. The experience is better than any preparation because they will

> still be anxious. A positive performance experience requires a choice of repertoire that is not too difficult (but not obviously too easy), weeks of performance practice in lessons and a supportive audience (which may involve parent education). Even when things go wrong, students need to realise that they are just playing music (not working in an operating theatre), working towards a goal, and their best on the day is completely sufficient. And that experience builds experience - you just have to keep doing it, over and over. It takes a long time for most students to feel comfortable performing - that's to be expected. (ST64)

Frequent, low-stress opportunities can help students to become familiar with managing performance situations and experience the joy of playing for an audience (Osborne & Kenny, 2008). Whilst these should be encouraged, particularly for an initial confidence boost, it was evident that performance practice expectations were often limited to playing through repertoire at home rather than reflecting the conditions of a live performance:

> Suggest he do performances for friends or family well before the recital. Ask him to do run throughs of his piece at home without stopping and starting so he develops the habit of continuing no matter what. (ST78)

> I would encourage him to often go to the piano and do a spontaneous performance of one piece and see how it goes. (ST95)

> Practising "performing" the piece (playing through as if it is a performance) and not stopping regardless of what happens in that run through. (ST97)

These types of simulations may build performance skills and self-efficacy for familiar situations but will not necessarily prepare the student for the 'actual' performance. Performance practice will be most effective and more likely to transfer to the authentic event when the virtual environment mirrors that of real-world conditions (Aufegger et al., 2016; Bissonnette et al., 2015; Orman, 2004; Rothbaum, Hodges, & Kooper, 1997).

High-pressure and realistic performance situations can, with some imagination, be recreated at home or in lessons. The use of self-recording (to increase self-consciousness and pressure), adding various distractions, and simulating the symptoms of anxiety (for example, by increasing heart rate through exercise) can mimic some of the conditions of a real-world performance. This is important as it is easy to be distracted during a live performance by novel or unexpected external and internal stimuli (Matlin, 2005; Orlick & Partington, 1988). Musical memory and the retrieval of sequenced patterns are highly context dependent meaning that they are facilitated by conditions that are similar to those in which they were originally learned (Matlin, 2005). A change of environment, unfamiliar instrument, different acoustics, unexpected noises (such as coughing or sneezing), and uncomfortable physiological symptoms can easily impede memory or the execution of well-practiced motor patterns (Wulf & Mornell, 2014). A variety of factors can be added to augment the simulation experience and expose students to many of the unfamiliar elements that they may face in a live performance as demonstrated by these teachers' responses:

> Rehearse with noisy background, to improve concentration on playing task.
>
> Play in different venues, on different pianos. (ST28)

> Own the performance space by practising many times all the details and conventions before actually playing. This has to be done formally so that it is second nature to the performer. (ST82)

> I would create role play situations where we would simulate the forthcoming performance situation, right down to walking in at the start and bowing at the end. The intention is to create some nerves. (ST123)

> During performance practise I would try different scenarios - interrupting him, distracting him, asking him to start from various points in the piece. (ST32)

> Recreate performance conditions - set up the room/stage as it would be on the day. Show her how to walk on after being announced, play, bow/thank accompanist and walk off. (ST46)

> Familiarise her with the venue. Rehearse walking onto the stage, acknowledging the audience, announcing her piece, thanking the audience with an unhurried bow. Practice dealing with sheet music if needed, music stand/microphone/other equipment if applicable, which way on and off stage, where to go next. (ST56)

> Include distractions in her practice sessions e.g. ticking clock encourage Sarah to play on different pianos or change the lighting in her room etc. (ST83)

Although these teachers recognised the value of this type of simulation training it was unclear whether unfamiliar elements were commonly incorporated into practice rehearsals. Around 50-80% of teachers did not reference recreating performance

conditions in their responses. It is possible that this may be an under-utilised performance preparation technique, leaving many young musicians unprepared for an upcoming 'live' performance (Tables 4.4 and 4.5). If students can learn to successfully perform under a variety of adverse conditions that recreate the pressure and various distractions of an actual performance, then this is more likely to provide them with realistic mastery experiences and enhance self-efficacy.

Teachers might also consider how their pupils could practice performing without an audience. Much of the performance practice advice referred to playing to friends and family, but students may lose valuable learning opportunities if they have to rely on other people to be present during their rehearsals. Simulation training can still be conducted when practicing alone. This can be achieved through incorporating distractions, mirroring the performance conditions (for example, time of day, concert attire), and developing proficiency with using pre-performance routines, focus strategies, mistake recovery, and other important psychological performance skills and strategies.

Implications for music pedagogy.

The quality and quantity of past performing experiences can have a significant impact on students' SEP and this will largely depend on their *self-perceptions* of these events that may or may not accurately reflect the actual musical outcomes. Teachers clearly recognise the need for their students to be gaining more performing experience but have limited options to provide them with real-world opportunities. They may also be unaware of students' *perceptions* of their efforts. Simulation enables students to gain mastery experiences and build SEP across a limitless number of trials. They can therefore benefit from regular performance practice in lessons and in their home

practice, with and without and audience. This will be most effective if they have their pieces ready four to six weeks prior to allow time for them to complete a sufficient number of self-perceived, successful rehearsals. Teacher guided self-evaluations and performance debriefs would help students to accurately appraise their efforts and build self-efficacy. Incorporating a range of diverse and unfamiliar elements to reflect public performance will also ensure that the benefits and skills derived from these simulations transfer to the live event.

4.8.2 Verbal Persuasion

Verbal persuasion is favoured by teachers which is not surprising given that many intervention techniques and teaching strategies rely on this source (Feltz et al., 2008; Short & Ross-Stewart, 2009; Weinberg & Jackson, 1990). Indeed, effective teaching depends on good communication regardless of whether one is teaching novices new skills or refining well developed competencies in advanced performers (Short & Ross-Stewart, 2009; Vargas-Tonsing et al., 2004). Although sports coaches believe it to be one of the most beneficial strategies for enhancing self-efficacy (Short & Ross-Stewart, 2009; Vargas-Tonsing et al., 2004), verbal persuasion is thought to have less influence on this self-belief when compared to the other sources (Bandura, 1997; Chase, Feltz, & Lirgg, 2003; Feltz & Riessinger, 1990). Whilst it can provide a temporary boost in perceived ability these affects are transitory if not reinforced by subsequent success (Bandura, 1997). Thus, it can have limited influence on its own, particularly if it is not combined with other self-efficacy sources or reinforced by the actual development of skills that increase learning and improve performance (Bandura, 1997; Ross, 1994; Stein & Wang, 1988).

The majority of teachers' comments for this source consisted of reassuring comments, advice on how to cope with performing, and encouragement. For example:

> Focus on the task at hand not the anxiety. (School Music Educator [SME] 55)

> Tell her to relax. (ST9)
> Reminding them that anxiety can turn into excitement and that adrenaline actually assists us in performance. (SME8)

> When performing tell the students to imagine they are in their own practice room and forget about who is listening. (SME40)

These types of statements may be good advice but they are unlikely to be effective on their own. Telling students how to cope with performing without developing the skills to enable them to do this is the equivalent of describing good technique and expecting them to work it out alone in practice.

Whilst the right kind of verbal persuasion can strengthen pupils' belief that they have what it takes to succeed and motivate them to take action, self-efficacy is easily undermined if the outcome of one's musical efforts is disappointing (Bandura, 1997). The following comments may be amusing but are unlikely to benefit an anxious student about to perform:

> Concentrate on a spot a metre above the heads of the examiners/audience, the old 'imagine they are sitting on the toilet' - we're all just human beings. (ST75)

> Smile and be fabulous! (SME105)

In comparison, verbal persuasion that gives constructive advice such as:

> Talking about strategies such as relaxation techniques, breathing, muscle exercises, being aware of temperature, positive thinking, mental focus. (SME69)

could empower a student to develop realistic and beneficial coping strategies to deal with the performance situation and experience success, particularly if this is followed up with a practical application and development of these skills in lessons and practice (Petrovich, 2004).

The culture of silence.

Musicians are not particularly comfortable talking openly about MPA or related performance issues (Mesagno et al., 2016; Patston & Loughlan, 2014) as noted by this vocal teacher:

> In the singing world there is an unhelpful culture of silence around performance anxiety and related issues. Most people suffer from performance issues to some degree and should share that experience to normalise it. (ST31)

This may be due to the stigma surrounding MPA and the fact that most music teachers would not have received formal training in how to deal with these issues (Nagel, 2009). The music industry is also a highly competitive environment where many talented musicians are vying for a limited number of positions. Professional

musicians may avoid the topic out of concerns that it will highlight a weakness, impacting on their career, reputation, and employment opportunities (Ingles, 2013; Mesagno et al., 2016). Anecdotal evidence also suggests that this culture of silence is also driven by an underlying fear that MPA is contagious. Open discussion risks 'putting the idea into a student's head' (if they are not already experiencing difficulties) or exacerbating current problems (Kenny, 2011). This was evident throughout the responses coded within this source, particularly for studio teachers, with only a small proportion directly focussing on or discussing anxiety (Tables 4.6 and 4.7).

When dealing with MPA school music educators were more open to discussing the topic and encouraging peer or class discussions, perhaps reflecting a greater focus within this environment in general on health and well-being:

> Remind yourself that it's okay to be nervous, it means you care. While you may worry about the audience judging you remember that they actually want to see you perform your best, because that is what you would want to if the role was reversed. (SME109)

> By normalising it. Every performer feels it to some degree. If you don't, you are not normal and there is something wrong! Performance anxiety means your body is working correctly and is flooding you with energy. Harness this energy and put it to use positively rather than fighting it. (SME123)

> Classes discussing it. (SME126)

Studio teachers, however, seemed reluctant to broach the topic directly even when sharing their strategies for managing MPA as evidenced by this response:

> All the usual things but don't focus on anxiety at all. If it happens then, listening to recording of concert and see where they went off the track...usually at a trouble spot so it has more to do with not knowing the work properly. (ST175)

Additionally, few teachers thought to inform students preparing for their first concert that performing would feel different to practice (Table 4.6).

The following types of comments can reassure students unfamiliar with performing that what they are experiencing is normal and expected:

> Speak with her about how she may feel prior to the performance. Explain that nervous energy can present in different ways and that her voice might not behave as it normally does when it is in a pressured situation. (ST34)

> I'd remind her that if she feels nervous that's normal and will help her play better because she'll have more energy! (ST32)

> Important to address the fact that she may feel nervous and the effects that these may have on her. Advise that everyone gets nervous and this can be a positive experience where it allows you to play at your best. It can sometimes interfere but to practice visualising a positive performance. Enjoying the "excitement" of performance and suggesting that the audience is there because they like to listen to the music and they are not there to be critical. (ST97)

This type of verbal encouragement is even more important for shaping efficacy beliefs in novice performers as they cannot draw from past experience (Bandura, 1997).

Rather than directly confronting MPA it seems that teachers prefer to focus their verbal persuasion efforts around topics they may feel more comfortable discussing and capable of addressing, such as mistakes:

> I discuss the inevitability of "mistakes" and not fearing them and learning to trust your ability to recover. I explore with them their worst fears in performance and talk about what would happen if those things happened. Usually this leads to a discussion of what they thought when they saw other people make these mistakes that they feared so much (which usually leads them to realise they didn't mind/judge). (ST72)

> The assurance that even if you do make a mess, what's the worst thing that will happen to you? That is, the keys are not rigged to shock you if you hit a wrong not or you won't die! (ST86)

> Keep it in perspective..."You're making music, it's meant to be enjoyable." Make them realise that it isn't going to be a perfect performance, some things won't go to plan but how you deal with these as they occur have a bigger effect on the audience than the error that might occur itself. (SME66)

Mistakes are often a symptom of various performance problems or underlying performance difficulties and a significant cause for concern for performers, so it is understandable that teachers are quite focused on this area when considering MPA (Robson & Kenny, 2017). Skirting around issues and addressing symptoms rather than the cause, however, may not benefit students over the longer term. Issues such as MPA are a normal and inevitable reaction to performance situations and students would benefit from discussions that directly deal with these topics. "It is a powerful

experience for a musician to discover that he is not alone with his fears and that many peers, and even teachers, are struggling, or have struggles with the same anxieties" (Petrovich, 2004, p. 27). The following comments indicated that some teachers do provide this experience for their students:

> Open discussions so that it does not become a concept that is a sense of failure, but something that all people experience. (SME86)

> I share with them my own experience when I was their age. Even though I loved playing my clarinet, I always used to get extremely nervous when I performed as an adolescent. To the point where I shook visibly and found it difficult to even hold my instrument. I found this got better when studying performance at university as we had to perform weekly in masterclasses (which at first I found stressful), but eventually as my technique improved and as I started to understand how important "perfect practice" was and developing technique was, I eventually started to "make friends" with my nerves. I tell the students that if you are the type of person who gets very nervous, you probably always will be - this most likely won't change, but what WILL change is your ability to control the nerves and to become familiar with that nervous feeling before a concert and use it positively to enhance the performance. They like knowing this as it gives them hope. I like feeling nervous now (as long as I know the repertoire thoroughly) as I know it will guarantee an exciting and expressive performance. BUT...If I am nervous and I don't know the repertoire that well, then usually things don't go so well...surprise, surprise! (SME46)

> Anecdotal stories about my own experiences. They seem to like to human side of teachers making mistakes or overcoming difficulties. (SME85)

Avoiding the topic means that there is a real risk that students will think there is something wrong with them, that they should not be feeling the way they are and that it is something to fear (Esplen & Hodentt, 1999). Furthermore, students have expressed a strong desire for more information on how to manage MPA, indicating that this issue is not adequately addressed within their music education (Esplen & Hodentt, 1999; Robson & Kenny, 2017).

Feedback.

Feedback is a vital component of verbal persuasion and is recognised to have a powerful impact on learning and achievement (Hattie & Timperley, 2007). The number of teachers using this form of verbal persuasion to help deal with performance issues, however, was quite low, an observation that has also been noted for class teachers in general (Bond, Smith, Baker, & Hattie, 2000). This suggests that music educators may not recognise the role of feedback (via its influence on self-efficacy) in helping students cope with MPA and negative performance experiences. Providing regular feedback opportunities clarifies the performance task and provides students with a clear understanding of how they can improve, for example:

> They play to each other and are required to feedback to each other. In addition to the benefit of familiarity of performance, the student gets an insight into what the audience actually hears and is often surprised at how much they don't hear in their performance. (SME66)

This helps students to determine the amount of effort required to improve, drives motivation, and leads to better preparation, adaptive anxiety and enhanced self-efficacy for performing (Beattie et al., 2015; Juslin et al., 2004). Insufficient, inaccurate or

ambiguous feedback makes it difficult for students to accurately estimate their capabilities, determine if they need to improve, and what sorts of corrective adjustments they may be required to make. This can result in poor preparation, reduced effort, maladaptive anxiety, and a decrease in self-efficacy (Feltz et al., 2008).

Self-evaluation.

Self-evaluative feedback of simulated or live performances was favoured by studio music teachers, particularly in the vignettes. It was difficult to ascertain, however, whether this was as systematic, formal, or teacher-guided process. A few teachers did mention that they would record and evaluate with their students in lessons:

> In both the lessons and at home, record simulated performances and teach student how to analyse each performance in relation to accuracy, musicality, stylistic interpretation plus overall feeling with the view to both improve and to eventually set students mind at ease particularly with the quality of the performance. (ST62)

Most responses referred to a general unguided evaluation process:

> I would suggest she gives performances for family and friends on a very regular basis, and even video records these performances so that she is able to watch her own playing and observe that when she is performing she tends to hold back. (ST18)

> Watching video play back so she can investigate her own methods of improvement. (ST176)

> He should record his performance at least once each week and listen critically. (ST105)

Without formal guidance and a set evaluation procedure, students may struggle to identify strengths, areas for improvement, and appropriate practice strategies to address problems (Burrack, 2002; Paris & Paris, 2001). Self-evaluation can also help pupils to monitor their own progress and identify specific and achievable process goals that can provide frequent evidence of success, enhancing motivation and self-efficacy (Zimmerman, 2000). Given that students demonstrate poor self-evaluation accuracy they may benefit from a systematic, teacher-guided assessment process (Hewitt, 2007).

Goals.

Few teachers discussed goal setting although communicating expectations can strengthen verbal persuasion (Bandura, 1986). Previous research has also found that students are unlikely to set goals for practice or performance (Jorgensen, 2004). Short-term performance goals provide frequent opportunities for students to experience success and build self-efficacy. In addition, a challenging, yet achievable, teacher-assigned goal is more likely to lead to increases in self-judged capability because it conveys a belief in ability, suggesting that the pupil is capable of reaching a certain level of achievement (Bandura, 1986; Elston & Martin-Ginis, 2004):

> Writing a list of performance goals that they can tick off after each performance and aid in their overall development (e.g., successfully played from memory in a practice performance). (ST55)

> In lessons and in his practise there should be structured goals and always have an "end game" to work towards. Giving students achievable goals is a good way of demonstrating that with practise they can achieve. In lessons we would be goal setting. (ST36)

Self-talk.

Self-talk is an internal form of verbal persuasion (Hardy, 2006). Numerous studies have confirmed the potential facilitative and debilitative functions of self-talk, the perceived lack of control that performers have over their internal dialogue, and a natural tendency for it to be focussed on negative and self-defeating messages, that often escalate immediately prior to and during a performance (Clark, Lisboa, & Williamon, 2014). Negative cognitions lower self-efficacy and are recognised to be a significant cause of anxiety and impaired performance, contributing to mistakes and loss of focus (Brotons, 1994; Clark et al., 2014).

Encouraging appropriate self-talk is believed to be one of the most effective efficacy enhancing techniques (Mellalieu, Hanton, & Shearer, 2008; Thomas, Mellalieu, & Hanton, 2009). Comments from teachers emphasised developing rational thought processes and putting things into perspective with a focus on accepting mistakes, understanding the audience is there to enjoy the music, and not overestimating the importance of the performance:

> Lots of conversations with the students (individually) to replace negative circular thoughts with positive ones. (SME39)

> Tell them it’s okay to make mistakes...we are all human. It's about refocusing and getting on with the job. (ST16)

Reassure her that most of the audience will not notice any mistakes. (ST80)

That's the worst that can happen, it's not the end of the world if it does. (ST9)

Teachers were clearly concerned with addressing common negative cognitions that can undermine students' self-belief when performing. Without regular monitoring of self-talk and active strategies that encourage rephrasing and self-awareness of their inner dialogue, the benefits of these types of comments are likely to be transitory. Students can also easily misinterpret or inwardly negate verbal encouragement (Petrovich, 2004) and invariably "talk themselves out of the possibility of success" (Short & Ross-Stewart, 2009, p. 251). Determining ways that teachers can tap into students' perception of verbal support would be of great benefit. Providing pupils with practical and consistent training on how to improve and control their inner statements would also help maximise the potential benefits to be derived from external feedback and verbal persuasion.

Implications for music pedagogy.

Verbal persuasion is an important component of effective teaching and there are optimal ways to employ this source of information to promote positive self-perceptions and performance success. Verbal persuasion is thought to be more effective when combined with other sources of self-efficacy (Bandura, 1997; Ross, 1994; Stein & Wang, 1988). Hence, discussions of coping strategies would be enhanced if followed by a practical application of skills (psychological performance skills training) to enable students to manage performance situations. Informing teachers that others' expectations and externally set goals can convey subtle messages about ability, particularly for less

skilled students, would help ensure the careful application of these types of verbal persuasion. Increasing the amount of accurate internal feedback through regular, guided self-evaluation of simulated performances in lessons would also be of benefit. Part of this process could encourage students to identify successes during lessons, practice, and performance, no matter how small, to help foster self-efficacy. Teachers could also pay attention to students' interpretation of feedback and monitor and encourage appropriate internal dialogue to enhance the effects of this source. Finally, discussing MPA and other performance problems with students of all ages should be encouraged. Teachers could share their own experiences and inform novice performers that performing will feel different to practice. This will help to reassure students that it is normal to experience what they are feeling and reduce the stigma that often surrounds this issue.

4.8.3 Vicarious Experience

A summary of the use of vicarious experience and its sub-categories across the vignettes and performance issues is presented in Tables 4.8 and 4.9.

External modelling.

There are different types of models that can be employed with varying influences on self-efficacy and performance. Music teachers used external models to demonstrate mastery, help students learn about style, interpretation, and other elements of musical artistry, and provide motivation:

> Listen to performances on you tube to gain any extra ideas for interpretation, extra stylistic nuances to give that extra kick. (ST75)

> Listen to other works of same periods to ascertain forms, styles, expressions, etc. (ST163)

> Play them over and over again from getting motivation of watching the very best by watching/listening to recordings from the best pianists like Horowitz, Lang Lang, Yuja Wang, Arrau, Argerich etc. You'll be amazed of how much these pianists unleash your hidden abilities. (ST113)

Watching proficient musicians perform successfully is a performance enhancement technique that can inspire, aid skill execution, and build confidence in actually learning that competency (Feltz et al., 2008). Students are more likely to believe that they can achieve success if they observe other students perceived to be similar to themselves overcoming their difficulties or achieving their goals (Bandura, 1997; George, Feltz, & Chase, 1992; Hendricks, 2014; Weiss, McCullagh, Smith, & Berlant, 1998). Peer and coping models may be particularly important for pupils who have low self-efficacy as they can be more sensitive to vicarious experiences, benefitting from watching other students struggle through similar problems (Hendricks, 2014). In this respect school music educators had more opportunity to take advantage of peer modelling with regular class performances suggesting:

> Fortnightly performances in class (all students perform to each other). Many performance opportunities in class with peers that are followed by positive discussion. (SME72)

> They play to each other and are required to feedback to each other. (SME66)

Studio teachers also recognised the importance of this type of modelling, particularly when it came to preparing students for their first concert and dealing with MPA, creating or finding other opportunities for their students to experience this form of vicarious experience:

> Seeing their peers perform. (ST133)

> Give her practical experiences of others performing AT HER LEVEL.
> Have her watch a concert with other students perform. (ST47)

> Hold informal concerts where they hear others of their age & stage perform.
> I may show her a DVD of a previous student concert. (ST84)

> If an Eisteddfod is entered, I suggest going to see others play prior to their performance. (ST98)

Informing studio teachers about the benefits of peer modelling for boosting self-efficacy, particularly in less efficacious students, may encourage them to seek further opportunities (perhaps at lesson overlap or by conducting informal group performing sessions) to offer more of these experiences to their students.

Coping models demonstrate: negative cognitions, affect or behaviours that may occur when performing difficult tasks; the desired behaviour; and, correct performance to display how to cope with the situation (Feltz et al., 2008). These are believed to be most beneficial for learning challenging tasks and dealing with threatening situations. Teachers also recognised the importance of this type of modelling, especially when helping students to cope with mistakes.

> Mistake recovery can be difficult. I would demonstrate by playing the piece myself, deliberately playing with errors but endeavouring to cover them, not highlight them. (ST86)

> Another strategy- I could show him a number of famous people on You tube singing wrong words and wrong notes. (ST148)

> Watch examples of concerts where things go wrong but players continue. (SME126)

> I would show Ethan footage of me making a horrendous memory slip at one of my performances - not only does it seem to make every student laugh when they hear me make a mistake, but they seem to realise that we all make mistakes from time to time, and that it's important to just keep going, no matter what. (ST18)

Music educators were unlikely to refer to this type of modelling for MPA. This may be a result of teachers' reluctance to deal directly with this issue (culture of silence) and because students had not yet developed the coping strategies to demonstrate how to deal with anxiety. The benefits of this type of modelling could be highlighted to teachers. Observing other students or musicians with whom they can identify, "[struggling] imperfectly but…successfully coping with performance anxiety" (Petrovich, 2004, p. 26) is a powerful way to inspire and strengthen an individual's self-belief that they too can overcome similar obstacles.

Self-modelling.

Although the use of vicarious experience was low overall, teachers favoured self-modelling. This form of modelling is believed to be particularly effective for enhancing self-efficacy and achievement as it maximises model-observer similarity (Bandura, 1986, 1997). This is often accomplished by viewing highlight videos or successful performances but students can also gain from viewing and evaluating their progress or improvement across a number of recorded performance trials (Dorwick & Dove, 1980; Feltz, 2007):

> I'd be recording his performance during a lesson and then we would listen to it together and get him to make observations about different aspects of the performance. We would then repeat the exercise to see if there were observable changes. (ST123)

> Video yourself and watch it back noting the things that have already improved and then what to work on next. (SME109)

Implications for music pedagogy.

The benefits of vicarious experience, in particular, peer and coping modelling for less efficacious students could be highlighted to teachers. Finding appropriate external models, however, may be difficult especially in an individual lesson context. School and studio teachers may consider fostering vicarious experiences by encouraging their pupils to demonstrate mock or real coping scenarios (for example, playing through a mistake or dealing with anxiety) in a small group context. Students would also benefit from regular self-modelling that involves viewing successful

performances and observing progress and improvements across a number of simulated performance trials.

4.8.4 Physiological and Affective States

A summary of physiological and affective states across the vignettes and performance issues is presented in Tables 4.10 and 4.11.

The pattern of responses coded under this source indicates that the development of psychological performance skills is not a formal part of the music curriculum and that teachers are unlikely to devote regular attention to the development of coping strategies. Whilst it is difficult to ascertain the amount of practical application of these skills over a particular time period, only seven studio teachers indicated that they made it a standard part of training or provided instruction in these competencies over the longer-term:

> Visualisation techniques and repeating a positive mantra long before the actual performance. (ST57)

> My students are…prepared with…strategies to address performance challenges long before they perform publicly, especially in front of their peers…. We make mental preparation for rehearsal and performance an explicit part of discussing their learning processes. (ST81)

Other responses suggested that these strategies are a short-term solution, implemented in response to an upcoming performance, rather than ensuring their sustained development as a natural part of students' musical studies:

> Relaxation techniques prior to any performance. (ST92)

> On the day: Relaxation, slow deep breathing. (ST152)

> For a first performance of a singer, I give 10 min instruction before the day on how to manage anxiety - calming breathing/meditation/slowing down, positive affirmation. (SME6)

In line with this reactive approach teachers were more likely to think of developing these skills when faced with a student already experiencing difficulties performing that could not be explained by lack of preparation (for example, the conscientious and well-prepared student described in the *Sub-Par Performances* vignette), or if there was a specific problem stated such as MPA.

Music performance anxiety (MPA).

Although a large proportion of teachers (55.55-72.06%) identified anxiety as being one of the factors that prevents students from playing up to their ability (UTA; Table 4.15) the number of music educators recommending psychological performance strategies to help cope with this issue was substantially lower (approximately 45%; Table 4.11).

Table 4.15

Teacher Identified Impediments to Performing Up-to-Ability (UTA)

	Cognitive %						*Anxiety %*
	Evaluation	Fear	Focus	Self-Belief	Self-Conscious	Self-Talk	
School	39.47 *n*=15	28.95 *n*=11	2.63 *n*=1	23.68 *n*=9	44.74 *n*=17	2.63 *n*=1	72.06 *n*=49
Studio	4.62 *n*=3	13.85 *n*=9	18.46 *n*=12	33.85 *n*=22	44.62 *n*=29	4.62 *n*=3	55.55 *n*=50

Even when teachers are aware that MPA is a problem they might still avoid actively addressing this matter. This could be due to uncertainty about effective management methods and/or a belief that other factors, linked to preparation, are the underlying cause as evidenced by this studio teacher's response:

> I do not deal with anxiety, I avoid it…by solid training from the beginning. (ST103)

A similar response pattern was also observed in the *Negative Experience* vignette. Although the student in this scenario was having adverse experiences (mistakes, memory lapses, restarting and freezing) and was obviously anxious about an upcoming performance, only a small proportion of teachers recommended coping strategies (Table 4.10). Most focussed on preparation and did not suggest solutions beyond mastery of the piece. Although this student's problems may have been a consequence of poor preparation, his anxiety would suggest that it would be beneficial to incorporate some sort of therapeutic approach, in conjunction with developing better practice habits, to build performance efficacy.

Exam.

The focus on musical skill development may prevent teachers from acting proactively in the management of performance problems. It was uncommon for studio music teachers to recommend developing psychological performance skills for an approaching exam despite the fact that this type of performance is recognised to be quite exacting and can place students under intense pressure. This is due to the evaluative nature of the situation, the demands of preparing technical work and a program of pieces to be ready simultaneously, lack of immediate feedback, presence and proximity of examiners that are musical experts and potentially intimidating, and unfamiliarity with the exam procedure and environment relative to other types of performance situations (Craske & Craig, 1984; Hamann, 1982; Kenny, 2011; Table 4.10).

In this vignette teachers were asked what they would advise students to practice in the six weeks leading up to their exam. Understandably, their main focus was on preparation. Since it can be difficult to cover all of the exam components (aural tests, general knowledge, technical work, and repertoire) within a lesson it seems unlikely that teachers will recognise the need for, or prioritise, the development these 'extra' musical skills so close to the event when time is limited. Adopting a long-term approach to the development of coping skills would enable students to concentrate on preparation close to a performance yet still build adequate personal resources to deal with the inevitable challenges they will face.

Foresight: Recognising the potential for future problems.

One factor that may that may impede the proactive development of psychological performance skills is that it can be difficult to anticipate future problems.

Teachers' knowledge and assessment of their students' ability and response to performing is gained primarily through observations made when they are playing in a low-stress and familiar, teaching-studio environment. As there are few opportunities to observe students perform live, across diverse situations (for example, exams and auditions) and in unfamiliar situations, music educators may be unaware of how their pupils respond when confronted with more challenging conditions (Purser, 2005). The results from this study indicated that the majority of studio music teachers (80%) watched their students in a real-world performance at most four times a year (Figure 4.8). Although these opportunities presented themselves more frequently for school music educators, with almost half viewing students perform at least eight times annually (Figure 4.9), it is probable that many of these performances were occurring within a familiar setting such as the classroom.

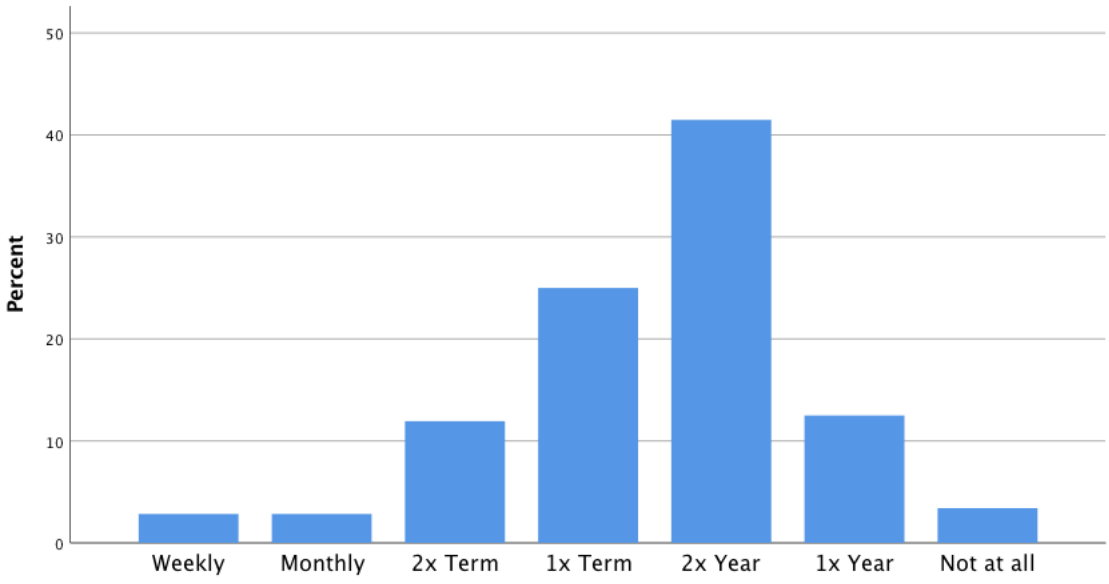

Figure 4 8. Studio teachers' frequency of live performance observation over a year.

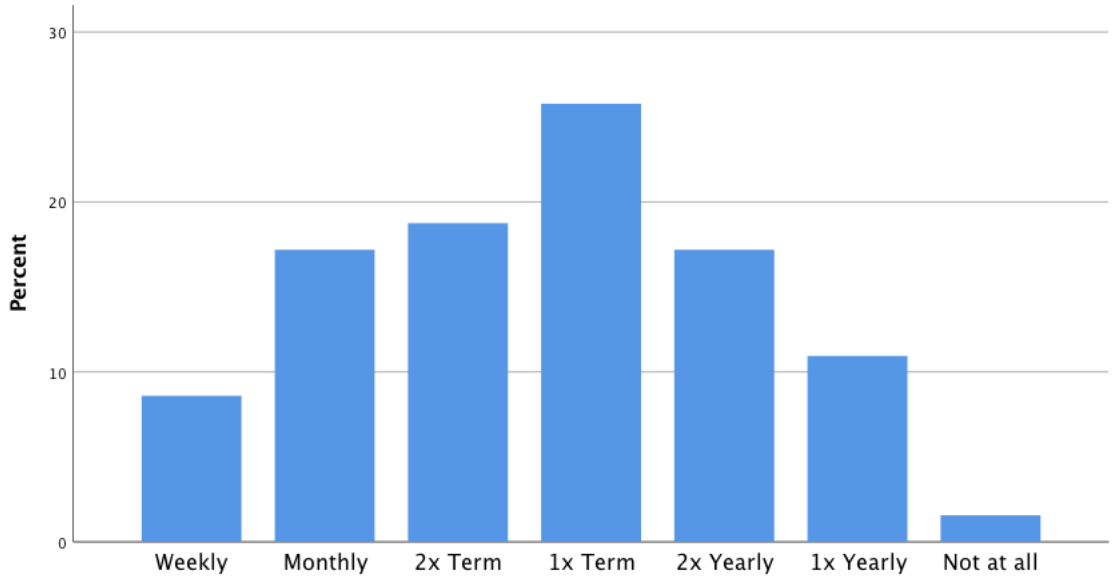

Figure 4.9. School music educators' frequency of live performance observation over a year.

Another factor that may prohibit the initiation or sustained development of coping skills is that it is not always obvious when students are experiencing performance difficulties, MPA or distress, particularly if they are achieving successful musical outcomes:

> I don't spend a lot of time on dealing with nerves because only a few of my students seem to have this problem… I think the main problem which causes anxiety is lack of confidence in knowledge of the piece. If you know it well, you don't usually experience too much in the way of nerves. (ST80)

Research has shown that the visible signs of anxiety are not always obvious to an audience, even when the performer is experiencing high levels of MPA, and teachers have a tendency to underestimate the intensity of their pupils' arousal (Braden et al., 2015; Kubzansky & Stewart, 1999; Miller & Chesky, 2004). Furthermore, students

may not readily admit to experiencing problems so they can appear to be coping and doing well but subjectively experiencing distress. As a result, there may be a disjunct between the observed performance and how that event is perceived by the performer.

Mastery experiences, that are so important for SEP, are performances that are *self-perceived* to be a success. The problem is that "anxious students can internally interpret almost any kind of feedback as negative without their teachers' awareness." (Petrovich, 2004, p. 26). Thus, playing well or achieving a good outcome does not automatically equate with positive feelings about the event. Even great performances can be aversive due to self-perceptions or the distress experienced as a consequence of negative emotions, anticipatory dread, worry, and high physiological arousal (Kenny, 2011), as demonstrated by this adolescent student's response to his piano exam: "Had a fabulous 5th grade student today who played the most delightful *Fur Elise* I've ever heard. He had sweaty hands and asked politely if I had a tissue. He then announced at the end that it was probably his last AMEB exam because he couldn't stand the nerves. His Chopin *Nocturne* was stunning" (*AMEB examiner*; Mason, personal communication, October 10, 2017). This student was obviously well-prepared, performed well and received a high mark. It is unlikely, however, that this was a mastery experience enhancing self-efficacy, due to his concern over anxiety. Debriefing students after every performance could aid in counteracting irrational perceptions and increase teachers' awareness and understanding of pupils' responses to their playing.

Gaining insights into students' thought processes may be particularly important during mid-adolescence as this is when MPA typically starts to escalate as teenagers become more self-evaluative and prone to criticising their efforts (Jackson & Lurie, 2006; Osborne & Kenny, 2005). This is also a period when students can become

personally invested in their music, perhaps even deciding to pursue a career in this field (Osborne et al., 2005; Talbot-Honeck & Orlick, 1998). All of these factors may trigger the onset of performance problems in pupils who have previously been coping well. Personal issues and other critical events then further exacerbate the situation. For example, the pressure to succeed in the final year of secondary school is intense as music performance results can help determine career choice. In addition, students auditioning for undergraduate music degrees may also feel overwhelmed by the high-stakes selection process as they pit themselves against other talented young musicians.

If the development of psychological performance skills became a standard part of the music curriculum it may compensate for teachers' misconceptions regarding their students' performing experiences and a lack of awareness or foresight regarding potential problems that may arise. Equipping students with appropriate strategies to manage performance situations outside of their teacher's studio or during critical periods could minimise the risk of adverse consequences from evaluative performance contexts and increase the potential for mastery experiences.

Confidence.

Performance self-efficacy is not just about achieving mastery of repertoire but having sufficient belief in oneself to actually perform those pieces under pressure (Bandura, 1997; Schunk, 1996, April). Musicians can still experience excessive and debilitating MPA and a lack confidence even when they are well-prepared because the skills involved in playing successfully in front of an audience extend beyond technical proficiency and learning ability (McPherson & McCormick, 2006; Williamon, 2004b).

The capacity to manage physiological and affective states plays an important role in SEP. A performers perception of their ability to control MPA for example, can

alter the intensity, direction (facilitative or debilitative) and type (cognitive or somatic) of anxiety experienced (Hanton & Connaughton, 2002). When music students feel that they can change or modify their anxiety they are more efficacious and interpret their symptoms in a more favourable light (Bandura, 1991; Clark & Williamon, 2011; Hanton et al., 2003). Conversely, insufficient coping strategies leave the performer vulnerable to the negative effects of MPA leading to self-doubt and undermining SEP. Not knowing how to adequately manage negative thoughts, worry, and excessive physiological arousal prior to a performance have been self-identified by 20% of music students as contributing to their experience of MPA (Kenny, 2011).

Very few teachers (6-14%) identified a need for psychological performance skills to boost performance confidence (Table 4.11). This was also mirrored by the large proportion of teachers recommending more practical experience playing in front of an audience as a way of managing all performance issues, without developing any accompanying coping strategies (Table 4.16).

Table 4.16

Proportion of Teachers Recommending Performing Experience without Coping Skills

	Sub-Par Performance	Exam	Negative Experience	First Concert	MPA	Confidence
Studio	57.83% *n*=48	85.23% *n*=75	63.93% *n*=39	79.61% *n*=82	53.52% *n*=38	87.34% *n*=79
School					56.82% *n*=25	96.97% *n*=64

Although teachers recognise the importance of mastery experiences students will be vulnerable to having negative or distressing performing incidents if they do not develop appropriate coping skills. In one respect the low priority afforded to

psychological performance skills is not unexpected given that it is not a standard part of the teaching curriculum or a formal part of lessons. On the other hand, it is surprising as most teachers (70-77%) were identifying cognitive factors (such as fear, lack of focus, concern about being evaluated, self-belief, and self-consciousness) and anxiety as being responsible for inhibiting optimal performance (UTA, Table 4.15). These are all factors that could be managed by developing psychological performance strategies. Pre-performance routines for example, have been found to alleviate the negative effects of self-consciousness (public self-awareness) by reducing negative introspection and self-talk through increased attention to the task (Beauchamp, Halliwell, Fournier, & Koestner, 1996; Cohn, Rotella, & Lloyd, 1990). These findings suggest that there is an underlying belief that self-efficacy and the ability to cope with the demands and pressures of performing will develop naturally with experience, obviating the need for active training. Alternatively, teachers may assume that it is too difficult to adequately address psychological issues within a lesson context, without specialist intervention or knowledge.

Education, knowledge and personal experience.

Insufficient knowledge of performance psychology, effective strategies, implementation procedures, and systematic skill development could also be contributing to this inaction or reactive, short-term approach. It is only recently that instruction in psychological performance skills has been included in the coursework of higher education music institutions. Thus, most teachers will not have had exposure to these techniques through their own training and experience leaving them with an inadequate understanding of how they can be incorporated into their own pedagogical practice. This was reflected in their choice and application of strategies.

Types of strategies employed.

Studio teachers favoured imagery and focus strategies to help students perform, with all teachers increasing their use of anxiety management techniques when MPA or related performance difficulties were indicated (Tables 4.10 and 4.11). They were less likely to work on self-talk or use pre-performance routines, although most did incorporate some elements of a routine to encourage a confident start. Music educators may have a better understanding of visualisation and attentional techniques and find them easier to implement within lessons because they do not require students to reveal personal thoughts and are thus less confronting.

Number and range of strategies.

Teachers were unlikely to implement more than one psychological performance strategy except when dealing with MPA (Tables 4.12 and 4.13). Relying on one strategy may reduce the effectiveness of training in these techniques as there are a number of core psychological and behavioural skills implicated in performing success (Hanton & Connaughton, 2002; Hanton & Jones, 1999; Mellalieu et al., 2008). These include relaxation, imagery, goal setting, cognitive restructuring, and self-talk techniques. Furthermore, multi-modal interventions that develop a range of coping skills have been found to be the most effective treatment approach for reducing cognitive and somatic anxiety, increasing facilitative interpretations of this response and improving self-confidence (Kenny & Halls, 2017; Maynard, Smith, & Warwick-Evans, 1995b; Smith & Smoll, 2004). Encouraging teachers to broaden their approach by developing a wider variety of competencies could potentially have a substantial impact on students' MPA, efficacy, and performing experiences.

Pre-performance routines.

Teachers' application of pre-performance routines could also be more comprehensive. A pre-performance routine is a sequence of task-relevant thoughts and actions that is regularly employed immediately prior to a performance. They are used to establish a consistent approach to performing and provide a framework to control attention and cue coping strategies to manage arousal (Bull et al., 1996). The most effective routines are brief, repetitive (that is, exactly the same every time), automatic and combine psychological (self-talk, goal setting, imagery), and behavioural (breathing, releasing tension, fixed gaze) components (Mesagno & Mullane-Grant, 2010). It is the combination of all of these elements, systematically employed, that makes them so powerful.

In general, music educators only took advantage of one or two routine elements mostly incorporating arousal management (especially breathing) and focus (in particular, hearing the opening phrase) techniques (Tables 4.12 and 4.13). Whilst single element pre-performance routines can improve performance, extensive routines that combine psychological and behavioural components have been found to have the most beneficial effect on choking and achievement (Gröpel & Mesagno, 2017; Mesagno & Mullane-Grant, 2010). Incorporating a range of different factors within a routine naturally provides more consistency and encourages a longer temporal duration preventing performers from rushing the start of their performance (Mesagno & Mullane-Grant, 2010).

