MINDFULNESS AND THE SELF-REGULATION OF MUSIC PERFORMANCE ANXIETY

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ABSTRACT

Music performance anxiety is the experience of strong and persistent anxiety related to the performance of music. It is highly prevalent among musicians and can lead to the impairment of performance quality, or the complete abandonment of an individual's study or career. To date, studies examining musicians' coping efforts have not examined the mechanisms that drive adaptive coping responses to manage music performance anxiety. This knowledge is essential before interventions to manage music performance anxiety can be designed and tested. The present research addressed this gap by investigating the role mindfulness played in guiding coping efforts to regulate music performance anxiety in a sample of university music performance students (N = 159). The study was longitudinal and questionnaire-based, and included two new measures designed to assess musicians' coping strategies, as well as measures of mindfulness, music performance anxiety, perceptions of performance quality, and final grade. A Self-Regulation Model of Music Performance Anxiety was developed to test mediational relationships. Results showed that the mindfulness facet act with awareness (expressed in dispositional and situational forms) was associated with lower music performance anxiety. Coping responses of higher hope and lower avoidance partially mediated dispositional act with awareness effects on situational act with awareness. The goal-oriented strategy of hope also contributed to increased practice efforts. During performance, the coping strategies of positive focus, self-kindness, and self-acceptance partially mediated the relationships between levels of situational act with awareness and music performance anxiety. Finally, the relationships between situational act with

awareness and performance outcomes were fully mediated by levels of music performance anxiety. These findings lay the foundation for future research to run a randomized control trial to test a mindfulness-based intervention aimed at developing act with awareness and coping strategies, including hope, positive focus, self-acceptance, and less avoidance. Educators and clinicians working to reduce the negative impact of music performance anxiety need to consider how they target music students' ability to bring act with awareness, and the adaptive potential of hope, positive focus, self-acceptance, and less avoidance, to their preparation and performance.

This thesis is dedicated to

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ABBREVIATIONS

ACT	Acceptance and Commitment Therapy
ASI-3	Anxiety Sensitivity Index-3
CBT	Cognitive Behavioural Therapy
CBMP	Coping before Music Performance (measure)
CDMP	Coping during Music Performance (measure)
CES-D	Centre for Epidemiologic Studies-Depression
DBT	Dialectical Behaviour Therapy
DSM-IV	*Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association*, Fourth Edition
DV	Dependent variable
FFMQ	Five Facets of Mindfulness Questionnaire
Act with Awareness	Awareness and undivided attention of the present moment
Describe	Describing and labeling of observations
Non-judge	Non-judgment of inner experience
Non-react	Non-reactivity to inner experience
Observe	Observation of internal and external stimuli
IV	Independent variable
KIMS	The Kentucky Inventory of Mindfulness Skills
MAAS	Mindful Attention Awareness Scale
MBSR	Mindfulness-Based Stress Reduction
MBCT	Mindfulness-Based Cognitive Therapy
PAI	Performance Anxiety Inventory
PEPQ	Post-Event Processing Questionnaire
RIES	Revised Impact of Event Scale
SPSS	Statistical Package for Social Science

OVERVIEW

The performance of music can elicit excitement and euphoria, for both performers and their listeners (Steptoe, 2001). However, internal and external pressures to produce a quality performance also accompany the performance process. These pressures can lead to the development of anxiety symptoms often involving fears of being negatively evaluated (by others or oneself), of playing poorly, or of suffering memory lapses. For some musicians, anxiety symptoms can be so debilitating that they impair performance quality, lower assessment evaluation, and can even lead to the avoidance of performance, or the abandonment of study or an individual's career (Brodsky, 1996; Cox & Kenardy, 1993; Kubzansky & Stewart, 1999; Steptoe, 2001; Studer, Gomez, Hilderbrandt, Arial & Danuser, 2011; Wesner, Noyes, & Davis, 1990; Yoshie et al., 2009).

Music performance anxiety is highly prevalent, with most musicians experiencing some degree of anxiety before or during performance (Abel & Larkin, 1990; Kendrick, Craig, Lawson, & Davidson, 1982; Studer et al., 2011). A recent survey of 190 university music students found that one-third of participants experienced stage fright as a problem, and only 4% rated stage fright as being no problem at all. 22% of the students declared that they had failed an exam because of stage fright, and 49% said they had received a bad critique because of stage fright (Studer et al., 2011).

Despite the prevalence of music performance anxiety, most musicians remain committed to their art form and strive for excellence, trying a vast array of strategies to alleviate the potentially debilitative nature of excessive music performance anxiety

(Kenny, 2005). To date, treatment options such as pharmacotherapy, cognitive behavioural therapy (CBT), and guided imagery have demonstrated some effectiveness, but have rarely provided a full cure (Kenny, 2005). Consequently, musicians are looking for effective solutions to manage music performance anxiety.

Mindfulness has gained eminence as a clinical intervention for its ability to enable individuals to cope with adversity and reduce stress, so it is not surprising that musicians have demonstrated an interest in mindfulness techniques (Chang, 2001; de Felice, 2004; Oyan, 2006; Taylor, 2001). Mindfulness is an innate characteristic, commonly referred to as awareness and ability to attend to the present moment with a quality that is open to accept rather than judge (Kabat-Zinn, 1994). As musicians aim for high levels of attention and wish to benefit from the facilitative potential of anxiety, their use of mindfulness may enhance their efforts to manage anxiety by increasing their ability to focus on the present moment without distraction from thoughts and sensations.

Considering the resistance of music performance anxiety to any one treatment, this study aimed to increase an understanding of how a musician's ability to be mindful may leverage coping responses to self-regulate levels of music performance anxiety as it unfolds over time. This knowledge is essential to aid the design and testing of future interventions. Ultimately, a mindful approach to the management of music performance anxiety may benefit musicians by decreasing anxiety symptoms and increasing attention, awareness, positive emotion and final performance quality.

CHAPTER 1

Overview of Music Performance Anxiety

Introduction

The main purpose of this study was to investigate relationships between individuals' ability to be mindful, and their coping efforts to manage music performance anxiety as it unfolds over the course of preparing for a solo performance exam. University music students are an important population to investigate because they are reported to suffer from high levels of music performance anxiety (Steptoe & Fidler, 1987), and are at a stage in their training critical for the development of skills and future careers (Brugues, 2011; Miller & Chesky, 2004). Music students' ability to cope with their music performance anxiety is likely to impact on the quality of their performances, evaluation, and their perceived sense of satisfaction. Consequently, a further aim of the current study was to explore relationships between individuals' ability to be mindful and performance outcomes.

This literature review is presented in four chapters. Chapter 1 introduces the area of music performance anxiety. This chapter first examines a current definition and the genesis, self-regulation framework, manifestation, prevalence, and key characteristics of people who suffer from music performance anxiety. It then examines the potential impact of music performance anxiety on performance quality, and finishes with a discussion of treatment options available. Chapter 2 introduces the area of mindfulness, and the benefits associated with an ability to be mindful. Chapter 3 provides a theoretical framework for the study based on self-regulation models. Chapter 4 examines musicians' coping strategies, and their potential

association with mindfulness. The chapter finishes with a summary of the main aspects of the literature review. Chapter 5 describes the current study's aims and hypotheses.

Understanding Music Performance Anxiety within the Field of Anxiety

Theories about music performance anxiety lag behind those of other anxiety disorders, and researchers have yet to reach a consensus on a clear definition and conceptualization. This situation has been lamented by Brodsky (1996) and some insightful hypotheses have been put forward in a recent text on *The Psychology of Music Performance Anxiety* by the Australian researcher Dianna Kenny (2011).

Definition.

Kenny presents a new definition, and ideas for the genesis of music performance anxiety (Kenny, 2011; Kenny, 2006; Kenny & Osborne, 2006), based on phenomenological accounts of music performance anxiety, and the emotion-based model of anxiety developed by Barlow (2000). Barlow (2000) defines anxiety as:

> a unique and coherent cognitive-affective structure within our defensive motivational system. At the heart of this structure is a sense of uncontrollability focused on future threats, danger, or other potentially negative events …. Accompanying this negative affective state is a strong physiological or somatic component that may reflect activation of distinct brain circuits such as the corticotrophin releasing factor system. (p.1249)

Barlow's definition refers to anxiety as a defense against the possibility of facing a future threat. Among such threats, Kenny includes the fear of an impaired

performance, or the fear of shame and humiliation that may follow an impaired performance.

In an attempt to differentiate music performance anxiety from other anxieties, Kenny (2009) defines music performance anxiety as:

> the experience of marked and persistent anxious apprehension related to musical performance that has arisen through specific anxiety conditioning experiences and which is manifested through combinations of affective, cognitive, somatic and behavioural symptoms. It may occur in a range of performance settings, but is usually more severe in settings involving high ego investment and evaluative threat. It may be focal (i.e. focused only on music performance), or occur comorbidly with other anxiety disorders, in particular social phobia. It affects musicians across the lifespan and is at least partially independent of years of training, practice and level of musical accomplishment. It may or may not impair the quality of the musical performance. (p.433)

Kenny's definition isolates characteristics unique to the presentation of music performance anxiety; it occurs irrespective of genre, age, gender, years of experience, and level of technical mastery and achievement. Kenny postulates that music performance anxiety may be focal, or comorbid with social phobia. She has also hypothesized that the presentation of music performance anxiety might best be understood as belonging to distinct phenotypes: (i) being part of an occupational stress; (ii) comorbid with social phobia; (iii) part of an underlying panic disorder; or (iv) a disorder of the self where it becomes a conditioned response and an overriding state.

To date, music performance anxiety has not been independently classified within the *Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association* (APA), Fourth Edition, Text Revision (DSM-IV.TR: APA, 2000). However, performance anxiety is briefly defined as an anxiety disorder under the sub-category of social phobia if: "the anxiety or avoidance leads to clinically significant impairment or marked distress" (3000.323). Kenny's definition distinguishes music performance anxiety from social phobia, and this distinction is supported by research (Fogle, 1982; Osborne & Franklin, 2002; Steptoe & Fidler, 1987). Those with music performance anxiety are more likely to fear their own negative evaluation in comparison to that of others and persevere with the feared performance situation irrespective of their anxiety (Kenny; 2011; Powell, 2004). In addition, Kenny (2009) notes that most tasks associated with social phobia (social interaction, eating in a restaurant) do not require the complex skill acquisition that preparing for a music performance demands.

Genesis.

Kenny (2011) proposes an emotion-based model for the etiology and maintenance of music performance anxiety based on Barlow's (2000) model of anxiety. In brief, Barlow's model proposes an integrated set of three vulnerabilities that may predict the development of anxiety. These include: (i) a biological vulnerability; (ii) a generalized psychological vulnerability based on early life experiences associated with developing a sense of control over important events; and (iii) a specific psychological vulnerability whereby anxiety becomes associated with certain environmental stimuli through processes such as respondent or vicarious

conditioning. Kenny illustrates the development of anxiety with an example of a young performer high in trait anxiety (generalized biological vulnerability), who experiences high expectations from parents but unsatisfactory support within the home (generalized psychological vulnerability), where exposure to early competitive performances that involve negative evaluation from self and others (specific psychological vulnerability) may be sufficient to trigger anxiety symptoms (physiological, behavioural, and cognitive) characteristic of music performance anxiety. According to Barlow (2000), anxiety could then be triggered by conscious concerns, or by cues that trigger unconscious earlier anxiety producing experiences.

Drawing on Barlow's model, Kenny's (2011) model illustrates a process of emotional learning whereby music performance acquires emotional properties through conditioned fear responses (based on past aversive experiences, modeling, and instructed fear) leading to the development of anxious apprehension. Kenny stresses the need to reduce anxious apprehension before the experience of true alarms (fear responses in the presence of real danger) and false alarms (fear responses that occur in the absence of a real danger) in performance situations, condition an anxiety response to performance. Kenny's model identifies the need for musicians' self-regulation efforts to be directed toward reducing the development and level of anxious apprehension before an anxiety response becomes conditioned to performance. Conditioning might occur if the musician perceives the performance as impaired and then experiences negative emotions and negative self-evaluation which, in turn, exacerbates anxious apprehension and further alarms. This sequence could lead to a vicious circle whereby the performance situation itself could trigger

conditioned anxiety. Consequently, the ability of musicians' self-regulation efforts to interrupt this conditioning sequence would appear paramount.

Self-Regulation

The present study is based on a self-regulation framework that draws, on Kenny's model, but also on the broader self-regulation model developed by Carver and Scheier (1998), as well as the process model of emotion regulation delineated by James Gross (1998b, 2001). Self-regulation is a dynamic process of setting goals, activating behaviour to achieve them, appraising progress, modifying goals, and selecting coping strategies to maintain progress (Carver & Scheier, 1998b). Key aspects of self-regulation pertinent to this study are an examination of musicians' selection and appraisal of coping strategies to achieve and maintain progress toward performance goals, and the influence of mindfulness on them.

Emotion regulation is a process by which individuals influence the type, timing, experience and expression of their emotions (Gross, 1998b). Many components make up an emotional process including: affect (feeling happy, sad, fearful); expressive behaviours (posture and facial expressions); and cognitive appraisal (the assessment of the demands associated with a performance, the personal resources to meet them, and the anticipated consequences of the performance) (Lazarus, 1984, 1991; Smith, Maragos, & van Dyke, 2000). This study draws on the descriptive framework of Gross's emotion regulation responses as they unfold over time, and investigates the influence of mindfulness on emotion regulation processes. Emotion regulation and self-regulation models provide a particularly useful framework for understanding the integrated action of cognitive and emotional

processes involved in coping with music performance, and are discussed further below.

How Music Performance Anxiety Manifests

Music performance anxiety, like other forms of anxiety, is multidimensional, manifesting through an interactive yet partially independent interplay of cognitive, affective, physiological, and behavioural factors (Barlow, 2002; Craske & Craig, 1984; Kirchner, 2003; Salmon, 1990; Steptoe, 2001). Phenomenological accounts mention affective responses including anxiety, fear, anger, panic, embarrassment, shame, and excitement (Kenny, 2011). Behavioural responses can include muscle tension, physical avoidance of the performance situation, impaired performance, attempts to cope through over-learning, and other strategies discussed later in this chapter (Kenny, 2011; Salmon, 1990). How these responses manifest can vary both within and between individuals. Some musicians may experience predominantly cognitive anxiety while others may experience greater physiological arousal. Other musicians may experience lower anxiety prior to a musical performance yet still demonstrate marked autonomic activation (Craske & Craig, 1984). For many musicians, the physiological symptoms – especially the more visible signs of physiological arousal in the form of sweating or shaking hands – are particularly distressing because they can negatively impact technical acuity (Niemann, Pratt & Maughan, 1993).

Studies have also found faulty cognitions to be prominent in those who suffer high levels of music performance anxiety (Kenny & Osborne, 2006; Lehrer, 1987; Wolfe, 1990). When music performance anxiety is triggered, it is common for

performers to move into a negative self-evaluative attention state (at the expense of a task-focused attention) whereby they perceive themselves as incapable of dealing with performance demands (Kenny, 2011; Steptoe & Fidler, 1987). Negative self-evaluation is often characterized by catastrophizing. This tendency to imagine the worst often begins with "what if" phrases based on concerns of making mistakes, losing control, or having memory lapses (Steptoe & Fidler, 1987).