Routines are more effective when they are applied specifically and consistently. It is not clear whether teachers were establishing this kind of approach to performance. Some did reference the need for a set routine:

> Have a set performance routine, warm up etc. try to keep them in the moment. (SME87)

> A performance ritual is useful - walk in, smile, bow, take your position, begin. (ST31)

Most of their responses, however, seem to be vague suggestions about what to do rather than a specific step-by-step procedure:

> Work on pre-performance relaxation, breathing and focus. (ST25)

> At the instrument, deep breathing and recall of pleasant experience for total relaxation. (ST137)

> Take your time with position before performing. Relax the muscles you are not using for the performance. (ST165)

Choice and application of strategies.

Altogether, teachers' choice and application of techniques suggests a rather general and non-systematic method. Many of the strategies recommended were either too broad, did not deal with the actual performance situation, or could not be used during the performance itself. Comments such as "good sleeping and exercise habits would be emphasised" or "get plenty of sleep and be fresh" may represent the ideal scenario but are often not possible to achieve (especially if a student is anxious and concerned about a performance). They also do not give pupils any practical coping strategies to apply immediately prior to or during the main event. Suggestions such as

"breathe comfortably" or "focus on the music" could be helpful if followed by a specific explanation of how to breathe comfortably or focus and then a step-by-step procedure outlining how to practice and apply these techniques. Very few teachers were this specific with their recommendations:

> Breathing techniques - exhale for 6 seconds, inhale for 2, repeatedly. (SME75)

> Breathing exercises to help with the nerves may be beneficial, too. Deep breathing into the belly button, holding it and then exhaling slowly helps to release the tension in the stomach and relax the student physically. (ST86)

The majority of teachers outlined general techniques such as "focus strategies", "breathing exercises", "creative visualisation", or "strategies for dealing with nerves" so it was difficult to ascertain whether they actually taught and applied these skills in a concrete and specific manner or whether it was just advice (verbal persuasion) on how to cope with the situation.

Many suggestions were also quite abstract and would be difficult for students to interpret or apply:

> Intensify the emotional feel and imagination. (ST12)

> Give the music meaning. (ST83)

> Focus less on 'perfect' notes and more on expression, style. (ST22)

Students would be unlikely to derive much benefit from these types of instructive techniques, particularly if used in isolation. Over half (56.45%) of the psychological performance strategies recommended in the *Sub-Par Performance* vignette were coded as too vague or general. Many of these (43.54%) were the only strategy recommended by that teacher to help students address their performance issue. Whilst this situation was not as extreme for school educators, a similar pattern was observed for studio teachers' responses to the Confidence issue and *Exam* vignette.

The responses also indicated that teachers were not making the most of the techniques they were utilising. For instance, many of the imagery suggestions focussed on visualising a successful or positive performance. There are a number of ways, however, that imagery can be employed. It can be used to help manage arousal, develop skills, learn repertoire, restructure past negative performances, and mentally rehearse performing. Coping imagery is also essential to help students prepare for things that might happen during their performance like anxiety, a mistake, or a memory lapse. Similarly, comments pertaining to breathing and relaxation strategies referenced their usefulness prior to starting but did not consider how they could aid the performer *during* a performance (for example, sustaining focus, releasing tension, aiding mistake recovery, facilitating skill execution, and maintaining musical flow).

Well-meaning teachers may believe that they are providing students with coping skills, but insufficient knowledge of effective strategies and their application could leave young musicians with inadequate personal resources to manage performance situations. This can lead to a cycle of MPA, performance difficulties, distress, and low self-efficacy. The reactive approach to training psychological performance strategies also means that students are unlikely to have enough time to master skills to be able to use them to their full benefit. Becoming proficient with these competencies takes time

and practice, like any other musical ability. As one elite diver commented: “It took me a long time to control my images and perfect imagery, maybe a year, doing it every day. At first I couldn’t see myself…or I would see my dives all wrong…. As I continued to work at it, I got to the point where I could see myself doing a perfect dive…. But it took a long time.… I worked at it so much that it got to the point that I could do all my dives easily” (Vealey & Forlenza, 2015, pp. 242-243).

Preparation.

The large focus on preparation may also be prohibiting proactive training in these techniques (Figures 4.1 and 4.2). Teachers face a constant battle in encouraging their students to practice regularly and learn repertoire as emphasised by this response to building confidence:

> Making sure they understand that at the end of the day when I asked them if they have practised and they answer "no, I didn't have time" then this just isn't good enough. You are only as good as the amount of practise you do - lots of (perfect) practise will make you "lots" good and no practise will make you "no good", the choice is theirs! They need to take ownership for how well their performances go. (SME46)

Ensuring students are well prepared is not an easy task. They often struggle with motivation, have poor practice habits, and fail to implement their teachers’ advice (Barry, 2007; Kostka, 2002). It is therefore understandable that music educators may be reluctant to devote lesson time to performance psychology particularly if they feel it lies outside their area of expertise. Furthermore, no performance skill strategy or psychological technique will compensate for inadequate preparation which has been

self-identified by music students as one of the primary reasons for their MPA and a main contributor to performance dissatisfaction (Clark et al., 2014; Kenny, 2011). The degree of task mastery will also influence outcome expectancies, self-efficacy and, performance outcome (Bandura, 1986; Papageorgi et al., 2007).

Nevertheless, there does seem to be an underlying belief that being well-prepared and adequate performing experience will be enough to develop SEP, guarantee a good outcome and counteract any problems:

> The main problem which causes anxiety is lack of confidence in knowledge of the piece. If you know it well, you don't usually experience too much in the way of nerves. (ST80)

> Simply put, I think confidence that is developed through sheer hard work and skill will cancel performance anxiety, when students are underprepared, performing can be very counterproductive and damaging to their ego. (ST91)

It is self-evident that good preparation and practice are essential for optimal performance. By the same token these factors do not equip performers with the necessary coping skills to deal with high arousal or prevent them from worrying about mistakes and negative evaluation (Petrovich, 2004; Robson & Kenny, 2017). In fact, there is the distinct possibility that musicians will experience more intense distress if they are well prepared but perform poorly because they are unable to manage their MPA (Petrovich, 2004). This common misconception may preclude teachers from anticipating potential problems and ensuring sustained development and mastery of coping competencies.

This also raises the question of what constitutes good preparation? It was unclear what teachers meant by 'well-prepared' other than knowing the piece or repertoire thoroughly:

> The best way to cope with being under pressure is to know the piece so well that you can play it without thinking about it.....then you can just enjoy the MUSIC! (ST23)

> Be well prepared rather than hoping it will go well on the night. Be over prepared rather than underprepared. (ST142)

> Make sure they are very secure with their pieces. (ST122)

> Solid preparation. (ST152)

Some teachers were more specific about what their students needed to be able to do to ensure that they knew a piece well. Knowing how to cope with and recover from mistakes was seen to be an important skill:

> After he knows the piece well, practise making errors and getting out of them. Pretend to have a memory lapse in one section and practice jumping to the next section. (ST15)

Mistakes are one of the greatest sources of concern for performers, thus having confidence in one's ability to continue after an error can alleviate anxiety due to this issue (Robson & Kenny, 2017). Teachers were careful to ensure that students knew how to deal with mistakes. They may be unaware, however, that there are a number of cognitive and physiological responses that can accompany their occurrence under

pressure (Greene, 2002). These usually involve changes in breathing (holding or shallow breaths), loss of focus, tension, and negative self-talk. Students would benefit from an awareness of this reaction and strategies to counteract it in addition to being able to 'pick up' from anywhere.

In music, the concept of good preparation usually implies musical and technical mastery of repertoire. Whilst task mastery will contribute to SEP there are a number of other factors such as the ability to manage anxiety and the situation, performance type and setting, and past accomplishments that will also impact students' confidence in their ability to perform (Ritchie & Williamon, 2010). In contrast, sports preparation is viewed as a multidimensional construct involving: physical preparation (quality and quantity of practice, skill repetition, and technique) that leads to mastery within a familiar environment; mental preparation (psychological performance skills); and, holistic preparation (including self-recording, self-evaluation, and imagery training; Hays et al., 2007). Mental and holistic preparation also encompass simulation and adversity training, enabling performance readiness to be tested, challenged, and improved prior to the event. These help develop mastery under familiar and unfamiliar conditions, enhancing self-efficacy. Music pedagogy could benefit from adopting a similar approach, broadening the idea of what it means to be well-prepared and formulating a more precise definition of 'good preparation'.

Implications for music pedagogy.

It could be highlighted to teachers that students' self-perceptions of their performance capabilities do not always align with repertoire mastery and that the ability to manage their physiological and affective states can enhance this self-belief. Hence, it would be beneficial to incorporate training in psychological performance skills within

the music curriculum even if students appear to be coping well, as a preventative measure, rather than waiting for problems to occur. Professional development opportunities or targeted educational resources could help extend teachers' knowledge of performance psychology and effective strategies. These would be most effective if they included a guide for embedding a broad range of skills within lessons and practice in a practical and stepwise manner. This may encourage teachers to include the development of these skills as a standard part of music training.

4.9 Discussion

This study investigated teachers' pedagogical approach to the development of psychological performance skills and self-efficacy within class and studio music lessons. Results indicated that teachers were most likely to consider mastery experiences and use verbal persuasion to deal with common student scenarios and performance issues, and less likely to develop vicarious experience or the psychological performance skills that would benefit physiological and affective states. School music educators were more inclined to use verbal persuasion and openly discuss MPA than studio teachers.

Although the use of psychological performance skills was low in general, it was more common for teachers to develop these competencies if a student was already experiencing problems such as MPA or under-performing despite being well prepared. Teachers were unlikely to consider these skills to build confidence or prevent potentially aversive performance experiences. This suggests that teachers favour a short-term (reactive) rather than long-term (proactive) approach to the development of these skills.

Overall, it appears that music educators rely on verbal persuasion rather than a practical application of strategies to develop psychological performance skills and performance self-efficacy.

These results should be interpreted with caution particularly given the low ratio of vocal to orchestral and keyboard teachers and male to female teachers, although this gender imbalance was representative of the greater Australian teaching population. The credibility of participants answers may also have been affected by socially desirable responding (SDR; Mick, 1996; Paulhus, 1984). This refers to the tendency for people to present themselves in a favourable light (impression management) or unconsciously respond inaccurately (self-deception) to maintain positive self-perceptions when answering self-report surveys (Paulhus, 2002). Socially desirable responding is believed to be a pervasive issue and can potentially affect research conclusions (Krumpal, 2011). Although it is not possible to ascertain the accuracy of respondents' answers the risk of SDR is believed to be minimised when participants respond privately and anonymously to self-administered surveys (Krumpal, 2011). This was the data collection strategy employed in the current study.

4.9.1 Self-Efficacy Sources

Self-efficacy theory provides a framework to examine how the four sources of efficacy information are developed within music pedagogy and to determine ways that this self-belief could be further enhanced. Although it is common to present them as distinct categories for the purpose of discussion, in a practical context they will reciprocally influence each other (Bandura, 1997). The strength of influence will also vary depending upon contextual and environmental factors and how individuals

selectively attend to, interpret, and integrate the information from each source (Bandura, 1997; Hendricks, 2016).

Mastery experiences.

Teachers clearly recognised the benefits of mastery experiences as they often recommended gaining further performing experience. Beyond this it was difficult to ascertain how much this source was utilised in terms of the frequency and amount of practical experience students actually acquired through real or simulated performances and to what degree teachers accounted for pupils' self-perceptions of these events.

In stark contrast to this preference for behavioural exposure, few teachers identified lack of experience as a factor contributing to sub-optimal performance, instead focussing their attention on issues related to preparation. It is possible that they may not have considered that musical memory and execution are highly context specific to the learning or practice environment and can easily be disrupted in strange situations (Matlin, 2005). Therefore, performance difficulties that might typically be attributed to lack of practice could also be a consequence of unfamiliar contextual factors.

Given the practical difficulties of gaining real world experience playing in front of an audience, implementing regular simulation opportunities could be of benefit. Including distractions and unusual elements will help to ensure that students are building mastery experiences and familiarity with performance situations under changing and challenging conditions. Orchestral and vocal students in particular, would also benefit from having their repertoire ready further in advance to fully utilise these techniques and refine their preparation.

Verbal persuasion.

Teachers rely on verbal persuasion to help their students cope with the demands and challenges of performing rather than a practical application of skills. The fact that class teachers are more likely to employ this source is not unexpected given that the main way of teaching in a group context would be through discussion.

Verbal persuasion is recognised to be an influential source of self-efficacy and the main source employed in educational contexts (Feltz et al., 2008; Short & Ross-Stewart, 2009; Weinberg & Jackson, 1990). Yet, the beneficial impact of this persuasory information may be counteracted by mis-communication, mis-interpretation, negative self-talk, and inaccurate self-evaluations. Its effects are often transient unless reinforced by other self-efficacy sources, the actual development of skills, and performance success (Bandura, 1997; Ross, 1994; Stein & Wang, 1988; Weinberg & Jackson, 1990). Teachers, however, were unlikely to develop these competencies, consider the accuracy of students' self-evaluations, or monitor their self-talk.

Improving pupils internal dialogue is particularly important as it can undermine the tenuous benefits of external verbal persuasion and have a serious impact on self-belief and achievement, especially if it is negative, distracting or so pervasive that it disrupts the automatic execution of skills during a performance. Yet, few teachers identified self-talk as an impediment to performance. Positive self-talk, cognitive restructuring and rationalisation processes are key psychological strategies used by performers to promote control over anxiety symptoms, create facilitative interpretations of symptoms, and enhance self-efficacy (Hanton & Jones, 1999; Mellalieu et al., 2008; Thomas et al., 2009). Ensuring that students are developing helpful and rational self-talk habits would optimise the benefits of this source of efficacy information.

Physiological and affective states.

The routine performance skills employed in psychological or mental skills training (MST) programs will provide efficacy information across all of its sources. Most will influence physiological and affective states. The results from this investigation indicated that these competencies are not a formal part of the music curriculum and are typically overlooked in lessons as teachers focussed on preparation, artistry and technique. When music educators did incorporate training in psychological performance skills, it was often in reaction to a problem that had already manifested that could not be easily attributed to preparation issues, to help manage MPA, or in response to an approaching performance.

Music performance anxiety is a pervasive problem impairing performance and impacting the psychological health and well-being of a large proportion of musicians of all ages so it is not surprising that teachers were more likely to consider psychological performance skills when confronted with this issue (Esplen & Hodentt, 1999; Fishbein et al., 1988; Wesner et al., 1990). Nevertheless, there was still a large proportion of teachers who did not recommend any kind of coping skills, even for significant issues such as anxiety, and the overall development of these competencies was quite low.

It is believed that the status of the performer should inform the choice of performance skill development. Novice or non-elite performers will gain the most benefit initially from learning how to control or manage anxiety related symptoms (Hanton & Connaughton, 2002; Hanton & Jones, 1999; Mellalieu et al., 2008). Although teachers recognised anxiety to be a factor contributing to sub-optimal playing they were unlikely to anticipate potential problems and enact proactive measures. Thus, they seemed to adopt a general, unsystematic and short-term approach to the management of performance issues. This can leave students with insufficient coping

skills to control their emotional and physiological arousal undermining their belief in their ability.

Vicarious experience.

Modelling, an important means of influencing vicarious experience, was also under-utilised. Although it can be difficult to find appropriate models, especially within the context of studio lessons, students would benefit from observing peers similar to themselves demonstrate performance enhancement techniques and coping strategies.

4.9.2 Preparation

Teachers understandably directed their efforts towards developing musical skills and ensuring students were well prepared. It was unclear, however, what they meant by this concept other than consistent practice and mastery of repertoire. Their concerns around preparation were also at odds with the short time frame that many were advising for having repertoire 'almost' performance ready prior to a concert. Given that the piece still needed work, one or two weeks in advance does not leave adequate time for students to be conducting enough simulations to build performance self-efficacy and test their preparation. Music pedagogy may benefit from clearly defining what well-prepared entails taking into consideration musical, physical, and psychological preparation.

Awareness.

Although teachers recognised many of the factors that can impede their students' performances they seemed reluctant to actively address them or anticipate potential future problems. This is concerning because once students start to experience

performance difficulties it can it have a serious impact on their self-efficacy, achievement, enjoyment of their musical studies and well-being. It is also difficult to reverse this negative cycle once established (Brugues, 2011; Kenny, 2005, 2011).

It is far easier to objectively determine how students are progressing with their musical and instrumental skills than it is to subjectively interpret their psychological state, self-perceptions, and performance efficacy. Teachers could be unaware of their pupils' distress during or following a performance as this is not always obvious, particularly if they appear to be coping and playing well (Braden et al., 2015; Kubzansky & Stewart, 1999; Miller & Chesky, 2004). Furthermore, they may be underestimating the importance of students' self-perceptions and their impact on self-belief, arousal, and performance outcome.

The low priority given to the development of psychological performance skills in comparison to the strong focus on musical preparation indicates that it might be beneficial to raise music instructors' awareness of these issues. Understanding that students' perception of their performing competence may not reflect their actual playing ability and that this self-belief extends beyond mastery of the piece and musical skills, encompassing physical and psychological capabilities, may help encourage teachers to devote more attention to developing these areas.

Underlying teachers' methodology was a strong belief that solid preparation and sufficient experience playing in front of an audience will develop SEP, mitigating problems such as MPA. Although music educators were aware of the need for students to have positive performing experiences their attention was directed towards setting up the right conditions for this to occur (for example, easier repertoire, low stress situation) rather than equipping them with coping strategies or considering how they might perceive their efforts. Unfavourable self-talk, inaccurate self-assessment,

uncomfortable arousal, and minor mishaps can easily convince students that they have performed badly. This will potentially negate the benefits of positive, persuasory information and the performing experience itself, leading to self-doubt and increased anxiety for future performances regardless of their level of preparation. This highlights the interactive influence of the self-efficacy sources and the importance of strengthening all of these information categories. Encouraging students to regularly self-assess their efforts in lessons and following every performance could help teachers to gain insights into their pupils' thoughts and feelings. These evaluations could provide an opportunity for teachers to tease out misperceptions, guide their students towards more constructive thought processes and realistic appraisals, and instigate discussions of MPA and other performance issues.

Developing a greater awareness of how students respond under pressure, and their perceptions of their musical ability and performance achievements would help teachers to determine appropriate strategies and areas to target for skill development. The reluctance to openly discuss performance issues, however, in conjunction with a reactive and unsystematic approach indicate that teachers may not have adequate knowledge of performance psychology or the competencies involved in optimal performance to be able to implement and develop appropriate strategies over the long term. This is not unexpected as this information would not have been automatically covered in their own training and musical education. Since teachers will direct efforts towards areas where they feel confident in their ability to affect change and promote student learning, and avoid those of which they are uncertain, it may be that teachers themselves lack self-efficacy in dealing with performance issues (Ramey-Gassert, Shroyer, & Staver, 1996).

4.9.3 Implications of Study

"Effective music educators have to be knowledgeable about their subject matter and have a deep understanding about the qualities of music, its construction, interpretation, performance, and production" (Biasutti & Concina, 2017, p. 265). If teachers are going to help their students develop SEP and overcome performance difficulties then they may need to strengthen their own self-efficacy in relation to these issues. Teacher education combined with 'real-world' or enactive mastery experiences can play a role in building this self-belief (Thornton & Bergee, 2008; Wenner, 2001). Therefore, music educators may benefit from a resource that not only informs them about the psychology of performance but also outlines a practical methodology to enable the stepwise application and development of specific strategies within the standard music curriculum.

This study highlighted a number of ways that current pedagogical practices could be extended to enhance preparation and promote the development of SEP via each source of efficacy information (Figure 4.10). These include:

- Mastery experiences: Gaining performing experience through regular home and lesson simulations that encourage the integration of performance enhancement strategies and include exposure to unfamiliar stimuli, under conditions that recreate anxiety and increase self-consciousness (for example, self-recording).
- Verbal persuasion: Encouraging regular self-evaluation of these simulated performances. The development of accurate self-assessment skills would benefit from a formal, teacher-guided process that includes viewing self-recordings to provide another means of objective feedback and emphasising that 'good' performances do not have to be perfect;

openly discussing MPA and monitoring self-talk in lessons and home practice.

- Vicarious experience: Promoting self-modelling and mastery determinations by viewing recordings of successful performances and observing progress and improvements across a number of simulated performance trials.
- Physiological and affective states: Enabling long-term development of a broad range of standard behavioural, cognitive and affective skills that can be employed prior to and during a performance through the scaffolded and stepwise application of practical strategies embedded into lessons and practice.

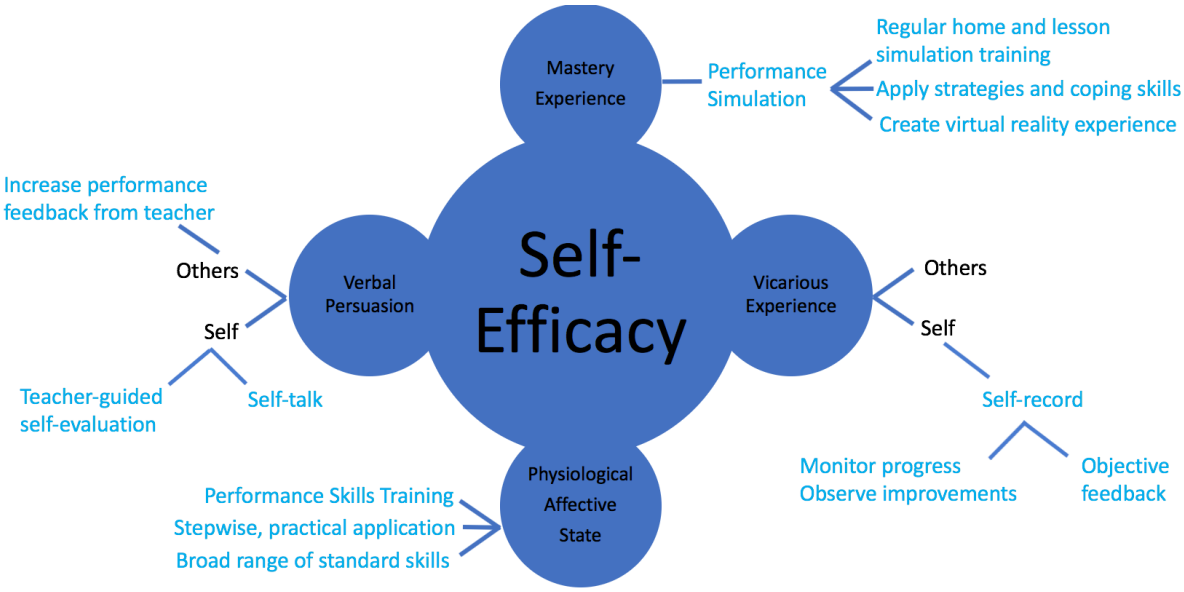

Figure 4.10. Pedagogical framework for promoting SEP in music lessons mapped to each self-efficacy source.

A resource for teachers and students to strengthen psychological performance skills and self-efficacy in studio and class music lessons was subsequently developed. This is described in Chapter 5.

Chapter 5
The Psychological Performance Skills Program

5.1 Introduction

An important aim of this dissertation was to develop a standard psychological performance skills methodology that would foster performance self-efficacy (SEP) and could be broadly implemented within adolescent music curricula by music educators without specialist psychological training or knowledge. A review of empirical literature (Chapter 3) identified that training in standard psychological performance skills (such as, attentional control, arousal-regulation, imagery, pre-performance routines, and cognitive restructuring), improving self-evaluation accuracy, and increasing the opportunities to receive feedback and acquire mastery experiences via simulation were important means of enhancing performance self-efficacy in intervention programs.

Study one determined how teachers intuitively foster SEP and develop routine performance competencies within music lessons. A number of recommendations were formulated for extending current pedagogical approaches to promote the development of SEP and enhance music teachers' role in developing these self-beliefs. These included teacher-guided self-assessment, pairing regular home and lesson simulations that reflected real-world conditions with self-recording, self-review and skill development, and a more extensive practical application of psychological performance skills training strategies. It was believed that a resource that broadened music educators' understanding of psychology and outlined a proactive, systematic methodology guiding incremental and sequential development of a wide range of performance enhancement skills and self-efficacy specific strategies over the long term

would be of benefit.

Integrating recommendations from the literature and study one a pedagogical method was subsequently developed to enable core psychological performance skills to become a standard part of musical training. The ultimate goal was to encourage sustained development of the targeted competencies embedded into lessons and practice, in the same way that other musical abilities are nurtured. Assessing the viability of this approach necessitated an intervention design that would fit the parameters of a research study. Thus, a 14-week program was constructed to complement group (class music) and individual (studio music) tuition.

The program was based on blended-learning design to minimise disruption to the standard music curriculum and allow lesson time to be devoted to practical skill development. Blended learning refers to the combination of traditional face-to-face or in-class instruction with online learning (Australian National Training Authority, 2003; Downes, 2008, November 16; Stacey & Mackey, 2009). Brief weekly online video tutorials (to be viewed at home) were combined with specific activities incorporated into lessons and practice. Teachers were expected to oversee the delivery of the course and guide the development of these skills during their music classes or lessons. This approach enabled a multi-faceted intervention that could be:

1. implemented at home and in studio or school music lessons; and,
2. supported at both an individual and group level.

5.2 Instructional Scaffolding

Mental skills training (MST) courses typically present information or tasks as a complete unit rather than focussing on incremental or stepwise skill development (Brandon & Ivens, 2009; Greene, 2002; Kagayema, 2017; Moore, 2011) These ‘broad’

skills are also often learned and applied without individual specialist instruction particularly for those accessing self-help programs. Even within a group class format the opportunities for individual guidance are minimal. Thus, students may not receive the assistance they need to integrate these new techniques into their practice routine to encourage long-term skill development.

The design of this program presents a point of difference in the mode of delivery using an instructional scaffolding approach. This systematically builds students' experiences and knowledge as they learn each new skill. The acquisition of new information or tasks is broken up into chunks or discrete incremental steps with some sort of support (a teacher, tool, or structure) provided for each step to promote learning when concepts or skills are first being introduced (Hogan & Pressley, 1997; Lange, 2002).

5.2.1 Teacher's Role

Teachers play an important role in instructional scaffolding by providing support at every step, helping students reach higher levels of knowledge, understanding and skill proficiency that they would not be able to achieve without assistance (Hmelo-Silver, Duncan, & Chinn, 2007; van de Pol, Volman, Oort, & Beishuizen, 2014). Pupils are more likely to engage with program activities, self-disclose, ask questions and stay motivated or interested in a task if there is someone with whom they have established a rapport to help them through the learning process (Braswell, Kendall, Braith, Carey, & Vye, 1985; Chu & Kendall, 2004; Shaw, 2001). Indeed, the extent that an adolescent complies with a prescribed course of action, particularly in the case of a psychotherapeutic intervention, can depend on the quality of the therapeutic alliance

(Creed & Kendall, 2005; Kendall & Chu, 2000; Shirk & Karver, 2003; Shirk & Saiz, 1992).

In contrast, the limited individual support and guidance in the design of traditional, group MST programs has been noted (see Chapter 1, section 1.2.6 and Chapter 2, section 2.3.2) as a contributing factor to low skill development, course adherence, and completion rates (Hatfield & Lemyre, 2016; Ingles, 2013; Koopman et al., 2007). It was envisaged that engaging teachers in a pivotal role in the delivery of this program was likely to take advantage of the existing teacher-student alliance. It is not uncommon for students to place a high value on their rapport with their teacher who often becomes a central figure in their musical and personal development representing an important role model or mentor (Carey & Grant, 2014; Nagel, 2009). Teachers can also be a strong motivating force, providing positive support as they show their students how to perform new or difficult tasks and integrate these skills into their lessons and practice (Barton & Feinberg, 2008; Gaunt, 2008). Since they are intimately aware of their students' capabilities, knowledge and instrumental skill they are ideally placed to understand the individual needs of each tutee and the appropriate time and process to extend them beyond their current level.

5.2.2 Scaffolding Strategies

A variety of scaffolding strategies were employed throughout the program to accommodate students' and teachers' varying levels of knowledge and learning styles and to help participants master the content (Alibali, 2006). Twenty-four online video tutorials provided detailed explanations and examples of the skills and included many audio and visual supports, such as, how to complete worksheets, modelling of strategies, diagrams, visual imagery, real-world examples from elite performers, and

guided audio and imagery exercises. Handouts containing task-and content-related information, cue cards to assist specific strategies, and a home practice goals guide supported the online content for each week of the program. A guide to direct lesson discussion and activities and the individual development of each student was also provided to teachers.

The application of many performance enhancement techniques requires performers to be aware of thoughts, feelings, physical sensations and behaviour that are often part of implicit processes. The weekly activities and home practice strategies were designed to increase self-awareness of these sub-conscious experiences. Incorporating scaffolding strategies such as cue cards, audio and visual guides, and self-evaluation worksheets can help facilitate skill development by making these processes more tangible and salient (Steptoe, 2001).

The development of controlled deep breathing and relaxation provides an example of a scaffolding method employed in the program. Researcher-designed breathing visuals that directed inhalations and exhalations were progressively coordinated with the identification and release of tension throughout the body. These types of guided exercises have been found to enhance awareness of the breathing process, enabling users to achieve deeper breathing and greater relaxation (Chittaro & Sioni, 2014). Initially this was practiced away from the instrument. As proficiency developed students transferred mindful breathing and relaxation into their practice and pieces. Their teacher played an important role in this process as it needed to be individually monitored taking into consideration instrumental and repertoire characteristics. Participants also self-rated their progress in controlling their breathing and learning to relax to enhance their self-awareness of the development of this skill.

5.3 Target Skills

The program aimed to develop standard psychological performance skills adapted from sports and performance psychology with an additional focus on performance simulation, self-modelling and self-evaluation to target SEP.

Skills were developed using a combination of cognitive and behavioural strategies using a three-phase instructional approach incorporating an educational, acquisition and practice phase (Gill, 2000; Horn, 2002; Osborne et al., 2007):

1. the educational phase developed participants' understanding of the psychology of performance, the different types of psychological performance skills and how they can enhance musical outcomes;
2. the acquisition phase targeted skill development and implementation; and,
3. the practice phase focused on skill mastery and the application of strategies in simulated performances.

A coaching phase was also added to provide teachers with supplementary information that guided skill development and extension during lessons.

Participants were instructed in the following six key areas:

- Arousal management: The information presented in this area helped participants understand why they experience music performance anxiety (MPA), the different ways it manifests, and how it might impact their performance. It also provided ideas for reframing perceptions of this response and strategies for regulating arousal (for example, muscle relaxation, deep breathing exercises).
- Pre-performance routines: This topic informed participants about the importance of developing a routine that helps the performer focus and switch into an optimal mental and physical state. The learning objective

was for participants to develop a consistent set of thoughts and behaviours that they would execute right before the start of their performance.

- Confidence: This key area differentiated between internal and external sources of confidence, focussing on self-talk, cognitive restructuring techniques and body language. Participants were taught how to evaluate and rephrase self-talk and identify destructive thought patterns. They were also informed about stage presentation, the importance of first impressions, and how their body language influences others' perceptions and their own thoughts and feelings.
- Simulation: In this topic participants learned to distinguish between practicing to perform and practicing to learn and improve, what it takes to be 'well prepared', and how to test preparation through simulating the unfamiliar aspects of live performance situations.
- Focus: To enhance this skill participants were informed about SMART (Specific, Measurable, Achievable, Realistic, Timely) goals, the different types of goals (process, performance, outcome), what to think about when they perform, how to quiet unhelpful mental chatter, and strategies for maintaining focus.
- Imagery: The modules presented on this topic demonstrated how visualization techniques could be applied to manage arousal, correct errors, improve preparation, and build confidence.

5.3.1 Program Structure

Each key area consisted of three to five sequential modules. The program topics

and modules are outlined in Table 5.1.

Table 5.1

Program Topics and Modules

Topic	Module	Description
Course Introduction	1	Great performers and performance skills
	2	Self-recording, self-evaluation and model recordings
Arousal Management	1	Understanding music performance anxiety
	2	Developing an automatic relaxation response and breathing self-awareness
	3	Progressive muscle relaxation
Focus	1	Goal setting
	2	Importance of focused attention in practice and performance
	3	Dealing with mistakes
Pre-performance Routines	1	Pre-performance routine key step: 'hearing' before playing.
	2	Understanding and developing pre-performance routines
	3	Mastering pre-performance routines under simulated performance conditions
Simulation	1	Practicing to perform and simulating performance elements.
	2	Performance Routine: Entrance-to-Start simulation
Imagery	1	Introduction to Imagery
	2	Keys to creating a successful visualisation and eliminating errors
	3	Using imagery to build confidence and reduce anxiety
	4	Creating an ideal performance
Confidence	1	Distinguishing between external/internal sources of confidence Evaluating self-talk
	2	Rephrasing self-talk
	3	Stage presentation: key elements and importance of first impressions
	4	Body language and power posing
	5	Irrational beliefs and detrimental thought patterns Learning and rehearsing positive self-statements for performance scenarios

Each week of the program introduced one to three new modules building on previous skills and knowledge. The weekly schedule of topics and modules is outlined in Table 5.2.

Table 5.2

Weekly Course Outline

Week	Topic	Module	Sub-Topic	Video Length (minutes)
1	Course Introduction	1	Performance skills	5
		2	Self-evaluation	6
	Focus	1	Goal setting (SMART)	7
2	Arousal management	1	Music performance anxiety Tension	18
3	Arousal management	2	Breathing	7
4	Confidence	1	Self-talk	7
	Confidence	2	Rephrasing self-talk	5
5	Focus	2	Focussed attention	8
	Arousal management	3	Progressive muscle relaxation	10
6	Pre-performance routine	1	Pre-Performance routine step	7
7	Pre-performance routine	2	Pre-Performance routine	17
8	Simulation	1	Performance variables/ type	10
	Focus	3	Dealing with mistakes	10
9	Simulation	2	Entrance-to-start	5
	Confidence	3	Stage presence	10
10	Pre-performance Routine	3	Pre-Performance routine with simulation	5
	Arousal management	4	Breath awareness	3
11	Confidence	4	Self-Coach manual	8
12	Confidence	5	Power pose	5
	Imagery	1	Imagery introduction	10
13	Imagery	2	Creating imagery	8
	Imagery	3	Types of imagery	5
14	Imagery	4	Imaging a successful performance	10

The program was structured to be completed over two school terms which typically cover 18 to 20 weeks of the school year. This allowed time for the pre-and post-program assessments and could accommodate some disruption to the program schedule in the event of illness, absence, or school excursions.

Module Structure.

Each module consisted of:

- An online video tutorial: Each tutorial introduced a new skill or strategy and described how to implement it in practice. Students watched the video

at home as part of their weekly practice in preparation for discussion and follow-up in their next lesson. Teachers could choose to view the video or read the script via the web link provided.

- Student handouts: Module handouts containing course information, tasks, goals, and worksheets were included to help students practice, develop, refine, and strengthen key psychological performance skills. These were to be completed during their home practice and/or lessons as indicated. The worksheets were designed to encourage participants to plan, evaluate, and reflect on their efforts to enable them to become more self-regulated in practice and monitor their progress. A weekly home practice goals guide outlined a schedule of daily practice activities, SMART goals, and a structured performance simulation process.
- Teacher guide: The weekly teacher guide provided: an overview of the weekly modules; a resource list of equipment and handouts that were needed to support the learning of that particular module; a lesson plan suggesting discussion points, activities for skill development, smart goals, and performance simulation procedure; and, teachers notes with supplementary information on performance psychology.

5.4 Enhancing Mastery Experiences

The program was designed to provide students with opportunities to gain mastery experiences to strengthen their SEP. To achieve this goal there was a strong emphasis on 'practicing to perform', integrating core coping and performance enhancement strategies into the simulation process to help participants experience success and increase mastery determinations.

5.4.1 Simulation

Simulation provides a means of gaining mastery experiences by exposing students to various types of performance situations prior to the actual performance. It involves recreating the performance environment using visual and audio information with the goal of immersing performers in a 'virtual-reality' experience (Orman, 2004; Roy, 2003). This enables them to train specific skills and become more familiar with various aspects of real-world performance situations. Its success as a treatment for anxiety-related problems such as phobias, posttraumatic stress syndrome, social anxiety, and MPA has been well documented (Bissonnette et al., 2015; Kendrick et al., 1982; Orman, 2003; Rothbaum et al., 1999; Rothbaum et al., 1995). It has also been shown to build confidence and is an effective training tool for elite performers who perform under intense pressure (for example, surgeons, pilots, athletes) where the consequences of failure could negatively impact careers or, in a worst case scenario, be life threatening (Kassab et al., 2011; Lendvay et al., 2013; Robinson, Miller, & Rukin, 2017; Sutherland et al., 2006).

Simulated environments need to create a perception of reality if they are to benefit the performer in a real-world context (Aufegger et al., 2016; Rothbaum et al., 1997). Three-dimensional interactive experiences such as those provided by elaborate computer automatic virtual environments (CAVE) and virtual reality (VR) headsets enable individuals to realistically experience the environment by submerging them in a virtual space (Bissonnette et al., 2015). These immersive environments are believed to be the optimal means of ensuring a transfer of skills from the simulated environment to the actual situation but are expensive, inaccessible or (in the case of VR headsets) not optimal for music performance (Orman, 2004; Williamon et al., 2014). It has been suggested that less sophisticated virtual environments may still be effective provided

that they contain key audio or visual cues around the simulated task (Kassab et al., 2011; Williamon et al., 2014). In this program participants were provided with online access to visual (simulated stage entrances, videos of examiners and audiences, pictures of performance spaces) and audio (audience and environmental noises) cues to enhance their simulation experiences.

5.4.2 Benefits of Simulation

Improving task-relevant attention.

One of the main benefits of simulation is that it can be used to expose the performer to a number of unfamiliar stimuli that are distracting and potentially disruptive to their performance. Optimal performance is associated with the ability to focus attention on task-relevant cues and behavior while ignoring irrelevant distractions (Nideffer, 1992). Attention-based theories suggest that performance may be impaired when attention is diverted to irrelevant internal (for example, worry, negative thoughts, physiological symptoms) or external (for example, audience noises) stimuli as a result of heightened anxiety (Gröpel & Mesagno, 2017; Mesagno et al., 2016). Worry or cognitive anxiety can divert attention away from the task at hand as the performer seeks to identify environmental or emotional threats or shifts too much attention to monitoring and consciously controlling skill execution, disrupting automatic processes (Gröpel & Mesagno, 2017; Mesagno et al., 2016).

Simulated experiences that recreate distractions performers are likely to face in a real-world context can help them learn how to maintain focus or redirect their attention to task-relevant processes, leading to improved performance under pressure (Gröpel & Mesagno, 2017; Wilson, 2012). The simulation training incorporated throughout the program encouraged performing with external (environmental) distractions, under

conditions that mimicked anxiety (such as, elevated heart-rate and respiration) and increased self-consciousness (for example, self-recording, and playing in front of peers and teachers).

Development of psychological performance skills.

Regular performance practice also provides the opportunity for performers to acquire important skills or strategies that will enable them to manage anxiety, distractions, and mistakes across an unlimited number of trials in a risk-free environment, without the fear of failure or negative appraisal (Williamon et al., 2014). This provides an optimal environment for performers to develop confidence in applying different techniques and determine successful coping strategies that can help them to manage their physiological and affective state. As discussed in Chapter 3 these increased perceptions of control will help reduce anxiety, promote facilitative interpretations of arousal, and enhance SEP. The simulation activities interspersed throughout the program guided participants in the application and practice of a variety of performance enhancement techniques such as, pre-performance routines, refocusing techniques, and arousal management strategies.

Improved preparation.

Simulation can also enhance preparation. Performance trials that mimic real-world conditions test the performer's physical and mental response to unfamiliar circumstances that are more challenging than those encountered during practice. These can highlight technical, musical, or memory difficulties enabling the performer to address any problems before the actual performance (Conklin, 2011; Williamon et al., 2014). This is particularly valuable for testing the retrieval and execution of skills, such

as memory ability, that may be learning-context dependent and do not present as problematic within the familiar practice environment where they were originally developed (Matlin, 2005; Wulf & Mornell, 2014). Repeated simulations also provide the opportunity for the performer to improve, recognize progress over time, and to experience performance success (mastery experiences; Beattie et al., 2015; Feltz, 2007).

To gain the full benefits of this approach, weekly lesson and home performance requirements were structured into the program that provided training in simulation techniques. This ensured that students could practice using the strategies learned throughout the program, and become more familiar with performing, whilst developing the necessary coping skills. These trial runs also provided opportunities for teachers to observe how their students performed under pressure and for students to become accustomed using the techniques in front of other people (parents, other students and teachers). This is important since the opportunity to develop proficiency with skills in a real-world context is believed to enhance the effectiveness of an intervention (Evans, Langberg, & Williams, 2003). Imaginal experiences where students visualised successful performances were also encouraged to increase the number of mastery experiences.

5.5 Self-Evaluation

Simulation can be more effective when the process incorporates performance assessment and diagnostic feedback (Anderson, 2009; Salas & Burke, 2002). The programs strong emphasis on performance practice provided weekly opportunities for students to receive feedback and self-evaluate their performances in their lessons and home practice. Enhancing students' self-assessment skills was identified in Chapter 3 as an important part of verbal persuasion and mastery determinations and formed an

integral part of the program.

Self-evaluation is a component of self-regulated learning, a three-stage cyclical process of forethought, performance or volitional control, and self-reflection (Zimmerman, 2000). As part of the self-reflection phase (focussing on results and the processes that have led to a particular outcome) self-evaluation encourages individuals to take more responsibility for their own learning (Zimmerman, 2000) and has been defined as "the evaluation or judgment of 'the worth' of one's performance and the identification of one's strengths and weaknesses with a view to improving one's learning outcomes" (Klenowski, 1995, p. 146). This evaluation usually occurs in comparison with a standard or goal and requires the performer to not only diagnose problems but also prescribe solutions or identify further strategies that will improve their understanding and skills (McMillan & Hearn, 2008; Zimmerman, 1989, 2002).

5.5.1 Self-Evaluation and Musical Achievement

Regular self-evaluation can facilitate achievement, and instrumental learning and progress (Davis, 1981; Sparks, 1990). It has been associated with enhanced performance abilities at both a group and individual level, increased learning, improved attitude, better critical listening skills, deeper musical understanding, and more on task behaviours (Burrack, 2002; Davis, 1981; Hewitt, 2001; Puopolo, 1971; Sparks, 1990). Consistent self-evaluation can help students to constructively evaluate their progress and abilities, and highlight performance gains, increasing motivation and strengthening self-efficacy. Key factors that appear to influence this relationship are instruction in self-evaluation, frequent opportunities to self-evaluate, the use of a model recording, self-recording, and the ability to identify solutions to perceived errors or problems

(Aitchison, 1995; Burrack, 2002; Davis, 1981; Hewitt, 2001, 2002, 2011; Puopolo, 1971; Sparks, 1990).

5.5.2 Factors that Influence Self-Evaluation Ability

Teacher guidance.

Teacher and student evaluation scores have been found to be more highly correlated when the instructor is involved in the self-assessment process (Aitchison, 1995). Furthermore, not only have improvements in self-evaluation accuracy been associated with teacher-guided self-assessment but a decline in this skill, observed in undergraduate music majors exposed to peer evaluation, has been directly attributed to a lack of instructor participation and feedback (Bergee & Cecconi-Roberts, 2002). This suggests that students are more likely to develop accurate self-evaluation skills with the guidance and support of their teacher (Aitchison, 1995; Burrack, 2002; Davis, 1981; Hewitt, 2001; Puopolo, 1971; Sparks, 1990). Thus, this program encouraged teachers to lead their students through a formal self-assessment process following each lesson performance and to monitor their home reviews to ensure that they were assessing themselves fairly.