Steptoe and Fidler (1987) investigated the relationship between performance anxiety, neuroticism, social phobia, and negative thought processes in 146 professional, student, and amateur orchestral musicians. High music performance anxiety was significantly correlated with catastrophizing self-statements; for example, "I am almost sure to make a dreadful mistake, and that will ruin everything". High music performance anxiety was also associated with an exaggeration of performance errors, and a fear of losing control. In contrast, a medium level of music performance anxiety was associated with a realistic appraisal of the situation, reflected by statements such as: "I am bound to make a few mistakes, but so does everyone". Subsequent studies confirm that music performance anxiety is correlated with worry about potential catastrophes, fear of negative evaluation, negative self-evaluation, and exaggeration of the importance of the event (Lehrer, Goldman, & Strommen, 1990; Liston et al., 2003; Nagle, Himle & Papsdorf, 1989; Steptoe, 1989). Catastrophic cognitive self-statements, in particular, have the potential to deplete attention and disrupt concentration on the performance, and are recognized to be a major predictor of music performance anxiety (Liston, Frost, Mohr, 2003). Theorists propose that, to manage anxiety, an individual will need to be

able to control dysfunctional cognitions or information processing that focuses on future threat and uncontrollable symptoms (Craske & Craig, 1984; Miller & Chesky, 2004).

Music performance anxiety is also associated with a fear of negative evaluation from others. Osborne and Franklin (2002) examined performance anxiety as a social phobia in a sample of professional, student, and amateur musicians. They found that musicians with high music performance anxiety demonstrated a greater fear of negative evaluation in comparison to musicians with low performance anxiety. Thoughts related to the consequences (e.g., "If I make the slightest mistake, they'll think I'm incompetent."), and the likelihood of negative evaluation (e.g., "The audience expects me to play at a higher standard than I can play, and they'll be disappointed in me.") predicted music performance anxiety in a solo performance situation. Further research by Osborne and Kenny (2008) indicated that negative cognitions about a past negative performance added to the prediction of music performance anxiety beyond that of trait anxiety and gender. Collectively, these studies highlight cognitions to be an important element in both the etiology and maintenance of music performance anxiety.

How music performance anxiety manifests itself does not exist in isolation but resides within the context of a performer's general psychological health, life history, and study/work setting. Popular musicians are often required to tour, and perform late at night. They report significant distress associated with music performance anxiety and with the occupational stressors of financial insecurity, lack of sleep, lifestyle demands, and work overload or underload (Cooper & Willis, 1989;

Raeburn, 2007). Consequently, researchers have found that levels of comorbidity and the demands of the career, as well as attempts to perform tasks that exceed the capacity of the performer, also contribute to the development of music performance anxiety (Brodsky, 1996; Kenny, 2011; Miller & Chesky, 2004; Nagel, 2004; Osborne & Kenny, 2008; Steptoe, 2001).

Although this study investigates experiences of music performance anxiety across the genres of classical, jazz and pop, practical constraints did not allow a full assessment of the psychosocial issues that could potentially impact on the levels of music performance anxiety experienced by an individual; this is acknowledged as a weakness of any focused study.

Prevalence

In general, performance anxiety is experienced by 80% of people when they are the focus of attention (Plaut, 1990). It is estimated that 2% of the US population suffers severe performance anxiety (Powell, 2004) in areas such as test-taking, competitions, public speaking, and musical performance (Beatty, 1987; Elliot & McGregor, 1999; Kenny, 2005; Merritt, Richards & Davies, 2001). Of these, approximately one third will have comorbid conditions of general anxiety disorder, social phobia, and/or depression (Sanderson, di Nardo, Kessler, Strang, Wittchen, Stein & Watkersm, 1999). Depression, in the form of dysthymia and major depression, is a common comorbid condition with anxiety disorders (Andrews, Henderson, & Hall, 2001). Women are more likely to develop anxiety disorders than men are, and this bias has been reported in several music performance anxiety studies (Ginsberg, 2004; Osborne & Franklin, 2002; Wesner et al., 1990).

Music performance anxiety is highly prevalent with most musicians experiencing some degree of music performance anxiety (Abel & Larkin, 1990; Kendrick et al., 1982). As noted previously, a recent survey of 190 university music students found that one-third of the students experienced stage fright as a problem, and only 4% rated stage fright as being no problem at all. 22% of the students declared that they had failed an exam because of stage fright, and 49% said they had received a bad critique because of stage fright (Studer et al., 2011). In a study of 126 Norwegian tertiary level music students, 36.5% reported music performance anxiety problematic enough to need help. Only 8% reported no anxiety during performance (Kasperden & Gotestam, 2002). A survey of 301 University of Iowa music students reported that 21% experienced "marked distress" due to anxiety, and another 40% experienced "moderate distress". In total, 17% stated that their anxiety significantly impaired their performance quality, and 30% stated that it moderately impaired their performance. Because of their anxiety, 9% avoided performance and 33% reported an adverse effect on their careers (Wesner et al., 1990). In a survey of 56 orchestras, James (2000) found that 70% of musicians reported experiencing music performance anxiety severe enough to interfere with their performance. The largest survey published to date completed by 2,212 professional orchestral musicians found that 19% of women and 14% of men reported severe music performance anxiety (Fishbein, Middlestadt, Ottati, Strauss, & Elis, 1988).

These surveys indicate that music performance anxiety is a significant problem for performing musicians across age, profession, and performance contexts (Cox & Kenardy, 1993; Kenny, 2011; Ryan, 1998; Van Kemenade, van Son, & van

Heesch, 1995). These results ought, however, to be interpreted with caution: we cannot assume that these studies are measuring the same level of music performance anxiety because there is no standardized assessment tool developed with scoring criteria and cut off scores for music performance anxiety. The current study used the Performance Anxiety Inventory (Nagel, Himle, & Papsdorf, 1981) which is based on Spielberger's (1980) standardized measure of test anxiety.

Characteristics of People who suffer Music Performance Anxiety

Within the concept of anxiety, it is suggested that people differ along distinctive dimensions including: trait anxiety (general anxiety proneness); anxiety sensitivity; and anxious apprehension. Trait anxiety – which represents a relatively stable susceptibility to apprehension, worry, and heightened autonomic activity (Cameron, 2003) – is a commonly mentioned factor in the etiology of music performance anxiety (Craske & Craig, 1984; Kenny et al., 2004). Cameron (2003) explains that trait anxious individuals tend to experience greater distress when faced with health threats and that this influences their cognitive processes. Over time, repeated activation of anxiety may result in event-related cognitions becoming linked with fearful emotion. A study by Craske & Craig (1984) of 40 piano students indicated that high trait anxious performers felt the demands of the situation more severely than low trait anxious performers. In their study, high trait-anxious performers compared to low trait-anxious performers demonstrated greater synchrony between cognitive and somatic responses, particularly when the performance involved evaluation by experts. We may hypothesize that, over time, the repeated activation of anxiety may have conditioned event-related cognitions to

fearful emotion and associated autonomic arousal. Results from studies do, however, vary when assessing the ability of trait anxiety to predict music performance anxiety. Responses from 238 professionals, students and teachers indicated that trait anxiety accounted for 25% of the variance in music performance anxiety (Lehrer et al., 1990), Whereas, Steptoe and Fidler (1987) did not find trait anxiety to be a significant predictor of music performance anxiety.

Anxiety sensitivity is another major predictor of music performance anxiety. This construct is different to trait anxiety, as it refers to the tendency to fear and worry about arousal-related body sensations and their potentially catastrophic effects (Stephenson & Quarrier, 2005; Steptoe & Fidler, 1987). Stephenson and Quarrier (2005) found that college music students high in catastrophic thinking and anxiety sensitivity tended to imagine the worst possible outcomes: this suggests that the experience of somatic symptoms may be less the problem than musicians' fear and/or interpretation of their symptoms. For example, musicians low in anxiety may experience the same autonomic arousal as do high-anxious musicians, but they may be more likely to interpret the arousal as helpful rather than as hindering their performance (Craske & Craig, 1984; Wolfe, 1990).

Women and men tend to fear different types of symptoms (Stephenson & Quarrier, 2003). Women high in anxiety sensitivity are more likely to fear heart and breathing problems, whereas men high in anxiety sensitivity tend to fear cognitive dyscontrol and experiences of going 'blank'. Comparable to a fear of dyscontrol, feeling disoriented during performance has been linked with memory lapses and uncertainty of where they are in the score (Kirchner, 2003).

Finally, anxious apprehension is considered a key element in anxiety (May, 1977). It is defined as a future-oriented mood state, accompanied by a feeling of helplessness, negative affect, and negative cognitions about one's inability to cope (Barlow 2002). Within this state, attention can shift towards threat-relevant stimuli and self-evaluative concerns (Puliafico & Kendall, 2006) including the threat of negative evaluation, a preoccupation with feelings of inadequacy, a fear of making mistakes, or of forgetting (Kendrick et al., 1982; Wolfe, 1989).

Due to the potential for these dimensions to exacerbate the development and maintenance of music performance anxiety, their influence will be considered when examining musicians' efforts to cope with music performance anxiety.

Performance Quality

While music performance students wish to reduce debilitative levels of music performance anxiety, their ultimate goal is to maximize the quality of their performance. Research has found that musicians who experience a medium level of music performance anxiety may perform better than those who experience high music performance anxiety, or those who are too relaxed (Steptoe & Fidler, 1987). Thus, music performance anxiety can be viewed as both a positive and negative condition, and some degree of music performance anxiety can occur without contributing to the degradation of performance quality (Brotons, 1994; Craske & Craig, 1984; Wolfe, 1990). However, music performance anxiety can be associated with lower expert ratings of performance quality (Craske & Craig, 1984). In a study by Craske and Craig (1984), expert judges were asked to rate conservatory piano students' performance in two situations: (i) no audience; and (ii) with an audience.

The students were divided into high and low trait anxiety groups. Generally, high levels of anxiety were associated with lower judge ratings of performance quality: although both groups reported similar levels of subjective distress in the no audience situation, the highly anxious performers received lower performance quality ratings. The low trait-anxious performers received higher performance quality ratings in both performance situations. Although low trait-anxious performers reported a level of subjective distress similar to the high trait-anxious group, it did not negatively impact their performance quality rating. These findings suggest that an effective management of music performance anxiety will influence the quality of musicians' final performance outcome.

Treatment of Music Performance Anxiety

Music performance anxiety can be resistant to change and rarely do treatments provide a full cure (Kenny, 2005). An early review of treatments revealed that beta-blockers could reduce some of the physiological components of music performance anxiety, but they did little to reduce the psychological components (Lehrer, 1987). A comprehensive review by Kenny (2005) of studies on hypnosis, music therapy, Alexander Technique, and combined therapies showed variable promise, leading to the conclusion that treatments that attend to the mental, physical, and emotional components of music performance anxiety show greater efficacy in reducing music performance anxiety than single modalities that focus on one component of music performance anxiety alone.

Cognitive behavioural therapy (CBT) is widely researched, and is considered the therapy of choice for social anxiety disorders (Rodebaugh, Holaway, &

Heimberg, 2004). CBT techniques combine behavioural strategies to address problematic behaviour and cognitive restructuring strategies, which include the identification, evaluation, and modification of maladaptive thinking styles. CBT has shown some efficacy for music performance anxiety (Kendrick et al., 1982; Tarrant & Leatham, 2007). For example, Clark and Agras (1991) found that CBT was superior to drug therapy (Buspirone) in the management of music performance anxiety and improvement in performance quality, in a sample of professional, student, and amateur musicians. Other studies that combined CBT with biofeedback or relaxation indicated some improvement in music performance anxiety, but conclusions are hard to draw because these studies had no active control group, relied solely on self-report measures, and included no assessment of performance quality (Nagle et al., 1989; Niemann et al., 1993). Kenny (2011) cautions, that CBT may not be effective for all musicians suffering from music performance anxiety. One concern of focusing on CBT cognitive techniques is that these techniques may run the risk of increasing musicians' explicit-monitoring of thought, which in turn may interfere with finely tuned automaticity skills. Acquired automaticity involves the integration of all the components of a task into an uninterrupted and unanalyzed whole, using motor loops that allow the performer to execute an action at a non-cognitive level (Moors & De Houwer, 2006). Because automaticity is a desired outcome musicians strive for through extensive hours of practice, developing an individual's mindfulness ability may be relevant as a means to activate higher order self-regulation processes that serve to facilitate automaticity skills by helping individuals disengage with negative cognitive processes. As Brown and Ryan (2003)

explain, mindfulness is not about reflexive thought, "its mode of functioning is perceptual or 'pre-reflexive', operating on, rather than within, thought, feeling, and other contents of consciousness" (p. 823). Mindfulness is associated with a higher quality of moment-to-moment experience. Research in the area of flow activities – characterized by a quality of engagement and attention to what is occurring – contribute this higher quality of attention to the enhancement of a felt sense of enjoyment and vitality (Csikszentmihalyi, 1990).

Developments in cognitive-behavioural therapies have seen the inclusion of mindfulness and acceptance principles as features of a 'third wave' of therapy (first wave being behavioural and second wave being cognitive). These elements invite individuals to focus on the present-moment and develop their meta-cognitive relationships with internal and external experiences. In brief, mindfulness is defined as a state of awareness arising from attending to the present moment with a quality of openness and non-judgment (Kabat-Zinn, 1994). Mindfulness can be expressed in trait and state form, also referred to as dispositional and situational modes. Dispositional mindfulness refers to a relatively stable individual characteristic, whereas, situational mindfulness refers to a mode of awareness that is evoked when attention is regulated by a specific situation (Bishop et al., 2004; Brown & Ryan, 2003). An ability to attend and not diffuse attentional focus from a given task has been associated with lower levels of performance anxiety (Kendrick et al., 1982; Wolverton & Salmon, 1991). If we consider three main areas of focus for the performer to be: the self, audience, and the music – and we previously noted how catastrophic thoughts, associated with the self and audience, were associated with

higher music performance anxiety (Steptoe & Fidler, 1987) – then it seems likely that high levels of dispositional and situational mindfulness could facilitate an ability to attend to the music, which, might contribute to less music performance anxiety. Very little research has looked at mindfulness or the mechanisms through which it may exert its influence on music performance anxiety. A few doctoral theses have expounded on the potential value of mindfulness for music performance (De Felice, 2004; Oyan, 2006; Taylor, 2001). For example, Taylor (2001) found that 31% of musicians who had tried CBT had found it somewhat effective whereas 69% had tried meditation and found it very effective in helping to manage music performance anxiety. However, to date, only one study (demonstrated in a thesis and two published articles), has examined the effects of mindfulness meditation on music performance anxiety (Chang, 2001; Chang, Midlarsky & Lin, 2003; Lin, Chang, Zemon & Midlarsky, 2008). Investigating how mindfulness is associated with coping efforts to manage music performance anxiety is one of the primary aims of this study.

Summary

Music performance anxiety is highly prevalent and has severe consequences for many musicians. It is a complex phenomenon that manifests through an interplay of cognitive-emotion factors. The complexity of the causes and presentations of music performance anxiety suggest that no one intervention may necessarily hold the answer for all musicians. Efforts to regulate musicians' unhelpful cognitions and anxiety will ultimately contribute to improved performance outcome, and positive emotion. As a naturally occurring human characteristic, mindfulness could contribute

to musicians' self-regulation efforts to manage music performance anxiety, and this study aims to investigate this potential.

CHAPTER 2

Overview of Mindfulness

Introduction

Dispositional and situational mindfulness have been theoretically and empirically associated with psychological well-being, and are predictors of self-regulated behaviour and positive emotional states (Brown & Ryan, 2003). Brown and Ryan (2003) describe mindfulness as a naturally occurring attribute of consciousness. They explain that consciousness encompasses both awareness and attention, where awareness is viewed as the background monitor of internal and external stimuli from which attention draws stimuli out for periods of focus. Although nearly everyone has the capacity to attend and be aware, mindfulness is commonly considered to be a heightened attention and awareness of the present moment, subsuming qualities of openness and acceptance (Brown & Ryan, 2004). Research proposes that the elements of awareness and acceptance of one's moment-to-moment experience are potentially effective ingredients against anxiety (Keng, Smoksi, & Robins, 2011). However, despite a surge of interest investigating mindfulness over the last few decades, only one study has examined the relationship of mindfulness and music performance anxiety. No published research has explored the relationship between dispositional and situational mindfulness, and music performance anxiety, or the mechanisms through which mindfulness may exert its influence. A primary aim of this study is to develop an understanding of the role dispositional and situational mindfulness plays in the self-regulation of cognitive-emotional processes associated

with music performance anxiety as it unfolds over the course of preparing for a solo performance exam.

This chapter first reviews the origin, construct, definition, and efficacy of mindfulness and mindfulness interventions, and finishes with a discussion of the research that has investigated a relationship between mindfulness and music performance anxiety.

Origin

The origins of mindfulness lie in traditional Buddhist spiritual practices. Within Buddhism, mindfulness is one factor that can lead toward a life of less suffering. In the context of Buddhism, mindfulness is cultivated through meditation, and is practiced as part of a journey that may lead to insight into the subjective construction of experience and characteristics of existence; impermanence, uncertainty, and interdependence of life (Huxter, 2007). Kabat-Zinn (1982) drew on this tradition and adapted it for clinical use in the management of chronic pain. Within Western practices mindfulness is developed through meditation by directing attention to inner or external experience – these may include attending to the breath, sensory-motor feedback, thoughts, emotions, sounds, the environment, and other people (Brown & Ryan, 2003; Keng et al., 2011). Within Buddhist teachings, meditation refers to focused attention, and the development of an open monitoring of all present moment experiences (Chiesa, 2012).

The process of being mindful aims to develop a fuller awareness of both context and perspective without trying to change them. Through mindfulness training, an individual learns to attend, observe, and allow thoughts and emotions to

come and go with an attitude that is open to novel distinctions being drawn, and to a response that is more reflective and less reactive (Bishop et al., 2004). In contrast, within psychology, a traditional cognitive-behavioural approach aims to develop an individual's awareness of their dysfunctional thoughts, feelings, and behaviour with the aim of evaluating and modifying them. By developing mindfulness, an individual may gain insight into the nature of thoughts and emotions and learn that a thought (e.g., "I am going to mess up this passage.") is a passing thought construct and does not represent who they are or necessarily reflect reality (Bishop, 2002; Huxter, 2007).

Definition

Mindfulness is a naturally occurring human characteristic if we accept that nearly everyone has the capacity to attend and be aware (Brown & Ryan, 2003; (Shapiro & Carlson, 2009). The term "Mindfulness" has been used to refer to a psychological trait, a temporary state of awareness, or as the result of mindfulness training (Brown, Ryan & Creswell, 2007). One of the first definitions of mindfulness referred to it as a heightened state of awareness arising from attending to the present moment with a quality that is open to accept rather than judge (Kabat-Zinn, 1994). In an effort to operationalise this definition of mindfulness, Bishop and colleagues (2004) proposed a two-component model. The first component defines mindfulness as the "self-regulation of attention which involves sustained attention, attention switching, and the inhibition of elaborative processing" (Bishop et al., 2004, p.233). The second component involves regulating attention with an attitude of openness and acceptance. Acceptance here implies willingness, rather than resignation, to

experience thoughts, feelings, and physiological reactions fully without judgment, rumination, or suppression of the experience. The role of acceptance is currently debated. A new comprehensive mindfulness scale (Bergomi, Tschacher, & Kupper, 2012) has included a separate accepting orientation factor which tended to split into two distinct aspects: (i) non-judgment towards experience; and (ii) self-acceptance. Other authors caution that acceptance is not a separate factor of mindfulness but is subsumed in the act of attending -- attending to the present moment involves an acceptance of it (Brown & Ryan, 2004).

Within a classical perspective of mindfulness meditation, acceptance is an attitude that is brought to mindfulness, to help lighten the frequent refocusing of attention, and to help prevent negative thoughts from arising (Brown & Ryan, 2004; Chiesa, 2012; Grabovac, Lau, & Willet, 2011). Furthermore, researchers point out that higher acceptance can also be an outcome of practicing awareness and mindfulness (Kohls, Sauer, & Walach, 2009) and, may promote the use of fewer of the cognitive and behavioural avoidance strategies that are so prevalent in anxiety psychopathology (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996).

Trait and State Mindfulness

Mindfulness has been conceptualized in both trait and state forms, which are also referred to as dispositional and situational forms. Dispositional mindfulness is a relatively stable individual characteristic, and situational mindfulness has been defined as awareness that is evoked when attention is regulated by a specific situation (Bishop et al. 2004; Brown & Ryan, 2003). Research by Brown and Ryan (2003) found that trait mindfulness predicted state mindfulness, and suggested that

both forms of mindfulness are independent but also related to each other. In addition, the effects of state mindfulness were stronger than those of trait mindfulness. However, they suggest this might be due to measuring state mindfulness at the same time as outcomes studied. Their findings indicated that both forms of mindfulness played an important role in self-regulation processes and emotional well-being. No study has yet investigated the role both forms of mindfulness play in musicians' self-regulation of music performance anxiety. The current study aims to shed light on this gap in the research.

Mindfulness – Single or Multifaceted?

Conceptualizations of mindfulness vary, resulting in a variety of different measures for dispositional (trait) mindfulness. Dispositional mindfulness has been conceptualized and measured as a one-dimensional assessment of awareness and attention brought to the present moment (i.e., awareness and attention are viewed as the central components of mindfulness). This component forms the basis of the mindful attention awareness scale (MAAS; Brown & Ryan, 2003). Researchers argue that the complexity of the mindfulness construct demands measurement at a facet level, and call for mindfulness to be measured at the facet level in order to disentangle the effects of each facet (Leary & Tate, 2007). Baer and colleagues (2006) developed the Five Factor Mindfulness Questionnaire (FFMQ; Baer et al. 2006) by conducting exploratory factor analysis on the combined items from five mindfulness questionnaires and identified five distinct factors: (i) observing; (ii) describing; (iii) act with awareness; (iv) non-judgment of experience; and (v) non-reactivity to inner experience. The current study uses the FFMQ because of its wide

assessment of the mindfulness construct, and its applicability to non-meditation experience. In addition, the identified facets are found to be differentially related to a variety of constructs. For example, research reports that the act with awareness facet (FFMQ) was the facet most strongly related to less absent-mindedness. After the non-judge facet, it had the strongest associations with, lower levels of thought suppression, difficulties with emotion regulation, experiential avoidance, and greater self-compassion. In addition, act with awareness (KIMS) has demonstrated a negative correlation with depression, worry, social fears, and difficulty "letting-go" of negative thoughts when they occur (Frewen, Evans, Maraj, Dozois, & Partridge, 2008). Overall, the facets of act with awareness, non-judge, and non-react have been found to be significant predictors of symptom level (Baer et al., 2006). The non-evaluative component of mindfulness is said to develop from mindfulness training, and enables people to examine their experience even when they may bring discomfort, whereas, the non-react component involves "letting go" of expectations and allowing things to happen (Leary & Tate, 2007). Investigating mindfulness at the facet level will enable the current research to identify which facets of mindfulness are most responsible for specific self-regulation efforts and levels of music performance anxiety.

Measures of situational (state) mindfulness are limited and commonly employ 5 modified items from the mindful attention awareness scale (MAAS; Brown & Ryan, 2003). In order to measure situational mindfulness at a multi-facet level and provide a meaningful comparison of results across time, the current study modified the FFMQ instructions to make it applicable to situational tendencies by asking

participants to indicate how frequently the comments were true for them during their week of performance.

Mindfulness-Oriented Interventions

Mindfulness has been incorporated into several interventions that are now widely available in medical and mental health settings. These interventions include Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1996), Mindfulness-Based Cognitive Therapy (MBCT; Segal, Williams, & Teasdale, 2002), Acceptance and Commitment Therapy (ACT; Hayes, Follette, & Linehan, 2004), Dialectical Behaviour Therapy (DBT; Blennerhassett & O'Raghallaigh, 2004), and some models of relapse prevention for substance abuse (Marlatt & Gordon, 1985). Within these clinical interventions, mindfulness is presented as skills to be learnt and practiced in order to increase awareness and respond more skillfully to mental processes that contribute to psychological symptoms and maladaptive behaviour.

These intervention programs differ in how they train mindfulness. For example, MBSR is a structured group program offering intensive training in mindfulness meditation to help individuals to learn to be less reactive and judgmental toward their experiences. It has been shown to diminish the habitual tendency to emotionally react and ruminate about passing thoughts and physical sensations (Ramel, Goldin, Carmona & McQuaid, 2004). A recent functional neuroimaging study of MBSR on emotion regulation in individuals with social anxiety disorder reported an improvement in anxiety, depression, and self-esteem after mindful breath- focused attention mindfulness practice, as well as reduced amygdale reactivity and increased activity in brain regions implicated in attentional deployment

(Goldin & Gross, 2010). These findings suggest that the ability to redirect attention as practiced in focused breathing may be helpful in reducing social anxiety distress.

In contrast, ACT was developed on the understanding that psychological distress is often associated with the avoidance of thoughts and emotions, which often increases the occurrence and distress of the very thoughts and emotions a person wishes to avoid. ACT aims to increase a willingness to contact these experiences, become aware of their value, and commit to behaviour that will lead to valued goals. Core processes within ACT include: acceptance; present moment focus; the self as context; values; and committed action in line with one's values (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). ACT uses informal mindfulness exercises to enhance the development of awareness and acceptance in contrast to lengthy meditation training. Research supports the efficacy of ACT in the treatment of anxiety (Forman, Herbert, Moitra, Yeomans, & Geller, 2007) but, currently, no research has investigated the effect of any of these programmes on music performance anxiety. Before these effects can be studied, however, relationships between mindfulness and the self-regulation of music performance anxiety need to be identified.

Studies have also examined the effects of brief mindfulness instructions on emotional responses. In a study by Erisman and Roemer (2010), university students were randomly assigned to a brief mindfulness intervention or a control condition. They then viewed an affectively-mixed film clip and rated their emotional responses. The mindfulness intervention (relative to control group) reported reduced emotion regulation difficulties and negative affect in response to the film. In a study by Campbell-Sills, Barlow, Brown and Hoffman (2006), patients with mood and anxiety

disorders were randomly assigned to two instruction groups – to either accept or suppress their emotions – while viewing an emotionally provocative film. Interestingly, both groups reported similar distress while watching the film but the acceptance group (in comparison to the suppression group) had a lower heart rate while watching the film, and experienced less negative emotion during post-film recovery. A recent review suggests that training in mindfulness elements of focused awareness and acceptance may reduce emotional reactivity to negative stimuli and promote an ability to maintain contact if needed (Keng et al., 2011).

These intervention studies suggest that mindfulness training could help develop mindfulness skills for the regulation of cognitive-emotional processes associated with music performance anxiety. By first identifying relationships between mindfulness and music performance anxiety, this study hopes to provide the foundation for investigating the efficacy of mindfulness-based interventions for music performance anxiety.

Trait Mindfulness and Psychological Health

Trait mindfulness has been associated with higher levels of competence, optimism, self-esteem, pleasant affect, levels of life satisfaction (Brown & Ryan, 2003), and lower levels of rumination (Raes & Williams, 2010), experiential avoidance, and difficulties in emotion regulation (Baer et al., 2006). Research exploring the association between trait mindfulness and cognitive processes has found that, among undergraduate university students, trait mindfulness was associated with less negative automatic thoughts, a greater ability to let these thoughts go (Frewen et al., 2008), and improved performance on a task of sustained

attention (Schmertz, Anderson, & Robbins, 2009). These findings are significant to musicians as they strive to influence cognitive processes and the conscious adjudications that frequently accompany these processes in performance situations.

Trait mindfulness has also been shown to be related to differences in brain activity observed through functional neuroimaging methods. Research has found greater trait mindfulness to be correlated with lower resting activity in the amygdala, and medial prefrontal and parietal brain areas that are associated with processing of thoughts and feelings about the self. By comparison, higher levels of depressive symptoms were correlated with greater resting activity in these brain areas (Way, Creswell, Eisenberger, & Lieberman, 2010). Collectively, these findings indicate an association between mindfulness and an ability to reduce negative cognitions related to the self.

These research findings suggest that mindfulness skills affect transdiagnostic processes such as self-focused attention, rumination, and experiential avoidance, processes often associated with the maintenance of a number of psychological problems including music performance anxiety (Hayes, et al., 1996; Kenny, 2011). The relationship of mindfulness with these processes may partially explain why mindfulness can be helpful in the treatment of a broad range of difficulties, including depression (Broderick, 2005), anxiety (Bogels, Sijbers, & Voncken, 2006) and stress (Grossman, Niemann, Schmidt, & Walach, 2004), and why it might, potentially, be of similar help in the treatment of music performance anxiety.

Mindfulness and Music Performance Anxiety

To date, only one set of studies were found that examined the effect of meditation training on music performance anxiety (Chang, 2001; Chang et al., 2003; Lin, Chang, Zemon, & Midlarsky, 2008). Nineteen tertiary-level music students were randomly assigned to an intervention group of eight Chan meditation classes (described as concentration and mindfulness) per week and a waitlist control group (with no ascribed activity). There was a small group difference reporting less music performance anxiety in the meditation group, and a positive relationship between performance anxiety and performance quality. It was suggested that enhanced mindfulness, developed through the meditation intervention, may have enabled participants to use increased arousal to drive greater focus on the task at hand. However, this study had a number of methodological weaknesses. The study may have suffered from self-election bias, and participants missed 40-50% of the classes. In addition, the interpretation of their findings was not supported by the data. There was no significant difference in performance quality between the meditation and control group, and the scatterplots demonstrate wider dispersion of state anxiety scores than in the control group, with the three highest performance quality scores covering a range of anxiety from low to middle to high. The results of this study thus provide insufficient evidence to determine what impact mindfulness had on performance quality (Kenny, 2011). In addition, participants were not blind to the trial, and had no prior assessment of trait anxiety taken. Another interpretation may be that the meditation group was simply lower in trait anxiety to start with: research indicates that those low in trait anxiety can benefit from increased arousal without

degradation to performance quality (Cox & Kenardy, 1993). Alternatively, the increased social support and attention experienced from the intervention may have contributed to the participants coping with their anxiety more productively. The results are tantalizing but inconclusive, and before we consider training musicians in mindfulness strategies, we first need to understand more fully how mindfulness is associated with music performance anxiety, and through what mechanisms it exerts its influence.