Self-recording.

Self-recording simulated performances formed another important part of the self-evaluation process employed throughout the program. One reason that students may struggle with self-evaluation is that it is hard for them to listen objectively to themselves in 'the moment'. This is because students do not necessarily perceive or hear their performances in the same way or, from the same perspective, as an audience member or teacher (Bergee & Cecconi-Roberts, 2002). Perceptions of live performance

assessments can be subject to a self-inflation or overestimation bias possibly due to the demands of having to attend to the execution of the performance which makes it difficult to evaluate with a high degree of accuracy (Silveira & Gavin, 2015). Hence, it is not uncommon for adolescent or less capable performers to rate a live performance more positively than one that is self-recorded (Hewitt, 2015; Silveira & Gavin, 2015; Waggoner, 2011).

Students may not feel comfortable listening to self-recordings but these do provide the opportunity to see and assess oneself from an audience perspective. This can make it easier to identify problem areas or hidden weak spots (Burrack, 2002; Daniel, 2001). Without this form of objective feedback performers may miss many difficulties that are encountered in live performance. Almost 50% of tertiary music students exposed to a new evaluation method that involved self-reflection and assessment as part of their course requirements identified more issues when viewing their recorded performance compared with the perceived (live) performance (Daniel, 2001). "Students are often not aware of many technical and expressive aspects in their playing until they listen to and evaluate the recording" (Burrack, 2002, p. 29).

Assessing self-recorded performance enables students to take responsibility for their own learning: "There is no doubt in my mind that the taping and assessing had positively contributed to both my musical understanding and technical proficiency. …I become more aware of correct or incorrect rhythms, tempos and just overall ear training" (Burrack, 2002, pp. 28-29). Structuring the evaluation process, for example, by directing attention to specific musical sub-areas such as tone and rhythm can also facilitate the development of critical listening and analytical skills: "Assessment through taping enabled me to hear the tiny things. …The categories like tone rhythm, articulation, etc. helped me to identify the small things that I really needed to work on.

…[Without these categories] I would never have noticed [the tiny things (Burrack, 2002, pp. 28-29). Self-recording can also provide opportunities for mastery determinations as students notice improvements over subsequent self-recorded performances. As one tertiary music student noted, "I look forward to seeing the [video] and watching for improvements" (Daniel, 2001, p. 222).

Identifying solutions.

Although self-listening and evaluation have been shown to enhance students' ability to identify errors this may not lead to improved performance if they are unable to select and employ appropriate strategies to correct these problems (Hewitt, 2001). For students to develop independent musicianship they need to be able to perceive a problem and understand the solution (Hewitt, 2001; Wolf, 1987/88). Thus, another step in the programs' formal self-evaluation process was to encourage pupils to identify, with the help of their teacher, suitable practice techniques to address issues and improve their musical outcomes. These corrective measures then determined their learning and performance goals for the next week.

Model recording.

To be able to make accurate self-assessments the learner must be able to differentiate between their current achievements or progress against a given standard, model, or goal (Cash, Allen, Simmons, & Duke, 2014; Zimmerman, 1998). In a music context, this means that the performer should have a clear concept of how the music sounds in order to assess their own efforts (Hallam et al., 2012; Hewitt, 2001). Around 60% of beginners, novices and advanced students leave errors uncorrected when learning a new piece (Hallam, 1997b). This is most likely because they have not

acquired an internalised representation of the sound of the music and do not have clear standard of comparison to refer to when assessing and evaluating their own playing (Hallam, 1997b). Of particular concern is that these initial learning errors are often left uncorrected, becoming a permanent part of the music (Hallam, 1997b).

Model recordings provide students with an external reference that gives a clear representation of the music, a standard to aspire to, and something with which to compare their own performance (Hewitt, 2001; Juslin et al., 2004). Listening to a model has been shown to lead to superior performance, enhance the learning of notes, dynamics, rhythms and tempo, and aid in identifying and reducing pitch errors and mistakes (Cash et al., 2014; Rosenthal, 1984) yet, it is often under-utilised in music lessons (Hallam et al., 2012; Kennell, 1992; Kostka, 1984).

Despite the potential benefits of employing a model only a few studies have investigated the benefits of this form of vicarious experience on self-evaluation accuracy (Bergee & Cecconi-Roberts, 2002; Hewitt, 2001, 2002, 2011; Morrison, Montemayor, & Wilthshire, 2004). In a study of secondary school instrumentalists Hewitt (2001) found a model to be particularly effective when used in conjunction with self-evaluation. Participants who listened to a model, and self-evaluated, showed greater gains in tone, melodic and rhythmic accuracy, interpretation, and overall performance than those that were not exposed to the model. Interestingly, self-evaluation alone did not improve performance and there was no difference in any of the performance subareas between the model and no-model groups when self-evaluation was not included in the process (Hewitt, 2001). Listening to a recorded model has also been found to encourage students to reflect on their performance and make more self-evaluative comments (Burrack, 2002; Daniel, 2001; Morrison et al., 2004).

In contrast, other studies have found no effect for modelling on self-evaluation skills, accuracy, or performance achievement (Bergee & Cecconi-Roberts, 2002; Hewitt, 2002, 2011; Morrison et al., 2004). These conflicting results may be due to the lack of teacher guidance (as only one of these studies included teacher instruction in the evaluation process), type of model and the way the model recording was utilised. For instance, the recorded music that participants listened to in Bergee and Cecconi-Roberts' (2002) study was an anchor recording (that is, not the piece they were performing) considered to be an ideal example or general frame of reference for the four musical sub-areas evaluated. Thus, this recording would not have enabled participants to detect pitch, melodic or rhythmic errors, or discrepancies in tempo and dynamics in their own performance, making it difficult for them to improve their evaluative skills.

All of the studies have also directed participants to listen to the model recording prior to giving and evaluating their perceived (live) performance. As it is difficult for performers to accurately assess themselves whilst they are playing, due to the cognitive and physical demands of executing the performance, it may be more effective for students to listen to their self-recorded performance and then make comparisons with the model (Hewitt, 2001; Silveira & Gavin, 2015). The opportunity to be able to listen objectively to both themselves and a model could potentially highlight discrepancies and errors. Towards this end the programs' evaluation process guided students to first listen to a model recording, then their self-recorded performance for comparison, to encourage more accurate and objective self-assessments.

5.5.3 Five-Step Evaluation Process

Self-sufficient musicianship requires accurate and objective self-evaluation. The program sought to help students take responsibility for their own learning by

incorporating a five-step, formal self-evaluation process into the music curriculum: (1) identifying highlights, (2) determining problem areas and improvement strategies, (3) listening to self-recordings to pinpoint further highlights, errors or difficulties, (4) listening to model-recordings, and (5) rating overall performance satisfaction. Since students most accurately evaluate melody, rhythm, and tempo this procedure initially focussed on these three sub-areas (Hewitt, 2005). Teachers then had the option to introduce further musical sub-areas (such as interpretation and intonation) throughout the program. This systematic process was designed to facilitate the development of critical listening skills, enhance awareness of progress, improve practice, and foster motivation and self-efficacy.

5.6 Summary of Main Program Elements Mapped to Self-Efficacy Sources

The final program design targeted each self-efficacy source in a variety of ways. These are summarised below to provide a detailed conceptual overview of the structure of the program.

Mastery experiences.

Mastery experiences were fostered through:

- weekly home and lesson performance simulations;
- a performance review process that prompted the recognition of incremental improvements and overall performance success; and,
- weekly goal setting to enable participants to achieve successes in progress and in performance.

Participants were also encouraged to visualize a successful performance

(described as a virtual reality dress rehearsal). There is some debate as to where these types of imaginal experiences fit among the sources of self-efficacy. Although it has been suggested that they may form a separate or fifth source of efficacy information (Maddux, 1995), Bandura (1997) categorises them as a form of self-modelling. Given that there are a variety of ways of utilizing imagery (for example, arousal management, skill development, and performance simulation) it is likely that these experiences will cross over a number of self-efficacy sources and will "certainly be intertwined with the judgements students make of their mastery experiences" (Usher & Pajares, 2008, p. 753).

Verbal persuasion.

It was determined that this source could be strengthened through:

- increasing external and internal performance feedback through teacher- and self-evaluation of simulated home and lesson performances;
- a performance review process that encouraged participants to note positive aspects (or successes) of their performances and to objectively assess and rate their level of satisfaction with each performance;
- open discussion of coping strategies, performance highlights and improvements, and MPA; and,
- reframing anxiety as energy, accepting it as normal and expected part of performing, and emphasizing the performance enhancing benefits of this response.

Vicarious experience.

Although this was not one of the main sources targeted to enhance SEP the

program provided opportunities to enhance vicarious experience in a number of ways. For instance:

- using real world examples of elite performers and talented adolescent musicians modelling a variety of the performance strategies on the online tutorials;
- listening to a model recording of their performance piece (during the performance review process) to provide participants with a standard of playing to aspire to and enable them to assess how they were progressing towards their performance goals; and,
- self-modelling (through viewing recorded simulations and various imagery activities).

Physiological and affective states.

A number of coping strategies were introduced throughout the program to enable participants to manage or control their physiological and affective state. These included:

- arousal management techniques (for example, deep breathing, tension release and, imagining a relaxing place) that were embedded within their practice and playing;
- developing a pre-performance routine; and,
- strategies for dealing with mistakes and refocusing.

The implementation and assessment of this program forms the second major study phase of this thesis.

Chapter 6
Study 2: Pilot Study of the Psychological Performance Skills Program

6.1 Introduction

Adolescence is a developmental period that is associated with an escalation in performance issues, such as music performance anxiety (MPA). Thus, it is an optimal time to be implementing proactive psychological performance skills training (Fehm & Schmidt, 2006; Jackson & Lurie, 2006; Osborne et al., 2005; Ranelli et al., 2015). Self-efficacy has been identified as an important factor in both performance success and well-being (Bandura, 1997). This research sought to design an intervention that was developmentally appropriate for adolescent students that targeted this self-belief in music performance.

Chapter 5 outlined the development of a multi-faceted, blended-learning program that could be implemented within the secondary curriculum by music educators to foster self-efficacy and core psychological performance skills. The next phase of the research focussed on the implementation and assessment of this program within studio (one-to-one teaching) and class music lessons.

6.2 Aims

To determine the feasibility of delivering a blended-learning, teacher-guided, psychological performance skills program within these contexts, a pilot study was conducted to:

1. assess the acceptability of the approach and gain feedback on the program; and,
2. conduct a preliminary examination of the effectiveness of the intervention and the underlying model on performance self-efficacy, psychological performance skills, anxiety, and performance quality.

These pilot study findings provide the methodological foundation for two subsequent larger scale studies which are discussed in Chapter 7.

6.3 Method

6.3.1 Participants

Studio condition.

Participants were recruited across four Australian states (Western Australia, Queensland, New South Wales and South Australia) from a data set of teachers who participated in the phase one *Pedagogical Development of Psychological Performance Skills in Music Lessons* survey (n = 32). Teacher members of each state's music teaching association (approximate total teacher members = 1,800) were approached via a global email, a web-link on the association's website, or a notice in their newsletter. The initial sample comprised of seven studio teachers (six female) with a combined total of 20 students (16 female). Participants had a mean age of 14.48 years (SD = 1.45, range 12-16 years) and had been learning for a mean of 5.95 years (SD = 2.31). They were pianists (65%), vocalists (10%), string (20%), and brass (5%) instrumentalists. Two teachers with a total of five students did not complete the first week of feedback and six students chose to discontinue at various points during the program. The final sample comprised of four teachers and nine (7 female) students with a mean age of 15.14 years (SD = 1.35, range: 12-16 years). They were pianists (44.44%), string

(44.44%), and brass (11.11%) instrumentalists and had been learning for a mean of 6.67 years (*SD* = 1.87).

Class condition.

Participants were recruited via a direct invitation to schools selected for their strong music program (*n* = 2) and from a data set of class music teachers or Directors of Music who had expressed their interest in phase one (*n* = 5). Group size depended upon the number of students within a school music class who consented to participate. Twenty-six students (18 female) across two schools consented to the study. The first school group (*n* = 10; five female) had a mean age of 16.77 years (*SD* = 0.40, range: 16-17 years), was comprised of string (40%), wind (40%), brass (10%), and percussion (10%) instrumentalists and had studied their instrument for a mean of 8.30 years (*SD* = 1.34). The second school group (*n* = 16; 13 female) had a mean age of 15.34 years (*SD* = 0.99, range: 14-18 years), comprised of vocalists (68.75%), pianists (25%), and percussionists (6.25%) and had studied their instrument for a mean of 6 years (*SD* = 3.08).

Unfortunately, there was a high attrition rate in this condition with one school discontinuing the program after the first week. This occurred after student feedback indicated the length and content of the week one modules to be overwhelming, and a parental complaint (that was not supported by the class teacher) that it was taking up too much of the music class time. The other school pulled out of the study after six weeks when it became apparent that students were not meeting the program requirements (that is, watching the online tutorials and completing the activities).

Studio music teachers and school-music educators had a minimum of three years teaching experience and were offered continued access to the program to thank them for

completing the research study with their students. Student participants were of secondary-school age (12-18 years) and receiving private instrumental tuition.

6.3.2 Materials

Overview.

Each student participant completed a personal details form to record age, gender, instrument type, Australian Music Examinations Board (AMEB) grade level and number of years studying their instrument. State anxiety was assessed using a modified version of the Revised Competitive State Anxiety Inventory-2 (CSAI-2R; Cox et al., 2003). Self-efficacy was measured using the Music Performance Self-Efficacy Scale (MPSES; Zelenak, 2011, 2015) whilst psychological performance skills were determined using an abridged version of the Artists Performance Survey (APS; Greene, 2002) and a modified version of the Psychological Performance Inventory (PPI; Loehr, 1986). Self- and teacher-rated performance quality was assessed with an evaluation form designed by the researcher. Program feedback and information pertaining to course compliance and adherence was also collected from students and teachers for each week of the program.

Anxiety.

The CSAI-2R (Cox et al., 2003) is a commonly used, multi-dimensional measure of state anxiety and self-confidence prior to competitive sport performance. In the context of this research self-confidence, as measured by the CSAI-2R, can be viewed as the equivalent of state performance self-efficacy (SEP) given that it assesses performers' beliefs in how they will perform immediately prior to a performance (Feltz et al., 2008). This measure was modified for music performance as there are no

psychometrically validated measures of state music performance anxiety (MPA) direction and dimension. The 17-item questionnaire assesses the intensity and directional aspects of cognitive anxiety (for example, "I am concerned about choking under pressure"; 5 items) and somatic anxiety (for example, "My heart is racing"; 7 items). The five self-confidence items include statements such as "I am confident about performing well." Slight modifications were made to reflect music performance in line with previous studies that have used this measure, for example, replacing 'competition' with 'performance' and "I am concerned about losing" with "I am concerned about making mistakes" (Gill et al., 2006; Yoshie et al., 2009).

In this measure participants first rated symptom intensity levels on a scale ranging from 1 (*not at all*) to 9 (*very much so*), with possible scores on each subscale ranging from one to nine. Participants then indicated the extent that the intensity of the symptom was facilitative or debilitative to their performance on a scale from +4 (*very facilitating*) to -4 (*very debilitating)* with a score of zero indicating that intensity levels are *unimportant* to the performance (Jones & Swain, 1992). Possible direction scores for each anxiety subscale ranged from -4 to +4. A negative result reflects perceptions of debilitative anxiety and a positive result reflects perceptions of facilitative anxiety.

Confirmatory factor analysis has established the factorial validity of the CSAI-2R (CFI = .95, NNFI = .94, RMSEA = .05; Cox et al., 2003). In addition, the CSAI-2R has demonstrated good internal reliability and validity when applied to music performance anxiety in adult musicians (Clark & Williamon, 2011; Yoshie et al., 2009) and appropriate construct validity with the Performance Anxiety Questionnaire (PAQ; Cox & Kenardy, 1993), a measure of the frequency of feelings associated with cognitive and somatic anxiety experienced during a musical performance (Gill et al., 2006; Yoshie et al., 2009).

Self-efficacy.

The MPSES (Zelenak, 2011, 2015) measures the four sources of self-efficacy in music performance among secondary school music students. The 24-item questionnaire consists of eight items reflecting mastery experiences ("I have had positive experiences performing music in the past"), five items reflecting vicarious experience ("I have improved my music performance skills by watching someone I know perform well [parent, brother, sister, church member, etc."]), six items reflecting verbal persuasion ("My music teacher has complimented me on my musical performance"), and five items reflecting physiological state ("I am learning, or have learned, to control my nervousness during a performance"). Mastery and verbal persuasion were assigned more items to account for the generality, strength, and level of those sources (Pajares & Urdan, 2006; Zelenak, 2015).

In this measure, higher scores on the physiological state subscale represent more positive feelings about performance, perceptions of control over nerves, and less concern about mistakes. Participants indicate the strength of agreement with each item by selecting a numerical value from 0 (*strongly disagree*) to 10 (*strongly agree*)[1]. This measure has been found to display a strong internal consistency for the combined responses ($\alpha = .88$). Cronbach's alpha for each source has been reported as: mastery $\alpha = .74$, verbal persuasion $\alpha = .77$, physiological state, $\alpha = .67$, and vicarious experience $\alpha = .59$. It has also demonstrated acceptable convergent and discriminant validity (Zelenak, 2015).

[1] This is different to the rating scale suggested by Zelenak (2011, 2015) which ranges from 1 (s*trongly disagree*) to 100 (*strongly agree*).

Psychological Performance skills.

This study had originally planned to use the psychometrically validated Performance Skills Inventory (PSI; Greene, 2013), however, permission to use the PSI was revoked by the author four days prior to the commencement of the study pending a review of the licensing agreement with The University of Melbourne.

It was difficult to find an alternate measure of mental skills that was psychometrically validated and appropriate for adolescents that could be used or adapted for use within a music context. As there was no clearly established precedent for assessing mental skills in this population that was readily available in the public domain an abridged version of the APS (Greene, 2002) was used in conjunction with the PPI-A (Golby, Sheard, & Van Wersch, 2007).

Artists Performance Survey. This inventory is a self-report measure that assesses seven essential skills for optimal performance (poise, determination, confidence, mental outlook, emotional approach, controlling attention, concentration, and resilience; Greene, 2002). Based on Nideffer's Test of Attentional and Interpersonal Style (Nideffer, 1976), the Athletic Motivation Inventory (Tutko and Richards 1972), and the Competitive Style Inventory (Olgilvie, Greene, & Baillie, 1997) it consists of 100 items and 26 subscales that profile musicians' psychological performance skills and their ability to learn and manage anxiety to give a successful performance. Respondents recall how they normally behave when rehearsing and performing and indicate the truth of each statement on a five-point Likert scale ranging from one (*untrue for me*) to five (*very true*).

Five APS subscales assessed: performers' perceptions of how well they perform under stressful circumstances and their ability to increase their energy or relax as needed for a performance (performance under pressure, ability to deactivate); self-talk

prior to and during a performance (self-talk); the performer's ability to refocus during a performance (focus past distractions); and, the ability to overcome setbacks and challenges, particularly after making a mistake during a performance (ability to recover).

The Psychological Performance Inventory-Alternative (PPI-A; Golby et al., 2007) is a 14-item self-report measure derived from the PPI (Loehr, 1986) that assesses mental toughness across four subscales: determination (three items), self-belief (four items), positive control (four items) and visualisation (three items) with twelve items worded positively and two items worded negatively. Participants rate how typical each statement is for them on a five-point Likert scale ranging from one (*almost never*) to five (*almost always*). The two negative items are reverse coded with subscale scores ranging from 3 to 15 for the subscales containing three items (determination and visualisation) or 4 to 20 for the subscales containing four items (self-belief and positive cognition) resulting in a total mental toughness score ranging from 14 to 70. Preliminary findings have supported the validity and reliability of the PPI-A four-factor model (Golby et al., 2007; Gucciardi, 2012).

Performance quality.

Internal assessment. Student participants self-assessed their performances using a specifically designed evaluation form that measured five musical sub-areas: note accuracy (including accuracy of intonation if applicable); tone quality (overall control, warmth, clarity and consistency); musical interpretation (musicianship and presentation of all musical ideas such as phrasing, tempo, style and dynamics); rhythmic accuracy (steadiness of beat and accuracy of the printed rhythms); and, technique and articulation (precision of marked articulations and appropriate interpretations of markings;

Appendix C). Students indicated how they felt they had performed using an eleven-point Likert scale ranging from 0 (*needs attention*) to 10 (*excellent*). Teachers rated their students' performances using a similar evaluation form and rating scale across the same musical criteria (Appendix D).

Students' subjective performance satisfaction (mastery experience) was assessed using an eleven-point Likert scale ranging from zero (*unhappy with this performance*) to ten (*extremely pleased*). A rating of 7+ indicated that they felt pleased enough with this performance for it to be heard in public.

Program feedback and course adherence.

Feedback was collected from teachers and students following the completion of each week of the program.

Teacher feedback. Teachers recorded the lesson activities completed by each student, rated the relevance and usefulness of the program, and made suggestions for improvement (Appendix E).

Student learning and evaluation. Students were requested to record the home activities completed and rate a series of positively toned statements about their perceptions of the modules presented that week. Whilst some of the statements were module specific, they generally related to ease of understanding, knowledge developed, increases in self-awareness, and feelings about performing. Each statement was rated on an 11-point Likert scale ranging from 0 (*strongly disagree*) to 10 (*strongly agree*). Participants were also invited to comment on the content and delivery of the module (Appendix F).

6.3.3 Procedure

Program baseline assessments.

Test battery: Non-performance measures. One to two weeks prior to the commencement of the program all participants completed an online test battery (Figure 6.1). The test battery (approximately 30 minutes duration) was conducted in the following order: demographics, MPSES, APS, PPI-A. Participants in the class condition completed the battery as a group during class whilst those in the studio condition completed it at home.

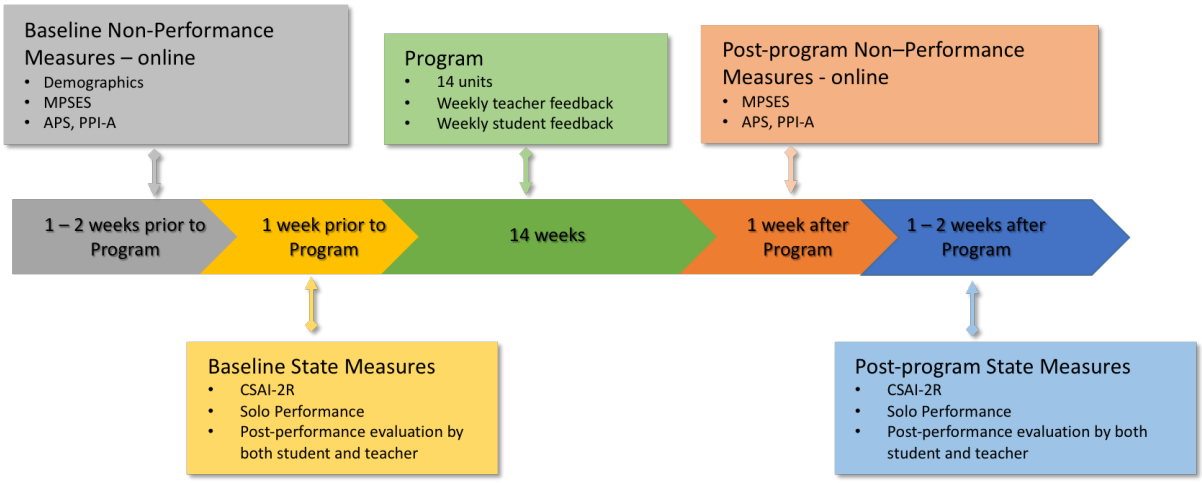

Figure 6.1. Summary of assessment schedule.

Solo performance.

Participants performed a short solo piece that they felt was ready to perform but had not yet performed. This piece was to be used for the pre-and post-program solo performance assessments and throughout the program to develop their performance skills. Students in the class condition performed in class whilst those in the studio condition had the option to perform for their teacher at the beginning of their lesson or as part of a studio music concert if the teacher had more than one student participating in the program. The performances could be accompanied or unaccompanied on the

understanding that the baseline procedure would need to be replicated for the post-intervention assessment.

Teachers in the class condition had the option to reduce the performance time allotted to each student depending on the size of their class, number of consenting students, and/ or time constraints.

Solo performance questionnaires and evaluations: State measures.

Students completed the CSAI-2R approximately ten minutes prior to their performance. Immediately following their performance each student and their teacher independently completed a post-performance evaluation.

The online program.

Program structure. As discussed in Chapter 5, a 14-week, teacher-directed program was designed to complement class and studio music tuition combining weekly, online video tutorials (to be viewed at home) with specific activities incorporated into lessons and practice.

Teachers monitored their students' progress and guided skill development. The amount of time spent on the recommended tasks was at each teacher's discretion. This allowed them to retain autonomy over their lesson content and format, and also the flexibility to prioritise during times when other musical commitments (such as exam preparation) needed to take precedence.

Whilst the course content and home practice activities were consistent for all students, lesson activities for those in the class condition were slightly modified to suit a group situation. Class participants had the opportunity to participate in shared activities, learn from their peers through modelling (by watching and listening to each

other perform), receive a wider range of feedback and hear others' experiences and opinions. They had less chance, however, to discuss, demonstrate, or practice the skills introduced throughout the program in class. The nature of the class environment also meant that it was not possible for school educators to follow up on weekly home practice goals or performance reviews on an individual basis.

Equipment.

Teachers and students needed to have access to an iPad, iPhone, or some form of audio-visual equipment that could record simulated performances.

Pre-program preparation.

Fifteen studio participants and twenty-six class participants started the program after watching an introductory video outlining the format of the course. Prior to starting students chose their performance piece and were encouraged to obtain a model recording of this work to use during their weekly home performance reviews. It could be a teacher-recorded version, or a well-played (teacher vetoed) you tube or commercial recording. This was to provide them with a standard of playing to aspire to so that they could assess how they were progressing toward their performance goals. Participants in the class condition were reminded to consult with their studio music teacher to obtain an appropriate example.

Program pack.

Teachers were provided with a program pack that contained: a *research study overview* outlining (by school term week) the course action required by students and teachers for each week of the research study; a *getting started guide*; the week one

teacher guide so that they could familiarize themselves with the structure of the program; the solo performance assessment instructions, baseline questionnaires, and evaluation forms; and, all of the handouts and worksheets their students would need to complete weeks one to eight of the program. A second program pack was sent at a later date containing the handouts for weeks nine to fourteen of the program and the post-intervention performance questionnaires.

Disruption to program.

Illness, preparation for music exams and competitions, school commitments and holidays prevented some participants from maintaining the program schedule. As a result, two studio condition participants had not fully completed the course at the time the post-intervention assessments were conducted. These participants were at weeks ten and eleven.

Student involvement.

The program was designed to be embedded into students normal musical training. In the week prior to their lesson or music class, participants watched the set online tutorials at home (10-20 minutes per week) and then completed activities in practice as specified on their module worksheets or home practice goals guide. Most of these tasks were designed to be incorporated into their technical work, performance piece, and weekly home performances.

At the conclusion of each week of the program students completed an online evaluation form indicating whether the information and activities presented in that week of the program had helped them to develop self-awareness, learn productive coping strategies, improve their performance preparation, and feel more positive about

performing. They also had the option to provide feedback on the content and delivery of the course.

Teacher involvement.

Teachers oversaw the delivery of the program, guided skill development, and set weekly goals for home practice. The suggested lesson tasks generally involved a discussion of program content and goals, application of strategies, and a simulated performance to practice the skills they had been learning. At the end of each week teachers also completed a weekly form providing information about class/lesson activities and feedback on the course (relevance of each module, course content, and delivery).

Feedback, learning, and course adherence.

Each week of the program required a different login passcode for teachers and students. This was to encourage regular feedback as participants were only provided with the new code once they had submitted their comments pertaining to the previous week.

Over the course of the study teachers were regularly contacted via email to maintain (or regain) momentum, thank them for their time, effort and valuable comments, and remind them to complete feedback forms. They were also informed of their students' progress and whether they were up to date with their evaluations. This helped to reduce the amount of missing data across the program. It was possible, however, for students to continue with a reduced version of the program without watching the online tutorials or completing the learning and evaluation forms. This was

because the weekly student handouts contained a summary of the online tutorial information, and overview of many of the strategies and module activities.

Whilst students in the studio condition indicated that they were regularly viewing the content, compliance became an issue within the class condition. From the third week of the program a number of these participants indicated that they were not watching the online tutorials and/or failed to complete the learning and evaluation form. All class participants had stopped providing feedback by the fifth week of the program.

6.4 Results

6.4.1 Questionnaire Completion

An initial sample of 45 students (25 class and 20 studio) completed the non-performance online test battery. The final data set for all measures post-program included eight students in the studio condition.

6.4.2 Design and Data Analysis

In the instances where two responses were indicated for the same question, the mean of the two responses was calculated. Missing values in the CSAI-2R (1) were substituted with the mean of the subscale (CSAI-2R) for that participant. The MPSES also contains two items (as part of the *Mastery* subscale) that asks participants about their experiences performing as part of a smaller (2-10) or larger (≥11) ensemble group. Participants in this study indicated *not applicable* (NA) if they had never performed as part of an ensemble. As only three participants indicated NA at baseline these were treated as missing values and replaced with age and gender matched means rather than deleting these items for the entire sample.

6.4.3 Program Adherence, Learning, and Feedback

This section presents both studio and class feedback data as analysis of this information helped determine the appropriateness of the program design for each of these contrasting learning environments. It also informed condition specific program modifications and amendments for the main studies (presented in Chapter7).

Studio participants demonstrated high adherence with the majority of students (80–100%) consistently finishing most or all of the set activities for each week of the program (Table 6.1). In comparison, the six weeks of data available for class students indicated that they were less likely to watch the online tutorials and fully complete the worksheets and activities. Their compliance rate also started to decline early on, at week three. Teachers included one to three of the recommended lesson tasks in their weekly lessons.

Table 6.1
Weekly Program Completion Summary for Studio and Class Participants

Week	Module	Participant Module Completion		
			Studio %	Class %
1	Performance Skills	Fully	100	42.11
		Mostly	--	47.37
		Partially	--	10.53
			(*n*=15)	(*n*=19)
	Performance Review	Fully	86.67	21.05
		Mostly	13.33	63.16
		Partially		15.79
			(*n*=15)	(*n*=19)
	Goals	Fully	86.67	15.79
		Mostly	13.33	57.89
		Partially	--	21.05
		Minimally	--	--
		None	--	5.26
			(*n*=15)	(*n*=19)
2	Nerves: Part 1	Fully	92.86	20.00
		Mostly	7.14	40.00
		Partially	--	20.00
		Minimally	--	--
		None	--	20.00

Week	Module	Participant Module Completion		
			Studio %	Class %
			(*n*=14)	(*n*=10)
	Nerves: Part 2	Fully	100	20.00
		Mostly	--	50.00
		Partially	--	10.00
		Minimally	--	--
		None	--	20.00
			(*n*=14)	(*n*=10)
3	Breathing	Fully	71.43	--
		Mostly	21.43	58.33
		Partially	7.14	8.33
		Minimally	--	25.00
		None	--	8.33
			(*n* = 14)	(*n*=12)
4	Self-Talk	Fully	66.67	--
		Mostly	22.22	28.57
		Partially	11.11	28.57
		Minimally	--	14.29
		None	--	28.57
			(*n*=9)	(*n*=15)
	Rephrasing Self-Talk	Fully	66.67	--
		Mostly	22.22	42.86
		Partially	11.11	28.57
		Minimally	--	14.29
		None	--	14.29
			(*n*=9)	(*n*=7)
5	Sharpen Up	Fully	11.11	--
		Mostly	77.78	42.86
		Partially	11.11	42.86
		Minimally	--	--
		None	--	14.29
			(*n*=9)	(*n*=7)
	Progressive Relaxation	Fully	--	--
		Mostly	22.20	--
		Partially	77.80	85.71
		Minimally	--	
		None	--	14.29
			(*n*=9)	(*n*=7)
6	MasterChef	Fully	44.44	
		Mostly	44.44	*NA*
		Partially	11.11	*Program*
		(*n*=9)		*discontinued*
7	Tuning-In: Part 1	Fully	100	
		(*n*=8)		
	Tuning-In: Part 2	Fully	100	
		(*n*=8)		
8	Making the Unfamiliar,	Fully	66.67	
	Familiar	Mostly	22.22	

Week	Module	Participant Module Completion		
			Studio %	Class %
		Partially (*n*=9)	11.11	
	Dealing with Mistakes	Fully	66.67	
		Mostly (*n*=9)	33.33	
9	Stage Presence	Fully	55.56	
		Mostly	33.33	
		Partially (*n*=9)	11.11	
	Entrance-to-Start	Fully	77.78	
		Mostly (*n*=9)	22.22	
10	Energise	Fully	57.14	
		Mostly (*n*=7)	42.86	
	Breath Awareness	Fully	57.14	
		Mostly (*n*= 7)	42.86	
11	Self-Coach	Fully	57.14	
		Mostly (*n*=6)	42.86	
12	Strike a Pose	Fully	83.33	
		Mostly (*n*=6)	16.67	
	Imagery	Fully	50.00	
		Mostly (*n*=6)	50.00	
13	Creating Imagery	Fully	80.00	
		Mostly (*n*=5)	20.00	
	Back to the Future	Fully	80.00	
		Mostly (*n*=5)	20.00	
14	The Virtual Dress Rehearsal	Fully	80.00	
		Mostly (*n*=5)	20.00	

Note. Fully = watched online tutorial and completed worksheet; Mostly = watched online tutorial and partially completed worksheet; Partially = watched online tutorial but did not complete worksheet or, did not watch online tutorial but completed worksheet; Minimally = did not watch online tutorial and partially completed worksheet.

Performance simulations.

Tables 6.2 and 6.3 show the average number of simulated performances and reviews that students conducted throughout the program. Studio participants achieved on average at least one performance simulation and review (in practice or lessons) each week (Tables 6.2 and 6.3). They were more likely to complete these at home and to conduct a partial rather than full review.

Table 6.2

Studio-Participants' Mean Number (and Range) of Simulated Performances

	Home Practice	Lesson
Simulated Performances	13 (5-25)	7.11 (0-11)

Table 6.3

Studio-Participants' Mean Number (and Range) of Performance Reviews

	Home Practice		Lesson	
	Partial[a]	Full[b]	Partial	Full
Performance Review	6.22 (3-14)	3.44 (0-11)	5.22 (0-10)	1.89 (3-14)

Note. [a]Partial represents completion of some of the performance review steps. [b]Full represents completion of all 5 steps of the review process.

Learning objectives.

The high ratings for the development of knowledge and self-awareness indicate that studio participants achieved the main learning goals and objectives of each module (Table 6.4). In addition, the program also helped them to learn new strategies and skills that they could use in practice and performance and enhanced positive feelings and expectancies for future solo performances. This was demonstrated by their average, weekly feedback ratings (Appendix F, items 1-4): *I learned new ideas, approaches and skills to use in practice* (8.57); *I learned new ideas, approaches and skills to use in my*

next performance (8.73); *I feel more positive about performing solo* (7.75); and, *I feel my performing experiences will improve* (8.02). These were rated on a 0 (*strongly disagree*) to 10 (*strongly agree*) scale.

Table 6.4

Studio-Participants' Ratings of the Development of Knowledge and Self-Awareness by Program Module

Week	Module		Developed knowledge about[a]	Developed self-awareness of[b]	
1	Performance Skills	*n*=15	9.13	--	
	Performance Review		8.87	--	
	Goals		8.40	--	
2	Nerves: Part 1	*n*=14	8.76	8.57	*symptoms*
	Nerves: Part 2		--	8.36	*tension*
3	Breathing	*n*=14	8.68	9.00	*breathing*
4	Self-Talk	*n*=9	9.22	8.22	*self-talk*
	Rephrasing Self-Talk		9.11	--	
5	Sharpen Up	*n*=9	8.44	7.67	*loss of focus when playing*
	Progressive Relaxation		--	8.00	*tension and how to release it*
6	MasterChef	*n*=9	8.11	8.33	*how the opening phrase should sound*
				8.78	*hearing the music before playing*
7	Tuning-In: Part 1	*n*=8	8.69	8.75	*what to do before starting*
	Tuning-In: Part 2				
8	Making the Unfamiliar, Familiar	*n*=9	7.56	--	
	Dealing with Mistakes		8.00	8.11	*my response to mistakes*
9	Stage Presence	*n*=9	8.44	8.67	*my body language when performing*
	Entrance-to-Start		8.33	--	
10	Energise	*n*=7	8.14	--	
	Breath Awareness		--	7.67	*how I breathe when I play*
11	Self-Coach	*n*=7	7.57	7.71	*my self-talk when I walk onstage*
12	Strike a Pose	*n*=6	9.50	9.00	*my body language before a performance*
	Imagery		8.50	--	
13	Creating Imagery	*n*=5	8.70	8.60	*including imagery in my practice*
	Back to the Future		8.40	--	
14	The Virtual Dress Rehearsal	*n*=5	8.70	8.40	*including coping imagery in my visualisations*

Note: Knowledge and self-awareness statements were rated on a 0 (*strongly disagree*) to 10 (*strongly agree*) scale. *n* refers to number of feedback forms as distinct from number of participants. Ratings apply to Appendix F, items [a]5 and [b]7.

Teacher evaluation.

Teacher ratings for relevance and usefulness of the information presented were consistently high across all modules for both instructional conditions (Table 6.5). Studio teachers particularly liked three of the arousal management modules that provided information about breathing and nerves.

Table 6.5

Mean Teacher Ratings of Topic and Module Relevance

Topic/Module	Week	Teacher Module Ratings (*M*)		Topic Total[a] (*M*)
		Studio	Class	
Introductory				8.60
Performance Skills	1	8.40	9.00	
Performance Review	1	8.80	8.50	
Arousal Management				8.72
Nerves: Part 1	2	9.40	9.00	
Nerves: Part 2	2	9.40	8.00	
Breathing	3	9.40	8.00	
Breath Awareness	10	7.60		
Progressive Relaxation	5	7.80	8.00	
Focus				8.53
Goals	1	8.80	9.00	
Sharpen Up	5	8.80	7.00	
Dealing with Mistakes	8	8.00		
Confidence				8.20
Self-Talk	4	8.80	9.00	
Rephrasing Self-Talk	4	9.00	8.00	
Self-Coach	11	7.00	--	
Stage Presence	9	8.50	--	
Strike a Pose	12	7.70	--	
Pre-Performance Routine				7.85
MasterChef	6	7.50	9.00	
Tuning-In: Part 1	7	8.25	--	
Tuning-In: Part 2	7	8.25	--	
Energise	10	7.50	--	
Simulation				8.17
Making the Unfamiliar, Familiar	8	8.25	--	
Energise	10	7.50	--	
Entrance-To-Start	9	8.75	--	
Imagery				8.09
Imagery	12	8.70	--	
Creating Imagery	13	8.00	--	
Back to the Future	13	7.67	--	
The Virtual Dress Rehearsal	14	8.00	--	

Note. Modules were rated for relevance and usefulness on a 0 (*not relevant*) to 10 (*relevant*) scale; [a]Topic total mean ratings do not include school class teacher ratings.

6.4.4 Effects of the Program

Self-efficacy, music performance anxiety and psychological performance skills results.

The following section presents the pre- and post-intervention descriptive statistics for participants who completed the research study. Table 6.6 presents the results from the non-performance measures (online test battery) and state (performance) questionnaires.

Table 6.6

Mean Scores (Standard Deviations) Pre- and Post-Intervention

Measure	Pre-Intervention Mean	(*SD*)	Post-Intervention Mean	(*SD*)	Difference
Non-Performance					
MPSES Total	167.55	(31.72)	189.12	(23.10)	21.57
Verbal Persuasion	42.88	(9.22)	48.75	(6.47)	5.88
Vicarious Experience	33.25	(7.07)	37.50	(7.23)	4.25
Physiological State	29.00	(12.19)	35.13	(10.26)	6.13
Mastery Experience	62.43	(11.31)	67.75	(7.91)	5.32
APS					
Performance Under Pressure	51.25	(24.16)	70.00	(15.35)	18.75
Ability to Recover	60.63	(17.82)	64.38	(19.90)	3.75
Focus Past Distractions	63.13	(14.87)	73.13	(15.34)	10.00
Self-Talk	60.63	(21.62)	55.00	(27.12)	-5.63
Ability to Deactivate	43.75	(23.11)	56.88	(21.87)	13.13
PPI-A					
Visualisation	9.88	(1.25)	10.75	(1.75)	0.88
Positive Cognition	12.63	(1.69)	14.13	(2.10)	1.50
Self-Belief	12.50	(4.07)	12.00	(4.50)	-0.50
Determination	11.88	(1.46)	11.38	(1.92)	-0.50
State					
CSAI-2R					
Cognitive Intensity	4.88	(2.16)	4.15	(2.07)	-0.73
Somatic Intensity	4.38	(2.61)	2.88	(1.47)	-1.50
Cognitive Direction	-0.18	(1.38)	-0.43	(1.24)	-0.25
Somatic Direction	0.14	(1.65)	0.16	(1.05)	0.02
Self-Confidence	4.70	(1.31)	5.60	(1.13)	0.90

Participants showed improvements in general and state SEP and its sources, indicating that they were experiencing more successful performances, receiving a greater amount of internal and/or external positive feedback and communication that conveyed a belief in their ability, had developed strategies to control their physiological state, and felt more efficacious as a result of observing others' successes.

State anxiety decreased with the largest reductions observed in somatic anxiety. Perceptions of somatic anxiety also became more facilitative.

Six of the psychological performance skills subscales demonstrated increased mean values from pre-to post-test. The most notable improvements were observed in Performance Under Pressure, Ability to Deactivate, Focus Past Distractions, and Positive Cognition. These gains suggest that participants had more capacity to deal with performance pressure and cope with stressful situations through an enhanced ability to regulate arousal, focus, remain positive, and maintain their sense of enjoyment.

Solo performance evaluations.

Table 6.7 presents the results from the solo performance evaluations pre- and post-intervention.

Table 6.7

Pre-and Post-Program Performance-Evaluation Means (Standard Deviations) and Difference Scores

	Musical Sub-Area	Pre Mean *(SD)*	Pre T-S Difference[a]	Post Mean *(SD)*	Post T-S Difference[a]
Student	Note Accuracy	5.00 (2.00)	1.31	6.06 (1.52)	1.63
	Tone Quality	5.38 (1.69)	1.31	7.13 (1.13)	0.81
	Interpretation	4.88 (1.96)	1.18	6.88 (1.36)	1.06
	Rhythmic Accuracy	4.75 (2.52)	1.19	6.13 (1.25)	2.18
	Technique/ Articulation	5.25 (1.91)	1.50	6.50 (0.93)	1.45
	Total (Sub-areas)	25.25 (8.45)	6.50	32.69 (4.08)	7.12
	Self-rating	4.63 (1.92)		6.88 (1.46)	
Teacher	Note Accuracy	6.31 (1.58)		7.69 (1.31)	
	Tone Quality	6.69 (1.22)		7.94 (0.86)	
	Interpretation	6.06 (1.47)		7.94 (1.27)	
	Rhythmic Accuracy	5.94 (2.24)		8.31 (1.31)	
	Technique/ Articulation	6.75 (1.28)		7.94 (0.82)	
	Total (Sub-areas)	31.75 (6.49)		39.81 (4.91)	

Note. Students' self-rating represents their overall satisfaction with their performance (scored on a 0 (*unhappy with this performance*)- 5(*Ok*) –10 (*extremely pleased*) scale) where 7+ indicated that they felt pleased enough with their performance for it to be heard in public; [a]T-S difference indicates the average difference between teacher and student ratings.

Although self- and teacher-evaluations increased from pre-to post-intervention across all of the musical sub-areas, students consistently rated their performance lower than their teacher. Students' self-rating or overall satisfaction with their performance also improved by a mean 2.25 (*SD* 2.05) rating points, from a below mid-range score pre-intervention (that indicated that they felt less than okay with their performance) to almost being pleased enough with their performance for it to be heard in public.

Table 6.8

Frequency of Completers' Pre- and Post-Intervention Performance Satisfaction

Performance Satisfaction (self-rating)	Pre %	Post %
Unhappy with performance[a]	25.00 (*n*=2)	12.50 (*n*=1)
Ok with their performance[b]	62.50 (*n*=5)	25.00 (*n*=2)
Acceptable public performance[c]	12.50 (*n*=1)	62.50 (*n*=5)

Note. [a]Zero to three rating. [b]Four to six rating. [c]Seven plus rating.

A summary of self-rating frequencies (Table 6.8) revealed a 50% increase from pre-to-post-intervention in the number of participants who felt that they had played well enough for it to be an acceptable public performance.

6.5 Discussion

The purpose of this phase of the research was to:

(a) evaluate whether a 14-week, teacher-guided psychological performance skills program could be successfully embedded and implemented within the standard music curriculum; and,

(b) conduct a preliminary examination of the efficacy of the intervention model.

In general, feedback supported the utility and applicability of the program. Both teachers and students did, however, experience some challenges with maintaining the schedule and incorporating the activities into practice and lessons. This indicates that the intervention may be too rigorous and condensed in its current format. There were also marked differences between the class and studio participants in course adherence and retention rates that could be a function of the different teaching environments.

Nevertheless, participants who completed the program showed improvements in their performance self-efficacy, as well as in the sources of SEP, and a reduction in their anxiety. They also strengthened a number of their psychological performance skills, most notably

their ability to perform under pressure, remain calm, and focus during a performance. Whilst participants were initially unhappy with their performance (rated as “less than ok”), performance self-ratings improved post-program, showing that they were more satisfied with their effort. Teacher evaluations of their students’ performances were also higher following the program.

6.5.1 Challenges to Program Development, Implementation, and Completion

There were a number of challenges associated with developing and implementing a program of this nature for adolescent students and teachers. The intervention needed to be designed so that it could be naturally embedded within the school time-tabled curriculum and instrumental lessons; would cover a broad range of skills yet develop them at the stepwise level; would deliver key information succinctly without being overwhelming but retain important content; would develop student and teacher knowledge; was relevant to vocalists and all instrumentalists; and, assisted students in integrating these skills into their practice routine. This needed to be achieved within a format and time-frame that was practical for a research study. Consequently, teachers and students found some of the content formidable and expressed concerns about the amount of time the intervention required, particularly as the activities began to accumulate in the latter half of the course.

One of the elements that participants seemed to find challenging was the ‘doubling up’ of information across the worksheets and videos:

> Would be good if this could be simplified and the content from the videos and website not replicated on the worksheets so they don't feel like they're inundated with reading material. (Class Teacher [CT]1)

> [I didn't like] the fact that I had to watch all the videos, even though all their information was already covered on the sheet. Maybe participants could choose their preferred option? (Studio Participant [SP]33)

This condensed and overloaded format did affect adherence and retention rates and indicates that the program needs to be modified and shortened for the main study.

Program adherence, evaluation and feedback.

Program adherence and retention of participants present two major challenges when implementing performance interventions (Ingles, 2013). Although there was a 100% attrition rate for class participants, 60% of the studio participants who started the program (defined as completing the first week's learning and evaluation form) completed the study.

Some researchers recommend that retention criteria for best-evidence interventions should be 80% or greater to avoid the risk of bias, although this ignores the fact that attrition can be context dependent and is not necessarily indicative of the success or failure of an intervention (Page & Persch, 2013; Valentine & McHugh, 2007; Whitlock, Polen, Green, Orleans, & Klein, 2004). Rather, the different reasons for participant loss should be taken into consideration.

Whilst the retention rate in the studio group was still low compared with other music interventions of a similar length (Cohen & Bodner, 2017; Spahn et al., 2015) it was considered adequate given that it was a trial of a unique format and design, with a self-directed component, targeting younger musicians, that required a substantial commitment from both teachers and students. Modifying the program for the main study, based on participant feedback, will hopefully result in a higher and acceptable retention rate for both conditions.

The majority of studio participants (80–100%) consistently demonstrated high completion rates, finishing most or all of the weekly activities. In contrast, the class

participants demonstrated lower adherence from the start. Not only did this decline as the weeks progressed (whereas it remained quite stable for the studio participants), but they were also less likely to finish the worksheets and activities. This may reflect a lack of individual accountability within the class situation and individual teacher follow up. It could also indicate that the class participants needed one-on-one guidance to help them with maintaining motivation, understanding the content, applying the concepts and strategies to their playing and practice, and enhancing their skill development.

Feedback from participants in the first week of the program indicated that they liked the format of the online tutorials, found the information interesting, and enjoyed performing and recording themselves:

> I liked having to perform in front of the class- I think it was quite worthwhile. (Class Participant [CP]17)

> It was fun to do and interesting. (CP23)

> The relevance that the content seemed to have, particularly in terms of the different skill areas that make a good performer. (SP33)

Teachers also found the content and delivery of the online tutorials to be valuable:

> I liked the videos and the ideas for reviewing. (CT1)

> Performance skills, especially discussing great performers, was great. Students very engaged. (CT2)

> The content is good and will prove to be beneficial to the performing students. (Studio Teacher (ST)1)

> I liked the immediate discussion/reflection on nerves and great performers following a performance. (ST2)

Class participants.

Class participants, however, did seem to be overwhelmed by the content, confused by the performance review process, and the format of the program. This was also noted in the class teachers' feedback:

> Students got overwhelmed with the wordiness of the worksheets. Having to process multiple videos and modules, the different steps, the review process, the goal setting process was a lot for them to initially take in. (CT1)

> We were all a bit overwhelmed. (CT2)

By the second week there was a distinct change in the quality of the comments from the class participants (school group one). Although they liked learning about anxiety symptoms, the potential performance enhancing effects of arousal, and developing self-awareness of their own response, they did express concerns over the number and length of the videos, and there appeared to be a decline in motivation and engagement. This part of the course unfortunately coincided with their school production week so they may have been overloaded with juggling the demands of the program, schoolwork, and an intense rehearsal/performance schedule:

> I had production, so I was very stressed and didn't really work on it. (CP30)

The focus on MPA may have also been too confronting in a class situation although feedback from the class teacher indicated that it had stimulated some interesting discussion points:

> The symptoms were clearly described and generated good discussion and examples from students. Brainstorming ways to simulate symptoms was fun. (CT1)

The amount of information presented also made it difficult to process and fully explore the content:

> Too much content across the videos to be able to explore fully in the one session I had. A simpler focus such as 'physiological symptoms of MPA' might have helped? (CT1)

In the following weeks class participants continued to struggle to meet the program requirements. Although the class teacher rated the modules highly, commenting that the students were finding the content very relatable with useful and effective concepts that were easy to grasp, it was clear that some students had disengaged. It was also difficult to maintain the schedule due to school events, disrupted classes, and absent students. Consequently, this school withdrew from the program after week six.

Studio participants.

Studio participants seemed to cope with and engage with the program more successfully and did not appear to have the same problems with the content of the second week. This may be because of the individual support they were receiving from their teachers and the opportunity to discuss anxiety privately. Nevertheless, teachers did express similar

concerns about the amount of information presented and difficulty in incorporating lesson and practice activities:

> Course content is solid for busy teenagers. (ST5, week 2)

> Time for students is a lot. They are still enjoying but finding it hard timewise to fit in. My lessons really need to be longer if I am to cover all the lesson activities properly. (ST5, week 4)

Students also commented on the amount of work the program required and their struggle to coordinate the tasks around other commitments:

> There was a lot of work to do this week which I could not complete all of. Doing all of the suggested things every practise takes up a lot of time so I had to stop them this week as I am preparing for an exam. (SP9, week 5)

This became particularly problematic in the second half of the program as the tasks began to accumulate:

> Students are finding it hard to keep up, losing interest to complete activities as quite cumulative. (ST5, week 7)

> The Lesson Plans are getting longer and we cannot cover them with other work in a half hour lesson - almost need an extra half hour to do them justice. (ST4, week 9)

> I have found throughout the program that the worksheets and everything on both sides of the practise goal sheets combined have been a bit too much to complete

> along with normal instrument requirements, so I have been having to leave out the daily checklist. (SP9, week 12)

It was clear that students and teachers found the program to be quite demanding and challenging to balance around other musical commitments (for example, AMEB exams, and eisteddfods). School events (such as, excursions, camps and exams), illness, and holidays also disrupted their progress and placed them under additional strain:

> After much illness and music exams/assessments in term 3, both the students and myself are getting back on track with the course. (ST3, week 11)

Scheduling some non-program weeks for 'catch-up' and reducing the amount of activities may help alleviate some of this pressure and facilitate program delivery.

Teacher delivery of lesson activities.

The weekly teacher guide outlined a lesson plan that included three to six discussion points or activities, setting smart goals, and a lesson performance and review. Although many of these changed weekly, reflecting the current content, some (such as the discussion of home performance reviews and breathing exercises) remained constant throughout. General instructions were provided regarding activity completion and teachers were advised that the amount of lesson time they spent on the program was at their own discretion. Thus, they were not expected to incorporate all of the suggested tasks but to select the ones they thought would be of most benefit to each student or class. On average, they completed one to three activities with their students each week choosing to omit the repetitive activities in the latter half of the program, favouring those that covered newer components of the course material. In addition, they regularly set smart goals and completed on average seven lesson performances and reviews over the course of the program.

Although, as previously indicated, teachers found it difficult to fit these activities into lessons they did find them to be beneficial:

> The discussion with my piano students was useful. As breathing is not actively used in keyboard playing, the focus on it was most useful. (ST3, week 3)

> [I liked the] discussion about breathing. As string players we tend to be less aware. Had some fun demonstrating real change in playing with breath awareness. (ST5, week 3)

> Delighted when a student says, "It works!" (breathing before a performance). (ST4, week 3)

> The visualisation exercise was most effective. Both students showed greater security and control of the section of their performance piece in which visualisation was applied. (ST3, week 13)

They also appreciated the opportunity to discuss topics such as MPA and learn more about their students:

> Students writing down their fears and where they feel tension helped me to learn more about my students. (ST4, week 2)

> I learnt some interesting unexpected things about my students. (ST5, week 2)

Teachers clearly realised the relevance of these activities expressing a desire for more time to do them justice with one teacher even organising an extra 'catch up' lesson. It would

be beneficial to reduce the number of lesson tasks and provide more explicit instructions around activity completion in the main study to avoid overcrowding lessons.

6.5.2 Learning and Evaluation

The high module ratings and positive feedback from teachers supported the relevance and utility of the course content. Additionally, participant ratings supported the development of module specific knowledge and self-awareness across all of the online tutorials indicating that they had achieved the main learning goals and objectives of each module. Participants appreciated being informed about factors that they had not realised could impact their performing such as becoming aware of and controlling their breathing to enhance their playing and manage their arousal:

> [I liked] that I keep learning something new each time and that I am learning stuff that I did not know had anything to do with performing. (SP19, week 3)

Elements of the program that they seemed to find particularly beneficial were the clear explanations, presentation of concepts in a way that was easy to understand, structured processes (for example, pre-performance routine and worksheets), real life examples that they could relate to, relevance to different instruments, use of visual images to make tasks more concrete, and examples of how to complete the worksheets.

A core element of and initial step in the development of coping or performance enhancement strategies requires the performer to become aware of processes that often occur at the sub conscious level (Steptoe, 2001). Thus, another goal of the program was to help participants develop self-awareness of their thoughts, feelings, physical sensations, behaviour, and reactions during their practice sessions and performances. Participants completed a number of worksheets requiring them to self-rate their progress across a number

of different areas to help them to develop self-assessment skills and enhance this self-awareness. Feedback indicated that they enjoyed this process and found it to be beneficial:

> I liked learning and thinking about what symptoms I get that make me feel nervous. (SP8, week 2)

> [I liked] learning about where I am most tense when performing. (SP37, week 2)

> [I liked] identifying my personal self talk. (SP38, week 4)

> Learning about the different stances because it gave me a greater awareness not only about what I do before performances, but also the stances I use everyday. (SP38, week 12)

The high self-awareness ratings indicate that participants became more aware of their anxiety symptoms, areas of tension, negative self-talk, body language, imagining the sound of the music, their response to mistakes, and breathing and focus in practice, and before and during a performance.

6.5.3 Self-Efficacy

One of the main goals of this intervention was to target self-efficacy for performing through a specifically designed program. The self-efficacy-performance model informing the intervention (refer Chapter 3, Figure 3.4) proposed that increasing students' mastery experiences was one important means of facilitating the development of SEP but might be difficult to achieve due to limited performance opportunities and the competing influences of anxiety and inaccurate self-evaluations undermining their performing experiences. Verbal persuasion and physiological and affective states were thus highlighted as two important

sources of efficacy information that could also be targeted to influence mastery determinations. It was suggested that enhancing perceptions of control over anxiety and facilitative anxiety interpretations, encouraging systematic, regular, and accurate self-evaluation, increasing performance practice via simulation and providing opportunities for skill development by embedding training into lessons and practice might enhance SEP. Whilst mental skills training (MST) programs routinely develop a number of competencies that map to each of the self-efficacy sources (Figure 6.2) it was noted that within a music context these types of interventions could be broadened to include an additional focus on performance simulation, self-evaluation and feedback (through self-recording) to enhance SEP and skill development (Figure 6.2)

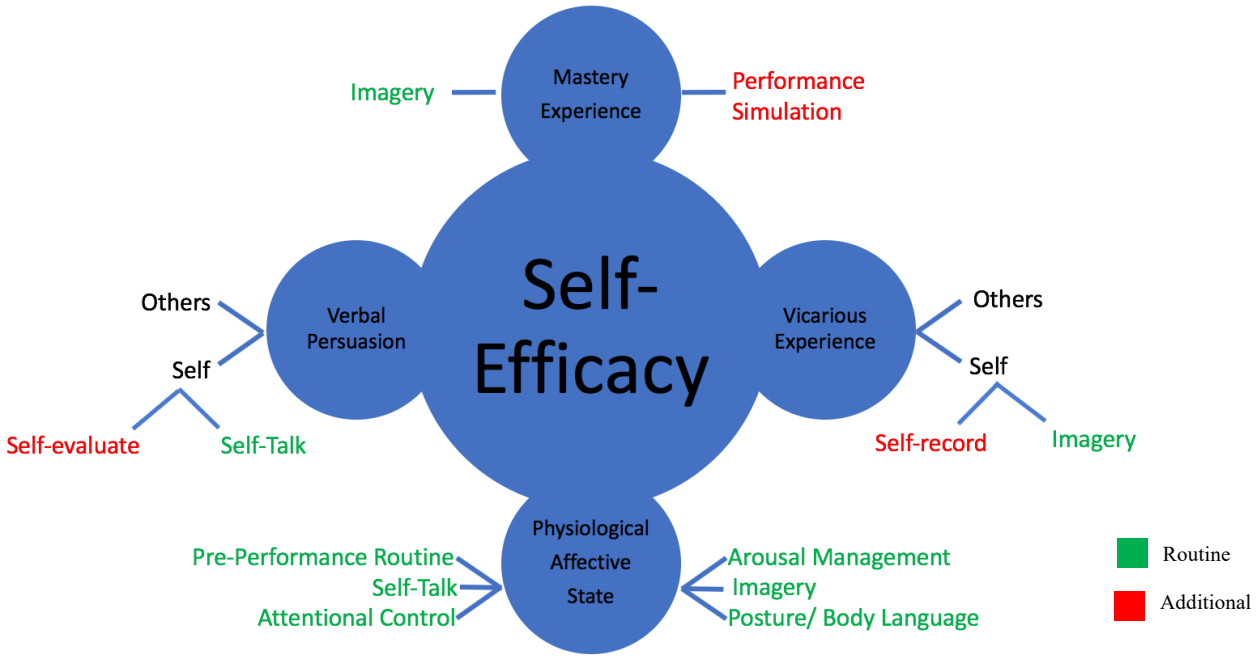

Figure 6.2. Psychological performance skills mapped to self-efficacy.

Although the sample size was small the observed improvements in self-efficacy, psychological performance skills and performance ratings, in conjunction with a reduction in anxiety are encouraging as they provide early support for the intervention model. Participant

feedback also indicated that they felt that they were deriving benefits from the program:

> I am sorry that I have been behind in these modules, this was due the fact that I have been away, sick and dealing with final assignments at school. I would still like to complete your program as I believe that it has really helped me. (SP10, week 8)

> Thank you for putting this program together. I think it's helped bring me a lot further as a performer. (SP33, week 14)

The increases in self-efficacy were driven by improvements in physiological state (21.14%), verbal persuasion (13.71%), vicarious (12.78%) and mastery experiences (8.52%) providing support for the inclusion of skills and strategies that were mapped to each source (Figure 6.3).

Mastery.

Despite being one of the main target sources there is some indication that, compared to the other information categories, this program has the least effect on mastery experiences. It is possible that participants may need more time to develop and refine their skills or greater exposure to real world performance situations (that are self-judged as mastery experiences) to further strengthen this information category.

Simulation. Nevertheless, performance practice could have contributed to the modest gain in mastery experiences as participants indicated that they completed on average 20 performance simulations (range 11-33) in their lessons and home practice over the course of the program. These performance trials may also have been important for enhancing physiological state and the development of specific psychological performance skills as each weekly simulation directed participants to incorporate specific strategies before and during their performance that they had been learning throughout the program. These included a pre-

performance routine based on Greene's (2002) centering process, arousal management, self-talk, focus, and mistake recovery strategies. This was to ensure a practical and specific application of skills learned, a factor that has been noted as being inadequately addressed in other interventions (Clark & Williamon, 2011).

Imagery. Imagery was employed within this self-efficacy information category to encourage participants to visualise a successful performance. The relatively minor increase in this performance skill suggests that it would have had little impact on this source. Training in this competency was introduced at the very end of the program (weeks 12-14). Consequently, participants only had a short time to strengthen their imagery ability. Studies of therapeutic programs have sometimes noted improvements in the period following treatment termination as participants continue to practice and refine their skills. Thus, a follow up assessment would help determine if imagery skills increase over the longer term (Kanfer, 1979; Kendrick et al., 1982).

Verbal persuasion.

The MPSES assesses social persuasion, that is, persuasory information from others. The improvements in this source suggest that participants' self-perceptions were bolstered through increased performance feedback from teachers and discussions of coping strategies and MPA. In contrast, self-talk, an internal or personal form of verbal persuasion, did not improve. Participants were encouraged to become more aware of their negative internal dialogue through the self-talk modules (program week four) and a self-coach exercise introduced late in the program (week 12). The week four modules encouraged the recognition and rephrasing of unfavourable self-talk and received some of the highest ratings for knowledge development (Table 6.4). Participants also indicated that they had become more aware of their personal commentary (Table 6.4). It is possible that students became more attuned to the negative aspects of their internal dialogue but did not have sufficient time

to master the rephrasing and reframing techniques that would have enabled them to be more self-supportive and positive under pressure. As previously noted with imagery, a follow up assessment would help determine how and if this ability develops over the longer term.

Physiological and affective states.

Physiological state showed the greatest improvement of all sources of information complementing participants' augmented psychological performance skills, in particular Performance Under Pressure, Focus Past Distractions and Ability to Deactivate (Figure 6.3). Gains in these competencies indicate an enhanced ability to cope under pressure, focus and manage anxiety, potentially moderating perceptions of control. As outlined in the model, developing performers' abilities to modify their cognitive and somatic symptoms may be associated with reduced anxiety.

Vicarious experience.

Vicarious experience was also strengthened even though it was not one of the main sources targeted to enhance SEP. There were numerous examples throughout the online tutorials of elite performers and talented musicians modelling or discussing the techniques presented that could have influenced this source. This was supported by participant feedback indicating that the real life examples were inspiring and helped them to understand the concepts that were being introduced:

> [I liked] the analogy using sports. I did not really understand the state of mind until those examples were given. (SP38, week 7)

> [I liked] how the videos incorporated some videos from the "Voice". It made it more interesting and helpful. (SP39, week 9)

> [I liked] how the videos showed a gold medallist who used imagery and how it helped her win. (SP39, week 12)

6.5.4 Anxiety

Participants CSAI-2R scores indicate that they were experiencing moderate levels of anxiety immediately prior to their baseline performance. They were also almost neutral in their directional interpretations indicating that both cognitive and somatic anxiety were only slightly debilitating. The few investigations that have included a directional measure of MPA have found tertiary music students and adult pianists interpret their anxiety quite negatively (Gill et al., 2006; Yoshie et al., 2009). These results, however, were recorded for more formal performance conditions than those experienced by participants in this study who were only required to perform for their teacher during a lesson. The familiar environment without an audience may not have been taxing enough to induce high levels or debilitative interpretations of their anxiety. Nevertheless, participants' somatic and cognitive anxiety did decrease by 34.25% and 14.96% respectively. These are comparable to, and larger than, the reductions found in other studies using the same anxiety measure: somatic anxiety, 13.49% (Clark & Williamon, 2011), 18.26% (Steyn et al., 2015); cognitive anxiety, 8.23% (Clark & Williamon, 2011); 15% (Steyn et al., 2015). Although this diminished arousal may indicate a heightened ability to control, modify, or change aspects of their physiological state it could potentially just be a result of repeated exposure to the informal and well-known performance space. This is because anxiety can improve through behavioural exposure without any active intervention (Bissonnette et al., 2015; Braden et al., 2015).

6.5.5 Performance Ratings and Self-Evaluation

Teacher and student performance evaluations increased from pre-to post intervention. There was also a change in participants satisfaction with their effort, with the mean

performance self-rating moving from feeling just ‘ok’ about how they had performed to being almost pleased enough with it for it to be heard in public.

It is not possible to ascertain whether these improvements were a result of the intervention, exposure to the situation, and/or just more practice time with, and improved mastery of their performance piece. Self-ratings have been observed to increase over time across a number of varied performance situations (lesson, pre-jury, and jury) without any intervening treatment (Miller & Chesky, 2004). Similarly, behavioural exposure or simulation, which is a key component of most anxiety treatments, can lead to enhanced music performance (Kendrick et al., 1982; Sweeney & Horan, 1982). It is also feasible that students (and potentially their teachers) had learned to rate performances more favourably without an actual improvement in playing. An independently assessed measure of achievement would help to determine if this was the case in future investigations. The fact that participants also strengthened self-efficacy, which is known to be an important predictor of self-rated achievement, and a number of psychological performance skills is promising and could be an indication that the intervention may be related to these improved outcomes (Ritchie & Williamon, 2012).

Participants consistently rated themselves one to one-and-a-half points lower than their teacher across the five musical sub-areas that were evaluated. Whilst it is not unusual for music students to have difficulty in objectively and accurately evaluating their performance it is unexpected for them to assess themselves more negatively than their teacher. Previous research has found that secondary school music students are inclined to overrate their own performances (Bergee, 1993; Byo & Brooks, 1994; Hewitt, 2002, 2005, 2015). In addition, although most students perceived their performance to be ‘ok’ (4-6 rating), only a small proportion (12.5%) were satisfied enough with their playing (at baseline) for it to be heard in public (7+ rating). Altogether, these results show that secondary school students may be overcritical of their efforts, making it difficult to accrue mastery experiences.

Self-evaluation accuracy.

Performance evaluations improved from pre-to-post intervention but the teacher-student difference scores across the musical sub-areas remained relatively unchanged. This indicates that participants did not improve their evaluation accuracy despite the review and evaluation process forming a major component of the intervention.

The program encouraged students to evaluate weekly home and lesson performance simulations using a formal, five-step review process. This was to help participants to recognise the positive aspects of their playing (that is, what had improved or gone well) in addition to identifying areas for improvement and specific practice strategies to address these issues. Teachers were encouraged to guide their students through a full review at least once to ensure that they fully understood each step. They were also advised that they could then shorten this process but should aim to complete at least some of the review steps following each lesson performance (recorded as a partial review).

The review process was structured to include principal factors that have been identified to influence students' self-evaluation ability and performance outcomes such as: instruction in self-evaluation, frequent opportunities to self-evaluate, the use of a model recording, self-recording, and identifying practice strategies to overcome errors or problems (Aitchison, 1995; Burrack, 2002; Davis, 1981; Hewitt, 2001, 2002, 2011; Puopolo, 1971; Sparks, 1990). Most participants (77.78%) completed at least one full review and five to ten partial reviews (66.66%) with their teacher, however, two participants did not have the opportunity to conduct a full review at all during their lessons. In addition, they completed on average 9.6 full or partial performance reviews (range 6-14) in their home practice.

Although participants were regularly self-evaluating it was not possible to determine exactly what part of the process they were employing in their partial reviews at home or with their teacher. It is feasible that they were just determining their satisfaction rating or identifying highlights. Consequently, they may not have been refining their skills equally across all of the steps hindering development in this area.

Nevertheless, it is encouraging that participants did learn to evaluate themselves more positively despite the fact that self-evaluation accuracy remained unchanged. Only 12.5% of participants who completed the program were satisfied enough with their performance for it to be heard in public (7+ on the rating scale) at baseline. This increased to 62.5% post-program. Although the higher teacher evaluations post-program indicate that the quality of playing had improved, the more favourable self-evaluations may also have been a result of participants learning to recognize the successful aspects of their efforts (through the review process) and, a change in perception about what constitutes a successful performance. A main emphasis throughout the program was that performances do not need to be perfect, mistake free or even the performer's best playing for it to be an acceptable public performance. Learning to evaluate their efforts more positively will boost self-efficacy (via mastery experiences). It would be interesting to determine whether the improved self-ratings that were observed in an informal performance setting in this study generalize to more formal and taxing environments.

6.5.6 Conclusion

The results from this pilot study provide preliminary support for an intervention model designed to enhance performance self-efficacy. They have also highlighted the potential role of music teachers in the development of this self-belief. This is promising as few interventions have targeted this construct in musical achievement despite it being a key factor in performance success and well-being.

6.5.7 Implications for Main Studies

This investigation provided an opportunity to ascertain how the study design and program content might be improved or amended for the main studies that form the next part of this research.

The following main issues were identified:

1. Although performance quality was assessed through teacher- and self-evaluations there was no independent or externally rated measure of performance quality to provide a comparative evaluation. The increases in self- and teacher-evaluated performance may simply be due to learning to evaluate more positively rather than reflecting an *actual* improvement in performance quality. Furthermore, the performance context for the studio participants was quite informal. Thus, the results may not accurately represent or generalise to more public performance situations in front of an audience.
2. The study had a high attrition rate, particularly for the class condition participants. Feedback indicated that the condensed content and accumulation of activities in the latter half of the program became overwhelming. Another problem was the overlap of information between the worksheets and online tutorials.
3. A follow up assessment would have provided information about whether skills were maintained or further developed over the long-term.

A number of amendments were made to the study design and content to address these issues. These are described in Chapter 7 which presents the results of the main investigation of the program.

Chapter 7
Studies 3 and 4: Main Studies of the Psychological Performance Skills Program

7.1 Introduction

Whilst there is a strong evidence base for the benefits of mental skills training (MST) within the sports domain there is a lack of empirical knowledge about the effects of similar training for musicians (Clark & Williamon, 2011; Kimmerle & Cöte-Laurence, 2003; Williamon, 2004a). Some recent investigations have supported the application of these broad programs within music settings showing promising gains in core psychological performance and coping skills, arousal regulation and reductions in anxiety in conjunction with more favourable perceptions of this response in adult musicians (Clark & Williamon, 2011; Osborne et al., 2014; Steyn et al., 2015). How and if this type of training might benefit younger, less advanced musicians with varying levels of ability has yet to be investigated. Another key issue remaining to be resolved is whether targeted pedagogical MST approaches, delivered by music educators without specialised psychological training or knowledge, can produce meaningful changes in music performance anxiety (MPA), psychological performance skills, and quality.

The nature of the relationships among performance self-efficacy (SEP), MPA, and outcome and the potential effects of these programs on SEP and its sources could also be more clearly understood. Previous research has demonstrated incongruous findings regarding the association between self-efficacy, MPA, and music performance. This is partly due to methodological issues, in particular the inherent challenges associated with assessing performance quality, and the types of measures employed, as well as a paucity of intervention research examining SEP and music performance (Clark & Williamon, 2011; Kendrick et al.,

1982; Kenny, 2005; Steyn et al., 2015). Investigating more specific aspects of these constructs, for example, anxiety type and direction and the four sources of self-efficacy, may help to clarify the relationships among these variables.

In addition, little is known about the differential effects of group versus individual MST on the development of core psychological performance skills such as the ability to manage arousal. MST programs are normally delivered (and assessed) within a group rather than individual tuition format. There are distinct advantages to each type of training. Class instruction provides the opportunity for group interaction, discussion, and activities, allowing participants to share experiences, perform in front of a supportive audience, and learn from their peers (Clark, 2010; Clark & Williamon, 2011; Hatfield & Lemyre, 2016). On the other hand, one-to-one tuition can tailor the guidance and content around the particular needs of each student, according to their level of skill development and instrument speciality, within a private setting that may encourage more personal reflection (Clark, 2010; Hatfield & Lemyre, 2016).

When providing instruction in MST class size can affect outcome (Osborne, 2016). Larger group classes (that is, >10) may not be as conducive to skill enhancement and beneficial outcomes as smaller groups (Hatfield & Lemyre, 2016; Osborne, 2016). Whilst one-to-one tuition has been found to be an effective adjunct to group sessions, allowing participants more time to discuss their own experiences and enhancing motivation, it is seen to be prohibitive (especially when provided by specialised therapists) because it is labour and time intensive (Clark, 2010; Hatfield & Lemyre, 2016). As yet there has not been a comparison of the outcomes of these two different modes of delivery within musical MST. Understanding the impact of different learning environments on skill development in this area could inform pedagogical approaches as to how training in these skills might be most optimally delivered.

Chapters 5 and 6 outlined the development and pilot study of a psychological performance skills training program for students and teachers. The aim of the pilot study was

to determine the feasibility of delivering a teacher-guided intervention within adolescent music lessons. This study identified a number of challenges in implementing a blended learning course of this nature. There was a high attrition rate, especially for students within the class condition. Participants found the condensed content to be overwhelming and it was difficult for students and teachers to maintain the schedule. Nevertheless, teacher and student feedback indicated that the information presented was relevant and useful. Improvements in self-efficacy, anxiety, and psychological performance skills and outcome also provided early support for the intervention model.

The intervention was modified and refined based on feedback from the pilot study. Two main studies of the program were subsequently conducted, implementing the program within class and studio music lessons to determine its effects on self-efficacy, anxiety and performance, and address the limitations noted in the pilot study. Research design modifications included: increased sample size and a wait-list control group; a solo performance assessment conducted in front of an audience (studio condition) with an independent (externally assessed) measure of performance quality in addition to teacher- and self-evaluations; and, a follow up assessment to determine if skills were maintained or further developed over time.

7.2 Aims

Two separate studies were conducted to examine the effects of the intervention on music students receiving the program via their studio music lessons (studio condition) or through their school music classes (class condition). The contrasting instructional conditions provided an opportunity to examine if the two learning environments would result in differences in the magnitude, range, and timing of the program's effects.

It was speculated that greater improvements in self-efficacy for performing, self-reported psychological performance skills, MPA, and self-and independently-rated

performance outcome would be observed for studio-condition participants completing the program in comparison to a control. Whilst it was believed that these improvements would be replicated for the class participants it was also anticipated that limited one-on-one teacher guidance and potentially lower program adherence (as demonstrated in the pilot study) may result in different treatment effects for students in this condition. Thus, a further aim was to compare the progress of class- and studio-intervention participants.

The following section presents the methodology and results of each investigation concluding with a combined discussion that examines the outcomes in relation to the variables of interest and contextual factors.

Study 3: Assessment of the Psychological Performance Skills Program in Studio Music Lessons

7.3 Method

7.3.1 Participants

Participants for the studio condition were sought in the state of Victoria from a data set of teachers who completed the phase one *Pedagogical Development of Psychological Performance Skills in Music Lessons* survey (n = 27). Teacher members of Suzuki Music (Victoria, n = 150) and the Victorian Music Teachers Association (VMTA, approximate total members = 2,000) were also approached via a global email, notice in their newsletter, or a personal email to each member (n = 460). Eleven teachers with a combined total of 36 (25 female) students volunteered to participate in the research study.

Although it was originally planned to randomly assign participants to an intervention and control condition the size of this initial sample was not sufficient to form two treatment groups given the anticipated 40% attrition rate (based on the pilot investigation). Further recruitment efforts were restricted by the end of the academic year with potential participants

and teachers going on extended Christmas and summer holiday break. As the study was scheduled to begin early in the new school year the initial volunteers were assigned to the intervention condition and more students were sought to form a control. It was believed that it would be easier to recruit control participants in the limited time available before the commencement of the research study as this condition required substantially less commitment.

Recruitment efforts were expanded to include interstate participants. These were sought through each state music teachers' association. Four teachers with a combined total of seven students (six female) subsequently volunteered to form the control group. Three of these participants were from interstate and were not able to attend the solo performance assessments.

Completers.

Five intervention students did not start the program and a further six withdrew from the study at various points. The final intervention sample comprised of seven teachers and 25 participants (17 female). The number of students participating from each teacher's studio ranged from one to eleven.

Tables 7.1 and 7.2 present a summary of the descriptive characteristics and comparison of non-performance variables of the two groups at baseline. State variables (that is, those assessed during the solo performance assessments) have not been included as there was no control sample for these assessments. Independent *t*-tests and Mann-Whitney *U* analyses indicated that there were no significant differences in self-efficacy or psychological performance skills between the groups at baseline (Table 7.1).

Table 7.1
Demographic and Performance Profile of Studio-Condition Groups at Baseline.

	Intervention (*n*= 24)[a]	Control (*n*= 7)
Mean age (years)	14.10 (*SD* 1.57)	15.63 (*SD* 1.95)
Mean number of years learning	7.58 (*SD* 2.17)	7.43 (*SD* 3.64)
Australian Music Examinations board (AMEB) grade level %		
Level 1 (grades 1-4)[a]	20.83	28.57
Level 2 (grades 5-8)[b]	70.83	42.86
Level 3 (diploma)[c]	8.33	28.57
Instrumental family distribution %		
Piano	70.83	
String	25.00	42.86
Woodwind		57.14
Brass	4.17	
Frequency performing in front of people other than their studio teacher %		
Once a year	8.70	
Each semester (2 times a year)	8.70	
Each school term (4 times a year)	17.39	28.57
About once a month	43.48	28.57
At least once a week	21.74	42.86
Performance Pattern %		
Solo only	45.83	28.57
Mostly solo, some ensemble	20.83	
Mix of solo and ensemble	16.67	57.14
Mostly ensemble, some solo	16.67	14.29

Note: The AMEB grades are defined across 3 levels: [a]Level 1 (Beginner), [b]Level 2 (Intermediate) and [c]Level 3 (Advanced). [a]One completer's data was removed from the final analyses as they were diagnosed with a chronic stress illness during the course of the research study.

Table 7.2

Studio-Condition Baseline Characteristics of Non-Performance Variables by Group

Measure	Intervention Mean (*SD*)	Control Mean (*SD*)	*p*
MPSES			
Total Solo	154.96 (28.73)	170.00 (25.45)	.225
Total Mixed	177.14 (27.27)	193.17 (22.03)	.221
Verbal Persuasion	68.83 (9.06)	50.86 (7.15)	.115
Vicarious Experience	31.87 (8.15)	35.86 (7.65)	.260
Physiological State	32.65 (9.22)	33.71 (12.08)	.806
Mastery Experience Solo	45.17 (7.84)	49.57 (9.07)	.220
Mastery Mixed	64.00 (7.24)	68.83 (9.06)	.220
PSI			
Performance Under Pressure	56.09 (13.40)	53.33 (21.60)	.697
Self-Talk	60.65 (17.21)	58.33 (17.22)	.771
Mental Rehearsal[a]	64.57 (12.87)	64.17 (21.77)	.896
Focus Past Distractions	62.83 (13.55)	60.00 (7.74)	.631
Mistake Recovery	58.70 (16.18)	60.00 (19.24)	.867

Note: [a]Non-parametric analysis.

7.3.2 Materials

Participants completed the same measures that were utilised in the pilot study of the program: the Revised Competitive State Anxiety Inventory-2 (CSAI-2R; Cox et al., 2003) to assess state performance self-efficacy (measured as self-confidence on this scale) and anxiety; the Music Performance Self-Efficacy Scale (MPSES; Zelenak, 2011, 2015) to assess general performance self-efficacy; and, self- and teacher-performance evaluation measures (refer Chapter 6 section 6.3.2). Psychological performance skills were assessed using an abridged version of the Performance Skills Assessment (PSA; Greene & Osborne, 2018). An additional measure of performance quality was included so that the recorded solo performances could be assessed independently by external music examiners.

Psychological performance skills.

The PSA (Greene & Osborne, 2018) is a revised version of the Performance Skills Inventory (Greene, 2017) that was unavailable for use in the pilot study. It is a self-report measure that assesses seven skills essential for optimal performance (energy regulation,

preparation, confidence, courage, focus, concentration and resilience). It consists of 84 items and 21 subscales that profile musicians' psychological performance skills and their ability to learn and manage anxiety in order to give a successful performance. Recalling a recent past performance, respondents indicated the truth of each statement on a five-point Likert scale ranging from one (*untrue for me*) to five (*very true*). This updated version of the PSI (Greene, 2017) includes a performance under pressure subscale reflecting how well the performer copes with stressful situations. Five subscales were selected to assess the performer's ability to cope under stress (performance under pressure), manage performance anxiety (energy regulation), stay focussed during a performance (focusing past distractions), deal with mistakes (recovering from mistakes) and maintain a supportive and positive inner dialogue (self-talk). The PSI has demonstrated acceptable internal reliability (Cronbach's Alpha = .86).

Performance quality.

External assessment. The purpose of the evaluation in this study was to assess performance improvements and/or the development of psychological performance skills over a short time period. Finding a measure that would meet these requirements presented a number of challenges.

Performance is often assessed according to a pre-determined set of evaluative criteria in an attempt to improve reliability and minimise subjective evaluations (McPherson & Schubert, 2004; Mills, 1991; Thompson & Williamon, 2003). Consequently, rating systems tend to segment music into separate elements or factors such as technique, rhythm or tempo, tone quality, pitch or intonation, articulation, dynamics, and musical expression or interpretation (for example, Saunders & Holahan, 1997; Wrigley & Emmerson, 2011a). This is the standard system employed to rank performances (such as in a competition) or assign a grade, determine level of achievement, and provide diagnostic feedback to guide subsequent practice and learning (Saunders & Holahan, 1997; Wrigley & Emmerson, 2011a). Whilst

these measures are commonly used to assess performance at a particular time point they are not often employed to capture improvements from one performance to the next.

Furthermore, a number of the musical components comprising traditional assessment measures can be affected by individual skill level or technical proficiency, and/or performance related factors. Therefore it did not seem appropriate to base a measure of performance quality solely on these criteria. Rhythmic and intonation problems, for example, may be due to poor technique or occur as a result of the pressure of the situation. If the problems are purely due to low skill level then it is possible that there will be no detectable advances across the brief intervention period unless participants make considerable technical and musical gains. This is unlikely given that these are skills that progress over the long-term. Thus, standard criteria may not be sensitive enough to capture subtle performance enhancements over the course of an intervention.

A measure that combines traditional criteria (dynamics, tone, intonation, interpretation, and phrasing) with elements that capture the psychological aspects of performance and stage presence may be more suitable to assess optimal performance. Recent studies that have reported increases in performance quality following MST incorporated some of these non-traditional "psychological" elements (for example, signs of nervousness, focus, confidence, fluency) in their evaluations (Cohen & Bodner, 2017; Hoffman & Hanrahan, 2012; Spahn et al., 2015). Two studies (Hoffman & Hanrahan, 2012; Spahn et al., 2015) based their evaluation items on a set of criteria developed by Mills (1987) that were derived from interviewing eleven adjudicators about the underlying constructs used to assess performance. The appeal of this measure is that performance can be assessed through characteristics that are not related to instrument-specific technique (Mills, 1987). This is an important consideration since it is believed that music evaluators may rate musical sub-areas that require in-depth, instrument specific knowledge (such as technique) differently for instruments that are not closely related to their own area of expertise (Thompson & Williamon, 2003). Furthermore, music specialists (teachers, professional musicians) and

non-specialists (experienced musical listeners) have been found to rate performance similarly using this scale (Mills, 1991). This allows performance to be assessed across a range of instruments by expert or non-expert examiners without instrument-specific knowledge.

In addition, two of these studies included a measure of stage presence or psychological performance skills characterised by nervous movements, breathlessness, body language and posture, tension, fluency, degree of focus, and immersion in the performance (refer Table 7.3 for a summary of the assessment criteria employed; Cohen & Bodner, 2017; Spahn et al., 2015). The high inter-rater agreements achieved for both Mills, (1987) questionnaire and Cohen and Bodners' (2017) adaptation of Montello, Coons and Kantors' (1990) video rating scales are notable given the difficulty in obtaining valid performance quality ratings (Table 7.3; Clark & Williamon, 2011; Thompson & Williamon, 2003).

A performance evaluation measure was developed to capture improvements in the psychological and musical aspects of performance (Appendix G). This was based on the questionnaires summarised in Table 7.3 as well as the evaluative criteria employed for tertiary level music recital examinations at a prominent Australian conservatory of music. It consisted of six items: three assessed signs of performance anxiety, confidence, focus, engagement, and fluency, forming a subscale of psychological performance skills; two related to expression, interpretation, and execution, forming a subscale of musical skills; and, the final item asked for an overall judgement of the quality of the performance. All were rated on a ten-point scale. Item consensus was achieved by independently consulting three music performance education experts and researchers in the field who viewed the scale and suggested revisions.