Regulating music performance anxiety with mindfulness promises to have a significant impact on music performance anxiety. This claim is supported by Davidson's (1998) and Kabat-Zinn's (2003) findings that mindfulness subjects were able to decrease negative emotions and increase positive ones, and thereby enhance emotional balance as well as their immune function. Kabat-Zinn believes that inner peace and acceptance lies at the heart of health. He explains that mindfulness requires that "we be willing to let go of wanting anything at all to happen and just accept things as they are and ourselves as we are" (Kabat-Zinn, 2003, p.179). Ultimately, mindfulness is proposed to help an individual to remain focused on the present and, in doing so, to realize 'moment by moment' potential. Stronger mindfulness may also benefit musicians by encouraging movement from concrete towards abstract goals, especially those associated with less investment in the 'self' and greater investment in 'the creative moment'.

As noted previously, in Buddhism, mindfulness practice develops liberation from the self, attachments, and possessions to be purely aware, embracing the present moment (Varela, Thompson & Rosch, 1991). A westernized view of mindfulness

may seek to find its benefits in adaptive coping efforts or an ability to find new meaning in a situation, but, from a Buddhist perspective, mindfulness moves beyond dichotomous thinking about what is better, what is worse, or what is adaptive, and fully embraces experience without judgment. Ultimately, this suggests that we need to be open to broader levels of how mindfulness may be of therapeutic value to coping with music performance anxiety.

Summary

The psychological construct of mindfulness is yet to be fully understood and conceptualized, yet we have seen that different measures of mindfulness are related to various indices of psychological well-being. Results about the association between mindfulness and music performance anxiety, however, remain inconclusive, and beg to be investigated further. The next question to ask is how does the impact of mindfulness come about? Several psychological processes, some of which may overlap, have been proposed as mechanisms for the beneficial effects of mindfulness on emotion regulation: these include; metacognitve awareness, exposure, acceptance, and attentional control. The next section discusses how these aspects of mindfulness may influence coping with music performance anxiety within the framework of self-regulation theory.

CHAPTER 3

A Self-Regulatory Approach to Mindfulness and Coping with Music Performance Anxiety

Introduction

Despite the prevalence of musicians who experience significant levels of music performance anxiety, little is known about what mechanisms may drive the use of coping strategies that effectively regulate the development and experience of this anxiety. Research has confirmed that musicians use a vast array of coping strategies (Lehrer et al., 1990; Roland, 1992; Steptoe, 1989) that include problem-focused and emotion-focused strategies, both before and during performance (Kane, 2008; Wolfe, 1990), and the effectiveness of these coping strategies is associated with how positively musicians perceive their performance outcomes (Cox & Kenardy, 1993). If we are to understand what future interventions may potentially target, it is necessary to identify processes that influence coping efforts: in this way, we may be better informed about why certain coping strategies are prominent and effective before and during performance.

This study aims to understand what coping strategies musicians use along the timeline of the unfolding emotional experience of preparing for and giving a performance. In particular, it considers how dispositional and situational mindfulness contribute to musicians' emotion regulation coping strategies, and, in turn, how these coping strategies impact musicians' level of music performance anxiety and final performance outcomes. Models of self-regulation (Carver & Scheier, 1998), and emotion regulation (Gross, 1998) provide theoretical frameworks for understanding the cognitive and emotional processes involved in the management of music

performance, and form the basis for the presentation of a conceptual scheme proposed for the self-regulation of the music performance anxiety process.

This chapter reviews coping, self-regulation, and emotion regulation theories. A discussion of the role mindfulness plays in the self-regulation of music performance anxiety follows. The chapter finishes with the presentation of a proposed conceptual model for the self-regulation of the music performance anxiety process.

Coping Theory

The concept of coping refers to the many ways an individual can respond to meet the demands of a situation, including negative emotions triggered by the situation (Lazarus & Folkman, 1984). A widely utilized theory of stress and coping is that proposed by Lazarus (1966) and elaborated upon by Lazarus and Folkman (1984), known as the transactional model of stress and coping. The theory holds that three processes occur when a person confronts a stressful situation: (i) primary appraisal is the process of assessing the threat associated with a situation; (ii) secondary appraisal is the process of assessing the resources one has to meet the threat; and (iii) coping is the process of executing cognitive and behavioural strategies to manage a specific demand. A stressful situation can be appraised as a threat when stressors exceed the resources a person feels they have. Alternatively, if the person feels well equipped to meet the demands of the situation, they may appraise the situation as a challenge. Consequently, a stressful situation can involve both threat and challenge. For example, a music performance exam can be appraised as carrying the threat of possibly receiving a poor grade as well as the challenge of

possibly procuring a good grade. Both forms of appraisal motivate the system to take action, but challenge appraisals are less likely to lead to negative feelings (Carver, Scheier & Weintraub, 1989).

Self-Regulation Theory

Self-regulation is described as a dynamic process of setting goals, activating behaviour to achieve them, appraising progress, and selecting coping strategies to modulate progress (Cameron & Leventhal, 2003). According to self-regulation theory (Carver & Scheier, 1998), humans experience anxiety when their behavioural avoidance system becomes aware of a threat. This emotional system is primed to ensure the individual's survival through the initiation of a "fight-or-flight" reaction in the body, designed to increase the physical resources necessary to enable individuals to defend themselves or flee from a threat. These processes include a narrowing of attention to self versus task focus, increased attention to threat stimuli, and arousal of the hypothalamic motor system to marshal energy for action (Barlow, 2002). The behavioural approach system, in contrast, activates approach responses cued by reward and appraisals of challenge rather than threat (Carver & Scheier, 1998).

Within self-regulation theory, anxiety plays a crucial role in motivating action and goal-related behaviour. The self-regulation model suggests that as an individual works to realize their desired goals, they constantly compare and appraise where they are with what they desire; the resulting cognitions and emotions provide feedback on how they will need to regulate their effort in order to reduce any discrepancies. This will result in efforts to reduce the discrepancy and move toward the goal, or efforts to increase the distance and evade the goal.

Goals are central to the theory of self-regulation (Carver & Scheier, 1998), and help energize and motivate an individual (Pervin, 1982); for musicians, this can mean striving for a performance goal even when faced with having to confront the heightened arousal and stress of the performance situation. Self-regulation theory situates goals hierarchically, with the most abstract goals reflecting the type of person or musician a person would like to "be" on the top, and more concrete goals of what one needs to do, below. For example, a concrete goal may reflect a desired state such as finger dexterity, and an abstract goal may reflect a desire to act as vehicle for the music. Roland (1992; 1994) compared coping strategies employed by non-anxious and anxious professional musicians. Highly anxious individuals tended to express goals related to the self; these included a desire to express themselves through the music, and to experience a sense of achievement. These individuals were more aware of their physiological arousal and tended to cope by practicing excessively. In contrast, non-anxious professionals expressed goals that transcended the 'self'. They wanted to engage and inspire the audience, enjoy the thrill of performance, and have the right mental focus to allow them to "lose the self" in performance. Overall, professionals' successful management of music performance anxiety included positive self-talk (69%), and the acceptance of a mistake as a past event in order to maintain their focus (85%). They used diverse practice techniques that involved considerable use of visual (80%) and mental (97%) rehearsal. For a large majority of these performers, a manageable level of music performance anxiety was facilitative, helping them feel excited, focused, alert and even more inspired. Interestingly, 40% of anxious musicians did not know what coping strategy would be

most effective in helping them. This research draws our attention to the potential more abstract goals appear to have in generating new meaning of a situation, and in reducing a preoccupation with the 'self', resulting in greater use of alternative practice strategies beyond that of excessive motor practice. To date, the role mindfulness may play in driving goal-oriented behaviour and the cognitive-emotional processes that motivate musicians' practice behaviour have not been investigated, and form part of the current study's aims.

Self-regulation theory delineates a system of emotional processes that interact and influence cognitive processes. Emotional responses include feelings that arise from appraising goal-related progress, emotions to be regulated, and influences on thoughts and behaviour (Carver and Scheier, 1998; Leventhal, Brissette, & Leventhal, 2003). Consequently, emotional responses play a crucial role in the motivational system. For example, if an individual appraised goal-related progress as poor, this may trigger anxiety and cognitions related to either confidence or doubt in their ability to attain the goal. This sets in motion cognitive and behavioural efforts in an attempt to move closer towards the desired goal. If these efforts keep the musician on track for meeting their goals or performing at an expected level of ability, positive feelings may result (Carver & Scheier, 1990). When a musician's effort fails to move them towards their goals or desired performance levels, negative affect, rumination, and anxiety may result. Emotion is more than the result of successful progress towards goals. Emotions, which are biologically-based processes, facilitate adaptive behavioural and cognitive response tendencies. However, poorly regulated emotions can lead to adverse physiological and psychological consequences (Chambers,

Gullone & Allen, 2009). Optimal functioning can require a variety of emotional regulation strategies. Expanded models of self-regulation (Leventhal et al., 2003) recognize the reciprocal influence of cognitions and emotions and clearly delineate emotion regulation strategies for coping (Cameron, 2003; Cameron & Jago, 2008). By using theories of self-regulation, this study hopes to provide a clear framework for understanding the interaction of cognitive-emotion processes involved in musicians' coping behaviour.

Emotion Regulation

Emotion regulation has been defined as the process by which individuals influence "which emotions they have, when they have them, and how they experience and express them" (Gross, 1998b, p. 275). Emotions are considered flexible response tendencies, where both the emotions, and cognitive appraisals that influence emotions, may be modulated – by being reduced, increased or maintained (Gross & Thompson, 2007). Emotion regulatory processes may be automatic or controlled (Ochsner & Gross, 2008) and may unfold collaboratively with other types of emotion-regulation processes such as mindfulness (Brown et al., 2007). Effective emotion regulation is associated with better mental health (Gross & Munoz, 1995). The emotion-regulation behaviours identified in the process model of emotion regulation (Gross, 2001), provide a descriptive framework for organizing the broad range of emotion-regulation strategies used by individuals and are applicable to the process of musical performance.

The process model of emotion regulation draws attention to the fact that emotions unfold over time and identifies five emotion regulation responses along the

emotion generative process: (i) selection of the situation; (ii) modification of the situation; (iii) deployment of attention (e.g., drawing attention to the music, and away from the threat of negative evaluation); (iv) change of cognitions (reappraising the meaning of the performance and finding benefits); and (v) modulation of experiential, behavioural, or physiological responses (e.g., emotional suppression, relaxation, substance use). The first four strategies are antecedent-focused, and the fifth is response-focused. In the context of music performance anxiety, antecedent-focused strategies refer to things a musician does before music performance anxiety becomes fully activated, and response-focused strategies refer to things a musician may do once music performance anxiety is activated.

Emotion regulation can serve a number of functions. A recent integrative review of emotion regulation suggests that individuals regulate their emotions to promote the satisfaction of hedonic needs, goal achievement, or flexibility in personality functioning (Koole, 2009). It seems plausible that a musician may regulate their emotions to promote satisfaction, goal achievement, and lower anxiety. However, musicians could encounter conflict between need (satisfaction), and increased negative emotional states (sympathetic arousal) when working towards a performance (goal). This could then trigger emotion regulation aimed to restore balance to the system. By examining a range of performance outcome variables (i.e., satisfaction with one's effort), this study will shed light on the functions served by musicians' emotion-regulation efforts.

Mindfulness and Emotion Regulation

Mindfulness is best conceptualized as a self-regulatory mechanism that has the potential to increase awareness, attention to the present moment, and openness to the way emotional experiences are interpreted and responded to (Carson & Langer, 2006). Four psychological processes prominent in mindfulness research have been proposed as potential mediators for the beneficial effects of mindfulness: (i) metacognitve awareness; (ii) exposure; (iii) acceptance; and (iv) attentional control (Baer, 2003; Keng et al., 2011). An understanding of proposed mechanisms of effects of mindfulness will enable us to hypothesize how mindfulness may influence the emotional regulation strategies employed by musicians to manage music performance anxiety. Future research will need to isolate these mechanisms of effects to test these hypotheses. The four proposed mechanisms for the effects of mindfulness are outlined below.

As a form of mental training, mindfulness is thought to increase metacognitive awareness (Bishop et al., 2004). Metacognition is a cognitive ability associated with decentering wherein the mind frees itself from the confounds of its content. By doing so, the mind is able to observe its own processes and thoughts, emotions, and sensations are experienced as passing mental events rather than as an accurate representation of reality (Shapiro, Carlson, Astin & Freedman, 2006; Teasdale et al., 2002). This state of mindfulness encourages non-judgment and non-evaluative exposure to stimuli (Hayes & Wilson, 2003) and, in doing so, should disrupt emotional reactions, and reduce tendencies to ruminate and catastrophize. Rumination is a process of repetitive negative thinking that has been considered to be a risk factor for anxiety and social phobia, and is positively associated with music

performance anxiety (Ehring & Watkins, 2008; Langendorfer et al., 2006). Mindfulness training is associated with reductions in rumination (Jain et al., 2007; Teasdale et al., 2002), and is expected to contribute to reductions in levels of music performance anxiety.

Exposure is another element proposed to develop through mindful attending. By attending in a non-judgmental manner, an individual may become desensitized to previously avoided thoughts, feelings, and sensations as they are tolerated with less distress. As music performance anxiety is positively associated with thought avoidance, a modification of this cognitive process could potentially benefit musicians. Research has indicated that experiential acceptance, a process related to exposure, is reported to mediate the effects of ACT on workplace stress (Bond & Bunce, 2000).

Acceptance is another element of change associated with mindfulness. Research has found that participants trained briefly in acceptance, who were challenged in an environment of carbon dioxide-enriched air, experienced less intense fear, fewer catastrophic thoughts, and lower behavioural avoidance (indicated by their willingness to return to another session) than students trained in breathing (Eifert & Heffner, 2003). This finding suggests that mindful acceptance of emotional responses may be efficacious in reducing subjective anxiety and behavioural avoidance when faced with heightened physiological arousal. It seems plausible that greater acceptance skills of the situation and self would be highly relevant to the process of a musical performance.

Mindfulness involves an ability to sustain attention on the present moment, and to be able to bring the mind back to the present moment when it wanders (Bishop et al., 2004). The ability to orient or direct attention toward a task and sustain attention would appear particularly relevant to musical performance. An experimental study using neuropsychological tasks has shown that mindfulness training was associated with improvements in orienting (Jha, Krompinger, & Baime, 2007).

Mindfulness may also exert influence through mechanisms of value and goal clarification and behavioural self-regulation. Attending to the present moment in an objective manner may facilitate discernment and perceiving values and goals with greater clarity. Brown and Ryan (2003) reported higher levels of mindfulness to be associated with self-report of movement towards valued goals. In addition, a small, uncontrolled pilot study has found that mindfulness training appeared to increase positive reappraisal as a means of coping with stressful events (Garland, Gaylord & Park, 2009).

These are potential ways in which mindfulness regulates coping behaviour; how they might influence musicians coping strategies is discussed in the following section.