Table 7.3

Summary of Performance Quality Measures and Criterion

Authors	Measure	Musical Sub-areas	Psychological/behavioural Performance Skills	Inter-rater reliability
Hoffman & Hanrahan, 2011	Mills, 1987	Tempo, dynamics, phrasing, technical proficiency, expression	Nervousness/confidence, fluency, enjoyment, communication	0.73-0.81
Spahn, Walther & Nusseck, 2016	FZAQ-F (self-developed measure)		Measured across two scales: 1. Coping with the Performance Situation (nervousness, reaction to musical flaws, performance pattern of anxiety) 2. Physical Nervousness and Lack of Concentration (trembling hands, fluency, immersion and focus)	Not reported
	FZA-F (based on Mills, 1987)	Dynamics, tempo, tone, musical interpretation, phrasing, intonation, overall musical quality		Not reported
Cohen & Bodner, 2018	Signs of Performance Anxiety (based on Montello, Coons & Kantor, 1990 video rating scales)		Nervous movements, tension and posture, eye contact/facial expression, breathlessness, memory lapses/fluency, communication	0.93
	Judge-rated Performance Quality (based on Montello, Coons & Kantor, 1990 video rating scales)	Emotional expression, rhythm and tempi, phrasing, intonation, technical ability, melodic accuracy, musicality		0.84

Recording and evaluation procedure.

Student performances were video-recorded by the researcher using a Sony NX70U digital HD video camcorder and a Rode NT4 stereo microphone. These were assessed by two expert music examiners who were blind to the experimental conditions and given no information regarding the specific nature of the study. The first assessor evaluated all performances, re-evaluating 25% to provide a measure of intra-rater reliability. The second assessor evaluated 25% of the performances as a measure of inter-rater reliability (Kenny & Halls, 2017).

The performances from both sessions of testing were edited to capture the performer's actions 10-30 seconds prior to starting, and two minutes of playing time (or the full performance in the case of pieces that were less than two minutes in length). These were randomised by treatment group (intervention/control), condition (class/studio) and performance order (pre/post) ensuring that the assessors viewed half of each participant sub-groups pre-study performances before their post-performance and vice versa. The two performances given by each participant were also spaced so that they were not heard in close proximity to each other. The assessors were instructed to watch each performance once before completing their evaluation. An intra-class coefficient (ICC) calculated for all items showed good to excellent degree of intra-rater reliability (ICC = .91 with 95% confidence interval of 0.80-0.96) and moderate inter-rater reliability (single-measure ICC =.65 with 95% confidence interval of 0.43-0.80; Koo & Li, 2016). This questionnaire was shown to be highly reliable (6 items; α=0.97).

7.3.3 Procedure

The procedure followed the same general format as that described in the pilot study (section 6.6.3) although aspects of the program were amended to reflect the feedback from the pilot study (see below). The solo performance assessment guidelines were also modified

to accommodate the revised performance conditions and procedures for the control participants. A follow up assessment session was included for the intervention groups.

Program amendments.

Online video tutorials and schedule. The program was shortened and the amount of cumulative activities reduced to prevent students from becoming overwhelmed by the content. This was achieved by deleting, restructuring or refining a number of the online tutorials. For example: the week five progressive muscle relaxation module (and associated home practice activity) was removed; the five-step performance review process (Self-Evaluation module, week one) was split across three weeks; the Smart Goal module was restructured to form two new modules (Smart goals and Types of Goals) one of which became optional (Smart Goals) as a number of participants indicated in the pilot study that they were already familiar with this content; and, the arousal management modules (MPA and Tension) were modified and shortened. These changes reduced the online tutorial content by 27 minutes (14.52%) overall. Table 7.4 presents the revised weekly schedule of topics and modules.

Table 7.4

Weekly Course Outline for the Main Study

Week	Topic	Module	Sub-Topic	Video Length (minutes)
1	Course Introduction	1	Performance skills	4
	Evaluation	1	Self-evaluation1	2
	Focus	1	Goals (SMART)[a]	3
			Types of Goals	4
2	Arousal management	1	Performance Energy	7
			Tension	2
	Evaluation	2	Self-evaluation2	2
3	Arousal management	2	Breathing	6
	Evaluation	3	Self-evaluation3	3
4	Confidence	1	Self-talk	7
	Confidence	2	Rephrasing self-talk	5
5	Focus	2	Focussed attention	8
6	Pre-performance routine	1	Pre-Performance routine step	7
7	Pre-performance routine	2a	Pre-Performance routine 1	11
		2b	Pre-Performance routine 2	5
8	Simulation	1	Performance variables/ type	9
	Focus	3	Dealing with mistakes	10
9	Simulation	2	Entrance-to-start	5
	Confidence	3	Stage presence	10
10	Pre-performance Routine	3	Pre-Performance routine with simulation	5
	Arousal management	4	Breath awareness	3
11	Confidence	4	Self-Coach manual	8
12	Confidence	5	Power pose	5
	Imagery	1	Imagery introduction	10
13	Imagery	2	Creating imagery	8
	Imagery	3	Types of imagery	5
14	Imagery	4	Imaging a successful performance	8

Note. [a]Optional

The program was also re-structured to be completed over the first two terms (18-20 weeks including term holidays) of a four term school year. This allowed time for the pre-and post-program assessments and provided some flexibility in the schedule so that teachers could have some non-program weeks in the event of school camps, excursions or student absence.

Teacher guides and handouts. In the pilot study the teacher guides presented three to six weekly activities or discussion points that could be incorporated into classes or lessons to aid in skill development. There was no specified order of importance or number to complete. Although teachers were not expected to complete all of the tasks, feedback from the pilot study indicated that they were incorporating on average one to three activities each week but found it difficult to fit this amount of content into lessons. Thus, the teacher guides for both the studio and class conditions were modified slightly for the main studies to indicate one weekly activity that was most important to developing or extending a particular skill. Teachers were instructed to prioritise these *critical* tasks then choose *one* other activity to complete in their lesson. Despite this instructive modification most studio teachers in the present study were regularly incorporating at least three activities each week.

Performance and process goals were also pre-set for each week so that students and teachers were no longer required to create these in lessons and home practice. This was to save time and ensure that participants were exposed to a variety of appropriately written examples of relevant SMART goals. The weekly handouts were also modified to minimise the repetition of information already presented in the online tutorials addressing one of the main concerns raised by participants in the pilot study.

Solo performance. As in the pilot study participants were asked to prepare a short (3-5 minute) piece that they had mastered (but not yet performed) to play in the pre-and post-study assessments. For this study participants performed on stage in an unfamiliar auditorium in front of other (mostly unknown) participants and their parents. These performances were also video-recorded for independent assessment.

Although intervention participants were to maintain their performance piece by using it for the program activities to develop their psychological performance skills, teacher feedback indicated that most students rotated through a number of different pieces over the course of the intervention. Control participants continued with their normal music

curriculum and were instructed to keep their performance piece in review, in preparation for their post-study solo performance assessment. To help ensure that control participants maintained their piece teachers were encouraged to hear this piece (or at least a section of it) each lesson.

Program delivery, adherence and completion.

Within the studio condition there were three studio teachers that had five to eleven students participating in the program. This meant that they would need to log in multiple times each week to accurately record the lesson activities. To make the feedback process less arduous they were asked to fill in a hard copy of this document following each lesson and transfer the contents online at the end of the week. Two of the teachers managed this process successfully, however, the third teacher failed to submit any feedback across the program. This particular teacher was facing some major personal challenges and had been given access to the program passcodes to help facilitate program delivery. Consequently, no information was available for these students regarding the extent and types of activities covered in their lessons.

Six students (19.35%) who started the program withdrew from the study which was less than the anticipated attrition rate. A large proportion (82.61%) of the remaining participants indicated that they had completed the program by the end of the research period with the rest of the participants working through weeks 10–13.

Follow up.

A follow up session was conducted for the intervention students for the non-performance measures (online test battery: MPSES and PSA) two months after the post-program assessments. This sought to determine if improvements were maintained or if participants achieved further benefits from the intervention. A third solo performance was

not scheduled at this time because it was anticipated that participants would be unwilling to maintain their performance piece for such an extended period (that is, greater than eight months) as most would have moved onto new repertoire. It would also have been too disruptive for students preparing for their final year school exams.

The wait-list control participants did not complete this round of testing as it would have prevented them from accessing the program until the last month of the school year making it difficult, particularly for class participants, to work through the course with their music teacher.

7.4 Results

7.4.1 Questionnaire Completion

Thirty-one participants (24 intervention, 7 control) completed the pre-and post-program online non-performance measures and 28 (25 intervention, 3 control) presented a live solo performance for both rounds of testing. The follow up sample comprised 18 intervention participants (non-performance measures only).

7.4.2 Data Treatment and Analysis

For the MPSES (Zelenak, 2011, 2015) participants indicated *NA* for the two ensemble items (part of the *mastery* subscale) if they had never performed as part of an ensemble. These values were not replaced. Instead two mastery subscales were generated, one solo subscale (without ensemble items) and one mixed subscale (containing the original solo and ensemble items). The new solo mastery subscale (6 items: $\alpha = 0.81$) and solo composite scale (22 items: $\alpha = 0.90$) displayed a strong internal consistency for all participants (class and studio combined) at baseline.

All data were removed for one intervention participant who was diagnosed with a chronic stress illness during the course of the research study. Thus, the final total for the intervention group was 23 for non-performance measures and 24 for performance measures. In addition, one control student did not complete the PSA at baseline and one intervention participant failed to submit the CSAI-2R post-intervention.

Comparisons were performed to test the amount of change from pre-to post intervention as a function of group membership on the outcome scores of the non-performance measures. Only within-group comparisons could be investigated for the state performance measures. Subscales that yielded a composite score were not subjected to separate statistical analyses. Although the control and treatment groups were of unequal size most variables met the assumptions of homogeneity of variances (Levene's test) and normality (Shapiro-Wilk, $p > .05$). In the instances where variables did not meet parametric criteria non-parametric analyses were conducted.

Standard methods to correct for inflated Type 1 error rate due to multiple comparisons were not conducted as these assume independence of each test (Bangdiwala, 2017). This assumption could not be met as most subscales within and across measures showed moderate to high correlations. Some researchers advocate not correcting for multiple comparisons to avoid a loss to statistical power, thereby increasing the chance of Type II errors relative to Type 1 error (Saville, 1990). Indeed, this method is consistent with a number of published psychological skills intervention studies of a similar nature to the current study investigating multiple comparisons and employing similar measures (Clark & Williamon, 2011; Cohen & Bodner, 2017; Osborne et al., 2014; Steyn et al., 2015). In addition, the pilot study and two main studies conducted during this phase of the research provided the opportunity to replicate and verify results, increasing the explanatory power and supporting the validity and generalizability of the findings (Mackey, 2012).

7.4.3 Program Adherence and Learning

Adherence.

Studio participants showed a high program adherence. The majority of students (80-100%) completed most or all of the set activities each week of the program with the exception of one module in weeks 11 and 12 (Appendix H). Teachers also included three or more of the suggested discussion points or tasks in their weekly lessons (Appendix H).

Performance simulations.

Studio participants completed on average a total of 28 performance simulations at home and in their lessons and 22 (range 14-28) performance reviews over the course of the program. They were more likely to conduct a full rather than a partial performance review and had the opportunity to complete this process in their lessons with their teacher approximately 10 times.

Learning objectives.

Students achieved the main learning goals and objectives of each module as indicated by the high ratings for knowledge gained (range: 7.83–8.61) and heightened self-awareness of thoughts and behaviour (range: 7.65–8.60; Appendix I). Their highest ratings occurred for the imagery, self-talk, focus, and pre-performance routine modules. They also felt more positive about performing and had developed new skills to use in practice and performance as demonstrated by their average, weekly learning and evaluation ratings (rated on a 0 (*strongly disagree*) to 10 (*strongly agree*) scale; Appendix F, items 1-4): *I learned new ideas, approaches and skills to use in practice* (8.06); *I learned new ideas, approaches and skills to use in my next performance* (8.27); *I feel more positive about performing solo* (7.90); and, *I feel my performing experiences will improve* (8.08).

7.4.4 Effects of the Program

The following section presents the pre- and post-intervention descriptive statistics for participants who completed the research study. To control for different teacher effects mixed model ANOVAs with treatment nested within teacher across the two testing phases were initially conducted to determine the effects of the program for scales that met the criteria for parametric analysis. As no teacher effects were observed for any of the scales two-way general linear model ANOVAs were conducted to test for the main effect of time and Time x Group interaction. The impact of time within groups was assessed using t-tests. Non-parametric tests (Mann-Whitney U and Wilcoxon Signed-Rank Test*)* were conducted on measures that did not meet parametric criteria.

Pearson's correlation analyses were also conducted for the CSAI-2R subscales to explore the nature of these associations in music performance and examine whether pre- to post-intervention variations in self-reported levels of anxiety and self-confidence corresponded to a change in the pattern of associations between these variables. The subscale scores were normally distributed (Shapiro-Wilk, $p > .05$) and visual assessment of scatterplots indicated linear relationships for all combinations.

Self-efficacy, music performance anxiety and psychological performance skills results.

The results from the non-performance (online battery) and state (pre-performance) questionnaires for the intervention and control groups are presented in Tables 7.5 and 7.6.

Table 7.5

Non-Performance Mean Scores (Standard Deviations) Pre- and Post-Program and ANOVA Results for Studio Participants by Group

Measure		Pre-Program Mean (*SD*)	Post-Program Mean (*SD*)	Difference Mean (*SD*)	F	*p*
MPSES						
Total Solo	IG	154.96 (28.73)	175.39 (26.03)	20.43 (21.70)	**4.45**	**.044**
	CG	170.00 (25.45)	170.86 (17.55)	0.86 (20.80)		
Total Mixed	IG	177.00 (28.38)	199.38 (26.50)	22.38 (26.16)	**5.30**	**.034**
	CG	193.17 (22.03)	188.33 (20.18)	-4.83 (17.57)		
Verbal Persuasion	IG	45.26 (8.17)	48.30 (6.89)	3.04 (6.00)		
	CG	50.86 (7.15)	50.00 (3.37)	-0.86 (4.71)		
Vicarious	IG	31.87 (8.15)	40.22 (7.16)	8.35 (7.76)		
Experience	CG	35.86 (7.65)	35.86 (6.23)	0.00 (9.63)		
Physiological State	IG	32.65 (9.22)	38.87 (7.57)	6.22 (8.17)		
	CG	33.71 (12.08)	37.43 (7.98)	3.71 (10.42)		
Mastery Experience	IG	45.17 (7.84)	48.00 (8.03)	2.83 (7.22)		
Solo	CG	49.57 (9.07)	47.57 (3.82)	-2.00 (6.71)		
Mastery Experience	IG	64.08 (7.53)	68.15 (9.28)	4.08 (8.89)		
Mixed	CG	68.83 (9.06)	64.50 (5.96)	-4.33 (6.12)		
PSA						
Performance Under	IG	56.09 (13.40)	58.70 (15.24)	2.61 (16.57)	0.21	.650
Pressure	CG	53.33 (21.60)	59.17 (14.97)	5.83 (8.01)		
Self-Talk	IG	60.65 (17.21)	57.61 (18.15)	-3.04 (15.94)	0.01	.944
	CG	58.33 (17.22)	55.83 (18.82)	-2.50 (19.17)		
Mental Rehearsal	IG	64.57 (12.87)	72.17 (16.15)	7.61 (18.46)	0.34	.567
	CG	64.17 (21.78)	76.67 (6.06)	12.50 (18.10)		
Focusing Past	IG	62.83 (13.55)	65.22 (17.61)	2.39 (15.44)	0.00	.987
Distractions	CG	60.00 (7.75)	62.50 (14.05)	2.50 (6.89)		
Mistake Recovery	IG	58.70 (16.18)	60.00 (15.08)	1.30 (19.44)	0.00	.955
	CG	60.00 (19.24)	60.83 (15.30)	0.83 (10.21)		

Note. Intervention group (IG) $n = 23$ (MPSES mixed scales, $n = 13$); control group (CG) $n = 7$ (except for PSA and MPSES mixed scales, $n = 6$). The two-way ANOVA results show the change between the two rounds of testing by group membership. Degrees of freedom for all F tests are 1, 28 (MPSES mixed scales, 1, 17 and PSA, 1, 27).

Table 7.6

State Mean Scores (Standard Deviations) Pre- and Post-Program and T-Test Results for Studio Intervention-Participants

Measure	Pre-Program Mean (*SD*)	Post-Program Mean (*SD*)	Difference Mean (*SD*)	*t*	*p*
CSAI-2R					
Cognitive Intensity	5.55 (1.80)	5.26 (1.79)	-0.29 (1.37)	-1.00	.327
Somatic Intensity	4.54 (1.64)	4.69 (1.62)	0.15 (1.59)	0.45	.657
Cognitive Direction	-0.86 (1.49)	-0.87 (1.08)	-0.01 (1.28)	-0.03	.974
Somatic Direction	-0.43 (1.17)	-0.59 (0.83)	-0.16 (1.07)	-0.72	.477
Self-Confidence	5.49 (1.65)	6.44 (1.46)	0.96 (1.29)	**3.57**	**.002**
Performance Evaluation: Student					
Total (Sub-areas)	29.08 (10.66)	35.79 (7.41)	6.71 (8.92)	**3.69**	**.001**
Self-rating[a]	5.73 (2.21)	7.15 (1.93)	1.42 (2.40)	**2.89**	**.008**
Teacher					
Total (Sub-areas)	32.92 (9.26)	40.71 (5.03)	7.79 (8.18)	**4.67**	**.000**
Independent Rater					
Total Score	34.33 (12.64)	39.25 (11.83)	4.92 (7.87)	**3.06**	**.006**
Music Skills[b]	10.67 (4.38)	12.46 (4.46)	1.79 (3.06)		
Psychological Skills[c]	18.38 (6.16)	20.46 (5.30)	2.08 (3.86)		

Note. [a]Students' self-rating represents their overall satisfaction with their performance (scored on a 0 (*unhappy with this performance*) -5 (*ok*) – 10 (*extremely pleased*) scale) where 7+ indicated that they felt pleased enough with their performance for it to be heard in public. Bolded *F* and *p* values are those that reached statistical significance. [b]Music Skills represents expression, interpretation and execution. [c]Psychological Skills represents signs of MPA, confidence, engagement and fluency.

Self-efficacy.

A comparison of the scores achieved by each group between the two rounds of testing revealed a significant Time x Group interaction for the MPSES scale total scores, solo, $F_{(1, 28)} = 4.45$, $p = .044$, $\eta^2_p = .14$, and mixed, $F_{(1, 17)} = 5.30$, $p = .034$, $\eta^2_p = .24$ (Figures 7.1 and 7.2). There was also a significant main effect of time for the MPSES total solo scale, $F_{(1, 28)} = 5.26$, $p = .030$; $\eta^2_p = .16$. Paired samples t-tests revealed a significant increase in general performance self-efficacy for the intervention group, solo, $t(22) = 4.52$, $p = .000$, $d = .94$,

mixed; $t(22) = 3.09$, $p = .009$, $d = .86$ but not for the control, solo, $t(6) = .109$, $p = .917$, $d = .04$, mixed, $t(6) = -0.67$, $p = .530$, $d = .28$.

The intervention group also showed significant within-groups improvements in their performance self-efficacy as measured by the CSAI-2R (self-confidence scale). The fact that self-efficacy was enhanced for the intervention group within the performance environment and, in comparison to the control group, away from the performance situation provides support for the beneficial effects of the intervention program on this self-belief.

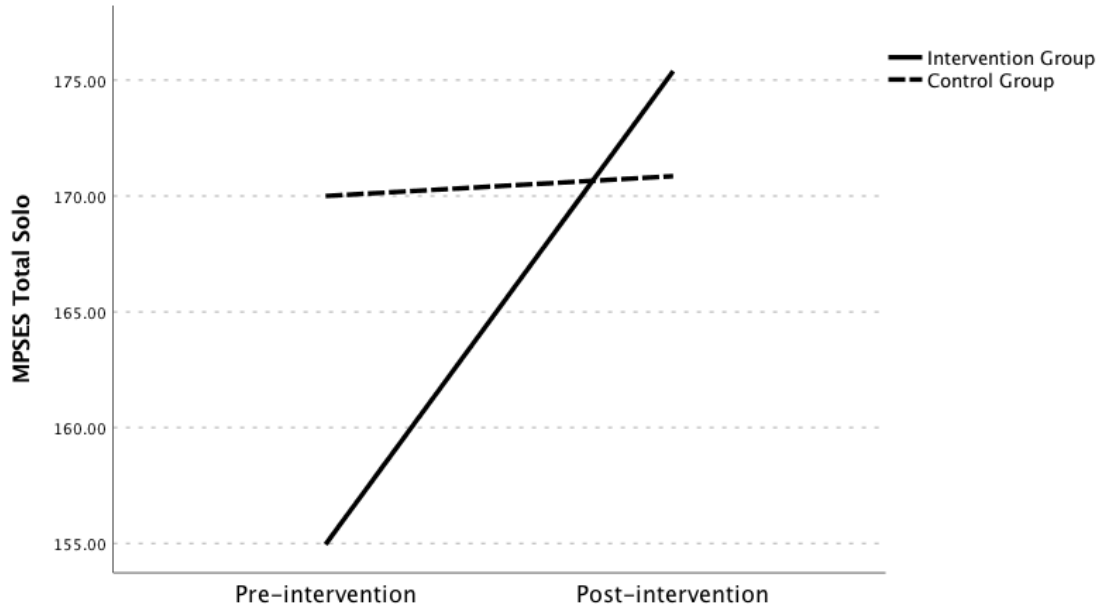

Figure 7.1. Pre/Post-program MPSES total (solo) by group.

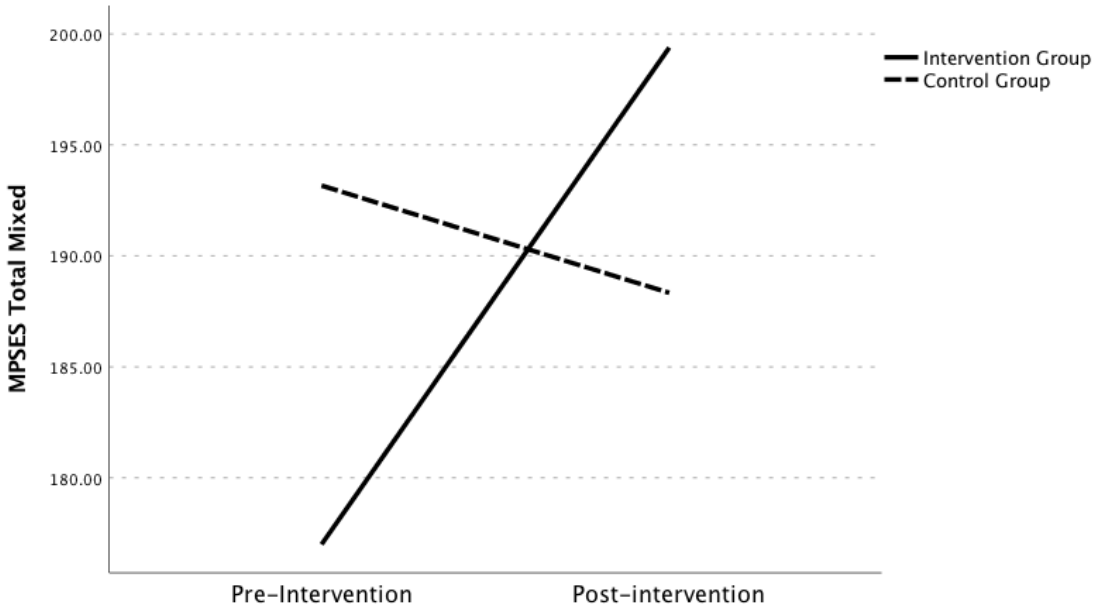

Figure 7.2. Pre/Post-program MPSES total (mixed) by group.

Sources of self-efficacy.

The intervention group displayed greater mean increases across all self-efficacy sources in comparison to the control. The greatest improvements were observed in vicarious experience (26.20%) and physiological state (19.05%). The intervention group also achieved more successful performances over the course of the intervention period, whereas the control group's mastery experiences declined. The improvements for intervention participants indicate that the program helped them to feel more positive about performing, provided them with strategies to control their physiological state, and enhanced their psychological performance skills by observing themselves and others performing well.

Anxiety.

Contrary to predictions there were no changes in anxiety intensity or direction for intervention participants.

Self-efficacy and anxiety intercorrelations.

Prior to the intervention all of the anxiety subscales with the exception of somatic intensity showed a moderate to strong significant relationship with self-efficacy (CSAI-2R self-confidence) in the expected direction (intensity, negative; direction, positive; Table 7.7). Following the program only cognitive intensity significantly related to self-efficacy. There was also a reduction in the strength of this association.

Table 7.7

Pearson's Correlations Among State Anxiety and Self-Efficacy Pre- and Post-Program for Studio Participants

	Baseline	Post
Cognitive Intensity	-0.61**	-0.46*
Cognitive Direction	0.60**	0.23
Somatic Intensity	-0.34	-0.08
Somatic Direction	0.48*	-0.13

*$p < .05$, **$p < .01$

Psychological Performance skills.

All participants improved on three out of the six scales with both treatment groups showing the largest increases for Mental Rehearsal. Unexpectedly, there were no significant Group x Time interactions but there was a significant main effect of time for Mental Rehearsal (MR), $F(1, 27) = 5.69$, $p = .024$, $\eta^2_p = .17$. Paired sample t-tests indicated that these improvements in Mental Rehearsal ability were not significant for either group (intervention group, $t(22) = 1.98$, $p = .061$, $d = .41$; control group, $t(5) = 1.69$, $p = .151$, $d = .69$).

Solo performance evaluations.

Teacher and student ratings increased across all scales with students consistently evaluating their performance lower than their teacher. Both teacher and student total sub-area scores significantly improved: students, $t(23) = 3.69$, $p = .001$, $d = .75$; teachers, $t(23) = 4.67$, $p = .000$, $d = .95$. Students' self-rating or overall satisfaction with their performance also significantly improved, $t(23) = 2.89$, $p = .008$, $d = .59$, from a mid-range score pre-intervention (indicating they felt okay with their performance) to being pleased enough with their performance for it to be heard in public. Independent assessment also showed a significant increase in performance quality, $t(23) = 3.06$, $p = .006$, $d = .63$. This reflected improvements in both psychological and music performance skills.

Table 7.8

Frequency of Completers' Pre- and Post-Program Performance Satisfaction

Performance Satisfaction (self-rating)	Pre %	Post %
Unhappy with performance[a]	20.83 (*n*=5)	8.33 (*n*=2)
Ok with performance[b]	37.50 (*n*=9)	16.63 (*n*=4)
Acceptable public performance[c]	41.67 (*n*=10)	75.00 (*n*=18)

Note. [a]0-3 ratings. [b]4-6 ratings. [c]7+ ratings.

The intervention group had a 33.33% increase from pre-to post-intervention in the number of participants who felt that they had played well enough for it to be an acceptable public performance (Table 7.8).

Follow up.

The following section presents the descriptive statistics for intervention participants who completed the follow up assessment for the non-performance measures (Table 7.9). Repeated measures analyses were conducted on the MPSES total scales and PSA subscales to determine the effects of the program from the first to third testing sessions.

Table 7.9

Non-Performance Mean Scores (Standard Deviations) for Studio Intervention-Participants who completed Follow Up Measures

Measure	Pre-Program (T1) Mean (*SD*)	Post-Program (T2) Mean (*SD*)	Follow Up (T3) Mean (*SD*)	T3-T1 Difference Mean (*SD*)
MPSES				
Total Solo[a]	156.83 (29.73)	175.11 (27.63)	172.67 (27.21)	**15.83 (21.54)****
Total Mixed[a]	176.20 (30.59)	189.57 (32.91)	184.86 (30.53)	15.60 (29.21)
Verbal Persuasion	45.06 (8.57)	48.11 (7.44)	46.78 (7.98)	1.72 (5.84)
Vicarious Experience	33.83 (6.71)	40.94 (7.37)	39.22 (7.66)	5.39 (6.59)
Physiological State	32.06 (8.92)	37.94 (8.19)	39.06 (6.32)	7.00 (7.13)
Mastery Experience Solo	45.89 (8.14)	48.11 (8.04)	47.61 (8.19)	1.72 (7.29)
Mastery Experience Mixed	64.30 (8.23)	64.57 (10.84)	63.21 (10.04)	1.20 (9.46)
PSA				
Performance Under Pressure	55.56 (9.98)	58.89 (16.76)	63.89 (13.23)	**8.33 (13.83)***
Energy Regulation	51.94 (12.02)	51.67 (18.79)	56.11 (16.50)	4.17 (13.96)
Self-Talk	57.50 (16.38)	56.67 (18.86)	62.22 (19.42)	4.72 (12.89)
Mental Rehearsal	64.72 (13.98)	73.89 (17.37)	72.50 (13.09)	**7.78 (13.96)***
Focusing Past Distractions	60.83 (13.20)	66.11 (17.37)	67.50 (14.37)	**6.67 (8.91)****
Mistake Recovery	59.72 (13.34)	63.33 (15.05)	69.44 (13.16)	**9.72 (15.94)***

Note. Bolded difference scores are those that reached statistical significance ($p < 05$*, $p < .01$**, $p \leq .001$***). [a]Wilcoxon Signed Rank Test. Intervention group $n = 18$. T1-T3 (MPSES mixed scales, $n = 10$).

The intervention participants experienced continued improvements in their psychological performance skills post-intervention except for Mental Rehearsal which remained relatively stable. Mistake recovery showed the greatest increases over the two-month follow-up period. Although all of the MPSES scales decreased slightly post-intervention (except for physiological state) these differences were small indicating that

participants were continuing to experience the enhanced levels of self-efficacy gained from the online program.

Over the eight-month period of the research study (pre-intervention to follow up) participants displayed significant increases in their solo performance self-efficacy (pre-program *Mdn* = 163.50; follow-up *Mdn* = 180.50), $T = 13.50$, $p = .003$, $r = -.50$. Vicarious experience and physiological state were the two main sources driving this improvement. They also strengthened a number of their psychological performance skills with significant gains in Performance Under Pressure, $t(18) = 2.80$, $p = .012$, $d = .60$, Mental Rehearsal, $t(18) = 2.67$, $p = .016$, $d = .56$, Focusing Past Distractions, $t(18) = 3.43$, $p = .003$, $d = .75$, and Mistake Recovery, $t(18) = 2.80$, $p = .012$, $d = .61$, indicating that they had improved strategies for dealing with the pressure of performing. Interestingly, self-talk showed one of the greatest mean improvements during the two-month follow up period.

Study 4: Assessment of the Psychological Performance Skills Program in School Music Classes

7.5 Method

7.5.1 Participants

Participants for the class condition were sought in the Australian state of Victoria. Members of the Association of Music Educators (Victoria; AMUSE, n = 5, 400) were approached via a global email. A direct invitation was also sent to the top 100 secondary schools in Victoria as identified by Better Education, a school directory and information website.

Group size was dependent upon the number of students within a school music class who consented to participate. Seven schools with a combined total of 87 students chose to participate following principal and parental consent. These schools were grouped according to whether they were private (non-government schools, n = 4) or public schools (government schools, n = 3). This was to control for socio economic status as private schools have more expensive tuition fees than public schools in Australia. Taking into consideration the anticipated withdrawal rate only one school from each group was randomly assigned to the control condition. The randomisation process was conducted through www.random.org a service that generates random numbers via a true random number algorithm. The final sample consisted of four intervention-group schools (two private and two public) and two control-group schools (one private and one public).

Table 7.10 shows the demographic and performance profile of the intervention and control groups at baseline for schools who completed the research study. Tables 7.11 and 7.12 present a comparison of the baseline non-performance and state variables of the participants from each treatment group.

Table 7.10

Demographic and Performance Profile of Class-Condition Participants at Baseline.

	Intervention	Control
Number of schools	4	2
Total number of students	47 (23 female)	25 (14 female)
Mean age (years)	16.48 (*SD* 0.88)	15.89 (*SD* 0.46)
Mean number of years learning	6.21 (*SD* 2.93)	5.96 (*SD* 2.75)
Australian Music Examinations board grade level %		
Level 1 (grades 1-4)	27.66	44.00
Level 2 (grades 5-8)	63.83	56.00
Level 3 (diploma)	8.51	
Instrumental family distribution %		
Piano	34.04	23.10
String	21.28	26.90
Woodwind	19.15	11.50
Brass	6.38	11.50
Vocal	12.77	26.90
Percussion	6.38	
Frequency performing in front of people other than their studio teacher %		
Once a year	8.51	
Each semester (2 times a year)	6.38	12.00
Each school term (4 times a year)	36.17	8.00
About once a month	40.43	44.00
At least once a week	8.51	36.00
Performance Pattern %		
Solo only	14.89	11.50
Mostly solo, some ensemble	19.15	42.30
Mix of solo and ensemble	21.28	30.80
Mostly ensemble, some solo	34.04	15.40
Ensemble only	10.64	

Table 7.11

Non-Performance Baseline Means by Group

Measure	Intervention Mean (*SD*)	Control Mean (*SD*)	*p*
MPSES			
Total Solo	156.49 (24.72)	159.48 (28.32)	.644
Total Mixed	173.03 (28.86)	176.90 (31.68)	.637
Verbal Persuasion	44.00 (8.62)	44.68 (8.33)	.748
Vicarious Experience[a]	33.94 (6.06)	35.56 (10.02)	.538
Physiological State[a]	35.13 (8.16)	36.36 (6.87)	.745
Mastery Experience Solo[a]	43.43 (8.54)	44.88 (7.36)	.763
Mastery Mixed[a]	59.62 (11.06)	62.62 (9.08)	.413
PSA			
Performance Under Pressure[a]	53.19 (15.44)	58.80 (19.33)	.263
Self-Talk	59.47 (15.82)	63.60 (17.23)	.310
Mental Rehearsal[a]	64.04 (13.97)	64.00 (13.99)	.900
Focus Past Distractions	62.02 (13.66)	60.00 (15.41)	.569
Mistake Recovery	62.02 (16.00)	64.80 (18.96)	.510

Note: MPSES mixed scales intervention *n*= 37 and control *n* = 21; [a]Non-parametric analysis.

Table 7.12

State-Measures Baseline Means by Group

Measure	Intervention Mean *(SD)* (*n*=36)	Control Mean *(SD)* (*n*=20)	*p*
CSAI-2R			
Cognitive Intensity	5.73 (1.62)	5.16 (2.05)	.260
Somatic Intensity	5.06 (1.57)	4.79 (1.77)	.547
Cognitive Direction	-0.77 (1.24)	-0.57 (0.70)	.501
Somatic Direction	-0.61 (0.89)	-0.60 (0.75)	.962
Self-Confidence[a]	5.35 (1.41)	5.68 (1.36)	.406
Performance Evaluation			
Student Total[a]	29.07 (8.61)	30.87 (7.61)	.490
Student Self-Rating	4.83 (2.22)	5.21 (1.90)	.529
Teacher Total	35.99 (6.28)	34.88 (7.88)	.565
Independent Rater[a]	39.33 (12.00)	33.50 (10.50)	.075

Note: [a]Non-parametric analysis.

Participants in the control group performed more frequently and were not as advanced as the intervention group (Table 7.10).

7.5.2 Materials

Participants completed the same measures that were utilised in the studio condition study.

7.5.3 Procedure

Program amendments: Teacher guides and handouts.

The course content and home practice activities were equivalent across both the class and studio format. The week four self-talk tutorial, however, was modified for class participants by incorporating an exercise, originally designated to be completed at home, into the class lesson as a group-based activity. This reflected an overall reformatting of the school-teacher guides to include more small group tasks. The increased choice of shared activities was to encourage active engagement from each student rather than passive listening, increase motivation, and provide the opportunity for participants to learn from their peers through the sharing of experiences and opinions that may not be expressed in a larger group.

Solo performance.

Participants in the class condition performed as part of a class concert at their school and their performances were video-recorded for independent assessment. Although teachers in the class condition were instructed to organise these performances to take place in a formal performance space such as the school hall or auditorium, only two of the intervention schools were able to meet these requirements ($n = 21$). All other participants completed these assessments in their music classroom. Consequently, approximately two-thirds of the intervention participants were subjected to different performance conditions pre- and post-program than their control counterparts. In addition, control-group students averaged 15 class performances whereas intervention participants performed only three to four times in their music class over the course of the research study. Thus, the intervention group had less

simulation opportunities and were not as familiar with the assessment environment. These were unexpected confounding variables as both simulation and familiarity with the performance situation have been shown to reduce anxiety and enhance confidence (Bissonnette et al., 2015; Kassab et al., 2011; Robinson et al., 2017).

To help ensure that control participants maintained their piece, class teachers were asked to give weekly reminders to their students to keep practising and presenting their performance piece to their studio teacher.

Program delivery, adherence, and completion.

Although the program was developed to be teacher-guided and provide a standardised curriculum, personal issues (for two teachers) and school commitments (academic and extra-curricular) did impact student adherence, exposure to the content of the course, and the way the program was delivered. This resulted in a number of variations in the ways that teachers supported and presented the program activities in their classes.

One teacher postponed the start of the program and found it difficult to keep up with the weekly schedule due to some considerable personal challenges, ceasing to oversee the delivery of the program at week eight. This teacher was responsible for two small music classes participating in the program, one of which she was covering for a colleague on leave. Half of the students (n = 2) within the first class continued to move through the program independently. Participants in the second class resumed the online course once their original teacher returned, receiving guidance up to week ten at which point they were instructed to proceed unassisted. As the program was not designed to be fully self-directed these students would have missed out on information and support that would have led to further skill development and clarification of concepts.

The extent that students complied with the program requirements was also affected by different levels of engagement with the material and academic workload. Class condition

teachers noted that school activities and other academic commitments made it difficult for students to keep up with the program content as expressed by these comments:

> Keeping on top of the performance skills modules is difficult at the moment - many students are managing the juggle but others are focusing on our college production and all are preparing for a technical SAC [School Assessed Coursework] for VCE [Victorian Certificate of Education]. (Class Teacher [CT]1, week 6)

> Today's class was spent doing the Week 9 modules together in class, as they have fallen behind due to heavy SAC schedules across all subjects. (CT3, week 9)

They also observed that some students were more engaged with the program than others:

> Some students have taken to the program well and are finding the strategies interesting and seem to be watching the videos and thinking about their content. Others less engaged. (CT4, week 4)

> I am finding some students are self-motivated with the course. Others I have to spend time 'making' them do the course. (CT3, week 9)

Teachers also outlined some of the problems they encountered in delivering the program and following the course schedule within an academic setting. These reflected some of the challenges associated with class instruction, in particular, the limited flexibility in tailoring the program to individual students' needs and progress:

> [One student is frequently absent]… other students have organisational challenges and some schedule instrumental lessons during our performance class, making it hard to keep up with where they are all at in your program. (CT3, week 5)

> Two students in the class are ESL (English as a Second Language) students so probably the language and re-phrasing the thoughts are a stretch for them. They stay rather quiet in discussions. (CT3, week 4)

Thus, as observed in the pilot study, there were various levels of adherence with some participants consistently neglecting to view the online videos and/or complete the worksheets and program activities.

To facilitate the delivery of the program two schools were asked to distribute the weekly program passcodes to their students to enable them to catch up. Another class teacher overcame this problem by presenting the online content in class. This ensured that all students within the class were at least exposed to the course information, guided imagery exercises, and modelling examples from elite performers. These measures, however, did increase the amount of missing feedback as students no longer needed to complete the evaluation forms to receive the passcodes to watch the online tutorials.

Despite these challenges 78.26% of the class participants who started the psychological performance skills course (excluding three participants who withdrew from their music subject) indicated that they had completed the program by the end of the research study with a further 17.02% working through weeks 9-13.

7.6 Results

7.6.1 Questionnaire Completion

Seventy-two participants (47 intervention, 25 control) completed the pre-and post-program non-performance measures and 60 students (40 intervention, 20 control) presented a solo performance. The follow up sample comprised 43 intervention participants (non-performance measures only).

7.6.2 Data Treatment and Analysis

As per the studio condition study mixed and solo subscales were generated for the MPSES.

Two students (one from each condition) did not return their self-evaluation following their second solo performance.

Comparisons were performed to test the amount of change from pre-to post-intervention as a function of group membership for the non-performance and state measures following the same protocol described in the previous study. The post-performance data for four students was removed from the analyses for various reasons. One student was ill at the time of the solo performance, another had switched main-study instrument during the course of the program, and two students played a different repertoire selection during the second round of testing. Thus, the final total for the intervention group performance data was 36. In addition, one teacher, who evaluated four baseline intervention performances, was unavailable to complete the post-program evaluations for these students.

7.6.3 Program Adherence and Learning

Adherence.

A large proportion of participants (80-90%) watched the online tutorials and completed some or all of the worksheets for the first half of the program (Appendix J). This represents a higher and more consistent level of engagement than that observed in the pilot study. Although the completion rate did decline from week eight it remained steady for the rest of the program with approximately 50-60% of participants viewing the online tutorials and working through the worksheets. On average, teachers incorporated approximately 80% of the suggested activities (which ranged from two to five activities each week) into their classes.

Performance simulations.

Class participants completed around 13 (range 3-38) simulated performances over the course of the program. The majority of these were conducted at home (n = 10) as opportunities to perform in class were limited (n = 3). One school did not record any simulated performances. This accounted for eight (out of nine) students that did not perform in class over the course of the research study.

Participants also achieved around nine home performance reviews. In addition, students at the three schools that recorded simulated class performances completed on average two school performance reviews over the course of the program. Approximately 25% of students did not conduct a school performance review.

Learning objectives.

Class participants showed moderately high ratings for knowledge gained (range: 7.19–8.28) and heightened self-awareness of thoughts and behaviour (range: 6.81–8.06; Appendix K) with their lowest ratings occurring in week 10 of the program and their highest recorded for the self-talk, focus, and pre-performance routine modules. The program also broadened the range of strategies and skills that they could use in practice and performance and helped them to feel more positive about performing as indicated by their average, weekly learning and evaluation ratings (rated on a 0 (*strongly disagree*) to 10 (*strongly agree*) scale; Appendix F, items 1-4): *I learned new ideas, approaches and skills to use in practice* (7.56); *I learned new ideas, approaches and skills to use in my next performance* (7.56); *I feel more positive about performing solo* (7.28); and, *I feel my performing experiences will improve* (7.43).

7.6.4 Effects of the Program

The following section presents the pre- and post-intervention descriptive statistics for participants who completed the research study. To control for different teacher effects mixed model ANOVAs with treatment nested within teacher across the two testing phases were conducted to determine the effects of the program for scales that met the criteria for parametric analysis. Scales that demonstrated negligible or no teacher effects were analysed using two-way general linear model ANOVAs to test for the main effect of time and Time x Group interaction. The impact of time within groups was assessed using t-tests, adjusting for the teacher effect where required. Non-parametric tests (Mann-Whitney U, Wilcoxon Signed-Rank Test) were conducted on measures that did not meet parametric criteria. For these measures the effects of time were examined at the within-group level.

Investigations of within-groups effects were conducted when there were significant main effects of time or when variables did not meet parametric criteria for ANOVA but visual inspection of plots indicated a time effect. This also allowed for comparison with the studio group across the variables.

Pearson's correlation analyses were conducted for the CSAI-2R subscales as per the previous study.

Self-efficacy, music performance anxiety and psychological performance skills results.

The results from the non-performance and state questionnaires for both treatment groups are presented in tables 7.13 and 7.14.

Table 7.13

State and Non-Performance Mean Scores (Standard Deviations) Pre- and Post-Program and ANOVA Results for Class Participants

Measure		Pre-Program Mean (*SD*)	Post-Program Mean (*SD*)	Difference Mean (*SD*)	F	*p*
Non-Performance						
MPSES						
Total Solo	IG	156.49 (24.72)	159.17 (24.42)	2.68 (18.99)	0.17	.682
	CG	159.48 (28.32)	160.24 (28.69)	0.76 (18.52)		
Total Mixed	IG	172.42 (29.02)	175.81 (27.39)	3.39 (19.58)	2.56	.116
	CG	184.83 (26.29)	179.72 (32.20)	-5.11 (15.78)		
Verbal Persuasion	IG	44.00 (8.62)	44.43 (6.51)	0.43 (7.42)		
	CG	44.68 (8.33)	45.36 (8.31)	0.68 (5.53)		
Vicarious	IG	33.94 (6.06)	35.85 (6.24)	1.91 (5.73)		
Experience	CG	33.56 (10.02)	34.36 (8.02)	0.80 (8.06)		
Physiological State	IG	35.13 (8.16)	36.00 (7.80)	0.87 (6.81)		
	CG	36.36 (6.87)	36.08 (7.45)	-0.28 (5.55)		
Mastery Experience	IG	43.43 (8.54)	42.89 (8.23)	-0.53 (7.11)		
Solo	CG	44.88 (7.36)	44.44 (8.13)	-0.44 (6.07)		
Mastery Experience	IG	59.44 (11.16)	59.44 (10.66)	0.00 (9.05)		
Mixed	CG	64.72 (7.54)	61.94 (10.66)	-2.78 (5.46)		
PSA						
Performance Under	IG	53.19 (15.44)	59.57 (13.94)	6.38 (14.70)	0.93	.339
Pressure	CG	58.80 (19.33)	61.60 (14.70)	2.80 (15.68)		
Self-Talk	IG	59.47 (15.82)	59.89 (17.98)	0.43 (15.10)	1.12	.294
	CG	63.60 (17.23)	60.40 (16.77)	-3.20 (11.08)		
Mental Rehearsal	IG	64.04 (13.97)	71.81 (11.86)	7.77 (16.58)	1.08	.303
	CG	64.00 (13.99)	67.80 (14.80)	3.80 (13.01)		
Focus Past	IG	62.02 (13.66)	67.34 (12.46)	5.32 (13.77)	2.17	.145
Distractions	CG	60.00 (15.41)	60.40 (15.47)	0.40 (12.90)		
Mistake Recovery	IG	62.02 (15.80)	63.09 (17.98)	1.06 (18.79)	0.10	.749
	CG	64.80 (18.96)	67.20 (17.45)	2.40 (12.00)		
State						
CSAI-2R						
Cognitive Intensity[a]	IG	5.73 (1.62)	4.87 (1.59)	-0.86 (1.40)	0.15	.721
	CG	5.16 (2.05)	4.66 (2.06)	-0.50 (1.60)		
Somatic Intensity	IG	5.06 (1.60)	4.43 (1.54)	-0.62 (1.39)	0.81	.372
	CG	4.79 (1.77)	3.83 (1.78)	-0.96 (1.14)		
Self-Confidence	IG	5.35 (1.41)	5.96 (1.19)	0.61 (1.39)	**4.24**	**.044**
	CG	5.68 (1.36)	5.52 (0.42)	-0.16 (1.27)		

Note. State measures: intervention group (IG) $n = 36$; control group (CG) $n = 20$. Non-performance measures intervention group $n = 47$; control group $n = 25$ (MPSES mixed scales, intervention group $n = 36$; control group $n = 18$). The ANOVA results show the change between the two rounds of testing by group membership. Degrees of freedom for all state analyses are 1, 54 and for all non-performance analyses 1, 70, (except for MPSES mixed scales, 1, 52 and when there was [a]significant teacher variance, 1, 4.06). Bolded *F* and *p* values are those that reached statistical significance.

Table 7.14

State Median Scores (Interquartile Range) Pre- and Post-Program and Mann-Whitney U Results for Class Participants

Measure		Pre-Intervention	Post-Intervention	Difference	*U*	*p*
Cognitive Direction	IG	-0.70	-0.40	0.30	306.50	.359
	CG	-0.45	-0.50	-0.05		
Somatic Direction	IG	-0.43	-0.29	0.14	337.00	.694
	CG	-0.50	-0.21	0.29		

Self-efficacy.

There was a significant interaction between group and time F (1, 54) = 4.24, p = .044, η^2_p = .07 for self-confidence as measured by the CSAI-2R (Figure 7.3). Paired samples t-tests revealed that the there was a significant increase in state self-confidence for the intervention group, $t(35) = 2.65$, p = .012, d = .44, but not for the control $t(19) = -0.56$, p = .579, d = .13, supporting the hypothesis that the intervention program would enhance self-efficacy for performing. Contrary to expectations the program had no effect on performance self-efficacy assessed away from the performance environment (MPSES).

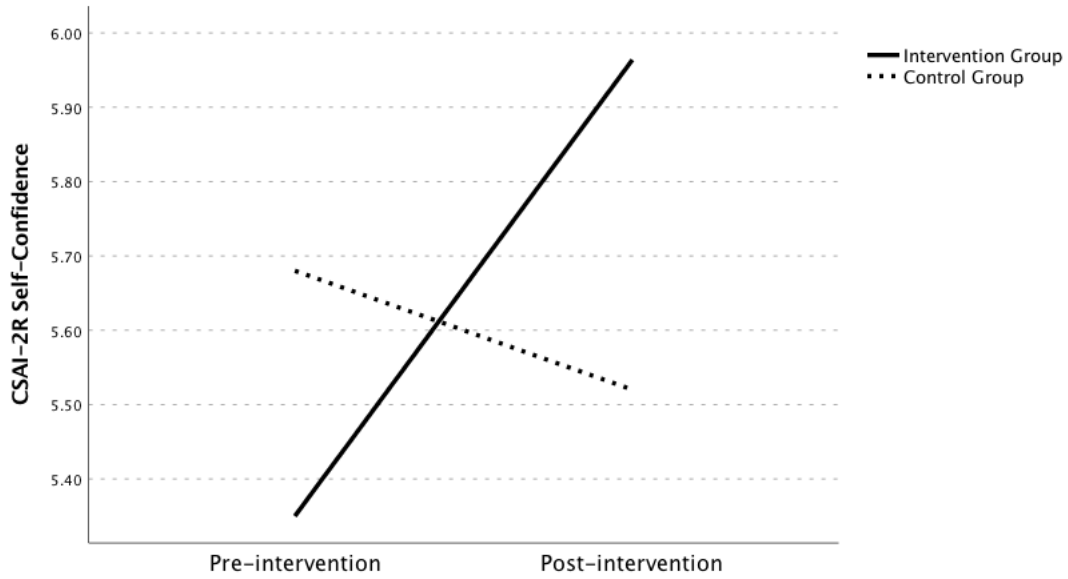

Figure 7.3. Pre/Post-program self-confidence by group.

Anxiety.

All participants showed reductions in state anxiety intensity (cognitive and somatic) and more facilitative perceptions of their anxiety from their first to second solo performance assessment. Although intervention group participants experienced greater improvements in cognitive state and trait anxiety measures there were no significant Group x Time interactions.

Results showed significant reductions in anxiety over time for cognitive, F (1, 5.30) = 6.77, p = .046, η^2_p = .17, and somatic, F (1, 54) = 18.86, p = .000, η^2_p = .26, anxiety intensity. Paired samples t-tests revealed that the there was a significant decrease in cognitive anxiety intensity for the intervention group, t(35) = -3.69, p = .001, d = -.61, but not for the control, t(1) = -0.71, p = .606. Both groups also experienced significant decreases in somatic anxiety intensity from their first to second performance (intervention group: t(35) = -2.71, p = .010, d = -.45; control group: t(19) = -3.75, p = .001, d = -.84).

An investigation of within-groups changes for the direction scales showed that intervention participants were experiencing significantly more facilitative cognitive anxiety perceptions (baseline *Mdn* = -0.70; post *Mdn* = -0.40), T = 137.50, p = .018, r = -.28, whereas the control group showed no change (baseline *Mdn* = -0.45; post *Mdn* = -0.50), T = 71, p = .332. Perceptions of somatic anxiety improved significantly for both groups: intervention (baseline *Mdn* = -0.43; post *Mdn* = -0.29), T = 149.50, p = .021, r = -.27; control (baseline *Mdn* = -0.50; post *Mdn* = -0.21), T = 33.50, p = .023, r = -.36 (see Appendix L for profile plots).

Self-efficacy and anxiety correlations.

Cognitive anxiety showed a moderate to strong significant negative relationship with self-efficacy (CSAI-2R self-confidence) for both treatment groups (Table 7.15). At baseline none of the anxiety subscales correlated with self-efficacy for the control participants whilst

cognitive intensity strongly related to this self-belief for the intervention group. There was also a reduction in the strength of this association following the program.

Table 7.15

Spearman's Correlations Among State Anxiety and Self-Efficacy for Pre- and Post-Program for Class Participants

	Intervention Self-Confidence		Control Self-Confidence	
	Pre	Post	Pre	Post
Cognitive Intensity	-0.55**	-0.45**	-0.31	-0.41
Cognitive Direction	0.31	0.31	0.02	0.57**
Somatic Intensity	-0.15	-0.12	-0.39	-0.36
Somatic Direction	0.33	0.04	0.10	0.31

Note. Spearman's correlations were used as the data did not meet assumption of normality. *p <.05, **p<.01

Psychological Performance skills.

Participants in the intervention group strengthened all of their psychological performance skills with greater mean improvements than the control group for five of the six scales. Mental Rehearsal, Performance Under Pressure, and Focus Past Distractions showed the greatest improvements for students who completed the program. Although there were no significant Group x Time interactions there were significant time effects for Performance Under Pressure (PPUP), F (1, 70) = 6.08, p = .016, η^2_p = 0.08 and Mental Rehearsal (MR), F (1, 4.46) = 9.15, p = .003, η^2_p = 0.12. Paired sample t-tests indicated that the intervention group had significant increases in these psychological performance skills from pre-to post-intervention: PPUP t(46) = 2.98, p = .005, d = 0.43; MR (t(46) = 3.21, p = .002, d = 0.47. This was not the case for the control group: PPUP t(24) = .893, p = .381, d = 0.18; MR t(24) = 1.460, p = .157, d = 0.29.

Solo performance evaluations.

The results from the solo performance evaluations pre- and post-intervention are presented in Table 7.16.

Table 7.16

Performance Evaluation Median Scores (Interquartile Range) Pre- and Post-Program and Mann-Whitney U Results for Class Participants

	Musical Sub-Area		Pre-Program	Post-Program	Difference	*U*	*p*
Student	Total (Sub-areas)	IG	31.00	35.35	4.35	229.50	.062
		CG	34.00	32.00	-2.00		
	Self-rating[a]	IG	5.00	7.00	2.00	232.50	.199
		CG	5.00	6.00	1.00		
Teacher	Total (Sub-areas)	IG	35.50	43.00	7.50	229.00	.250
		CG	37.00	36.75	-0.25		
Independent Rater	Total Score	IG	40.00	44.00	4.00	249.00	.057
		CG	32.50	33.50	1.00		
	Music Skills[b]	IG	13.00	13.00	0.00		
		CG	9.50	10.00	0.50		
	Psychological Skills[c]	IG	21.00	23.00	2.00		
		CG	19.00	18.50	-0.50		

Note. [a]Students' self-rating represents their overall satisfaction with their performance (scored on a 0 (*unhappy with this performance*) -5 (*ok*) – 10 (*extremely pleased*) scale) where 7+ indicated that they felt pleased enough with their performance for it to be heard in public. [b]Music Skills represents expression, interpretation and execution. [c]Psychological Skills represents signs of MPA, confidence, engagement and fluency. Intervention group (IG), Control group (CG).

Teacher and student total sub-areas scores, performance satisfaction (self-rating), and externally rated performance quality increased from pre- to post-intervention for both groups with intervention participants showing greater mean gains than those in the control. Within-group comparisons revealed significant improvements across all evaluation measures for students who completed the program (teacher sub-area total, z = -3.77, p = .000; student sub-area total z = -3.53, p = .000; self-rating, z = -3.70, p = .000; independent rater, z = -2.00, p = .045) but not for the control (teacher sub-area total, z = -1.09, p = .276; student sub-area total z = -0.50, p = .615; self-rating, z = -1.38, p = .169; independent rater, z = -0.30, p = .760; see Appendix M for profile plots). The improvements in independently rated performance

quality reflected increases in psychological but not musical performance skills. Between-groups differences were insignificant although the change in students' total sub-area scores and independently assessed performance quality approached significance (Table 7.16).

Table 7.17

Frequency of Completers' Pre- and Post-Program Performance Satisfaction

	Intervention Group %		Control Group %	
Performance Satisfaction (self-rating)	Pre	Post	Pre	Post
Unhappy with performance[a]	25.71 (*n*= 9)	8.57 (*n*=3)	23.53 (*n*=4)	11.76 (*n*=2)
Ok with performance[b]	48.57 (*n*=17)	34.29 (*n*=12)	52.94 (*n*=9)	52.94 (*n*=7)
Acceptable public performance[c]	25.71 (*n*=9)	57.14 (*n*=20)	23.53 (*n*=4)	35.29 (*n*=6)

Note. [a]0-3 rating. [b]4-6 rating. [c]7+ rating.

A summary of performance satisfaction frequencies (Table 7.17) indicated that whilst both groups were similar at baseline across all three categories, the intervention group showed a 31.43% increase from pre- to post-program in the number of students who felt that they had played well enough for it to be an acceptable public performance compared with just 11.80% in the control group.

Follow up.

Descriptive statistics across the three rounds of testing for the intervention participants who completed the follow-up assessment session on the non-performance measures are presented in Table 7.18. Repeated measures t-test analyses were conducted on the MPSES total scales and PSA to determine the effects of the program from the first to third testing sessions.

Table 7.18

Non-Performance Mean Scores (Standard Deviations) for Class Intervention-Participants who Completed Follow Up Measures

Measure	Pre-Program (T1) Mean (*SD*)	Post-Program (T2) Mean (*SD*)	Follow Up (T3) Mean (*SD*)	T3-T1 Difference Mean (*SD*)
MPSES				
Total Solo	156.58 (22.98)	160.67 (22.17)	167.28 (23.17)	**10.70 (20.37)*** **
Total Mixed	172.40 (27.34)	178.11 (25.03)	186.44 (24.64)	**14.03 (20.62)*** **
Verbal Persuasion	43.47 (8.65)	44.47 (6.59)	46.19 (7.35)	2.72 (7.64)
Vicarious Experience	33.91 (6.18)	36.21 (5.89)	37.37 (6.25)	3.47 (5.40)
Physiological State	35.42 (6.80)	36.53 (6.85)	37.81 (6.04)	2.40 (6.68)
Mastery Experience Solo	43.79 (7.57)	43.47 (7.60)	45.91 (6.72)	2.12 (6.94)
Mastery Experience Mixed	59.78 (10.28)	60.19 (10.26)	63.38 (9.65)	3.59 (8.12)
PSA				
Performance Under Pressure	52.91 (15.67)	59.19 (14.22)	60.93 (11.03)	**8.02 (13.46)*** **
Self-Talk	58.60 (16.12)	60.12 (18.34)	61.98 (15.63)	3.37 (15.23)
Mental Rehearsal[a]	64.77 (12.91)	72.09 (12.16)	72.44 (12.55)	**7.67 (15.33)** **
Focusing Past Distractions	62.44 (13.60)	67.33 (13.02)	66.74 (13.09)	4.30 (16.60)
Mistake Recovery[a]	61.74 (15.54)	63.95 (18.14)	62.09 (14.24)	0.35 (15.45)

Note. Bolded difference scores are those that reached statistical significance ($p < 05$*, $p < .01$**, $p \leq .001$***). Intervention group $n = 43$. T1-T3 MPSES mixed scales, $n = 32$. [a]Wilcoxon Signed Rank Test.

The intervention participants experienced improvements across the two-month follow up period in performance self-efficacy (mixed and solo) and two of its sources, verbal persuasion and mastery experiences (mixed and solo). They also continued to make gains in two of their psychological performance skills (Performance Under Pressure and Self-talk).

Over the eight-month period of the research study (pre-intervention to follow up) participants displayed significant increases in their performance self-efficacy, mixed, $t(31) = 3.85$, $p = .001$, $d = 0.68$, and solo, $t(42) = 3.44$, $p = .001$, $d = 0.53$. These were driven by improvements across all for sources, in particular vicarious experience. The significant gains in Performance Under Pressure, $t(42) = 3.91$, $p = .000$, $d = 0.60$, and Mental Rehearsal, $t(42) = 3.28$, $p = .002$, $d = 0.50$, indicated that they had improved strategies for visualising a successful performance and coping with the challenges of performing.

7.7 Summary of Main Findings

Two studies of the online program were conducted to determine its effects on self-efficacy, anxiety, and performance for adolescent music students exposed to the intervention through their studio music lessons or school music classes.

The findings from these studies show that participants who completed the program demonstrated significant improvements in state (class and studio) and general SEP (studio). Contrary to expectations, both intervention and control group-participants experienced a reduction in and more facilitative interpretation of their anxiety whilst there were no changes in MPA for studio participants. Neither intervention group improved their psychological performance skills in comparison to a control although they did strengthen their ability across a number of these skills during the course of the program. Following program completion intervention students were more satisfied with their musical endeavours and demonstrated significant within-group increases in teacher-, self- and independently-evaluated performance outcome. During the two-month follow up period these participants not only maintained their self-efficacy gains (studio condition) but significantly improved their general SEP (class condition) and psychological performance skills (studio condition), without active intervention.

The following discussion examines these results in relation to the contrasting instructional environments, the different performing experiences of the various sub-groups, and other contextual factors such as age and school level.

7.8 Discussion

7.8.1 Self-Efficacy

Few music performance interventions, such as the program used in this study, have specifically targeted self-efficacy via a multi-faceted psychological performance skills training program adopted from established sports-psychology practices. The significant

increases in SEP (general and state) provide preliminary support for the intervention model, and design and format of the program. The two interventions that are most closely related to this current study, in relation to skills developed and measures employed, also noted an increase in SEP (Clark & Williamon, 2011; Steyn et al., 2015). It seems, that both of these studies reported improvements in SEP in relation to a hypothetical performance situation.[2]

This current study is believed to be the first to observe enhanced state SEP 'in the moment' of an actual performance which is promising given the role of this self-belief in mediating cognitions, emotional reactions, and achievement (Bandura, 1997).[3] It is also encouraging that these benefits occurred across quite diverse instructional environments, in comparison to a control group for class participants' state SEP and studio participants' general SEP and, remained stable at follow up. Given the small control sample for the studio condition, and absence of a control for the follow up assessments and studio participants' performance measures, these results should be interpreted with caution. They do suggest, however, that teachers can help their students achieve meaningful improvements in SEP by supporting the inclusion of specific strategies in practice and guiding skill development during lessons.

The effects of the program did appear to vary depending on the teaching environment with class - and studio-intervention participants showing a different temporal pattern of self-efficacy development. Although both intervention samples experienced significant improvements in state SEP following the program, only studio participants enhanced their general SEP. This, however, did increase significantly for class participants during the two-month follow up period. It is unclear why these gains were not observed earlier for these students, but it may be related to the learning format, program adherence, and age.

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[2] Whilst Steyn et al. (2015) noted within-groups increases in state self-efficacy as measured by the CSAI-2 insufficient procedural information makes it difficult to ascertain if there was an actual performance requirement in this investigation. Clark and Williamon (2011) assessed SEP in relation to an imagined performance.

[3] It should be noted that Kendrick et al. (1982) and Roland (1992) both found improvements in state self-efficacy in relation to perceptions of control over anxiety during the performance. In contrast, the current study assessed state self-efficacy independently of anxiety.

One of the main goals of the intervention was to build mastery experiences through systematic self-evaluation and regular performance practice. Towards this end, teachers and students were encouraged to conduct weekly performance simulation and reviews in their lessons and home practice. The nature of class instruction, however, made it difficult for students to perform regularly for their teacher. Indeed, these participants had few opportunities to simulate and review performances in class compared with studio students who completed on average ten of these within their lessons. Although class participants indicated that they were regularly performing and reviewing at home (averaging 14 simulations and 9 reviews), studio participants achieved at least twice as many over the course of the study.

Students who completed the program with their studio music teacher also demonstrated higher course adherence, knowledge, and self-awareness ratings, indicating that they gained more from the program than class participants (refer Appendices G and I; sections 7.4.3 and 7.6.3). Whilst this may reflect more individually tailored and instrument specific guidance from their studio music teacher it could also be age-related. Studio participants were almost two and a half years younger than their class counterparts (mean age studio, 14.10 years [*SD* 1.57]; class, 16.48 years [*SD* 0.88]) and might have had more time to devote to the program as a result of a less demanding academic workload.

Studio participants' increased belief in their ability to perform was enhanced through gains in vicarious and mastery (mixed) experience, verbal persuasion, and physiological state. This shows that they were experiencing more successful and enjoyable performances, had increased opportunities to observe self-improvement and/or others' performing successfully, were receiving positive feedback from significant others, and felt that they had more control over their anxiety.

Their numerous simulations and reviews would have provided them with the opportunity to recognise incremental improvements and overall performance success.

Although these may have contributed to verbal persuasion through more positive self-evaluation, the self-communication component of this source is not assessed by the MPSES. Thus, the improvements in this area (6.71%) reflect only feedback from others. The simulations and reviews would, however, have been important in promoting the development of strategies to manage arousal and improve their outcomes. These would have potentially influenced mastery determinations and physiological state, as each week of the program outlined a performance process that directed them to incorporate specific techniques into their simulation training. Although mastery experiences showed modest gains (6.27 [solo]-6.37% [mixed]) physiological state was augmented by 19.05% from pre- to post-program.

Vicarious experience, which was not originally targeted as one of the main sources to enhance SEP, showed the strongest improvement initially (an increase of 26.20% from pre- to post-program). This was most likely strengthened through exposure to real world examples of performers modelling the skills and ideas discussed. Understanding how other musicians integrate these strategies into their practice and performance routines has been identified in previous intervention research as an area of high interest for participants that could be more fully utilised when training these skills (Clark, 2010; Clark & Williamon, 2011). In support of this, feedback from the pilot study indicated that the students found relatable examples inspiring, interesting, and helpful for understanding the concepts. Viewing recorded simulations and visualising successful performances may also have contributed to this source through self-modelling although, as noted with verbal persuasion, this would not have been captured in their MPSES scores as the items for this subscale only reflected external vicarious experiences.

The fact that class participants had fewer opportunities to practice performing, develop skills, self-evaluate, and observe self-improvement, in conjunction with lower course adherence, could explain the delayed increase in general performance self-efficacy and its sources. It is also possible that they were under-rating their performances. As they rarely

performed in class they would have had limited teacher guidance and feedback to ensure that their evaluations were accurate and objective. Consequently, these students may not have been experiencing the positive communication, personal satisfaction, and self-improvement that would contribute to increasing mastery determinations, verbal persuasion, and vicarious experience during the program, needing more time to develop these sources to build a stronger sense of efficacy. Furthermore, they were less likely to watch the online tutorials during the second half of the course reducing their exposure to real world examples and vicarious experiences. Nevertheless, general SEP was enhanced at follow up for class participants although the overall gains were not as strong as those observed for students completing the program with their studio music teacher. As seen with the studio participants the greatest improvements were made through vicarious experience (10.23%) followed by physiological state (6.78%), verbal persuasion (6.26%) and mastery (4.84 [solo]-6.01% [mixed]).

These results suggest that SEP can be enhanced in the short-term through targeted strategies that strengthen physiological state and vicarious experience. The smaller increases in verbal persuasion and mastery could indicate that participants need more time to further strengthen these sources. Whilst simulations provide the opportunity to gain experience and develop skills they can only partially represent a 'live' performance and potentially have less impact on mastery determinations. It is possible that with increased exposure to real world performances (that are self-judged as mastery experiences) over time, in conjunction with affirming external feedback, continued simulation practice, and enhanced proficiency with psychological performance skills, mastery experiences will show greater improvements.

Regarding verbal persuasion, the effects of the intervention are more difficult to determine since the MPSES items did not reflect self-communication and it is possible that this source was enhanced further through positive self-evaluation. The fact that self-talk (as measured by the PSA) seemed to be resistant to change over the course of the study,

however, does suggests that this is an area that also needs a longer-term approach. Extending the MPSES to include items that reflect self-communication (and self-modelling) would also help clarify the benefits of future interventions on these sources.

7.8.2 Anxiety

Although all of the intervention participants became more efficacious, their state anxiety did not improve in comparison to their respective controls. This was unexpected as higher levels of self-efficacy are generally associated with lower and more favourable perceptions of anxiety (Abel & Larkin, 1990; Bandura, 1997; Feltz et al., 2008; Hatice, 2015; Treasure et al., 1996). This relationship, however, has yet to be clearly defined. For instance, there is limited knowledge about the stability of this association over time and whether it will vary due to different performing contexts, accumulated experience, or as the result of an intervention. There is also more to be understood about how it might operate in relation to the directional and dimensional aspects of anxiety within the music domain (Gill et al., 2006; Hatice, 2015; Yoshie et al., 2009).

Some interesting within-group patterns emerged with state anxiety that could help clarify the interaction between these variables in a performance context. In the class condition intervention participants experienced significant improvements in intensity and direction for both anxiety dimensions whilst cognitive anxiety did not change for their control counterparts. In contrast, all aspects of anxiety remained stable for participants completing the program with their studio music teacher. These were quite distinct trajectories of MPA and suggest that there are other factors mediating the SEP-MPA relationship.

Class condition.

Anxiety has been shown to decrease in musicians with repeated exposure to the same performance conditions without active intervention (Bissonnette et al., 2015; Braden et al.,

2015). Whilst it is possible that the reductions that occurred for all of the class participants were simply due to performing experience, this does not explain the different within-group patterns that emerged for these students.

There were some notable differences between the treatment groups in their performance experiences during the course of the research study that may have affected their anxiety response. Intervention class-participants conducted fewer class performance simulations, averaging three to four across the course of the research study, compared with those in the control who performed around fifteen times in front of their peers during this period. In addition, they were less familiar with the performance environment. Approximately 66% of intervention students were subjected to more formal conditions, performing in the school auditorium (rather than their class-room) for the pre- and post-performance assessments. The fact that they still displayed similar improvements in somatic anxiety to control participants, with additional beneficial changes to the cognitive dimension, could reflect their enhanced self-efficacy and other favourable effects of the program. For instance, their improved psychological performance skills indicate that they had developed strategies to cope with pressure which may have helped to alleviate their anxiety. They were also more proficient at visualising an optimal performance which would have provided them with an alternate method of simulation.

Studio condition.

In the studio condition behavioural exposure and a stronger sense of efficacy were not associated with any changes in state anxiety. This was interesting, particularly in light of the intervention class-condition results and the reductions in both cognitive and somatic dimensions that were observed in the pilot study. These findings may be related to the more taxing performance environment. Studio participants performed in a strange auditorium in front of an unknown audience and were thus subjected to a less familiar and more formal

performance setting than the pilot or class condition students. This did not differentiate their baseline levels of state anxiety (dimension and direction) from that of the class participants but may have increased the level of challenge and perceptions of self-exposure, contributing to and maintaining their anxiety response in spite of the beneficial effects of the intervention (Papageorgi et al., 2007). Although reductions in state anxiety following cognitive behavioural therapy (CBT), MST, and/or behavioural exposure have been found to occur across a variety of performance settings, this has been reported for students performing within their music institution or school environment and thus familiar with the performance space (Braden et al., 2015; Miller & Chesky, 2004; Osborne et al., 2014; Osborne et al., 2007).

Multidimensional anxiety and self-efficacy.

These mixed within-group findings are consistent with other intervention studies that have assessed MPA and self-efficacy. Some have reported that enhanced efficacy following cognitive behavioural therapy or MST has also been associated with a reduction in MPA (Kendrick et al., 1982; Steyn et al., 2015). Others have found MPA to be unaffected by the intervention despite an increase in self-efficacy and a focus on arousal managements strategies within the program (Clark & Williamon, 2011). As previously discussed methodological issues with these studies (for example, the use of a hypothetical performance situation or an anxiety dependent self-efficacy measure) also make it difficult to draw conclusions regarding the SEP-MPA relationship.

The distinctly different patterns that emerged within the participant sub-groups in this investigation suggest that aspects of anxiety (dimension, direction) and situational factors may provide some explanation for the equivocal results. Moreover, rather than concentrating solely on variations in self-reported levels, it could be more productive to focus on

understanding how individuals process and integrate multidimensional anxiety and efficacy information across different types of performance contexts.

Dimensional anxiety and self-efficacy (CSAI-2R self-confidence) are conceptually independent but are expected to interrelate under threatening or stressful conditions (Martens et al., 1990). In precompetitive sports-performance these components have been shown to have moderately high interrelationships (Martens et al., 1990). Although scant research has been conducted on the nature of these relationships in music performance, the limited information available suggests that somatic intensity and self-efficacy operate independently while perceptions of anxiety become more negative as the level of challenge increases (Gill et al., 2006; Larrouy-Maestri & Morsomme, 2014).

An examination of the within-group intercorrelations at baseline and post-intervention produced some interesting findings, supporting a non-significant relationship between somatic anxiety intensity and self-efficacy (CSAI-2R self-confidence), and revealing a pattern of associations that varied according to the performance context, treatment group, and testing round (Table 7.19).

Table 7.19

Correlations Among State Anxiety and Self-Efficacy Pre-and Post-Intervention by Condition and Treatment Group

	Studio Participants Self-Confidence		Class Participants Self-Confidence			
	Intervention		Intervention		Control	
	Baseline	Post	Baseline	Post	Baseline	Post
Cognitive Intensity	-0.61**	-0.46*	-0.55**	-0.45**	-0.31	-0.41
Cognitive Direction	0.60**	0.23	0.31	0.31	0.02	0.57**
Somatic Intensity	-0.34	-0.08	-0.15	-0.12	-0.39	-0.36
Somatic Direction	0.48*	-0.13	0.33	0.04	0.10	0.31

*$p < .05$, **$p < .01$

Prior to the intervention, anxiety (with the exception of somatic intensity) and self-efficacy covaried to a moderately high degree within the studio condition but displayed a more independent relationship for class participants. This suggests that the degree of synchronicity between these variables increases as the situation becomes more challenging. Under more relaxed or familiar conditions self-efficacy may operate independently of anxiety (control class-participants) or interrelate only with cognitive intensity (intervention class-participants). Following the completion of the program there was a reduction in the strength of the relationships for both intervention groups and a marked shift in the pattern of covariance for the studio participants with only cognitive anxiety forming a direct association with self-efficacy.

Understanding these variations in the underlying interrelationships provides some further insights into the inconsistent state anxiety result patterns observed among the different sub-groups. It also has important implications for pedagogical practices and intervention programs. The independent relationship between somatic anxiety and self-efficacy for these participants explains why reductions in MPA may not be associated with enhanced self-efficacy and (via an indirect path from self-efficacy) improved performance outcomes. It also highlights the fact that whilst behavioural exposure may have beneficial effects on performers' anxiety this will not necessarily lead to more efficacious performers unless the cognitive dimension and perceptions of anxiety are actively addressed.

Table 7.19 also shows that anxiety and self-efficacy synchronised to a greater degree at baseline in the studio condition where the performance conditions were more challenging. In this context, a strong sense of efficacy may mediate arousal preventing the performer from becoming overwhelmed by their anxiety response. Conversely, it is also possible that high levels of anxiety may undermine performers' beliefs in their capabilities. The results from this investigation indicate that it may not be necessary to improve anxiety to enhance self-efficacy since studio participants became more efficacious following the completion of the

program despite their anxiety remaining stable. They did, however, experience a distinct change in how these variables interrelated from pre-to post-intervention. This implies that meaningful changes might also be accomplished through manipulating the pattern and strength of these associations.

Although it is not possible to make causal attributions, self-efficacy and anxiety are expected to reciprocally relate (Bandura, 1991, 1997; Feltz et al., 2008). If self-efficacy can operate more independently of anxiety then it is conceivable that performers' arousal, even when high and debilitative, is less likely to become an impediment to performance as they can more fully utilise the benefits of their self-belief. One way to potentially neutralise the negative effects of anxiety on judgements of capability is to change performers' perceptions of control over, and interpretation of, their anxiety response (Bandura, 1982; Feltz, 2007).

An important goal of psychological performance skills training is to help individuals understand, reappraise and manage the symptoms of anxiety. Reappraisal can change individuals' experience of this response from negative, aversive, and threat-related to one that is positive, pleasant, and challenge-oriented (Brooks, 2014). The program's emphasis on reframing anxiety as energy or excitement, normalising this reaction, encouraging awareness and acceptance of symptoms, and highlighting its positive effects on performance may have enabled participants to reinterpret their anxiety as 'psyched up' or excited. Adopting this type of positive, challenged-oriented mind-set has been associated with enhanced self-efficacy and less cognitive anxiety which is what occurred for the class intervention-participants (Brooks, 2014; Osborne & McPherson, 2018). It has also been found to strengthen efficacy without a corresponding reduction in the intensity of arousal in music, public speaking, and math performance providing some explanation for the incongruous studio participants results (Brooks, 2014; Clark & Williamon, 2011; Osborne & McPherson, 2018).

Similarly, when performers' feel that they can control their anxiety using cognitive or behavioural strategies it can instigate a shift in perspective leading to more facilitative perceptions of this response (Hanton et al., 2003; Jones, 1995; Skinner, 1996). This is supported by insights provided by musicians following a nine-week MST program that enhanced self-efficacy (Clark & Williamon, 2011). Although the program did not alleviate anxiety the students reported changes in perceptions of control and more positive interpretations of their anxiety response. In the current study studio participants' improvements in their physiological state source indicate a heightened belief in their ability to manage anxiety and mistakes, two major sources of concern for performers (Kenny, 2011; Robson & Kenny, 2017). Whilst this was not reflected in directional anxiety changes, these more favourable perceptions of control may also have contributed to the weaker association between self-efficacy and anxiety post-intervention for all intervention students. Including a measure of perceptions of control over internal emotional reactions in future investigations might offer more understanding of the complex processes underlying these relationships.

The distinct interrelationship patterns that emerged pre-and post-intervention and across the different performance contexts may signify the mechanisms underlying incongruous SEP-anxiety findings. Due to the small sample sizes of the sub-groups this was only an exploratory investigation of these associations in music performance. It does, however, provide some interesting preliminary information highlighting the importance of the self-efficacy-cognitive anxiety connection and how these processes might evolve across different performing situations and in response to an intervention. Psychological performance skills training may alter the strength and pattern of influence enabling the performer to increase self-efficacy and diminish the negative influence of anxiety on their capability judgements even when levels of arousal remain unchanged.

7.8.3 Performance Evaluation

Teacher and student performance evaluations improved for all participants. Despite their higher mean improvements and performance efficacy gains, intervention class-participants did not boost their self-evaluated performance scores relative to the control sample.

Some marked within-group patterns emerged again amongst the sub-groups with the two intervention samples demonstrating significant achievements across all evaluation measures. They were also more satisfied with their performances following the program advancing their mean self-rating from feeling okay about their playing to being almost happy enough with it to be heard in public (6.67: class condition) or pleased with their efforts in front of an audience (7.15: studio condition). These subjective performance satisfaction ratings may be one means of identifying or qualifying mastery determinations that are so important to developing SEP.

Interestingly, independent evaluation indicated that studio participants improved both their psychological (MPA, confidence, focus) and musical performance (expression, interpretation, execution) skills by 11.32% and 16.78% respectively. Students who completed the program with their class teacher showed a smaller gain of 4.99% in their psychological performance skills only.

In comparison, control participants did not show the same level of attainment. Although there were slight improvements in their teacher-, self- and independent-evaluation mean scores, these were non-significant, and their performance satisfaction did not increase across the three rating categories.

Self-assessment is integral to music learning and performance, and a key component of verbal persuasion and the self-reflection phase of self-regulated behavior (Zimmerman, 2000). It is therefore concerning that music students are critical of their endeavours, judging themselves harshly even in informal performance situations such as playing in class or

performing for their teacher. As observed in the pilot study these students consistently undervalued their efforts in comparison to their teachers. The low performance satisfaction ratings observed across all participants are also troubling as these will impede mastery determinations and undermine SEP. Approximately 30% of the initial sample indicated that they were dissatisfied with their performance (0-3 rating) whilst only 15% were happy with their effort in front of an audience (7+ rating). Seven students were so displeased with their playing that they self-scored zero for this scale.

Figure 7.4 represents an extreme example of the disparity that was found to occur between some student and teacher assessments. In this example the high teacher-ratings across the musical sub-areas are a marked contrast to the student's exceedingly low evaluation of the same scales and indicate that this performer's dissatisfaction is unwarranted. Such disproportionate subjective and objective assessment reveals how easily SEP can be undermined by negative self-perceptions and why external validation (for example, praise or high marks) may not always lead to mastery experiences. It also raises the issue of whether teachers are aware of their students' self-perceptions, particularly if they *appear* to have performed successfully.

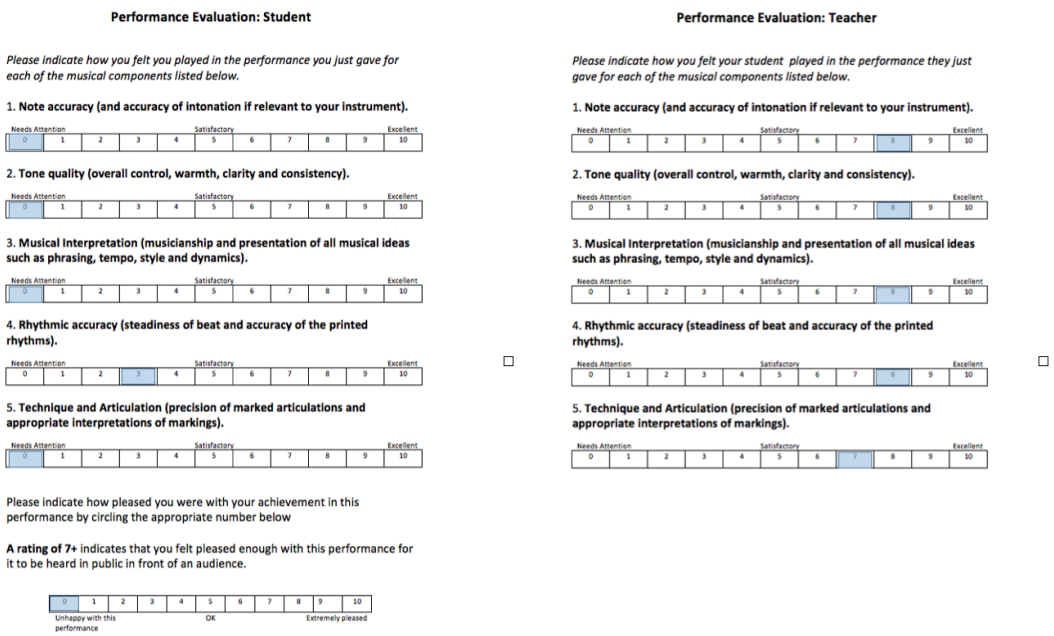

Figure 7.4. Extreme example of disparate student and teacher post-performance evaluation.

It is clear that no amount of performance exposure will ensure mastery determinations and SEP when performers engage in this type of destructive self-judgement. Indeed, one class participant who was 'extremely unhappy' (rating of zero) after performing at baseline indicated in the week 13 program feedback an inability to recall even one positive or successful experience.

> Good performances?! I really don't think that I have any, at least not that I can remember.

Just a few weeks after making this statement the same student selected a post-intervention, performance self-rating of six. This was clearly a more positive experience, very close to a mastery determination, and included a handwritten comment:

> It was better than usual.

Defining processes that will help teachers to tap into students' self-perceptions, understand the rationale for their evaluations, alter irrational or unrealistic perceptions of success, and provide them with the skills to be more objective and less critical in their self-assessment is important for developing efficacious performers. Incorporating regular, guided performance-evaluations into the music curriculum may be one means of achieving these outcomes. This type of systematic self-assessment formed a core part of the program, guiding participants to recognise the positive aspects of their performance, identify errors or difficulties, and determine strategies for improvement. Central to the review process was encouraging students to redefine or challenge their idea of what constituted a successful performance. The aim was to increase verbal persuasion through positive, objective self-and teacher-evaluation, and mastery experiences through the recognition of small successes and

progress over time. The improved self-ratings, performance satisfaction, and self-efficacy observed for intervention students may in part be due to the regular reviews that they conducted throughout the program.

The higher teacher- and independent-evaluations post-program for intervention students also indicates that the quality of their performances had improved. Thus, the gains in performance quality reflect an actual improvement in their playing as opposed to just learning to evaluate themselves more positively. These enhanced outcomes were associated with a stronger sense of self-efficacy for all students who completed the program and beneficial anxiety changes and augmented psychological performance skills for participants within the class condition (Figure 7.5).

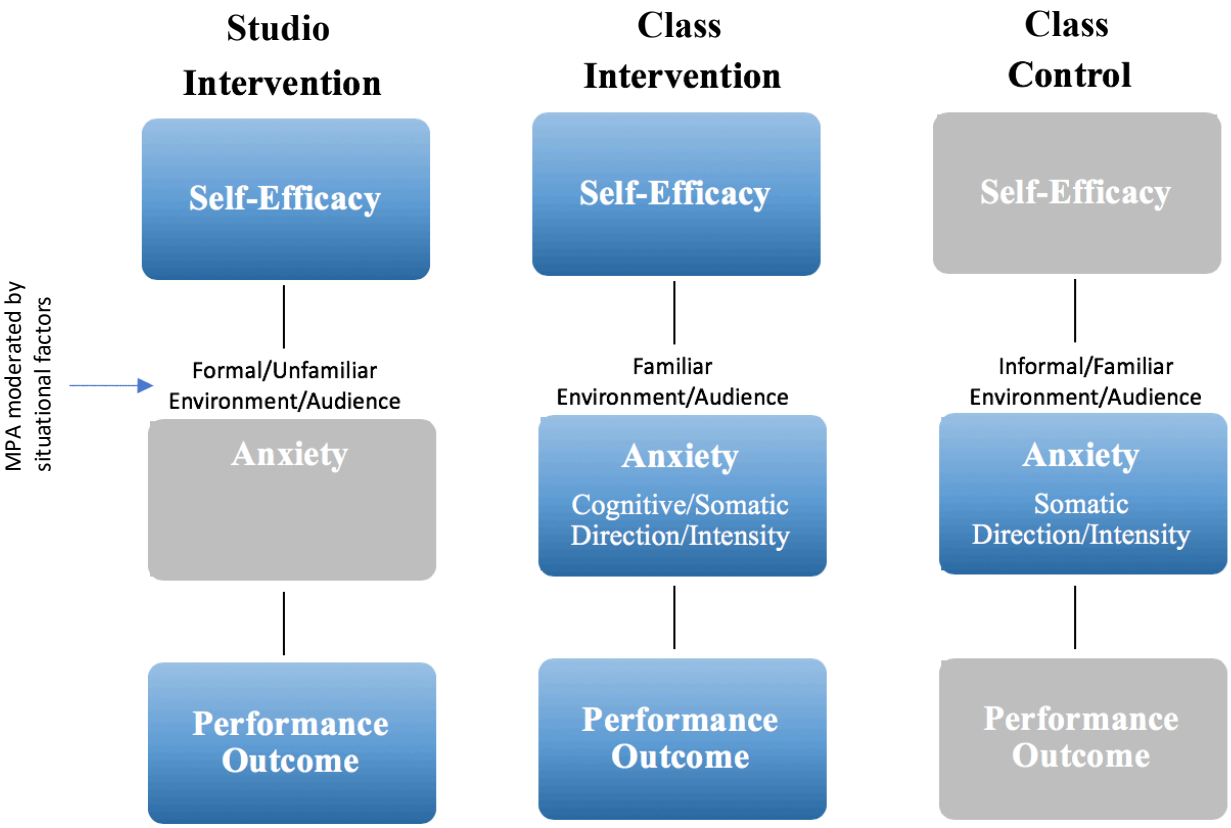

Figure 7.5. State variables and performance outcome patterns by group and condition. Blue highlights indicate significant improvements post-program.