Self-Regulation and the Music Performance Process

Self-regulation theory has significant implications for understanding how musicians deal with performance concerns. A performance, in and of itself, does not carry any particular threat but, according to the self-regulation model, may take on positive and negative connotations after an individual appraises their movement

towards performance goals they have set as being successful or not. If we take the example of a musician preparing for a performance, they may appraise performance demands and set goals to master certain repertoire and technical demands while maintaining an energized and inspired focus. They may feel confident that they have the resources to achieve their goals – promoting emotion-regulation strategies of hope, positive focus (including reappraisal), and practice – or they may have doubts about their ability that may manifest through emotion regulation coping strategies such as avoidance, suppression, denial or minimizing.[1] Self-regulation models encompass the parallel processing of problem-focused and emotion-focused goals, as well as the regulation of cognitive-behavioural processes simultaneously dedicated to managing anxiety (Cameron & Jago, 2008).

As the foregoing discussion highlights, dispositional and situational mindfulness are likely to influence the emotion regulation coping strategies a musician employs. Dispositional mindfulness is likely to be associated with emotion regulation strategies that focus attention toward reaching performance goals. When preparing for a performance, this study expects to see problem-focused proactive behaviours (practice, seeking assistance, and planning for mishaps) as well as emotion-focused cognitive change strategies (hope and positive focus), and attentional deployment strategies (less avoidance, thought intrusion and suppression). At the time of performance, this study expects to see problem-focused proactive use of planned strategies and emotion-focused cognitive change strategies that increase focus and diminish suppression. Because mindfulness potentially fosters a quality of acceptance in comparison to criticism and worry, this study expects greater self-

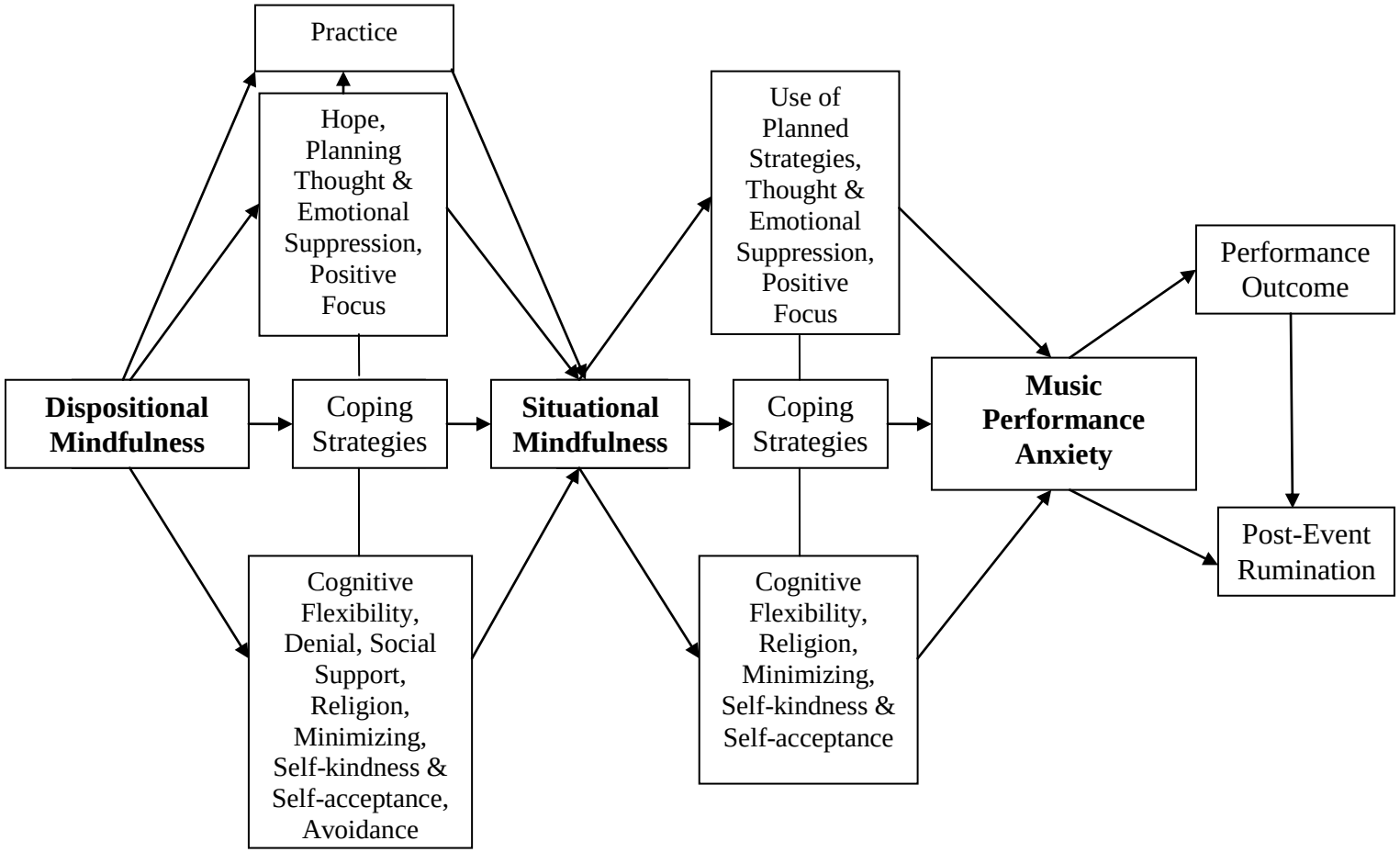
[1] These strategies will be defined and discussed below.

kindness and self-acceptance to be prominent during performance. It is possible that greater acceptance could counter-regulate an individual's need for approval from the audience, or their fear of negative evaluation from the audience and assessors; concerns that are prevalent in those suffering from high music performance anxiety (Nagle et al., 1989). Mindfulness may serve to calibrate maladaptive cognition, emotion, and behaviour, and augment beneficial emotion regulation coping strategies. If indeed mindfulness is driving more effective coping, then these coping strategies may mediate a relationship between an individual's level of mindfulness and their experience of music performance anxiety.

This proposed self-regulation model of music performance anxiety is presented as a conceptual scheme (see Figure 1). The scheme depicts musicians' self-regulation efforts to reduce discrepancies between their appraised current performance status and their desired performance goal. The model suggests that dispositional mindfulness influences cognitive-emotional coping strategies, and practice efforts, leading up to week of performance exams. These coping strategies, in turn, influence levels of mindfulness bought to the situation. Situational mindfulness then influences coping strategies bought to the performance moment, which, in turn, influences the experience of music performance anxiety, perception of performance outcome, and post-performance rumination.

In the final chapter, we will discuss strategies musicians use to cope with music performance anxiety, and hypothesize how mindfulness could exert a beneficial influence on these coping efforts

Figure 1
A Proposed Self-Regulation Model of Music Performance Anxiety when appraising progress toward Performance Goals



CHAPTER 4

Coping with Music Performance Anxiety

Introduction

Performers use a vast array of coping strategies to manage music performance anxiety. When 193 amateur and professional musicians were surveyed to determine their perceptions of effective coping strategies for music performance anxiety, 478 coping strategies were reported (Wolfe, 1990). To date, research has largely identified types of coping strategies musicians use to manage music performance anxiety and prevent negative performance outcomes (Roland, 1992; Salmon, Schrodt, & Wright, 1989; Steptoe, 1989; Wolfe, 1990), but has not investigated the mechanisms that drive musicians' coping reactions or their prospective effects on music performance anxiety. In particular, research in this area has largely ignored the question of how mindfulness may leverage coping processes, and their potential ability to mediate an effect of mindfulness on music performance anxiety. This study will shed light on these gaps in the research by investigating musicians' coping strategies as mediators for the effect of mindfulness on music performance anxiety. In addition, the study will test the psychometric properties of two new coping measures designed specifically to assess the coping strategies musicians utilize before and during performance.

This chapter discusses the development of two new coping measures that endeavour to capture key coping strategies prevalent in the management of music performance anxiety. Each coping strategy is discussed with the intention of

indentifying their proposed relationship with mindfulness, and their potential to act as important emotion regulation strategies of music performance anxiety.

Coping Measures

To date, no comprehensive measure exists to assess musicians' coping behaviour. Research in the area of coping with music performance anxiety has used pre-existing measures including: the Coping Styles Questionnaire (Roger, Jarvis & Najarian, 1993); Coping Inventory (Janke, Erdmann, Kallus, & Boucsein, 1997); and the Emotion Identification Inventory (Hanin, 2000). Studies have also used interviews and open-ended questions to determine coping strategies (Fehm & Schmidt, 2006; Roland, 1992). A measure is needed that is theoretically relevant to musicians' coping with music performance anxiety. To meet this gap, a primary aim of this research project was to develop two new measures: (i) Coping before Music Performance, (ii) and Coping during Music performance. In brief, the measures consist of a number of coping domains portraying thoughts, emotions, and actions musicians can engage in when preparing for and giving a performance. In line with a recommendation by Stanton, Parsa, and Austenfeld (2005), the new measures' items were designed to reduce contamination with content reflecting psychological distress in order to limit measurement redundancy when correlated with music performance anxiety. Because the array of emotion-focused coping strategies are diverse with some subscales reflecting movement towards (positive focus, hope, self-kindness and self-acceptance) and some away from (denial and avoidance) the stress of performance, the measures do not provide a composite score but instead provide separate scores for each coping subscale enabling the assessment of separate effects.

Problem-Focused and Emotion-Focused Coping

The two new coping measures include subscales of problem-focused and emotion-focused coping strategies (Lazarus & Folkman, 1984). Problem-focused coping can include any response that alters the source of the stress, such as planning and practice. Emotion-focused coping may include responses aimed at regulating one's emotions by deploying attention elsewhere or by changing the meaning of the experience (Gross, 1998). Two studies that have investigated musicians' coping strategies under the broad classes of problem-focused and emotion-focused coping found that musicians tend to use a combination of both forms (Kane, 2008; Wolfe, 1990). Wolfe (1990) conducted research on professional and amateur musicians' use of problem-focused (practice, performance hygiene, logistics of performance, and selection of music) and emotion-focused (breathing, relaxation, exercise, concentration, minimizing, positive self-talk, self-acceptance, prayer, communication with audience, support, alcohol/drugs, distraction) coping strategies. She found that 84% used one coping strategy, 63% used emotion-focused strategies, and 37% used problem-focused strategies. Musicians who used emotion-focused strategies reported feeling more confident, competent, and focused but no clear explanation for these associations was given. The most prevalent strategies used were a combination of emotion-focused deep breathing and physical activity, and problem-focused preparation and practice. Together, preparation/practice and deep breathing accounted for nearly 40% of the coping strategies reported. In another study, Kane (2008) examined emotions, cognitive appraisals, and coping strategies in musicians over the week leading up to performance and the week following performance. She

found females utilized primarily emotion-focused coping strategies (reaching out to others, cognitive change strategies, and avoidance) whereas males employed both problem- (practice, perseverance, relaxation, asking questions) and emotion-focused strategies equally. Overall, more experienced performers utilized fewer coping strategies than less experienced performers. In contrast to Wolfe (1990), Kane (2008) included relaxation strategies under the umbrella of emotion-focused strategies.

The distinction between problem- and emotion-focused coping is problematic because, as seen above, studies vary in the strategies they include under each broad term (Carver et al., 1989). Problem-focused coping, in the context of music performance anxiety, indicates proactive behaviours to perfect performance-relevant skills, formulate plans to cope with potential emotional, cognitive, and physical mishaps during performance, hope (a sense of goal-directed agency and pathways to reach goals), and social support to gain advice. Emotion-focused coping strategies include a variety of cognitive and behavioural efforts regulated to decrease negative distress and increase positive feelings of excitement and inspiration: social support to seek emotional comfort, emotion and thought suppression, positive focus, cognitive flexibility, denial, minimizing, use of religion, and self-kindness and self-acceptance. Carver and colleagues (1989) suggest the effects of such diverse types of coping will differ from each other, and, consequently, will contribute differently to the potential success of a musician's ability to manage music performance anxiety. Each coping subscale investigated in this study will be presented under the broad terms of problem-focused and emotion-focused coping, but will be discussed separately with the intention of identifying their proposed relationship with mindfulness, and their

potential to act as important emotion-regulation strategies of music performance anxiety.

Relating Problem-Focused and Emotion-Focused Coping Strategies to Music Performance Anxiety and Mindfulness

At the core of problem-focused coping are efforts to remove or diffuse the stress of the situation (Lazarus & Folkman, 1984). In the area of music performance anxiety, two prominent problem-solving coping strategies are efficient practice and planning for mishaps.

Thorough *preparation* and *practice* is the most common problem-focused coping strategy used by musicians (Roland, 1992) as a means to develop the skill set required to deliver an accomplished performance, and as a means to build self-confidence in the preparation phase (Kane, 2008). Kane (2008) reported that, during the week prior to performance, less experienced performers experienced anxiety related to practice issues. Females expressed particular uncertainty about their preparation and concern about the possibility of making mistakes, and males reported anxiety due the pressure of a solo performance and the music. Positive emotions experienced at this time consisted of confidence, excitement, and relaxation.

Theorists contend that mindfulness can help close the gap between what a person learns and what they could learn by increasing effort expenditure (Salomon & Globerson, 1987). A common goal of musicians is to practice repeatedly until a piece can be played automatically, in the hope that any reduction in an ability to attend will be automatically overridden (Salmon, 1990): “I’ve prepared properly, so even if I do lose concentration for a bit my fingers can play the notes automatically.” (Steptoe &

Fidler, 1987). Automaticity can aid a sense of security but may hinder further development when plateaus are encountered (Ericsson, 2009). Research suggests that keeping a musician engaged in the cognitive phase of deliberate practice where they explore, refine, and sense will help them refine complex representations of the task, which in turn permits attained performance to exceed that achieved by sheer repetition (Ericsson, 2009). Mindfulness may help promote attention and sustained concentration, which, in turn, may drive focused and explorative practice behaviour.

Planning involves thinking about how to cope with potential mishaps that may occur during a performance – memory slips, distraction, excessive anxiety, or muscle tension (Lehrer et al., 1990). This strategy does not necessarily involve executing an action (Carver et al., 1989) but is still clearly problem-focused in concept. Planning, also a component of hope (pathways), is linked with a sense of control (Skinner, 1997), experiences of anxiety facilitating performance, and improved self-rating of quality of performance (Lehrer et al., 1990). Mindful attention is theorized to cultivate discernment and clarity of perception of present moment experience (Shapiro & Carlson, 2009), so it is plausible to view planning as a by-product of the ability to mindfully attend.

Hope of achieving a smooth, inspired, and technically strong performance is likely to be of particular relevance to musicians' self-regulation, and is likely to be associated with other goal-oriented variables such as practice, although no research to date has been found that investigates this relationship. Snyder and colleagues (1991) define hope as motivation based on beliefs that goals are attainable (agency) and there are ways to achieve them (pathways). Their study reports that hopeful

people tend to select goals that are more difficult, appraise them in terms of challenges and positive emotions, and are more certain they will reach them, which they tend to do. Hope is viewed as a cognitive construct that relates to emotions. This study adopts this definition and positions hope within problem-focused coping strategies, while acknowledging its relationship to emotions. Carver and Scheier (2002) propose that a perception of confidence to attain goals is an important determinant of people's efforts to move forward. They argue for the prominent role of confidence over that of personal agency, and note that agency items referring to a history of success in goal attainment can be taken as "an index of confidence of future success" (Carver & Scheier, 2002, p. 289). When interpreting the relationships with hope, it is therefore prudent to consider these confounding issues, and to reflect on the potential agency items have to depict participants' expectancy of success and confidence that desired goals can be obtained. Within music performance, it is a given that exercising personal agency is the only way a desired performance goal will occur, as no other person can perform for the performer. Consequently, it is feasible that hope may help maintain positive emotions, confidence, and a sense of control that may be particularly useful for building resilience to the stress of performance, and the experience of music performance anxiety. As mindfulness meditation training has increased hope in a non-clinical population of college students (Sears & Kraus, 2009), it is expected to influence levels of hope among other university music students as well.