It is not surprising that performance outcomes improved in conjunction with higher efficacy levels since this self-belief has been identified as a strong predictor of performance achievement within music and academic areas (McPherson & McCormick, 2000; Pajares & Kranzler, 1995; Siegal et al., 1995; Usher, Li, Butz, & Rojas, 2019). The relationship between MPA, and performance, however, has remained unclear. It has been difficult to define due to limited knowledge of multi-dimensional MPA and inconsistent findings, mirrored in this investigation, that show that reductions in MPA are not always associated with a corresponding change in performance quality (Figure 7.5; Braden et al., 2015; Brooker, 2018; Hoffman & Hanrahan, 2012; Osborne et al., 2007).

The higher performance outcomes for the intervention groups occurred with and without a reduction in anxiety whilst control participants improved somatic anxiety did not equate with enhanced performance. Self-efficacy may be one mediating factor accounting for these discrepant results, perhaps acting as a buffer to high anxiety as the conditions become more challenging.

The differential effects of dimensional anxiety should also be considered. In general, the cognitive dimension has been found to form a stronger association with performance than somatic anxiety (Martens et al., 1990). At high levels it is believed to be more likely to impair performance whilst directional interpretations have been found to predict global performance and specific musical skills in pianists (Gould et al., 1984; Larrouy-Maestri & Morsomme, 2014; Yoshie et al., 2009). Furthermore, reductions in this dimension following MPA therapy targeting implicit thought processes have been associated with enhanced piano performance even though somatic symptoms remained unchanged (Brooker, 2018). This not only provides further support for the limited influence of somatic anxiety on performers' achievements but also suggests that the class intervention participants' reduction in and more favourable perceptions of their cognitive anxiety may also have benefitted their musical endeavours.

Previous research has not accounted for the combined influence of multi-dimensional MPA, self-efficacy, and environmental context on musical outcomes (Figure 7.5). Although the strong association between cognitive anxiety and SEP (Table 7.19) indicates that they will undoubtedly interact to influence achievement, self-efficacy may become more independent or exert a greater influence as the perceived level of threat increases or the performance context becomes more challenging. This provides further justification for developing this self-belief over and above reducing levels of anxiety. It also has implications for performers and music educators aiming to optimise performance. Understanding that arousal will not necessarily be indicative of outcomes or self-belief, sends an important psychoeducational message and may guide pedagogical approaches and inform psychological performance skills programs.

7.8.4 Instructional Condition, Program Delivery and Effects

Similar to the pilot study teachers and students found the program to be of value but still felt that it was too demanding and time consuming in its present format. The pressure to meet the requirements of the research study, provide weekly feedback, and ensure that multiple students remained on course placed a heavy burden on teachers. Although every effort was made to reduce the content for the main study, the intervention still needed to cover a considerable amount of information and develop a wide range of skills at the stepwise level within a relatively short time-frame. Thus, it was difficult to avoid a rigorous and prescriptive research design. Nevertheless, the amended version of the program did result in higher engagement, participant retention (>80%), and adherence for both instructional conditions.

Program schedule.

One of the main challenges faced by teachers was maintaining the program schedule. This was particularly difficult for class music teachers who had to navigate the varied levels of student engagement and course compliance and coordinate the implementation of the program around the demands of the Victorian Certificate of Education (VCE) curriculum and school activities. Since the program was not part of the assessed curriculum some class participants fell behind as they prioritised other commitments or did not familiarise themselves with the program content prior to their music class. This made it hard for teachers to monitor their students' progress and ensure that the weekly discussion topics and activities remained relevant for the whole class.

School teachers managed this in a variety of ways, for example, completing some modules during class or encouraging students to move through parts of the program independently. Although there were two scheduled non-program weeks to allow some flexibility to prioritise other commitments these obviously needed to occur more often:

> A catch up week will be appreciated as scheduled between Weeks 8 and 9. Suggest a catch up week after every 4 lessons? Especially in schools where there are so many interruptions e.g. Year 10 students accelerating/doing Unit 1 will be absent next week on camp. (CT3, week 5)

One teacher overcame these challenges by presenting the videos in class each week. This enabled all students to become familiar with the content, make meaningful contributions to class discussions, and understand how to build upon and implement the strategies into practice:

> I have started showing the videos to the students in class because they weren't watching them at home. This has worked well and has enabled everyone to take part in the discussions after the videos. (CT2, week 8)

Delivering the online content in-class in this manner minimises the self-directed component of the program and may be one way to combat the inevitable variations in motivation, engagement, and adherence when instructing group classes. This method of delivery might be unrealistic, however, due to the extra lesson time teachers would need to commit to developing these skills but may be possible in the lower secondary year levels where the curriculum is more flexible. Providing the program as an open-ended resource that allows teachers to have autonomy over the delivery, scheduling, and sequencing of content could also make this approach more feasible.

Instructional condition.

The contrasting instructional settings and diversity of teaching styles meant that participants received different levels of guidance and support, and variations in the delivery of program activities. Class participants had more opportunity to learn from their peers through modelling and shared activities than students who completed the program with their studio music teachers. The class activities provided a chance for students to share their opinions and experiences on topics or concepts that are rarely covered in the classroom. One teacher particularly liked the discussion that was generated in relation to self-talk:

> [I liked] the conversation the content of Week 4 promoted within the lesson. The students even branched away from Music talk to discuss how their self-talk impacts on other parts of their lives. It was a very animated conversation. (CT4, week 4)

The nature of the class environment, however, meant that they had less chance to perform in class and review their efforts with their teacher. They were also expected to be more independent in their application of the program content. In contrast, studio participants would have experienced a higher degree of one-on-one support and attention to help them with skill development, maintaining motivation, and incorporating the strategies into their practice. They may also have felt more comfortable sharing their experiences in private with their teacher than students in the class situation. As one class teacher noted at the conclusion of the program:

> Some students found the power poses and virtual performances difficult to talk about in class discussion. It's personal to each student. (CT3, week 14)

The fact that studio participants displayed higher levels of adherence, gains in knowledge, and self-awareness and more positive performance expectancies than those in the class condition may reflect these differences in support and teaching environments.

It should also be taken into consideration that these two groups were at different stages of their secondary education. Studio participants, who were at the lower secondary level, would have had a less demanding academic workload and perhaps fewer pressures associated with their musical endeavours than the class participants completing their final school years (State Education Department, 2018). Thus, they might have been more willing to experiment with the strategies during practice and invest time in the program. In contrast, class participants could have been reluctant to commit valuable practice and study time to activities for which there are often no immediately perceivable benefits, during an educational period where there is immense pressure to maintain a high-standard of academic achievement:

> These students are very time poor and breaking down their practice time into such detailed components is probably beyond some of them. (CT3, week 14)

Students' results during their final two years of school can have a large impact on their future and this may not be an optimal time to introduce a novel program. On the other hand, this did present a good opportunity for them to apply the concepts to benefit their music outcomes and by extension their Australian Tertiary Admission Rank (ATAR) score that is the main criterion used for selection into undergraduate university degrees. Teachers took advantage of music School Assessed Coursework (SAC) and non-class performances to encourage students to integrate the techniques into their playing. Linking the skills to real world performance situations would have made the material more relevant and perhaps enhanced their motivation to continue moving through the program:

> Great timing for our class which has its major Semester 1 recital on Thursday 22nd May. They will all be practising this routine prior to their performance. Each student will perform 2-3 pieces. (CT3, week 7, pre-performance routine)

> Extremely good preparation for recital performances which occurred in the same week. It will be more valuable if we use the Simulation plan to prepare for the next recital in Term 3. (CT3, Week 8)

> I found both of the videos very helpful to the students. They are also using square breathing and the pre-performance steps prior to the Outcome 1/SAC 1 performances. (CT2, week 8)

> The students had a recital last week and I asked them all to focus on their pre-performance routine prior to starting. There was a significant improvement in their

performances during the recital compared to their performances earlier in the Units. (CT2, Week 9)

Program effects.

In spite of these dissimilarities participants from both instructional conditions benefitted from the intervention, significantly improving their state and general SEP, performance satisfaction, performance outcomes, and ability to perform under pressure and mentally rehearse over the eight-month period of the research study. There were, however, some differential treatment effects for the two intervention groups in the magnitude, range and timing of these achievements.

Magnitude of gain.

Students who completed the program with their studio music teacher made greater gains across all mutually significantly improved variables (except for performance satisfaction~~)~~ than class participants (Table 7.20). Although improvements were only minor for the PSA subscales, the magnitude of the difference was far greater for the performance evaluations (self, 49.44%; teacher, 57.69%; independent, 116.79%) and general (solo, 47.94%) and state (57.38%) self-efficacy. Vicarious experience (studio, 26.20%; class, 10.23%) and physiological state (studio, 19.05%; class, 6.78%) were the main sources behind these differential effects in general SEP as both instructional conditions made similar advances in verbal persuasion and mastery experiences. Interestingly, the greater improvements made by studio participants in state SEP were matched by a corresponding magnitude of percentage increase in their performance ratings. This would seem to provide further support for the influence and predictive power of SEP on achievement.

Table 7.20

Comparison of Improved Non-Performance (Pre-Program to Follow Up) and State (Pre- to Post-Program) Mean Difference Scores (Standard Deviations) for Intervention Participants

	Studio Mean (*SD*)	Class Mean (*SD*)
Non-Performance		
MPSES		
Total Solo	15.83 (21.54)	10.70 (20.37)
Total Mixed	15.60 (29.21)	14.03 (20.62)
Vicarious Experience	5.39 (6.59)	3.47 (5.40)
Physiological State	7.00 (7.13)	2.40 (6.68)
PSA		
Performance Under Pressure	8.33 (13.83)	8.02 (13.46)
Mental Rehearsal	7.78 (13.96)	7.67 (15.33)
State		
CSAI-2R		
Self-Confidence	0.96 (1.29)	0.61 (1.39)
Performance Evaluation		
Student Total Sub-Area	6.71 (8.92)	4.49 (9.05)
Student Self-Rating	1.42 (2.40)	1.86 (2.60)
Teacher Total Sub-Area	7.79 (8.18)	4.94 (5.75)
Independent Rater Total Score	4.92 (7.87)	2.28 (8.64)

Note. These were variables that *significantly* improved for both studio and class intervention-participants

The one exception to this pattern was performance satisfaction. Here the stronger gains made by the studio participants in SEP were not mirrored by greater satisfaction with their effort as class participants improved by an extra 31% on this variable. This anomaly might be explained by the different patterns of state anxiety that emerged post-program between these two groups (Figure 7.5).

Subjective performance quality has been shown to display a negative association with anxiety when performers experience their 'usual' levels of MPA (Nielsen, Studer, et al., 2018; Studer, Danuser, Wild, Hildebrandt, & Gomez, 2014). Thus, class participants reduction in and more favourable perceptions of their MPA may have contributed to a higher sense of satisfaction. The fact that studio participants still significantly improved in this area,

despite having to contend with their normal amount of arousal, could be a reflection of their enhanced SEP. It might also be related to learning to evaluate themselves more positively. This has implications for mastery determinations and ultimately SEP as the link between MPA and self-perceived performance has been found to be stable across different performance contexts and relatively independent of situational factors (such as presence of an audience; Studer et al., 2014). Furthermore, subjective performance quality evaluations have also been shown to mediate the quality and degree of thoughts (positive versus negative) that performers engage in post-performance potentially impacting levels of MPA for future performances and maintaining this cycle (Nielsen, Studer, et al., 2018).

Range of skills.

Studio participants also strengthened additional psychological performance skills boosting their ability to focus during a performance and recover from mistakes. Although class participants experienced beneficial changes to their state anxiety that were not observed in the studio students it is difficult to ascertain whether this was a result of the program, a function of the more familiar performance setting, or a combination of both of these factors.

Temporal pattern of development.

There was also a divergent temporal pattern of achievement between the two intervention groups in general SEP and some of the psychological performance skills, with changes in these measures observed post-intervention for one group and at follow up for the other. Whilst the delayed gains in general SEP for class participants may be attributed to differences in program delivery, teacher support, and competing academic commitments, this does not explain the slower rate of progress for studio participants in their ability to perform under pressure.

As previously discussed these students were more than two years younger than their class counterparts. It could be that certain mental skills take longer to develop in early adolescence. Although these types of skills have been found to improve in as little as three weeks for adult musicians not much is understood about how they might evolve in response to an intervention in younger age-groups and what other factors might mediate their development (Osborne et al., 2014). There is some suggestion that musical experience could impact students' understanding of concepts and their recognition of the usefulness or benefits of incorporating these elements into their playing (Clark, 2010).

Developmental stage might also be a contributing factor. Self-talk and imagery, for example, can be quite abstract concepts for young students to grasp, particularly in the context of playing a musical instrument. They also represent a marked departure from what they would normally be attending to in practice. The fact that studio participants achieved their greatest gains across three of these skills (self-talk, performance under pressure, and mistake recovery) during the follow up period suggests that they need to be nurtured over the long-term if they are to be developed to their full potential.

7.8.5 Follow Up

Follow up assessment is important for determining the success of an intervention and understanding whether its effects are transient, long-lasting, or further enhanced over time. Although two-months is a relatively short follow up interval it is encouraging that the beneficial effects of the program on general SEP and psychological performance skills were not only maintained but continued to increase for both intervention groups. It is not unusual to observe further gains in the period following an intervention, as participants continue to practice and develop their skills (Kanfer, 1979; Kendrick et al., 1982). It is possible, however, that without the continued support of their teachers the progress of these students may plateau or even decline over time. Although learning the skills is a positive first step

maintaining the motivation to develop proficiency over the long-term is difficult for any student, no matter what the subject content, without consistent guidance (Bull et al., 1996; Zaza, 1993).

Another inhibiting factor of one-off or timed interventions is the pre-determined programming of development. Skill mastery depends on individual factors such as age, motivation, quality and quantity of practice time, levels of self-awareness, and learning ability. Normally teachers would determine when students are ready to progress to the next step or level. Short-term interventions by necessity cannot allow for this natural progression or long-term skill development as they are often designed to achieve maximum gain across the shortest duration to minimise expense, commitment, and inconvenience (Hoffman & Hanrahan, 2012; Kenny, 2005). For these reasons there can be a tendency to present substantial amounts of information and introduce a number of different concepts in quick succession which can be overwhelming for participants (Clark, 2010). This did become apparent as students progressed through this program with some class teachers commenting that students were struggling to differentiate between ideas in the latter half of the course:

> The videos are gradually blurring into one another - the students are finding it difficult to delineate between what they have seen previously and the most recent videos. It has [also] become clear through discussions in class that many students are not building on the work from week to week, trying new elements and then discarding them as the workload juggle is proving too much when combined with other subjects and outcomes in this course. (CT1, week 8)

The original intent of this research was to develop a methodology that could be embedded into school and studio lessons and promote the development of psychological and performance skills as a natural part of musical learning. The current format was a means of assessing whether this approach was a viable and effective option. Despite the information

overload and the challenges associated with adherence and maintaining the schedule, it has shown that teachers can effect meaningful improvements by embedding performance enhancement strategies into lessons and practice. Outside the parameters of a research study this design could be modified to promote systematic long-term skill development by allowing teachers to choose when to implement each module. This would enable them to tailor the delivery and application of the program to the needs of their students, so that these skills could naturally develop, ideally over the entire course of their music learning. Such an approach would be less intrusive and alleviate the pressure of delivering an intense program. It would also allow sufficient time for the assimilation of information, a chance to explore and experiment with the concepts, the integration of skills and, the possibility of introducing more advanced training in the future.

7.8.6 Limitations

There are several limitations to this study that should be taken into consideration when interpreting the findings.

The length of the research study made it prohibitive to conduct a third solo performance assessment and include the control groups at the follow up session. Thus, it was not possible to determine the sustained or cumulative effects of the intervention on state self-efficacy or anxiety. It is also difficult to draw firm conclusions about whether the improvements noted in the intervention groups over two-month follow up period were due to the effects of the program or whether they would have occurred naturally over time.

Class condition.

The class-condition control and intervention samples differed in size and the types of performing experiences they encountered during the course of the study. The treatment groups in this condition were originally weighted to favour the intervention sample in

anticipation of an attrition rate that did not eventuate. Whilst this reflects positively on the amended program a more even distribution of participants might have resulted in less disparate performing experiences. It is difficult, however, to avoid confounding variables when conducting research across varied locations and implementing a program within pre-existing curriculums determined in part by school, year level, teacher preferences, and the State Education Department. The fact that the intervention group still experienced positive benefits in comparison to the control, despite having less behavioural exposure and familiarity with the assessed performance environment, does contribute to the ecological validity of the program.

Studio condition.

Participants within the studio condition were not randomly allocated to the treatment groups although they were similar at baseline on all variables. In addition, the control sample was small and there was insufficient data to conduct between-groups comparisons for the performance measures. Recruiting adequate numbers of students to participate in a music intervention is challenging even under the most favourable of circumstances let alone for programs this lengthy and time consuming. Indeed, few studies of this nature have reported sample sizes above 30 (Osborne et al., 2014; Steyn et al., 2015). The initial cohort of 36 participants was thus comparatively large particularly as the program also required a substantial commitment from teachers. To avoid losing too much statistical power due to inevitable attrition, all of these participants were allocated to the intervention group, a decision that was well-founded given the final sample size. It was unfortunate that further recruitment efforts for control participants were only mildly successful and hindered by the end of the school/academic year and long summer holiday break.

Summary.

It is notable that intervention students across both instructional conditions experienced similar within-group patterns of improvement. Despite methodological limitations, the consistency of the findings across studies suggests the program has a reliable impact beyond random effects.

7.8.7 Conclusion

The results from these two studies reinforce the proposition that psychological performance skills, embedded and implemented within the school or studio music curriculum, may improve adolescent students' general and state self-efficacy for performing. These findings support the use of the intervention model and the effectiveness of this program. Using a practical, blended-learning resource, music teachers were able support and guide their students in the development of a number of psychological performance skills associated with success and well-being to enhance their self-beliefs. This was accomplished without the use of specialised psychological training.

Participants more favourable self-perceptions post-program were achieved by strengthening all four sources of efficacy information. Vicarious experience and physiological state showed the greatest gains and may be more malleable to change or easily influenced over the short-term. These increases in SEP were associated with a number of within-groups improvements that were not observed in the control samples. Participants who completed the program augmented their psychological performance skills gaining in their ability to perform under pressure, visualise an optimal performance, stay focused, and recover quickly from mistakes. This indicates that they had developed successful coping strategies that would enable them to become more resilient performers. They also demonstrated improved performance outcomes and satisfaction and beneficial changes to their cognitive anxiety (class condition only).

Interestingly, and in support of self-efficacy as a predictor of achievement, the degree of improvement in state SEP may have influenced the amount of change in self- teacher-and independently-evaluated performance ratings. The greater increases achieved by studio participants in state SEP, in comparison to class participants, were associated with a corresponding, higher magnitude of improvement in their evaluations. Although self-efficacy is expected to relate to outcome these results provide support for the utility of a targeted SEP intervention in improving music performance.

Consistent with previous research there were mixed results regarding the relationship between SEP and MPA, and MPA and outcome. Enhanced SEP was associated with reduced anxiety levels and more favourable perceptions of state anxiety in the class participants but not for studio participants whose arousal remained stable. Both intervention groups, however, improved their performance outcomes and satisfaction. As proposed by Bandura (1997) higher levels of self-efficacy are believed to buffer the debilitating effects of anxiety. Thus, varying levels of SEP might explain the incongruous results between MPA and outcome previously reported in the literature and why arousal does not always negatively impact performance.

In addition, the distinct anxiety patterns that emerged between the class and studio experimental samples may be a function of the different performance contexts experienced by the two groups and suggests that MPA may be more difficult to alleviate as the conditions become more challenging irrespective of levels of self-belief. These subjective perceptions of MPA, however, could be related to performers' satisfaction with their efforts. Although this improved for all of the participants who completed the program it was the only variable in which studio participants did not achieve greater gains than those in the class condition. Thus, anxiety may mediate the relationship between SEP and self-perceptions of satisfaction potentially impacting mastery determinations.

There are likely many other mediating factors such as perceptions of anxiety and control that can also be altered as the result of intervention that were not captured in the measures employed in this study. These could be operating on underlying processes changing the nature of the interaction between SEP and MPA, in particular the cognitive dimension, reducing the impact of anxiety on the performer, even when experienced as high or at pre-intervention levels.

As anticipated, the program had differential effects depending on the instructional condition. This may be age related and/or a reflection of the contrasting teaching environments and performance settings. Although both intervention samples benefitted from the intervention participants in the studio condition were more program adherent, made earlier gains in SEP, improved across a wider range of psychological performance skills, and displayed a substantially greater magnitude of increase in self-efficacy and performance outcomes (with the exception of performance satisfaction).

Whilst each mode of delivery provides unique advantages, the individual guidance, tailored to specific instrumental needs and abilities, offered by one-to-one tuition would seem to be the most optimal format over the short-term. The younger age of these participants, however, may also have been a contributing factor allowing them to devote more time to the program and development of skills. Introducing psychological performance skills into the music curriculum in *early* adolescence could maximise the benefits of this type of training.

Chapter 8
Conclusions and Future Directions

As I carefully wiped down the 'incorrect' set of keys in nervous anticipation of my performance of Chopin's 'black note study', little did I realise that it would be such a defining moment, placing me on a trajectory that would shape my musical and academic future. The realisation that even the simplest of cognitions could be so easily disrupted under pressure planted the initial seed of self-doubt, that, in combination with a period of high academic pressure and stress, provoked a cycle of aversive music experiences. With no avenues of support, I had to subsequently navigate my own way through periods of sub-optimal performances, elevated anxiety, and loss of confidence. This led to an interest in psychology and a desire to develop educational initiatives that would foster performance success, and support musicians' emotional and psychological wellbeing in conjunction with their musical development, so that no student would be left feeling isolated when confronted with these issues.

Many years later it is encouraging to witness the changes that are starting to take place to ensure that students are equipped with essential knowledge and skills to help them to overcome the inevitable challenges they will face during their music studies. The growing awareness of the need to address the myriad of physiological and psychological problems experienced by musicians has prompted a number of music institutions to offer health and wellbeing courses and therapeutic support. In addition, advances in music intervention research have highlighted the advantages of developing a broad range of skills associated with performance success and wellbeing, encouraging positive functioning and recognising the enhancing benefits of arousal, rather than focussing solely on treating the debilitating

effects of music performance anxiety (MPA). Nevertheless, there is still more that can be achieved in enabling musicians to optimise their performances and well-being.

8.1 Summary of Theoretical Background

A number of factors implicated in performance success and psychological health have yet to be fully investigated and understood within music settings. The incongruous findings surrounding MPA and outcome reported throughout the literature suggest that there are other influences moderating this relationship (Cohen & Bodner, 2017; Hoffman & Hanrahan, 2012; Osborne et al., 2007; Reitman, 2001; Spahn et al., 2015). Self-efficacy, a situationally specific assessment of one's capability, is, unlike MPA, a strong and consistent predictor of achievement (Ackermann et al., 2014; Bandura, 1997; Pajares, 1996a; Siegal et al., 1995). It is also believed to mediate how individuals process and subsequently cope with anxiety (Bandura, 1997; Tahmassian & Moghadam, 2011). Despite numerous recommendations from motivation experts, music educators, and researchers to prioritise the development of this self-belief, minimal research has been conducted into how performance self-efficacy (SEP) is nurtured or could be enhanced within music settings (Feltz et al., 2008; McCormick & McPherson, 2003; Nielsen, 2004; Zimmerman, 2000). There is also still more to be understood about its effects on musical outcomes and perceptions of arousal. Clarifying the relationships between these main variables of interest and ascertaining the potential benefits of targeted self-efficacy interventions would help to refine therapeutic models and pedagogical approaches.

Determining the most effective means of imparting knowledge and delivering psychological performance skills training in a format that is accessible to all musicians is also of key interest to researchers and music educators. The continued high prevalence of performance and mental-health issues amongst professional musicians and university music

students, despite the recent innovations, suggests that implementing preventative programs during adolescence, before or as problems are likely to develop, may be of benefit.

Towards this goal music educators are ideally placed to aid in this process. Class and studio music teachers can represent a significant role model or mentor for their students and often the first person they will approach for help (Dews & Willimans, 1989; Kaspersen & Goetestam, 2002; Nagel, 2009). As such, they could play an important part in ensuring the long-term development and practical application of key coping and performance enhancement skills. Yet, teachers may be unsure about the most effective means of guiding their students in this area. Many would not have specialised psychological training or self-efficacy specific knowledge. Furthermore, the development of these skills has not traditionally been a standard part of the teaching curriculum or their own musical training as reflected by the following comment:

> Despite having taught piano for nearly 50 years I was mainly a classroom teacher of music until my retirement 11 years ago as Assistant Director of Music. I…realised how little I knew about preparation for public performance. I have performed in the Victorian State Opera and Australian Opera choruses for 20 years, and am a church pipe organist, so I know about the constant stress of live performance. But nothing prepared me for helping others do this. My highly gifted son stopped learning piano [due to] anxiety about not being good enough. He learnt from me and two other skilled piano teachers (both examiners.) But the thought of performing to other people is a real hurdle.

As I embarked on my own journey of self-discovery, transitioning from tutee to teacher, it seemed clear that students might benefit from an approach that embedded performance science techniques within the music curriculum. Thus, the main purpose of this research was to develop and assess a methodology that:

1. would enable the development of performance self-efficacy via a range of skills associated with performance success and wellbeing; and,
2. could be implemented within adolescent school and studio music lessons by music teachers without expecting them to complete any additional training.

This was undertaken across two research phases. The first phase involved the design and development of a blended-learning, pedagogical resource to support these aims. The second phase involved the implementation and assessment of the psychological performance skills training program.

8.2 Summary of Research Phase One: Program Development and Design

8.2.1 Self-Efficacy, MPA, and Performance Model to Guide Intervention

A model of the interaction between self-efficacy, MPA, and performance was proposed to guide the structure of the program (Chapter 3). As mastery experiences are believed to exert the strongest influence on SEP it suggested that increasing this source would help facilitate the development of this self-belief. Accumulating these mastery determinations could be difficult to achieve, however, due to infrequent performance opportunities and the performers subjective perceptions of their effort which can be undermined by MPA or inaccurate self-evaluation. Verbal persuasion and physiological and affective states were consequently highlighted as two other important sources of efficacy information that could also be targeted to support the accumulation of these positive experiences. The conclusions drawn from this investigation suggested that modifying perceptions of somatic and cognitive anxiety, enhancing the performer's ability to manage arousal, encouraging regular, objective self-evaluation, and gaining performance experience through simulation could help facilitate the development of SEP.

The four sources of efficacy information provided a conceptual framework for the selection of appropriate skills to include in the program. Although few music performance interventions have specifically targeted SEP it was noted that a number of competencies routinely developed through mental skills training (MST) do map to each of these sources. Training in attentional control, arousal-regulation, imagery, pre-performance routines, and self-talk can help moderate perceptions of physiological and affective states. Whilst self-talk and imagery will also contribute to verbal persuasion, and mastery and vicarious experiences, these sources were comparatively under-represented. Thus, performance simulation, feedback and self-evaluation, which were highlighted in the model to support the development of mastery experiences, were also seen to be important means of broadening current intervention practices to enhance SEP.

8.2.2 Pedagogical Development of Self-Efficacy and Psychological Performance Skills in Studio and Class Music Lessons

The next step in designing a program that could be naturally embedded within the music curriculum was to understand how class and studio music teachers intuitively develop performance self-efficacy and to what extent they might incorporate training in standard psychological performance skills into their lessons (Chapter 4). This investigation (Research Study One) invited music educators to respond to vignettes depicting common student performing scenarios and to share their strategies for helping their students cope with key performance issues. The aim was to determine the optimal means by which positive self-perceptions, coping skills, and subsequent achievement could be most effectively fostered within music environments.

Coding of the open-ended responses to the four self-efficacy sources, indicated that teachers were most likely to consider mastery experiences (recommending more simulated and real world performing) and employ verbal persuasion. They were less likely to take

advantage of vicarious learning (through modelling) or develop the psychological performance skills that would moderate physiological and affective states. Whilst finding appropriate external models might be difficult, particularly in an individual lesson context, the low priority afforded to the development of psychological competencies could be due to insufficient knowledge of performance psychology, effective management methods, and practical ways to incorporate these strategies into their own pedagogical practice. Other factors impeding the proactive development of psychological performance skills were beliefs linked to preparation and amount of performing experience.

Although teachers clearly recognised the benefits of gaining positive performing experiences, the development of coping strategies to support these mastery determinations remained a relatively low priority unless a student was openly experiencing issues such as MPA or under-performing despite being well prepared. Thus, teachers were unlikely to adopt a preventative approach or ensure sustained practice of these 'non-musical' skills. There also appeared to be a reliance on external verbal persuasion or 'discussion' rather than practical application of strategies to manage performance situations. These findings indicated that music pedagogy may benefit from a resource that promotes a proactive, systematic, practical application of a broad range of performance enhancement skills.

A number of recommendations for nurturing SEP in lessons were also formulated that pertained to each source. These merged current pedagogical approaches with best practice as outlined in the self-efficacy and performance enhancement literature.

8.2.3 The Psychological Performance Skills Program

Insights gained from the SEP-MPA-Performance model (Chapter 3) and the teacher study (Chapter 4) provided the theoretical underpinnings that informed the structure, format, and content of the program. Skills and pedagogical strategies were mapped to each self-efficacy source and selected according to their potential to contribute to these sub-

components of SEP and ultimately support the development of mastery experiences.

A 14-week program was designed to complement adolescent class and studio music tuition (Chapter 5). It provided training in standard psychological performance skills with an additional focus on performance simulation and self-evaluation to enhance self-efficacy and skill development. The blended-learning format combined brief weekly online tutorials to be viewed at home, with activities incorporated into lessons and practice, aiming to develop self-efficacy, psychological performance skills, and performance preparation across six key areas: confidence, focus, performance simulation, imagery, pre-performance routines, and arousal management. The use of instructional scaffolding ensured stepwise and sequential skill development with teachers playing a pivotal role, overseeing the delivery of the program, guiding skill acquisition, and encouraging students to integrate these techniques into their playing.

8.3 Summary of Research Phase Two: Program Implementation and Assessment

8.3.1 Pilot Study of the Psychological Performance Skills Program

A pilot study (Chapter 6: Research Study Two) was conducted to determine the feasibility of delivering a blended-learning, teacher-guided, psychological performance skills program in class and studio music lessons, and examine the efficacy of the intervention model. Feedback provided by teachers and students supported the utility and applicability of the program. Nevertheless, there were a number of challenges associated with the condensed format, and maintaining the schedule, that led to participants feeling overwhelmed by the amount of content and rapid accumulation of activities. Class participants in particular, struggled to meet the course requirements resulting in a high attrition rate.

Encouragingly, students who completed the program showed improvements in their SEP, anxiety, psychological performance skills, and outcomes. These findings provided

preliminary support for the program, the intervention model and the inclusion of skills that were mapped to each source to enhance SEP. This study also provided valuable information as to how the program could be improved or amended.

8.3.2 Main Studies of the Online Program

The program was modified and refined based on feedback from the pilot study (Chapter 6). Two main studies were subsequently conducted, implementing the amended program within class and studio music lessons and addressing the limitations noted in the pilot study (Chapter 7: Research Studies Three and Four).

These studies sought to determine if psychological performance skills interventions would benefit adolescent musicians and produce meaningful changes in key outcome variables when delivered by music educators without specialised psychological training or self-efficacy specific knowledge. They also provided the opportunity to clarify the nature of the relationship between SEP, MPA and performance, ascertain the potential benefits of these types of programs on self-efficacy and its sources, and understand the differential effects of contrasting instructional conditions on skill acquisition.

The results indicated that a teacher-guided, blended learning psychological performance skills resource is a promising format for enhancing performance self-efficacy. Participants who completed the program as part of their class or studio music lessons showed significant gains in state and general SEP in comparison to a control. This enhanced self-efficacy was associated with a number of within groups improvements in psychological performance skills, MPA, and performance achievement that were not observed in the control samples. The contrasting instructional conditions were related to differential treatment effects with students in the studio condition showing earlier gains in SEP, a greater magnitude of increase in this self-belief and performance achievement, and improvement across a wider range of psychological performance skills.

Enhanced SEP was consistently associated with improved outcomes irrespective of levels of anxiety. Some distinct SEP-MPA patterns of co-variance also emerged. These were observed to change as a function of the performing context, testing round, and treatment group and displayed a more independent relationship for participants who performed under relaxed conditions and/or completed the program. They also highlighted a strong connection between self-efficacy and cognitive anxiety. These results suggest that the benefits of psychological performance skills training may not always be observed through measurable anxiety outcomes but rather in the altered strength and pattern of influence amongst these variables.

8.4 General Conclusions

Although a number of recent interventions have supported the application of broad MST programs within tertiary music settings few have utilised this approach with younger, less advanced musicians (Clark & Williamon, 2011; Osborne et al., 2014; Steyn et al., 2015). This research has helped to address this gap demonstrating that psychological performance skills techniques can be adapted to be embedded within the adolescent music curriculum and taught by music teachers without any specialist training in performance psychology to enhance self-efficacy and a range of skills associated with performance success. This enables preventative measures to be implemented early on as a natural part of students' musical education with the potential to mitigate the development of significant problems and positively impact well-being.

There were a number of main findings that emerged pertaining to the self-efficacy intervention model, mastery experiences, and the development of a pedagogical methodology to enhance self-efficacy and psychological performance skills. These could further inform and extend current teaching practices and therapeutic approaches or models.

8.4.1 Self-Efficacy Intervention Model

The improvements in self-efficacy provided support for the utility of a SEP intervention model and the inclusion of skills and pedagogical strategies that were mapped to each source of efficacy information. The fact that general and state SEP were enhanced over a relatively short time frame through the application of source specific techniques demonstrates the mutable nature of this self-belief. According to Samson (2011) "one of the major attractions of self-efficacy theory is the relative ease with which it can be modified to promote behavior change" (p. 84). Thus, developing a greater understanding of practical ways that this can be achieved will make an important contribution to pedagogical theories and practice (Samson & Solmon, 2011; Usher & Pajares, 2008).

Although participants improved across all four sources they achieved their greatest gains in physiological and affective states and vicarious experience (which was not originally identified as one of the main areas to strengthen). Interestingly, these corresponded to the two sources that were given the lowest priority in music tuition by class and studio teachers (Chapter 5). Vicarious experience is closely related to the concept of collaborative learning. This refers to gaining knowledge through mutual interactions and shared experiences (often with peers) and is an approach that is becoming more widely used in educational settings (Nielsen, Johansen, & Jorgensen, 2018). The one-to-one learning that occurs in private instrumental tuition does not easily lend itself to this type of experience. Similarly, psychological performance skills that aid in managing physiological and affective states are not a standard part of music instruction. Music educators interested in nurturing SEP might consider initially implementing pedagogical strategies that target these areas as these may be more easily modified over the short-term. Early gains in these sources may then support and be subsequently reinforced by the development of verbal persuasion and mastery experiences.

8.4.2 Enabling Mastery Experiences

As mastery experiences have been highlighted as the most powerful self-efficacy source, it is recommended that efforts to alter self-belief and achievement should ultimately be directed towards ensuring the accumulation of positive and successful performing experiences (Bandura, 1986; Pajares, 1997). When encouraging students to perform, however, the relative influence of the other sources of information on these mastery determinations and overall SEP, should also be taken into account. This became apparent when considering the contrasting performing experiences of the control and intervention class-participants during Research Study Four. The control group's greater behavioural exposure and familiarity with the assessed performance environment, despite being unexpected confounds, provided some interesting points of comparison that emphasised the benefits of strengthening all information sources to support the development of SEP.

Behavioural exposure is recognised as an effective anxiety reduction technique and has been shown in some music studies to lower MPA and improve performance quality (Bissonnette et al., 2015; Kaczkurkin, 2015). This is intuitively understood in music instruction as gaining performing experience was the most common recommendation from class and studio music teachers to build confidence, combat MPA, and deal with various student performance issues (Chapter 5). In support of these beliefs, control class-participants numerous class performances were associated with beneficial changes in somatic anxiety (Chapter 7).

The results from this research also highlighted that behavioural exposure alone may not be sufficient to develop efficacious performers, improve all aspects of anxiety, or ensure enhanced outcomes. Indeed, performers may derive greater benefit from strengthening cognitive skills, the other sources of efficacy information, and self-evaluative ability, to support mastery determinations. Intervention participants in the class condition showed enhanced performance self-efficacy in relation to a control even though they had less

performing experience in front of their peers over the course of the study. They also displayed a number of within-groups improvements (including cognitive anxiety, performance satisfaction, and outcome) that were not observed in the control sample. This has implications for music pedagogy given that a large proportion of teachers were encouraging practical performing experience to alleviate MPA (55%) and develop confidence (up to 96%) without nurturing the supporting skills that would enable students to manage the situation and be more satisfied with their efforts (Chapter 5).

As these results have shown, performance exposure and reductions in anxiety will not necessarily equate with enhanced self-belief or greater achievement. Students can still encounter problems or be dissatisfied with their efforts, irrespective of their experience, particularly if they have negative self-perceptions about their ability. The fact that enhanced performance self-efficacy was also associated with improved outcomes even when participants were faced with their usual levels of MPA suggests that prioritising the development of this self-belief in music education would be of benefit in supporting performers across a range of different performing contexts. Informing music educators about the complexity of these underlying processes could be beneficial in promoting awareness of the importance of nurturing self-efficacy and encouraging a greater instructional focus on the proactive development of associated competencies.

8.4.3 Empowering Change: Developing a Musical Self-Efficacy Psychological Performance Skills Method

The increasing awareness of the need to foster musicians' health and well-being and growing evidence to support the utility of a multi-dimensional approach to performance preparation that encompasses musical, physical, and psychological aspects have laid the foundations for change within music curricula. Yet, providing a practical means to instigate this shift, from a music pedagogy perspective, is still a relatively new area of investigation.

Training in psychological performance strategies is not a standard part of the teaching curriculum. To date there are no accessible, music specific resources that outline a systematic and comprehensive pedagogical application of these skills at the stepwise level. This is most probably due to the extensive effort that is involved in producing a program of this nature and minimal evidence to support the utility of this approach. Similarly, whilst there are general guidelines for nurturing self-efficacy in educational and music contexts they do not provide specific ways that teachers can achieve these outcomes (Hendricks et al., 2016; Zelenak, 2011).

The resource that was developed to support the studies in this dissertation is one way of disseminating information about performance psychology and self-efficacy to music educators and their students who may not otherwise have the opportunity to develop this knowledge. It also outlines a practical method of integrating performance and self-efficacy enhancement techniques into lesson and practice to encourage the long-term, systematic development of a broad range of skills, extending current teaching practices.

The findings provide preliminary support for this approach, indicating that a teacher-guided intervention using blended learning principles can be embedded within the standard music curriculum. Participants who completed the program developed a range of psychological and performance skills despite varying levels of engagement and compliance, contrasting instructional environments, and variations in delivery. This shows that the program can generalize across different ages, instruments, instructional settings, teaching styles, and applications. In addition, the design and format addressed a number of impediments to success that had been identified in previous approaches including: cost and accessibility, disruptions to time-tabled curriculums, labour intensive, extensive extra-curricular time commitment, a focus on theory rather than practice, attenuated range of skill development and the therapeutic relationship (Ingles, 2013; Kendrick et al., 1982; Kenny, 2011; Spahn et al., 2001).

Advocates for fostering well-being and performance success through curriculum based programs have long recommended that music educators play a pivotal role in this quest (Hunnicutt & Winter, 2011; Ingles, 2013; Kendrick et al., 1982; Nagel, 2009). This research provided some support for the effectiveness of a methodology designed to provide teachers and their students with a practical means of integrating key coping and performance enhancement skills into lessons and practice. There were, however, a number of issues identified in implementing this approach that would need to be resolved for it to be a viable method that is widely adopted within music teaching practices. If these challenges can be overcome or addressed in subsequent research then it could provide an accessible and cost-effective means of delivering essential skills associated with performance success and well-being, potentially impacting a wide variety of students.

8.5 Future Directions

8.5.1 Motivation, Engagement, and Adherence

Student motivation, engagement, and adherence are important factors contributing to the success of any intervention or pedagogical practice. In this regard, utilising an existing alliance via the student-teacher relationship did counteract some of the concerns noted in previous approaches as this association seemed to mediate participants' achievements and compliance with studio participants yielding greater gains, and higher rates of completion than class participants. Students may not feel as individually accountable in a class environment, particularly when the content is not part of their assessed schoolwork. This may make it easier to prioritise other academic or musical endeavours over a novel or extra-curricular program.

Future applications of this method might consider making the course more meaningful by integrating the information and activities into students' core music studies in a way that contributes to their final subject mark. This would also send a key message that

training in these skills is as important as other standard areas of the curriculum (Nagel, 2009). Personal interest in the development of these competencies may also be increased by creating an individual performance profile of strengths and weakness. This helps participants become more aware of their abilities and focusses their attention on specific areas for improvement, which can lead to greater commitment and motivation (Hatfield & Lemyre, 2016; Osborne et al., 2014).

It should be taken into consideration, however, that it is not unusual for instructors to regularly contend with these issues no matter what the subject content. Even the most conscientious students can struggle at times to complete homework or practice tasks. There are also many aspects of music learning that are not inherently interesting or inspiring, for example, the development of technique and practice of technical exercises. Effective teachers will patiently persevere with instructing pupils in these more 'mundane' activities, week after week, if it is seen to be of value or indispensable to their musical development, creatively finding ways to inspire or make something that is not intrinsically motivating, relevant.