Emotion Regulation (Emotion-Focused Coping) and Mindfulness

Emotion regulation refers to the process of modulating aspects of emotional experience. Adaptive emotion regulation may initiate, increase, decrease, or maintain both negative and positive emotions (Chambers et al., 2009). Regulating positive emotions is important as, by their very nature, they may serve to counter the consequences of experiencing negative emotions. According to research, positive emotions build resources including competence, resilience for living successfully in the face of adversity, and purpose in life (Fredrickson, Cohn, Coffey, Pek & Finkel, 2008; Tugade & Fredrickson, 2007; Waugh, Wager, Fredrickson, Noll & Taylor, 2008b). Mindful emotion regulation represents a capacity to remain mindfully aware irrespective of experiencing negative or positive emotion, and it encourages a perception of the awareness that underlies mental phenomena. As this occurs, positive emotions build and reinforce the capacity for mindfulness (Chambers et al., 2009). Musicians report using strategies to alter their experience and expression of positive emotion, and some of these strategies are encapsulated under the emotion-regulation strategy labeled positive focus. Nine emotion-regulation strategies commonly noted by research in the area of music performance anxiety will now be discussed.

Suppression of emotions and thoughts are strategies used in an effort to evade negative thoughts and feelings reported by performers during performance (Kane, 2008). As a strategy, suppression may increase distress further because it has the paradoxical effect of increasing the intensity and frequency of the suppressed negative thoughts or emotions (Hayes et al., 2004). Bishop and colleagues (2004)

explain that mindfulness, in contrast to thought or emotion suppression, fosters non-elaborative awareness of thoughts and feelings as they arise. Rather than being caught up in thoughts and feelings, they are acknowledged, and attention is directed back to the task (music), thereby preventing further elaboration of negative thoughts and emotions. These authors propose that releasing attention from extraneous elaborative thinking will free up resources to be available for a wider perspective on the current experience. This may potentially aid a musician to experience a state of 'flow' where all elements of performance come effortlessly together.

Positive focus is a cognitive change strategy that consists of meaning-based coping efforts to reframe stressor events as positive or beneficial (Garland, 2007; Kane, 2008; Steptoe & Fidler, 1987). These efforts include the use of positive focus/reframing which serves to focus thoughts on the excitement of the performance, of nerves facilitating rather than hindering performance ability, and of the self being subservient to the expression of the music, or viewing their performance as 'giving a gift to the audience' (Wolfe, 1990). Research demonstrates that attempts to alter the meaning of the situation through positive reappraisals are associated with improved health outcomes (Folkman & Moskovitch, 2007). Within the area of mindfulness, research has consistently demonstrated positive relationships between mindfulness and positive reappraisal (Garland et al., 2009). Garland (2007) proposes that a shift from a threat appraisal to positive reappraisal comes through metacognition. A metalevel of awareness can both monitor thought and reflect on the process of thought itself, and, from this stance, new appraisals may be drawn.

Positive reappraisals can be supported by positive self-talk affirming ability and preparation. Positive self-talk is a common cognitive coping strategy used by performers prior to performing (Fehm & Schmidt, 2006; Langendorfer et al., 2006; Roland, 1992; Wolfe, 1990). Langendorfer and colleagues (2006) reported that 74% of participants used strategies that included positive self-talk. Roland (1992) reported that positive self-talk used prior to a performance aimed to calm and reassure the performer of their ability, preparedness, and self-worth. Contrary to expectation, Langendorfer and colleague's study reported that a combination variable (reaction control) – made up of substitute gratification, relaxation, situation and reaction control, social support, and positive self-talk – was associated with higher levels of worry related to music performance. An explanation they offered was that those suffering from high music performance anxiety try any strategy to cope with performance, effective or ineffective, and although some strategies may be useful, they may not be sufficient to reduce their overall level of music performance anxiety (Steptoe, 2001). Because these studies often lacked clear operationalised definitions for their coping responses, and/or used umbrella variables for analyses, they limit our understanding of what specific variable contributed most to the relationships found.

Ultimately, strategies of positive focus may benefit musicians by generating positive emotions. Building positive emotions is associated with emotional resilience and an ability to recover from potentially negative events more quickly and completely than lower resilient people do. Doing so allows physiological and emotional systems to reset, which subsequently prevents allostatic load (tissue

damage associated with chronic stress), and lessens experience of depression and rumination (Waugh, Frederickson, & Taylor, 2008a; Waugh et al., 2008b).

Cognitive flexibility is an ability to shift attention when needed; it is associated with lower music performance anxiety (Rife et al., 2000). Mindfulness promotes skills of sustained attention that also requires the ability to redirect attention back to the present-moment when distracted. Mindfulness theorists predict that the development of mindfulness would be associated with improvements in sustained attention and switching (Bishop et al., 2004). This is given support in a study where those experienced in mindfulness meditation performed better than control subjects on tasks of sustained attention (Valentine & Sweet, 1999). Rife and colleagues (2000) propose that musicians need to be able to selectively attend when performing.

Denial is a response that tries to believe that the stressor does not exist or is not real (Carver et al., 1989). There is some debate over how effective it is. Some suggest that denial may minimize distress and aid coping (Cohen & Lazarus, 1973). Alternatively, denial may magnify the seriousness of the event and impede coping later on (Carver et al., 1993; Suls & Fletcher, 1985). Musicians also try to increase attention through minimizing the situation (Steptoe & Fidler, 1987; Wolfe, 1990). Research has reported that 72% of musicians used coping responses of denial, and minimizing; minimizing was positively correlated with music performance anxiety (Lehrer et al., 1990) and found to be a significant predictor of performance anxiety worry (Langendorfer et al., 2006). As mindfulness promotes exposure to all

experiences in the moment, it is expected that mindfulness will lead to less use of cognitive strategies to avoid aspects of the performance experience.

Social support falls into both problem-focused coping (when support is sought for advice or assistance), and emotion-focused coping (when support is sought for emotional reasons). In a recent survey of 190 university music students, researchers found that more than half of the students were not at all or only little informed about ways of coping with stage fright. Two-thirds of the students asked for more support to help them improve their ability to cope with music performance anxiety (Studer et al., 2011). Students have also reported an openness and willingness to address the topic (Dews & Williams, 1989). As mindfulness promotes awareness, it may lead to increased efforts to obtain social support as required.

Many musicians have reported *turning to religion* as an important coping strategy (Fehm & Schimdt, 2006; Wolfe, 1990). Prayer was considered helpful by 54.9% of the 74 adolescent performers investigated by Fehm & Schmidt (2006), and 7.3% of the 193 amateur and professional musicians investigated by Wolfe (1990). It is not clear whether individuals turn to pray because they are religious or because they seek support ranging from feelings of connectedness to a higher force to feelings of calm, acceptance, and compassion. Mindfulness can evoke a sense of the self as ever-changing, this would appear to complement the essence of performance as a time art, ever changing with every performance. Mindfulness may be associated with the use of prayer, as prayer may offer a state of stability in contrast to the ever-changing uncertainty of the performance moment.

Self-kindness and self-acceptance are conceptually based on the construct of self-compassion (Neff, 2003). Elements of self-compassion are defined as "being open to and moved by one's own suffering, experiencing feelings of caring and kindness toward oneself, [and] taking an understanding, nonjudgmental attitude toward one's inadequacies and failures" (Neff, 2003, p. 224). Although related to mindfulness, self-compassion appears to be meaningfully distinct from the open orientation towards all experiences that characterizes acceptance as the second component to Bishop and colleagues' (2004) definition of mindfulness. Some support for this comes from the recent development of a new mindfulness measure that found that self-acceptance items loaded onto a separate factor in contrast to other items representing a heightened willingness to be exposed to negative situations (Bergomi et al., 2012).

Mindfulness may well be a pre-requisite for self-compassion. Neff (2003) states that in order for an individual to experience a compassionate attitude towards the self, they must first adopt a mindful perspective, where thoughts and feelings are acknowledged but not over-identified with. From this stance, a metalevel of awareness can lead to new insights and an extension of kindness and compassion towards the self. From this perspective, self-kindness can be viewed as a quality that follows *from* mindful attending.

In mindfulness research, acceptance is an active process that involves being experientially open to the reality of the present moment and taking what is offered (Bishop et al., 2004). It has consistently been linked to lower levels of concurrent distress within health research on cancer (Carver et al., 1993), leading to the assertion

that in order to adjust to a health crisis, one must first accept the reality of their situation. Carver et al. (1993) question whether the critical role of acceptance as a coping reaction may be limited to situations characterized as ones that have to be endured. Perhaps acceptance matters less in situations that call primarily for active coping. Within mindfulness research, adopting a stance of acceptance towards distressing thoughts and feelings is expected to lead to improved affect tolerance as thoughts and feelings are experienced as transient and subjective (Teasdale et al., 2002).

The relationship between self-kindness and self-acceptance, and music performance anxiety has not been investigated. However, contrasting qualities of feeling resigned and wallowing in self-pity are associated with higher music performance anxiety (Langendorfer et al., 2006), suggesting that self-kindness and self-acceptance should render lower levels of music performance anxiety.

Avoidant coping reflects a defensive form of regulation that involves the avoidance of negative thoughts, emotions, and behaviour. Avoidant coping has been conceptualized in terms of behavioural disengagement and mental disengagement (Carver et al., 1989). While avoidance can reduce distress in the short-term, this strategy becomes problematic when it persists; it is often associated with concurrent psychological distress (Aldwin & Revenson, 1987; Carver et al., 1993), and is a prospective predictor of distress when approaching a major stressor (Stanton & Snider, 1993). Avoidance coping may be detrimental because it has the paradoxical effect of increasing the intensity and frequency of the avoided thought or affect (Hayes et al., 2004). In a survey of 122 orchestral musicians , 36% of participants

used coping strategies consisting of avoidance, escape, and social withdrawal as well as rumination, resignation, self-pity, self-blame, and medication (Langendorfer et al., 2006). Bishop and colleagues (2004) argue that mindfulness may be particularly effective for conditions in which intolerance of negative affect and subsequent behavioural avoidance play a key role. As discussed in the previous section, there is a theoretical basis to hypothesise that mindfulness supports less avoidant coping. Specifically, through the mechanism of decentering (stepping back from thoughts and feelings), mindfulness invites objective observation of thoughts and emotions as they occur instead of engaging in rumination or unhelpful thinking styles. This implies that a more mindful musician has the potential to become desensitized to previously avoided thoughts and feelings, and thus reduce their likelihood of generating distress when faced with a major stressor. Instead, they may be more likely to cope in adaptive ways (Weinstein, Brown, & Ryan, 2009). Examining the effects of mindfulness on avoidant coping strategies (behavioural and mental disengagement, and denial), Weinstein and colleagues (2009) found that mindful individuals reported less frequent use of avoidant coping strategies, and reported higher use of approach coping. In turn, they found threat appraisal and avoidant coping were negatively related to well-being in college students just before their final course test.

Rumination: Performance is a time of increased stress and arousal, and, unchecked, a debilitative level of music performance anxiety can lead to worry and a tendency to ruminate and catastrophize about performance disasters (Baker, 2005;

Lehrer et al, 1990; Steptoe & Fidler, 1987). Both catastrophizing and ruminating are positively associated with music performance anxiety (Steptoe et al., 1995).

Within a post-event processing model, rumination consists of repetitive, detailed reviews of a situation with an increased focus on the negative aspects of the situation (Fehm, Schneider & Hoyer, 2007). This process can lead a relatively satisfactory event to being perceived as a total failure. It seems feasible that post-event processing may help explain why musicians do not necessarily experience a reduction of anxiety with repeated exposure to performance, as thoughts of the situation are replaced by increasingly distorted views of the event (Fehm et al., 2007); this can then fuel anticipatory anxiety about future similar events (Fehm et al., 2007).

From a self-regulation perspective, rumination may be characterized as a response to perceived discrepancy between current and desired goals. There is evidence that information related to difference between current and target status may generate "why" questions and rumination (Watkins, 2008). Mindfulness has, however, demonstrated significant negative correlations with rumination (Raes & Williams, 2010): this relationship is also expected in a population of music students too. As MBSR programmes have helped individuals decrease anxiety through a reduction in rumination tendencies (Ramel et al., 2004), finding a significant relationship would suggest that musicians, too, might benefit from a mindfulness-based intervention.

Physiological Modulation

Anxiety prepares the body for action and can manifest in many ways including muscular tension, trembling, sweating, and dry mouth. For those high in anxiety sensitivity, the fear of these symptoms contributes to a particular vulnerability for music performance anxiety. Most importantly, physiological symptoms can interfere with the expression of fine motor skills. Consequently, musicians often try relaxation, deep breathing, mental imagery, and meditation techniques in an effort to modulate their arousal and remain calm and in control (Fehm & Schmidt, 2006; Roland, 1994; Sisterhen, 2005; Steptoe & Fidler, 1987; Tamborrino, 2001). Tamborrino (2001) suggests that there is a place for formal anxiety management skills to be taught because university music students appear to want to feel calmer and more relaxed and yet report that these skills are rarely part of their formal training.

Ultimately, mindfulness training may promote an awareness of the psychological and physiological reactions to stress, including any resulting tension; if unnecessary tension can be detected, then it can be released before it becomes problematic (Oyan, 2006). Mindfulness promotes 'being' in the experience of the moment with acceptance and non-reactivity. An increased ability to observe, and tolerate – rather than 'getting caught up in' psychological and physical symptoms – has the potential to help musicians appreciate that their thoughts, feelings, and physical symptoms will pass and, in doing so, decrease the use of less helpful forms of coping (avoidance and self-medication).

Summary of Literature Review

The literature to date highlights the prevalence and persistent nature of varying levels of music performance anxiety for many musicians, and the consequences of this on musicians' well-being, study, career, and performance quality. Research notes gender, trait anxiety, and anxiety sensitivity as factors increasing an individual's vulnerability to music performance anxiety. Other factors manifest in music performance anxiety can be debilitative: future-based fears of negative evaluation from self and others; catastrophizing and rumination; performance anxieties and doubt; and over-arousal or under-arousal in the performance situation. It appears impossible to achieve an optimal level of performance if these processes affect a musician negatively. Consequently, musicians strive to have some control over the impact of their cognitive-emotional processes by employing a vast array of coping strategies. To date, research has largely highlighted forms of coping utilized by musicians but has largely ignored what mechanisms may leverage coping processes.

The literature highlights that mindfulness strategies may facilitate efforts to self-regulate cognitions and emotions as they have the potential to promote exposure to previously avoided internal experiences, lead to cognitive change or a change in attitude about one's thoughts, increase self-observation and management, produce a state of relaxation, or increase acceptance (Baer, 2003). As a form of mental training, mindfulness aims to increase attention on the present-moment and reduce an individual's/performer's susceptibility to reactive cognitions and rumination about past and future events (Bishop et al., 2004). While an existing study (Chang, 2001;

2003) has supported an association between mindfulness and lower music performance anxiety, the relationships between a musician's dispositional and situational levels of mindfulness and music performance anxiety have been neglected in research. In addition, research investigating how mindfulness (expressed in disposition and situation form) may drive musicians' coping efforts to manage music performance anxiety as it unfolds over time, and how coping strategies may mediate the effect of mindfulness on music performance anxiety and performance outcome, is non-existent. The current research aimed to shed light on these gaps in the literature.