Problems can arise when MST or health and well-being courses are introduced as an optional or adjunct program, delivered externally by specialists. This is because they disrupt time-tabled curriculums and can be expensive, inconvenient, and difficult to implement (Clark, 2010; Osborne et al., 2007). Student motivation and engagement thus become more salient as stakeholders need to justify costs (and often extensive effort) against perceived benefits. If psychological performance skills became a standard and essential part of music training (like the development of technique, artistry, and other musical skills), taught within the curriculum by music teachers, then these concerns would be somewhat mitigated at least to the extent that they become part of the normal teaching landscape. For this to be possible, however, there needs to be an appropriate means of embedding this type of training within the curriculum.

8.5.2 Developing a Viable Methodology

One of the main concerns expressed by teachers and students in the intervention studies conducted as part of this research was the amount of time needed to cover the weekly course content. The 14-week format was too rigorous and condensed to be easily implemented within classes and lessons, it was difficult to maintain the schedule, and the program became overwhelming as the number of activities accumulated. As previously noted this design was adopted to assess the viability of a blended-learning, pedagogical psychological performance skills methodology within a time-limited research context. Providing this type of training through an open ended resource that enables teachers to have autonomy over the delivery, scheduling, and sequencing of content would alleviate the pressure of having to develop these skills within a pre-set time-frame. Users could then move in and out of the program as needed, assimilate the information over a longer period, present some or all of the online tutorials in classes or lessons to minimise the self-directed component, or direct students to move through parts of the course independently so that other academic or music commitments can take priority when necessary. This flexibility would also enable music educators to individually tailor the program to meet the needs of their students, allowing for natural and long-term skill development.

Further investigations could also establish the most effective and unobtrusive means of embedding these skills within lessons and practise. This could be undertaken in consultation with various stakeholders to ensure the applicability and relevance of the information and strategies for different instrument groups and within various educational contexts. Music educators with an in-depth knowledge of the secondary school core music curriculum could provide valuable advice on how best to integrate the content and activities into classes within an academic setting. Similarly, studio music teachers or musicians, ideally with training in performance psychology, would be able to help to determine appropriate instrument-specific adaptations of core performance enhancement and

pedagogical strategies.

Determining optimal modes of instruction, and the most appropriate age to introduce this training could also facilitate a consistent and sustained application of these concepts. Although all participants gained from the intervention, those who completed the program with their studio music teacher did derive greater benefits, particularly in self-efficacy and performance outcomes. Whilst this may be a reflection of their teaching environment, these students were also substantially younger and might have been more open to experimenting with novel concepts or had extra time to devote to skill development due to less academic pressure. It is also possible that the choice of content and the way that the information was presented was more suited to this age group.

Age and developmental stage are an important consideration when training mental skills in young athletes in sport. Long-term athlete development (LTAD) programs propose that there are several progressive stages involved in the acquisition of these skills (Clark, 2010; MacNeill, Benz, Brown, Kabush, & van den Berg, 2014). These stages are dependent upon the performer's physical, mental and emotional development, and training is therefore tailored accordingly. For example, one Canadian LTAD program outlines four different 'mental fitness' levels that occur from pre-adolescence through to early adulthood (MacNeill et al., 2014). These clearly differentiate between an early-adolescent stage (females 11-15 years; males 12-16 years) recommending individual support to "maintain motivation and self-confidence and cope with success and failure" (MacNeill et al., 2014, p. 16) and a late-adolescence, young-adult stage (females 15-21 years; males 16-23 years) that introduces more advanced training. Within music, this is a relatively unexplored area, as most MST programs have targeted adult performers. There is some evidence, however, that musical experience will moderate individuals' perceptions of the relevance or need for certain skills (Clark, 2010). In the present study, the age disparity between the class and studio participants placed each sample within a different LTAD stage which suggests that 'mental

fitness' level could be another moderating factor contributing to the differential treatment effects.

It would be beneficial to understand the impact of learning environment, developmental stage, and program content and style when delivering this type of training within performing arts contexts. Further research could aim to determine if the differential treatment effects observed in the present study were a result of the contrasting instructional conditions or developmentally related. This could be achieved by assessing this program, or a similar methodology applied to the different LTAD stages, within class and studio music lessons matching participants on age or school year. Ideally this design would be implemented across both instructional conditions examining students in early and late adolescence or within each 'mental fitness' level. This would extend the knowledge base, providing a greater understanding of the application of this methodology from both a developmental and instructional perspective, further informing pedagogical approaches and therapeutic models.

This is not to say that one approach should be recommended above the other if future investigations were to confirm different effects as function of teaching environment, as this would be counterproductive. There are distinct advantages to each type of training and intervention participants from both instructional conditions improved as a result of the program. Rather, this knowledge could be used to develop a more optimal methodology that could be tailored to enhance the benefits already provided by each particular learning environment. For example, school educators wanting to make faster and stronger gains might schedule training to occur in a period of lower curriculum demands to allow numerous class performance simulations and reviews whilst studio music teachers could consider conducting occasional group lessons to take advantage of collaborative learning and peer modelling.

Ultimately, however, future efforts might be best directed towards adopting a tri-partite model that fosters the development of these skills simultaneously through co-ordinated

group, individual, and self-directed training. This would allow skill development to be supported and reinforced across multiple musical settings and contexts, by different teachers and role models through all of the stages of students' musical studies. Concepts introduced in the classroom could be individually adapted during private lessons, developed in home practice, and strengthened during performance classes and ensemble rehearsals. What might be considered novel or foreign ideas could become a 'normal' part of the curriculum promoting awareness and open discussion of sensitive or rarely discussed issues. Well informed students may then be more likely to seek professional help if needed. Most importantly these young musicians, through their own transition to teaching, could continue to promote this cultural shift.

Achieving all of this, of course, is no easy task. There are numerous methodological difficulties in conducting ecologically valid research within music education contexts. Many of these have been previously discussed in the three studies conducted as part of the present research (refer sections 6.5.1, 6.5.7, 7.7.4 and 7.8.6). Further investigations of this approach might also consider utilising case studies or evaluating abridged versions of the program to overcome some of these issues.

8.5.3 Self-Efficacy and Performance

Improving self-efficacy is one means of enhancing achievement and well-being. The results of the current research indicate that these beliefs can be modified or nurtured using targeted pedagogical strategies that are mapped to each source of efficacy information. This provides the foundations for an evidence-based model of self-efficacy theory that has a practical application within music education.

It is only relatively recently that the development of the Music Performance Self-efficacy Scale (MPSES) has enabled the examination of these sources in a musical context. Thus, gaining further knowledge about how these sources function in this domain would be

of great benefit. In this respect expanding the MPSES to include items that capture self-modelling and self-communication would enable a more comprehensive understanding of vicarious experience and verbal persuasion and the effects of targeted interventions on these two sources. Subsequent investigations could then determine the most effective self-efficacy building techniques by source to refine and optimise pedagogical approaches.

The predictive power of state self-efficacy for both self- and externally-evaluated music performance has already been established (Ritchie & Williamon, 2012). Determining the relative influence of each source of efficacy information on these 'in the moment' perceptions of capability and subsequent achievement would also be of great interest. There is some evidence to suggest that verbal persuasion (when measured immediately prior to the event) is the strongest predictor of performance in an audition context even though mastery experiences generally exhibit a greater association with musical self-efficacy (Zelenak, 2010, 2019). In unfamiliar or more challenging circumstances, such as those presented within an audition performance, it may be difficult to draw upon personal experience increasing the impact of alternate information sources.

It is expected that source patterns of influence will vary according to situational and personal factors, the sequencing and temporal proximity of the efficacy information, and how far in advance these self-beliefs are assessed in relation to the event (Hendricks, 2016; Usher & Pajares, 2008; Wise & Trunnell, 2001; Zelenak, 2019). Developing a greater understanding of how these sources might operate across different performing contexts and at different time points prior to a performance in relation to state self-efficacy (as assessed by the CSAI-2 or similar measure) and achievement is not only of theoretical interest but could optimise therapeutic models and teaching practices. For example, if the MPSES is established as a reliable predictor of state self-efficacy it could be an effective means of determining performers' prospective levels of efficacy for an upcoming performance. This would make it a useful screening tool, enabling targeted, proactive, interventions.

Instructional focus could be directed towards strengthening specific sources according to their predicted impact on capability perceptions or outcome within a particular performance context. Depending upon its predictive validity this measure could also reduce the need to administer measures of self-belief immediately prior to a performance, minimising the risk of distressing or distracting the performer.

8.6 Final Comments

Awareness is the precursor for change. Emphasising the importance of these psychological competencies and the pivotal role that music educators can play in their acquisition is the first step in promoting a cultural shift toward a prevention-oriented pedagogy. If self-efficacy and performance enhancement instruction is considered to be of value or even indispensable to students' musical development teachers may be more inclined to devote precious lesson time to building these competencies. Further progress may then also be made if educators:

1. know that their efforts will bring about meaningful change;
2. possess a clear understanding of how to make it happen; and,
3. have access to a practical, evidence-based methodology that guides and supports skill development.

This research has laid the foundations for such a methodology providing preliminary support for a musical-self-efficacy psychological performance skills method that can be embedded within the standard curriculum. Continuing to grow this evidence-base and determine developmentally and pedagogically appropriate educational initiatives that foster long-term development of psychological performance skills and self-efficacy as a natural part of learning could be instrumental in enhancing students' musical success, enjoyment and well-being.

Self-efficacy has been described as one of the most influential psychological

constructs to affect motivation, behaviour and achievement (Bandura, 1986; Feltz, 1988; Usher & Pajares, 2008). Thus, music pedagogy can only benefit from striving to achieve a greater understanding of the factors that will nurture this self-belief within lessons and practice. It is my hope that future investigations will continue to develop, and refine the methodology outlined in this research as it has the potential to provide an accessible means of delivering key skills associated with performance success and wellbeing to a wide range of music students who may not otherwise have the opportunity to develop this knowledge.

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Appendix A: Studio-music teacher questionnaire

1. What is your gender? ☐ Male ☐ Female

2. Please list instrument(s) taught._____

3. Please indicate number of years of school class-teaching experience.

- ☐ 1 – 4 years
- ☐ 5 – 9 years
- ☐ 10 – 15 years
- ☐ 15+ years

4. Highest AMEB (or equivalent) grade level taught?

- ☐ Gr 1 – 4
- ☐ Gr 5 – 8
- ☐ AmusA
- ☐ LMusA
- ☐ Post-LMusA

5. Please indicate the percentage of adolescent students (12-17yrs) in your studio by AMEB grade or equivalent.

Gr 1 – 4: _____

Gr 5 – 8: _____

AMusA: _____

LMusA: _____

Post-LMusA: _____

6. What are the main elements that you focus on in a typical lesson?

_____
_____
_____
_____

7. Please indicate, on average, how often you would *observe* a student perform ***solo*** over the course of a year.

	1x Yearly	2x Yearly	1x Term	2x Term	Monthly	Weekly	Not at All
In a live performance	☐	☐	☐	☐	☐	☐	☐
In a practice/simulated performance	☐	☐	☐	☐	☐	☐	☐

Based on your experience as a teacher, how would you guide students in the following scenarios? Please share your knowledge and techniques.

8. Kate is a model student. She is conscientious, completes all her practice tasks and is well prepared for her lessons. She is an *experienced performer* but doesn't seem to play up to her ability in a performance. What would you do to help her?

_____
_____
_____
_____

9. Tom is sitting for an important music exam in 6 weeks' time. What would you advise him to do over the next 6 weeks? What do you focus on in lessons and what do you expect him to do at home?

_____
_____
_____
_____

10. Ethan is performing in a school recital. He is quite anxious because he froze during his last performance and had a number of memory lapses. He is really worried about making mistakes. Once he makes a mistake he finds it very hard to continue, and/or his performance is thrown right off track. Often he has to start again. How would you help him to build confidence for his upcoming performance?

_____
_____
_____
_____

11. Sarah is preparing for her first concert. She doesn't really know what to expect and is a little concerned. How do you help her prepare?

_____
_____
_____
_____

12. Based on your experience what are the main factors that prevent adolescent students from playing up to their ability in a performance?

_____
_____
_____
_____

13. How do you help your students deal with music performance anxiety? Please share your techniques.

_____
_____
_____
_____

14. How do you encourage your students to develop confidence in performing? Please share your techniques.

_____
_____
_____
_____

15. Starting is perhaps the most critical part of any performance. What strategies or techniques do you recommend to help your students have a poised and confident start?

_____
_____
_____
_____

Thank you! You have now completed the survey.

Appendix B: Class-music teacher questionnaire

1. What is your gender? ☐ Male ☐ Female

2. Please list your main instrument(s) of study._____

3. What is your school teaching position(s). *Please check all that apply*

- ☐ Music Director
- ☐ Assistant Music Director
- ☐ Class music teacher
- ☐ Other. *Please Specify*

4. Please indicate number of years of school class-teaching experience.

- ☐ 1 – 4 years
- ☐ 5 – 9 years
- ☐ 10 – 15 years
- ☐ 15+ years

5. Please indicate, on average, how often you would *observe* a student perform ***solo*** over the course of a year.

	1x Yearly	2x Yearly	1x Term	2x Term	Monthly	Weekly	Not at All
In a live performance	☐	☐	☐	☐	☐	☐	☐
In a practice/simulated performance	☐	☐	☐	☐	☐	☐	☐

6. Based on your experience what are the main factors that prevent adolescent students from playing up to their ability in a performance?

_____
_____
_____
_____

7. Starting is perhaps the most critical part of any performance. What strategies or techniques do you recommend to help your students have a poised and confident start?

_____
_____
_____
_____

8. How do you help your students deal with music performance anxiety? Please share your techniques.

_____
_____
_____
_____

9. How do you encourage your students to develop confidence in performing? Please share your techniques.

_____
_____
_____
_____

Thank you! You have now completed the survey.

Appendix C: Student post-performance evaluation

Please complete this questionnaire immediately following your solo performance without discussion with your teacher.

Please indicate how you felt you played in the performance you just gave for each of the musical components listed below by circling the appropriate number below each statement.

1. Note accuracy (and accuracy of intonation if relevant to your instrument).

Needs Attention					Satisfactory					Excellent
0	1	2	3	4	5	6	7	8	9	10

2. Tone quality (overall control, warmth, clarity and consistency).

Needs Attention					Satisfactory					Excellent
0	1	2	3	4	5	6	7	8	9	10

3. Musical Interpretation (musicianship and presentation of all musical ideas such as phrasing, tempo, style and dynamics).

Needs Attention					Satisfactory					Excellent
0	1	2	3	4	5	6	7	8	9	10

4. Rhythmic accuracy (steadiness of beat and accuracy of the printed rhythms).

Needs Attention					Satisfactory					Excellent
0	1	2	3	4	5	6	7	8	9	10

5. Technique and Articulation (precision of marked articulations and appropriate interpretations of markings).

Needs Attention					Satisfactory					Excellent
0	1	2	3	4	5	6	7	8	9	10

Please indicate how pleased you were with your achievement in this performance by circling the appropriate number below

a) *If you felt really pleased with this performance, then select a number towards the upper end of the scale.*
b) *If you felt that this performance was just ok, then select a number in the mid-range of the scale.*
c) *If you felt displeased with this performance, then select a number towards the lower end of the scale.*

A rating of 7+ indicates that you felt pleased enough with this performance for it to be heard in public in front of an audience.

0	1	2	3	4	5	6	7	8	9	10
Unhappy with performance					OK					Extremely pleased

Appendix D: Teacher post-performance evaluation

Please complete this questionnaire immediately following your student's solo performance without discussion with your student.

Please indicate how you felt your student played in the performance they just gave for each of the musical components listed below by circling the appropriate number below each statement.

1. Note accuracy (and accuracy of intonation if relevant to your instrument).

Needs Attention					Satisfactory					Excellent
0	1	2	3	4	5	6	7	8	9	10

2. Tone quality (overall control, warmth, clarity and consistency).

Needs Attention					Satisfactory					Excellent
0	1	2	3	4	5	6	7	8	9	10

3. Musical Interpretation (musicianship and presentation of all musical ideas such as phrasing, tempo, style and dynamics).

Needs Attention					Satisfactory					Excellent
0	1	2	3	4	5	6	7	8	9	10

4. Rhythmic accuracy (steadiness of beat and accuracy of the printed rhythms).

Needs Attention					Satisfactory					Excellent
0	1	2	3	4	5	6	7	8	9	10

5. Technique and Articulation (precision of marked articulations and appropriate interpretations of markings).

Needs Attention					Satisfactory					Excellent
0	1	2	3	4	5	6	7	8	9	10

Appendix E: Example of teacher feedback (week 3)

Section 1 – Program Completion

Q1. Lesson Discussion and Activities (*module specific*)
*Please check **all** of the discussion points and activities covered in the lesson for each student*

- Completed deep breathing activity
- Discussed:
  - Home performance review
  - Starting with breath awareness
  - Bothersome symptoms

Q2. Lesson Performance
Please indicate which students completed the lesson performance and review

- Completed with full review (steps 1-5)
- Completed with partial review
- Completed without review
- Did not complete

Q3. Set Smart Goals
Please indicate which students set their progress and performance goals at the end of the lesson.

- Set SMART goals
- Did not set SMART goals

Section 2 – Program Evaluation

***Q4.** Please indicate the relevance and usefulness of each of the following modules*

Breathing

0	1	2	3	4	5	6	7	8	9	10
Not relevant					Somewhat relevant					Very relevant

Getting Started (module 3)

0	1	2	3	4	5	6	7	8	9	10
Not relevant					Somewhat relevant					Very relevant

Q5. *What did you like / not like about the content and delivery of the module? (optional)*

I liked…	I did not like…

Q6. Any other comments? (optional)

Appendix F: Student learning and program evaluation

Section 1 – Program Completion

Please indicate which activities you completed for each of the modules presented this week.

- Watched module video and fully completed worksheet
- Watched module video and partially completed worksheet
- Watched module video but did not complete any activity from the worksheet
- Did not watch module video but completed worksheet
- Did not watch module video but partially completed worksheet
- Did not watch module video and did not complete any activity from the worksheet

- I completed a home performance practice Yes/No
- I completed a performance review Yes/No Full/Partial

Section 2 – Learning and Evaluation

Please indicate (by circling the appropriate number) how much you agree with the following statements following completion of this week of the program.

1. I feel more positive about performing solo to an audience.

0	1	2	3	4	5	6	7	8	9	10
Strongly disagree				Neither agree/disagree						Strongly agree

2. I feel my performing experiences will improve.

0	1	2	3	4	5	6	7	8	9	10
Strongly disagree				Neither agree/disagree						Strongly agree

3. I learnt new ideas, approaches and/or skills that that I can use in my next performance.

0	1	2	3	4	5	6	7	8	9	10
Strongly disagree				Neither agree/disagree						Strongly agree

4. I learnt new ideas, approaches and/or skills that I can apply in my practice.

0	1	2	3	4	5	6	7	8	9	10
Strongly disagree				Neither agree/disagree						Strongly agree

5. I developed knowledge about… (*module specific statements*).

0	1	2	3	4	5	6	7	8	9	10
Strongly disagree				Neither agree/disagree						Strongly agree

6. (*Module name*) was easy to understand.

0	1	2	3	4	5	6	7	8	9	10
Strongly disagree				Neither agree/disagree						Strongly agree

7. I developed self-awareness of…(*module specific statements*).

0	1	2	3	4	5	6	7	8	9	10
Strongly disagree				Neither agree/disagree						Strongly agree

What did you like / not like about the content and delivery of the module? (optional)

I liked…	I did not like…

Any other comments?(optional)

Appendix G: Performance evaluation

Confidence *The performer...*	Appeared Nervous 1	2	3	4	5	6	7	8	9	Appeared Confident 10
Performance Focus *The performer…*	Was distracted and/or uninvolved in the performance 1	2	3	4	5	6	7	8	9	Was focussed and/or immersed in the performance 10
Consistency *The performance was…*	Hesitant and/or Erratic 1	2	3	4	5	6	7	8	9	Fluent and/or Steady 10
Musical Expression/Interpretation *Musicianship, understanding of style and presentation of all musical ideas (phrasing, tone, tempo, style, dynamics)*	Needs Attention 1	2	3	4	Satisfactory 5	6	7	8	9	Excellent 10
Technical Problems *The performer's technical problems were…*	Distracting 1	2	3	4	5	6	7	8	9	Hardly Noticeable 10
Overall Performance *When considering the musical quality of the performance please rate the overall quality of the performance*	Poor 1	2	3	4	Satisfactory 5	6	7	8	9	Excellent 10

Appendix H: Studio-condition program completion summary

Program Completion by Week and Module for Studio Participants

Week	Completion Rate	Module (Mean % of participants)			Teacher Guided Lesson Activities (Mean % of activities completed)
1		Performance Skills	Types of Goals	Performance Review	85.19
(n = 23)	Fully	91.30	91.30	1	(n = 3)
	Mostly	8.70	8.70	73.91	
	Partially	--	--	21.74	
				4.35	
2		Performance Energy	Tension	Performance Review	80.56
(n = 23)	Fully	82.61	82.61	2	(n = 4)
	Mostly	8.70	8.70	65.22	
	Partially	8.70	8.70	21.74	
				13.04	
3		Breathing	Performance Review		45.83
(n = 23)	Fully	69.57	3		(n = 4)
	Mostly	21.74	100.00		
	Partially	8.70	--		
			--		
4		Self-Talk	Rephrasing Self-		85.19
(n = 23)	Fully	73.91	Talk		(n = 3)
	Mostly	13.04	69.57		
	Partially	8.70	13.04		
	Minimally	4.35	13.04		
			4.35		
5		Sharpen Up			92.59
(n = 23)	Fully	69.57			(n = 3)
	Mostly	21.74			
	Partially	8.70			
6		Master Chef			69.44

Week	Completion Rate	Module (Mean % of participants)		Teacher Guided Lesson Activities (Mean % of activities completed)
(n = 23)	Fully	78.26		(n = 4)
	Mostly	17.39		
	Partially	4.35		
7		Tuning-In 1	Tuning-In 2	88.24
(n = 23)	Fully	100.00	100.00	
	None			(n = 3)
8		Making the Unfamiliar,	Dealing with	87.50
(n = 23)	Fully	Familiar	Mistakes	
	Mostly	65.22	--	(n = 5)
	Partially	21.74	56.21	
	Minimally	4.35	26.09	
	None	4.35	8.70	
		4.35	4.35	
			4.35	
9		Entrance to Start	Stage Presence	82.22
(n = 23)	Fully	77.27	63.64	(n = 6)
	Mostly	--	31.82	
	Partially	22.73	4.55	
10		Breath Awareness	Energise	66.67
(n = 23)	Fully	61.18	77.27	(n = 5)
	Mostly	18.18	18.18	
	Partially	13.64	4.55	
11		Self-Coach		60.00
(n = 23)	Fully	68.18		(n = 4)
	Mostly	--		
	Partially	31.82		
12		Imagery	Strike a Pose	57.29
(n = 23)	Fully	77.27	63.64	(n = 6)

Week	Completion Rate	Module (Mean % of participants)		Teacher Guided Lesson Activities (Mean % of activities completed)
	Mostly	18.18	--	
	Partially	4.55	36.36	
13		Back to the Future	Creating Imagery	56.00
(n = 23)	Fully	85.00	85.00	
	Mostly	15.00	15.00	(n = 5)
14		The Virtual Dress Rehearsal		82.50
(n = 23)	Fully	77.78		
	Mostly	22.22		(n = 5)

Note. Fully = watched online tutorial and completed worksheet; Mostly = watched online tutorial and partially completed worksheet; Partially = watched online tutorial but did not complete worksheet or, did not watch online tutorial but completed worksheet; Minimally = did not watch online tutorial and partially completed worksheet.

Appendix I: Studio-condition knowledge and self-awareness ratings

Studio Participants' Mean Ratings of the Development of Knowledge and Self-awareness by Program Module

Week	Module		Developed knowledge about[a]	Developed self-awareness of[b]	
1	Performance Skills	*n* = 23	7.96	NA	
	Performance Review 1		7.83	NA	
	Types of Goals		8.39	NA	
	Smart Goals	*n* = 15	8.27	NA	
2	Energy	*n* = 23	8.22	8.13	*symptoms*
	Tension		NA	8.04	*tension*
3	Breathing	*n* = 23	8.24	7.65	*breathing*
4	Self-Talk	*n* = 23	8.35	8.43	*self-talk*
	Rephrasing Self-Talk		8.61	NA	
5	Sharpen Up	*n* = 23	8.52	8.09	*loss of focus when playing*
6	MasterChef	*n* = 23	8.30	8.09	*how the opening phrase should sound*
				8.17	*hearing the music before playing*
7	Tuning-In: Part 1	*n* = 23	8.39	8.74	*what to do before starting*
	Tuning-In: Part 2				
8	Making the Unfamiliar, Familiar	*n* = 23	7.96	NA	
	Dealing with Mistakes		8.15	8.35	*my response to mistakes*
9	Stage Presence	*n* = 22	8.18	7.68	*my body language when performing*
	Entrance-to-Start		8.09	NA	
10	Energise	*n* = 22	8.09	NA	
	Breath Awareness		NA	8.14	*how I breathe when I play*
11	Self-Coach	*n* = 22	8.36	8.14	*my self-talk when I walk onstage*
12	Strike a Pose	*n* = 22	8.32	7.95	*my body language before a performance*
	Imagery		8.36	NA	
13	Creating Imagery	*n* = 20	8.45	8.60	*including imagery in my practice*
	Back to the Future		8.43	NA	
14	The Virtual Dress Rehearsal	*n* = 18	8.39	8.50	*including coping imagery in my visualisations*

Note: These ratings represent adherent participants only (that is, those who watched the online tutorials). Knowledge and self-awareness statements were rated on a 0 (strongly disagree) to 10 (strongly agree) scale. *N* refers to number of feedback forms as distinct from number of participants. Ratings apply to Appendix F, items [a]5 and [b]7.

Appendix J: Class-condition program completion summary

Program Completion Summary by Week and Module for School Class Participants

Week	Completion Rate	Module		
1		Performance Skills	Types of Goals	Performance Review 1
(n = 47)	Fully	74.47	61.70	61.70
	Mostly	14.89	19.15	14.89
	Partially	8.51	14.89	21.28
	Minimally	--	4.26	2.13
	None	2.13	--	--
2		Performance Energy	Tension	Performance Review 2
(n = 46)	Fully	78.26	78.26	63.04
	Mostly	10.87	10.87	15.22
	Partially	8.70	10.87	17.39
	Minimally	2.17	--	--
	None	--	--	4.35
3		Breathing	Performance Review 3	
(n = 44)	Fully	50.00	93.18	
	Mostly	43.18	--	
	Partially	2.27	--	
	Minimally	2.27	--	
	None	2.27	6.82	
4		Self-Talk	Rephrasing Self-Talk	
(n = 41)	Fully	68.29	65.85	
	Mostly	12.20	14.63	
	Partially	14.63	14.63	
	Minimally	2.44	--	
	None	2.44	4.88	
5		Sharpen Up		

Week	Completion Rate	Module	
(n = 41)	Fully	58.54	
	Mostly	26.83	
	Partially	9.76	
	Minimally	4.88	
6		Master Chef	
(n = 38)	Fully	39.47	
	Mostly	39.47	
	Partially	7.89	
	Minimally	5.26	
	None	7.89	
7		Tuning-In 1	Tuning-In 2
(n = 35)	Fully	85.71	77.14
	None	14.29	22.86
8		Making the Unfamiliar, Familiar	Dealing with Mistakes
(n = 35)	Fully	42.86	40.00
	Mostly	22.86	22.86
	Partially	22.86	22.86
	Minimally	11.43	2.86
	None	--	11.43
9		Entrance to Start	Stage Presence
(n = 34)	Fully	55.88	38.24
	Mostly	--	20.59
	Partially	29.41	20.59
	Minimally	--	11.76
	None	14.71	8.82
10		Breath Awareness	Energise

Week	Completion Rate	Module	
(n = 32)	Fully	31.25	40.63
	Mostly	15.63	12.50
	Partially	37.50	34.38
	Minimally	3.13	3.13
	None	12.50	9.38
11		Self-Coach	
(n = 29)	Fully	55.17	
	Mostly	--	
	Partially	34.48	
	None	10.34	
12		Imagery	Strike a Pose
(n = 31)	Fully	35.48	45.16
	Mostly	29.03	--
	Partially	22.58	41.94
	None	12.90	12.90
13		Back to the Future	Creating Imagery
(n = 29)	Fully	34.48	34.48
	Mostly	20.69	24.14
	Partially	37.93	34.48
	None	6.90	6.90
14		The Virtual Dress Rehearsal	
(n = 27)	Fully	33.33	
	Mostly	29.63	
	Partially	25.93	
	None	11.11	

Note. Fully = watched online tutorial and completed worksheet; Mostly = watched online tutorial and partially completed worksheet; Partially = watched online tutorial but did not complete worksheet or, did not watch online tutorial but completed worksheet; Minimally = did not watch online tutorial and partially completed worksheet.

Appendix K: Class-condition knowledge and self-awareness ratings

Class Participants' Mean Ratings of the Development of Knowledge and Self-awareness by Program Module

Week	Module		Developed knowledge about[a]	Developed self-awareness of[b]	
1	Performance Skills	*n* = 44	7.75	NA	
	Performance Review 1	*n* = 43	7.70	NA	
	Types of Goals	*n* = 43	7.93	NA	
	Smart Goals		NA	NA	
2	Energy	*n* = 43	7.32	7.68	*symptoms*
	Tension		NA	7.63	*tension*
3	Breathing	*n* = 41	7.62	7.27	*breathing*
4	Self-Talk	*n* = 36	8.28	7.86	*self-talk*
	Rephrasing Self-Talk	*n* = 37	8.11	NA	
5	Sharpen Up	*n* = 38	8.00	7.82	*loss of focus when playing*
6	MasterChef	*n* = 33	7.67	8.06	*how the opening phrase should sound*
				8.00	*hearing the music before playing*
7	Tuning-In: Part 1	*n* = 30	8.05	7.87	*what to do before starting*
	Tuning-In: Part 2				
8	Making the Unfamiliar, Familiar	*n* = 30	7.70	NA	
	Dealing with Mistakes		7.52	7.64	*my response to mistakes*
9	Stage Presence	*n* = 24	7.88	7.65	*my body language when performing*
	Entrance-to-Start		8.13	NA	
10	Energise	*n* = 27	7.19	NA	
	Breath Awareness		NA	6.81	*how I breathe when I play*
11	Self-Coach	*n* = 25	7.32	7.44	*my self-talk when I walk onstage*
12	Strike a Pose	*n* = 25	7.64	7.48	*my body language before a performance*
	Imagery		7.76	NA	
13	Creating Imagery	*n* = 24	7.48	7.50	*including imagery in my practice*
	Back to the Future		7.34	NA	
14	The Virtual Dress Rehearsal	*n* = 22	7.41	7.64	*including coping imagery in my visualisations*

Note: These ratings represent adherent participants only (that is, those who watched the online tutorials). Knowledge and self-awareness statements were rated on a 0 (strongly disagree) to 10 (strongly agree) scale. N refers to number of feedback forms as distinct from number of participants. Ratings apply to Appendix F, items [a]5 and [b]7.

Appendix L: Class-condition directional anxiety profile plots

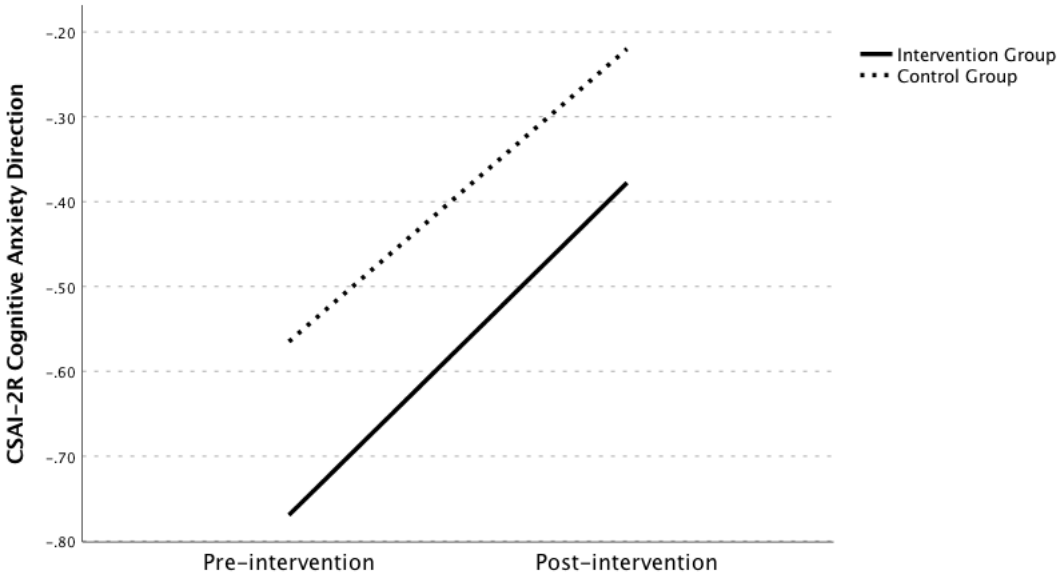

Figure J1. Pre/Post-intervention cognitive anxiety direction by group.

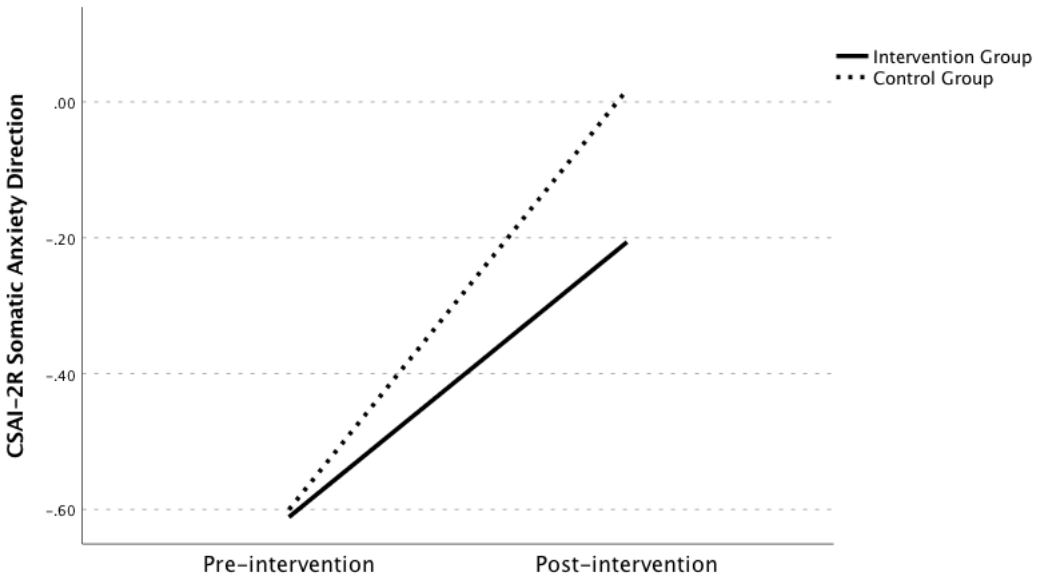

Figure J2. Pre/Post-intervention somatic anxiety direction by group.

Appendix M: Class-condition performance evaluation profile plots

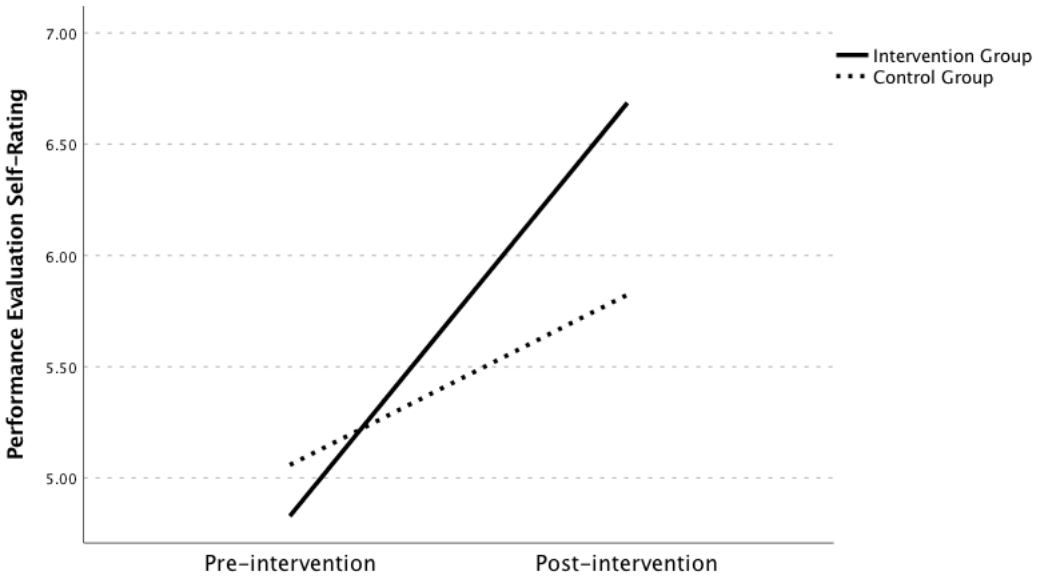

Figure K1. Pre/Post-intervention performance self-rating by group.

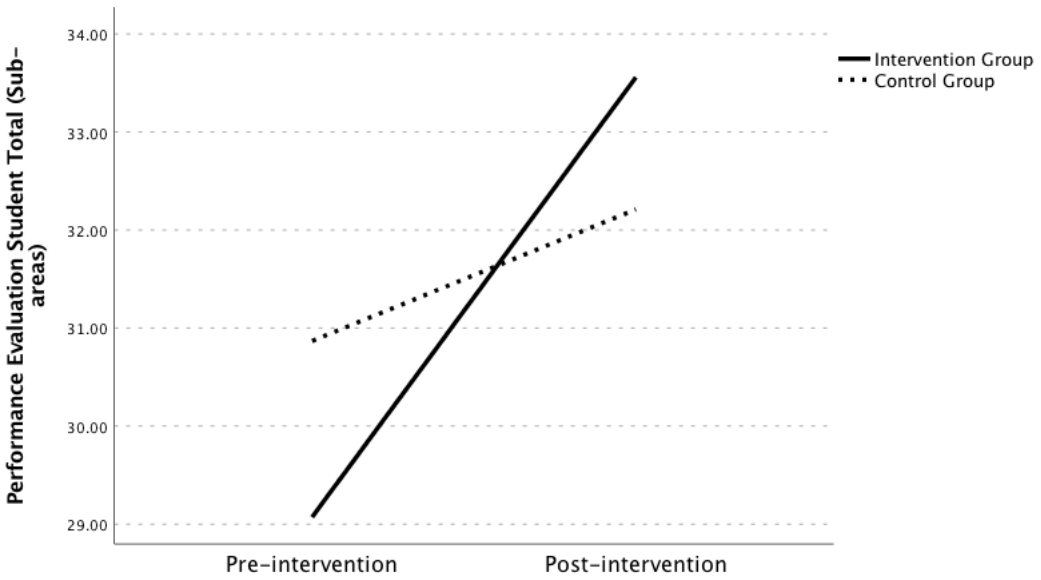

Figure K2. Pre/Post-intervention performance student total (sub-area) by group.

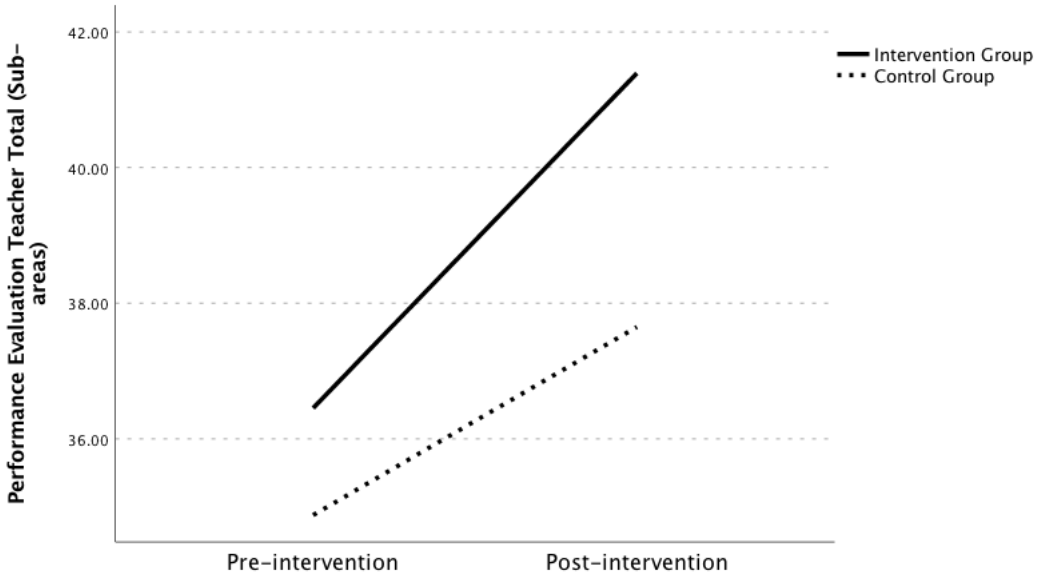

Figure K3. Pre/Post-intervention performance teacher total (sub-area) by group.

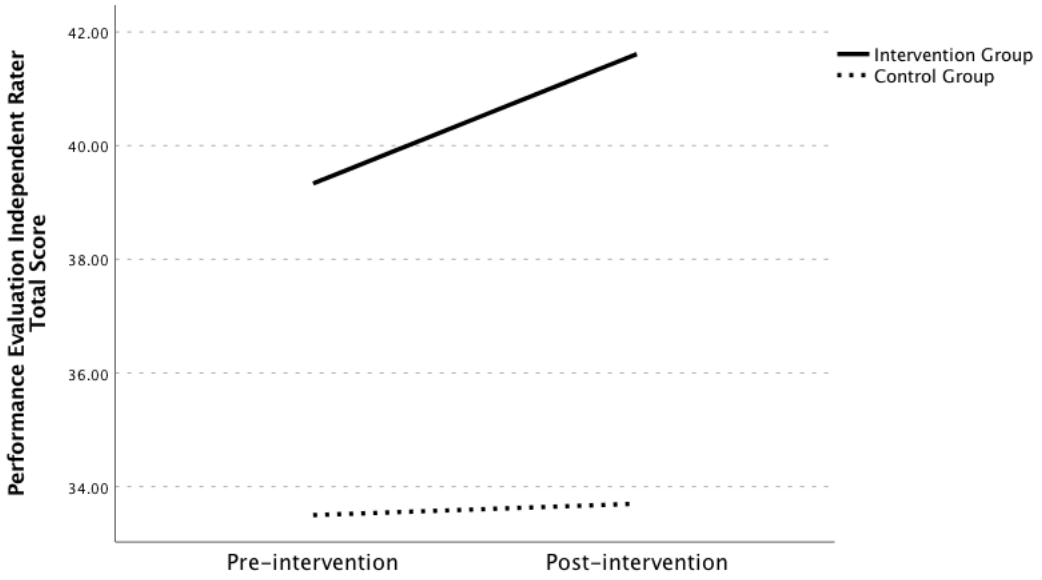

Figure K4. Pre/Post-intervention independent rater total by group.