CHAPTER 5

Study Aims and Hypotheses

This study investigated relationships between music students' levels of dispositional and situational mindfulness facets, music performance anxiety, and performance outcomes; in particular, how mindfulness influenced coping strategies musicians used to self-regulate cognitive-emotional processes, including practice efforts, used when preparing for a solo performance assessment, and at the time of the solo performance assessment.

To assist in these aims, a goal of this study was to develop and validate two new coping with music performance measures. The two new measures assessed coping strategies used before (in the months preparing for a performance), and during a performance. To develop an understanding of how mindfulness drives coping efforts to manage music performance anxiety, will benefit the development of interventions targeted at reducing levels of music performance anxiety and will pathe the way for intervention trials to be run, with the prospect of including mindfulness training within the formal learning of tertiary music students.

This study was a descriptive, longitudinal study of tertiary music performance students, which used mediational techniques to examine relationships between mindfulness, coping strategies, music performance anxiety, and performance outcomes, as proposed in the self-regulation model of music performance anxiety (Figure 1).

Study Aims

This study had six aims.

1) The first aim was to develop and psychometrically test two new coping measures designed specifically to assess coping strategies used by music students during the period leading up to the week of a performance, and then at the time of performance. These measures were first tested in a pilot study with members of a community orchestra, and factor structure, and scale reliability were then confirmed within the main study.

2) The second aim was to test the key relationships between dispositional and situational mindfulness facets, and music performance anxiety, as outlined in the self-regulation process model of music performance anxiety (Figure 1). A preliminary aim was to assess relationships with key predictors of anxiety and music performance anxiety: gender, anxiety sensitivity, trait anxiety, and depression. In addition, because mindfulness was measured at a facet level, tests identified which facet was most strongly associated with music performance anxiety across time. The five facets of mindfulness are: *observe* (noticing or attending to internal and external stimuli); *describe* (labeling observed experiences); *non-judge* (taking a non-evaluative stance toward thoughts and feelings); *non-react* (taking a non-reactive stance towards feelings and thoughts); and *act with awareness* (an ability to attend to one's present-moment activities).

It was hypothesised that:

a. Music performance anxiety would be associated with gender, anxiety sensitivity, trait anxiety, and depression. As predictors of anxiety, significant relationships would then be controlled for within analyses.
b. Individuals with higher dispositional mindfulness would experience less music performance anxiety across the 3 time points: Time 1, the start of a study semester; Time 2, preparation leading up to the week of performance; and Time 3, at the time of performance.
c. Mindfulness facet act with awareness would be the facet most strongly and positively associated with music performance anxiety across time.
d. Participants higher in dispositional mindfulness would demonstrate higher levels of situational mindfulness.
e. Levels of situational mindfulness, independent of levels of dispositional mindfulness, would be negatively associated with music performance anxiety at the time of performance.
f. Participants' level of situational mindfulness would mediate the effect of dispositional levels of mindfulness on music performance anxiety (Time 3).

3) The third aim was to test a mediational model for the effects of coping strategies (Time 2) on the relationship between dispositional and situational mindfulness (see Figure 1). The model was tested in portions (not as a single path model) due to insufficient sample size.

It was hypothesised that:

a. Participants who display higher dispositional mindfulness would use coping strategies (Time 2) that are conceptually consistent with mindfulness: *practice*, *planning*, *hope*, *positive focus*, *self-kindness*, *religion*, *cognitive flexibility*, and *social support*. They would be less likely to use strategies reflecting an absence of mindfulness: *thought suppression*, *thought intrusion*, *avoidance* (emotional, cognitive and behavioural), *denial*, *minimizing*, and *emotional suppression*.
b. Participants' use of coping strategies (Time 2), conceptually consistent with mindfulness, would experience stronger situational mindfulness whereas the use of coping strategies reflecting an absence of mindfulness would be associated with lower situational mindfulness.
c. Significant coping strategies (identified in the above analyses) would mediate a relationship between dispositional and situational mindfulness.

4) The fourth aim was to develop an understanding of how mindfulness impacted practice efforts (Time 2), and through what coping mechanisms (Time 2) it exerted its influence on practice. The aim was to test the mediational effects of coping strategies (Time 2) on the relationship between dispositional mindfulness and practice.

It was hypothesised that:

a. Participants' level of dispositional mindfulness would be positively associated with practice.

b. Participants' coping strategies (Time 2) that are conceptually consistent with mindfulness, and have the potential to promote movement toward the achievement of goals (*planning*, *hope*, *positive focus*, *cognitive flexibility*, and *social support*), would be positively correlated with *practice*.
c. Significant coping strategies (identified in the above analyses) would mediate the effect of dispositional mindfulness on practice.
d. Greater practice efforts would predict higher situational mindfulness.

5) The fifth aim was to test a proposed mediational model (see Figure 1) for the effects of coping strategies used at the time of performance (Time 3) on the relationship between situational mindfulness and music performance anxiety (Time 3).

It was hypothesised that:

a. Participants who display higher situational mindfulness (Time 3) would use coping strategies (Time 3) reflective of mindfulness. Therefore, a positive association was expected with the coping strategies (Time 3) of: *use of planning strategies*, *positive focus*, *self-kindness*, *religion*, and *cognitive flexibility*. A negative association was expected with the coping strategies of: *thought suppression*, *minimizing*, and *emotional suppression*.
b. Participants who use coping strategies (Time 3) that are conceptually consistent with mindfulness would experience lower music performance anxiety (Time 3). Therefore, *thought suppression* and *emotional suppression* were predicted to correlate positively with music performance anxiety (Time 3). *Use of planned strategies*, *positive focus*, *self-kindness*, *minimizing*,

religion, and *cognitive flexibility*, were predicted to correlate negatively with music performance anxiety.

c. Significant coping strategies would mediate the effect of situational mindfulness on music performance anxiety (Time 3).

6) The sixth and final aim was to test the relationships between situational mindfulness, music performance anxiety (Time 3), and performance outcomes (see Figure 1). Performance outcome variables consisted of: (i) *performance problems* (mental and physical problems experienced during practice and performance); (ii) *satisfaction* (with effort and performance quality); (iii) *performance versus practice* (quality of performance in comparison to the best performance during practice); and (iv) final grade.

It was hypothesised that:

a. Participants who display higher situational mindfulness would experience fewer *performance problems*, greater *satisfaction*, a better perception of their performance, and less *post-event rumination*.

b. Participants higher in music performance anxiety (Time 3) would experience more performance problems, less satisfaction, and a less favourable perception of their performance.

c. Music performance anxiety (Time 3) would mediate a relationship between situational mindfulness and (i) *performance problems*; (ii) *satisfaction*; and (iii) *performance versus practice* (Time 3).

d. Participants who display higher situational mindfulness, and lower music performance anxiety would achieve a higher final grade.

CHAPTER 6

Method

Introduction

This chapter will first present participant characteristics and the design of the study before reporting on the development and psychometric properties of two new coping scales tested in a pilot study prior to use in the main study. All other measures used in the main study will then be outlined. This is followed by details of the procedure and data analysis used in the study, and data screening undertaken prior to analyses.

Participants

Participants for the main study (N = 159) were recruited from undergraduate and postgraduate music performance students at The University of Auckland (N = 148) and The University of Waikato (N = 11). Students were enrolled in either Classical performance in an instrument, singing and/or conducting, Jazz performance, or Pop performance. From these disciplines, 242 students were approached and 159 (65.7%) were recruited. Of the 159 participants who completed the first questionnaire, 148 (93%) completed the second questionnaire, and 144 (90%) completed the third questionnaire. The reasons given for inability to complete were lack of time and heavy study load; four people did not respond to contact.

Demographic and musical characteristics of the sample (see Appendix C) are presented in Table 6.1. The sample comprised more females than males. Ages ranged from 17 years up to 53 years of age (M = 21.85, SD = 5.80). Participants were

Table 6.1
Demographic and Musical Characteristics of the Sample

	Total	Percentage
Gender		
Female	97	61.0 %
Male	62	39.0 %
Ethnicity		
NZ European	97	61.0 %
Asian	50	31.4 %
Pacific Island	6	3.8 %
SE Asian	4	2.5 %
Style of music		
Classical	119	74.8 %
Jazz	24	15.1 %
Pop	16	10.1 %
Year of study		
1st year	53	33.3 %
2nd year	42	26.4 %
3rd year	33	20.8 %
Post graduate	31	19.5 %
Performance area		
Instrumentalist	94	59.0 %
Singing (Sg)	32	20.1 %
Conducting (Cd)	26	16.4 %
Instru/Sg/Cd	2	1.3 %

	Total	Percentage
Highest achievement as a performer		
Grades 5 – 8	102	64.1 %
Performance diploma	35	22.0 %
Tertiary degree	34	27.4 %
Competition winner	67	42.1 %
Concerto soloist	24	15.1 %
Community & church performances	90	56.6 %
Highest achievement as an ensemble member		
Performance diploma	9	5.7 %
Tertiary degree	27	17.0 %
Competition winner	56	35.2 %
Community & church performances	89	56.0 %
Concert tours	47	29.5 %

predominantly New Zealand European and Asian New Zealand residents. The majority of students were instrumentalists studying classical performance. Participants had been playing their instrument, singing, or conducting for 1 to 48 years (M = 11.11, SD = 6.76). Community and church performances, and winning a competition were the two areas of highest achievement identified by solo performers and ensemble members.

Music performance anxiety characteristics (see Appendix D) at the start of semester are presented in Table 6.2. Some degree of music performance anxiety was reported by 84.9% of participants, and 35.2% considered it to be a problem that

negatively affected their performance. Only 3.1% reported using beta-blockers to manage music performance anxiety and 3.8% reported current use of an anxiolytic or antidepressant. 52 (32.7%) of participants were currently using mindfulness and awareness developing techniques (meditation, yoga, Tai Chi, Feldenkrais Method and Alexander Technique) in comparison to 117 (73.6%) participants, who used other techniques (deep breathing, exercise, muscle relaxation, and counselling). 55 (34.6%) of participants used an equal amount of mindful techniques and other techniques. Nine participants said they used prayer regularly, and two reported the use of visualization. Only a small number of participants reported being trained by a professional in techniques to manage music performance anxiety. These techniques included progressive muscle relaxation, deep breathing, Alexander Technique, Feldenkrais Method, and visualization.

Practice characteristics (see Appendix E) across the three time points are presented in Table 6.3. The majority of participants practiced 1 to 4 hours per day on 6 to 7 days per week. Participants practicing five or more hours increased from (6.3%) at Time 1 to (11.3%) at Time 3, and participants practice of exam repertoire for three or more hours per day increased from (20.1%) at Time 1 to (33.3%) at Time 3.

Study Design

The main study was a longitudinal study of subject variables. The study investigated the relationships between music students' dispositional and situational mindfulness, and: (i) music performance anxiety; and (ii) quality of performance

Table 6.2
Music Performance Anxiety (MPA) Characteristics of the Sample

	Total	Percentage
MPA is a problem (i.e., negatively affects your performance)		
Yes	56	35.2 %
Sometimes	79	49.7 %
No	24	15.1 %
Use of antidepressant/anxiolytic		
Yes	6	3.8 %
No	153	96.2 %
Use of beta-blockers to manage MPA		
Yes	5	3.1 %
No	152	95.6 %
Use of		
Meditation	33	20.8 %
Yoga & Tai Chi	18	11.4 %
Feldenkrais & Alexander	33	20.7 %
Deep breathing	92	57.9 %
Exercise	74	46.5 %
Muscle relaxation	34	21.4 %
Counselling	8	5.0 %
Trained by professional to manage MPA		
Yes	17	10.7 %
No	142	89.3 %

Table 6.3
Practice Characteristics of the Sample

		Time 1		Time 2		Time 3	
		Total	%	Total	%	Total	%
Days practiced							
	0-2	13	8.2 %	9	5.7 %	4	2.6 %
	3	19	11.9 %	13	8.2 %	8	5.0 %
	4	21	13.2 %	18	11.3 %	18	11.3 %
	5	24	15.1 %	23	14.5 %	26	16.4 %
	6	35	22.0 %	30	18.9 %	25	15.7 %
	7	47	29.6 %	55	34.6 %	65	40.9 %
Daily practice hours							
Minutes	0–30	19	11.9 %	11	6.9 %	11	6.9 %
	31-59	28	17.6 %	29	18.2 %	26	16.4 %
Hours	1-2	51	32.1 %	43	27.0 %	42	26.4 %
	3- 4	51	32.1 %	48	30.2 %	46	28.9 %
	>5	10	6.3 %	17	8.8 %	21	11.3 %
Time practicing exam repertoire							
Minutes	0–30	44	22.7 %	31	19.5 %	27	17.0 %
	31-59	36	22.6 %	41	25.8 %	32	20.1 %
Hours	1–2	47	29.6 %	36	22.6 %	34	21.4 %
	3–4	28	17.6 %	33	20.8 %	39	24.5 %
	>5	4	2.5 %	7	4.4 %	14	8.8 %

outcome. Performance outcome variables consisted of: (i) perceived performance problems (mental and physical problems experienced during practice and performance); (ii) satisfaction with both their effort and exam performance; (iii) the quality of their performance in comparison to their best performance during practice; and (iv) their final performance grade.

Three self-report online surveys were administered over a four-month semester period. The measures contained within each questionnaire are summarized in Table 6.4. The first questionnaire was given at the start of the university semester. It screened for trait anxiety, anxiety sensitivity, and depression. It assessed music performance anxiety, five facets of mindfulness measured to assess a general dispositional trait, perception of performance problems, demographic characteristics, and music characteristics. The second questionnaire was administered four months later and one week prior to a solo performance exam. It assessed music performance anxiety and coping efforts used over the months preparing for the performance, thought intrusion, avoidance (cognitive, emotional, and behavioural), and perceived performance problems. The third questionnaire was completed immediately following the performance. It assessed music performance anxiety, five facets of mindfulness (measured to assess situational tendencies by asking the sample "what was true for you during this performance week"), coping efforts used at the time of performance, perceived performance problems, perceived satisfaction with performance, perception of performance versus practice, and post-event rumination.

Two newly developed measures, Coping before Music Performance (CBMP) (see Appendix M) and Coping during Music Performance (CDMP) (see Appendix

Table 6.4
List of Questionnaire Measures

Questionnaire Measures	**Focus of Measure**
Questionnaire One (Time 1)	
STAI-T	Trait anxiety
ASI-3	Anxiety sensitivity
CES-D	Depression
PAI	Music performance anxiety
FFMQ	Five facets of mindfulness
Performance problems	Experience of mental & physical problems
Questionnaire Two (Time 2)	
PAI	Music performance anxiety
CBMP	Coping before music performance
RIES	Revised impact of event scale:
	intrusion and avoidance subscales
Performance problems	Experience of mental & physical problems
Questionnaire Three (Time 3)	
PAI	Music performance anxiety
FFMQ	Five facets of mindfulness
CDMP	Coping during music performance
PEPQ	Post-event processing/rumination
Performance problems	Experience of mental & physical problems
Satisfaction	Satisfaction with performance
Performance *versus* practice	Rating of performance in comparison to best performance during practice
Final grade	Exam grade (out of 100)

N), were used to investigate coping strategies across time and their potential to impact music performance anxiety and mediate relationships between dispositional and situational mindfulness, and music performance anxiety. The psychometric qualities of the coping measures were pilot tested on a sample of community orchestra players prior to their use in the main study.

Procedure

Ethics approval was obtained from the University of Auckland Human Participants Ethics Committee (UAHPEC) prior to conducting the study. Music performance students from The University of Auckland and the University of Waikato were approached to participate in the study through the following methods: (a) announcements to undergraduate and postgraduate music performance classes; (b) notices posted on course websites; (c) flyers distributed in practice studios; and (d) flyers posted on student notice boards. Individuals who were interested in participating in the study were asked to email the researcher or go directly to an online 'survey-monkey' site noted on announcements. Copies of the participant information sheet and consent form are included in Appendix A and Appendix B, respectively.

Students completed Questionnaire 1 at the beginning of the semester. Four months later, and one week prior to performance exams, an email notified participants of the website link to complete Questionnaire 2. A reminder containing the link for Questionnaire 2 was also posted on course websites. At the end of Questionnaire 2, participants were reminded to complete Questionnaire 3 immediately following (within 48 hours of) their performance assessment. At the

commencement of the performance exam period, the website link for Questionnaire 3 was emailed to all participants and placed on course websites. Individual reminder emails were sent out as necessary. At the end of the final questionnaire, respondents were thanked for their participation.

To encourage participation, students were offered an incentive of a $10 book voucher and an audio CD of mindfulness exercises recorded by the researcher. These were posted to all participants upon completion of the study's data collection. After analyses were completed, the key findings were provided to all participants as well as The University of Auckland School of Music.

Development and Pilot Testing of two New Coping Measures

Coping before Music Performance (CBMP) and Coping during Music Performance (CDMP) measures were developed to assess the coping strategies musicians used when preparing for a performance and when performing (see Tables 6.5 & 6.6). Participants indicated how frequently comments and strategies were true for them when preparing for their forthcoming performance (CBMP) or when performing (CDMP). Responses were made on a four-point Likert scale with anchors of: 1 (*almost never/never*); 2 (*sometimes*); 3 (*often*); and 4 (*almost always*). Ratings for the items representing each subscale were summed; higher scores indicated higher use of that specific coping category. The final CBMP and CDMP measures demonstrated good internal consistency across the subscales: internal consistency for the CBMP subscales Cronbach Alpha's = .76 - .97 and the CDMP subscales Cronbach Alpha's = .77 - .97. Because coping strategies were expected to change

over time, test-retest analyses were not calculated. Table 6.5 lists the items for all CBMP subscales. Table 6.6 lists the items for all CDMP subscales.

When designing items for the CBMP and CDMP, the aim was to keep both scales as similar as possible in order to generate two parallel measures. This enabled an analysis of the coping strategies musicians use: (i) when preparing for a performance; and (ii) when giving a performance. The CBMP and CDMP were presented within questionnaires 2 and 3 respectively. Items designed for the CBMP measure were phrased to assess fifteen coping categories in the following areas: practice, planning, having hope, emotional suppression, thought suppression, positive focus, cognitive flexibility (diverting and focusing attention), denial, social support and expression, turning to religion, minimizing, self-kindness and self-acceptance, reminiscing, active coping and comfort eating. Items designed for the CDMP measure were designed to assess nine coping categories: use of planned strategies, emotional suppression, thought suppression, positive focus, cognitive flexibility (diverting and focusing attention), minimizing, religion, self-kindness and self-acceptance, and comfort eating.

Item development and structure.

An initial pool of items was generated from theory, research, and literature in the area as well as through a pre-pilot screener completed by ten post-graduate music and psychology students, and a staff member from the National Institute of Creative Arts and Industries. When completing the pre-pilot screener, assessors reported, in order of importance, the three coping strategies they used when preparing for a performance, and when giving a performance; these responses contributed to the item

pool. The pre-pilot assessors also evaluated the coping items for relevance to the construct being studied, readability, and applicability. All assessors reported that subscale items had satisfactory face validity. To determine content validity, assessors were asked to comment on whether each item reflected the relevant subscale adequately. Minor revisions to the wording of some items, and the addition and deletion of a few items were made to improve clarity and applicability to all performance domains (jazz, pop, classical, singing, and conducting).

Items also drew upon existing established scales. Subscales of denial, social support, and religion drew upon the COPE scale (Carver et al., 1989), and emotional suppression drew upon avoidance items from the Five-Factor Collectivist Coping Styles Inventory (Heppner et al., 2006). Thought suppression drew upon the White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994), and self-kindness and self-acceptance drew upon the Self-Compassion Scale (SCS; Neff, 2003). Hope was an adapted version of the HOPE scale (Synder et al., 1991).

Both the CBMP and CDMP were designed using the problem-focused and emotion-focused categories described by Lazarus and Folkman (1984), and the emotion-regulation coping domains identified by James Gross (1999). Problem-focused strategies highlighted in music performance anxiety research, included proactive behaviours of practice (Salmon, 1990; Steptoe & Fidler, 1987) and planning (Lehrer et al., 1990). Hope was included as a cognitive coping strategy (Snyder et al., 1991). Musicians' emotion-regulation coping strategies included: focusing on the positive including positive self-talk (Roland, 1994; Steptoe & Fidler, 1995; Wolfe, 1990); focusing attention or diverting attention (Rife et al., 2000;

Roland, 1994); emotional suppression (Heppner et al., 2006); thought suppression; denial (Steptoe & Fidler, 1995; Suls & Fletcher, 1985); minimizing (Steptoe, 1987; Wolfe, 1990); self-kindness and self-acceptance (Tugade & Fredrickson, 2007); social support (Langendorfer et al., 2006) and use of religion (Fehm & Schmidt, 2006); and rumination (Langendorfer et al., 2006). Musicians also attempt to modulate physiological responses by using alcohol, relaxation techniques, and breathing exercises so items were included to assess the frequency of these strategies (Langendorfer et al., 2006).

We wanted our coping measures to be applicable to the Asian music students within our population. We considered how our coping categories reflected key Asian values (family support, acceptance, avoidance of shame/losing face, religion and private/emotional outlets) identified in Heppner and colleagues' (2006) Five-Factor Collectivist Coping Styles Inventory. Three Asian post-graduate music students in our pre-pilot screener deemed family support, religion, and avoidance of shame/losing face to be particularly applicable to Asian ways of coping with music performance. The coping subscales of social support and religion addressed the first two values and we adapted items from Heppner and colleagues (2006) inventory to reflect avoidance of shame/losing face. For example: "I save face by not telling anyone how I feel"; "I save face by only thinking about my problems by myself"; and "I keep my feelings to myself in order not to worry my parents or partner". These three items formed part of the 'emotional suppression' subscale. In addition, two comfort eating items were added to tap one aspect of emotional outlet: "To help me cope, I eat food even when I am not physically hungry"; and "I use food to help

me deal with the pressures of practicing for the upcoming performance". The value of acceptance was included in the self-kindness subscale.

Within the CBMP, hope was assessed using items adapted from the Adult Hope Scale (Synder et al., 1991). The adapted hope scale included 8 statements (e.g., "There are a lot of ways around any problems I have when preparing for a performance"). The four filler items were removed due to the necessity of keeping the scale as short as possible. As the hope scale was embedded within the CBMP, items were rated on 'how frequently' comments were true (i.e., *almost never/never*) in comparison to the normal rating of 'how true' they were (i.e., *definitely false*). The Adult Hope Scale was chosen for adaptation because of its ability to assess the two components of hope: agency and pathways. Interestingly, the intent of Snyder et al. (1991) is that the full scale be used to measure a global construct of hope. Within the pilot and main studies, exploratory principal components analyses of the adapted hope scale revealed a single factor loading contrary to the two factors normally reported. This may be attributable to the rewording of items or the use of a modified rating response: consequently, the hope scale was used as a global measure of the construct as recommended by Snyder and colleagues (1991). The scale showed good internal consistency in both the pilot and main study ($\alpha = .83$ and $\alpha = .87$), respectively.

Pilot testing of new coping measures.

The preliminary measures were subjected to pilot testing using a cross sectional design where participants completed a set of measures at one time. Participants were members of a community orchestra in the Auckland region. They

were invited to participate in the study through invitations sent out by mail and through a brief introduction talk at a rehearsal. Of the 112 players approached, 71 players volunteered to participate and completed questionnaires, giving a response rate of (63%). The players were aged between 16 and 82 years old (M = 39.2 years, SD = 19.40 years). They were predominantly New Zealand European (73.2%) and Asian (25.4%). The sample was chosen for its range of age, amateur ability, and orchestral status with the aim of providing a heterogeneous pilot sample.

Principal Components Analyses (PCA) were conducted on the pilot data for all items within each coping subscale. Guidelines for factor analysis propose a standard of five observations per item (Tabachnick & Fidell, 2007). The pilot sample size was too low to run a PCA on the full CBMP scale of 89 items and CDMP scale of 59 items; consequently PCAs were run in subscale blocks of 10 -15 items. Factors were retained when eigenvalues were greater than 1 and after examination of the scree plot (Pallant, 2005). Factor loadings are reported in Tables 6.5 and 6.6.

Factor rotation was used to aid the interpretation and generate clear, meaningful factor structures. Both orthogonal and oblique rotations were trialed, and Varimax rotation was used for all analyses because it provided the advantage of both maximizing the variances of the loadings within the factors and maximizing the difference between high and low loadings on a factor component (Field, 2005). Factor loadings were evaluated by assessing whether an item loaded strongly onto one factor (>.40) and did not cross-load onto other factors (<.30). Items that did not load clearly onto a factor were considered for elimination.

Selection of the most suitable items to retain in each subscale was based on multiple criteria. Decision criteria included: (i) items had to load strongly onto one factor (loading >.40); (ii) if an item loaded highly on multiple factors, the theoretical meaning of the item was reviewed and if it did not load clearly on an appropriate factor it was dropped; and (iii) items with weak loadings (<.40) were dropped. Lastly, item analysis was used to assess how internal consistency was affected by item elimination. Items were then eliminated, one at a time, based on statistical findings and theoretical knowledge about how the items should fit together. Table 6.7 summarises the items that were deleted. PCA on the final items for each subscale revealed loadings onto one component. Each subscale displayed good internal consistency: CBMP Cronbach alpha's ranged from .68 to .98; CBMP Cronbach alpha's ranged from .72 to .97.

Correlation analyses with a measure of mindfulness and a measure of performance anxiety were conducted to determine convergent and discriminant validity (respectively) for both the CBMP and CDMP. Preliminary information on convergent validity suggested small to moderate correlations between the theoretically related coping constructs of positive focus and self-kindness, and total mindfulness CBMP (r = .19, p < .05 and r = .17, p < .05) and CDMP (r = .27, p < .001 and r = .28, p < .001) respectively. Non-significant correlations of CBMP and CDMP subscales of religion and minimizing and music performance anxiety suggested discriminant validity. The significance level was set at .05 for all statistical tests with p values less than .05.

Table 6.5
Item Factor Loadings for the CBMP Measure using Principal Component Analysis with Varimax Rotation

	Factor Loadings	
	Pilot	Main
Practice	***α = .74***	***α = .77***
I prepare my pieces well in advance of the performance.	.84	.72
I try to practice as much as possible.	.76	.84
I try to practice until I can perform the piece automatically.	.64	.77
I plan practice goals and timetables to help me make good progress.	.59	.68
I try to finish every practice session feeling positive.	.70	.59
Planning	***α = .86***	***α = .89***
I plan in advance what I will do to recover if I were to become distracted by my own thoughts during performance.	.88	.84
I plan in advance how I will recover if I had a memory slip during performance.	.88	.88
I plan in advance how I will recover if I were to become too anxious at some point in the performance.	.90	.88
I plan in advance how I will recover my concentration if I were to be distracted by some external disturbance during performance.	.81	.88
Hope	***α = .83***	***α = .87***
I can think of many ways to practice my music, such as visualization, mental rehearsal, and/or practicing at a slow tempo.	.71	.66
Even if others find a piece too difficult, I know I can find a way to master the difficult parts of my music.	.67	.68
There are a lot of ways around any problems I have when preparing for a performance.	.62	.78
I can think of many ways to achieve the performance goals that are most important to me.[M]		.82

	Factor Loadings	
	Pilot	Main
My past concert experiences have prepared me well for my future performance.	.77	.71
I have been pretty successful in my music performances.	.69	.67
I can meet most of the performance goals that I set myself.	.62	.74
I energetically pursue my practice and performance goals.[M]		.81
Emotional suppression	***α = .88***	***α = .92***
I try to hide from my family how I feel about the performance.	.83	.81
I try to hide from my friends any concerns or anxiety I may feel.	.81	.84
I keep my feelings of anxiety to myself.[M]		.85
I save face by not telling anyone how I feel.	.80	.88
I keep my feelings to myself in order not to worry my parents or partner.	.86	.85
I save face by only thinking about my problems by myself.	.83	.89
Thought suppression	***α = .68***	***α = .81***
I try to put problems out of my mind.	.52	.77
There are things that I try not to think about.	.93	.89
I have thoughts that I try to avoid.	.94	.89
I try not to think about what the audience thinks of me.	.57	.62
Positive focus	***α = .77***	***α = .91***
I focus on the positive aspects of performance.	.63	.60
I see myself as giving a gift to the audience.	.69	.68
I see myself acting as a vehicle for the music.	.67	.64
I try to feel in a special zone when I perform.	.69	.75

	Factor Loadings	
	Pilot	Main
I enjoy the excitement and inspiration of preparing for performance.	.77	.73
I try to see my nerves as helping rather than hindering me.	.65	.69
I tell myself, I have ability and I have prepared well for this.[M]		.86
I tell myself the performance is going to be really exciting.[M]		.85
Í try to focus on how the performance will be exciting and fun.[M]		.85
I try to view the performance as a positive experience.[M]		.81
Cognitive flexibility	***α = .70***	***α = .85***
I try to divert my attention away from irrelevant thoughts.	.53	.67
I try to screen out irrelevant external distractions.	.83	.73
I try to let go of mistakes.	.59	.70
I try to focus on what I am doing.	.67	.73
I try to focus on the music and/or sound, in order to divert my attention from any feelings of anxiety or worry.	.70	.76
I try to let my thoughts just flow by.	.51	.64
I try to think only about the music and nothing else.[M]		.70
I try to screen out any negative or critical thoughts.[M]		.65
Denial	**α = .77**	**α = .85**
I pretend that the performance is not happening.	.82	.91
I act as if the performance is not happening.	.90	.90
I refuse to think about the performance.	.72	.80
Social support	***α = .69***	***α = .85***
I talk to other performers about how they cope with performance anxiety.	.67	.78

	Factor Loadings	
	Pilot	Main
I talk to my teacher about how to cope with performance anxiety.	.63	.78
I seek emotional support from my family, partner or friends.	.78	.79
I share my feelings with my family.	.79	.78
I express my worries and concerns about the performance with others.[M]		.83
Religion	***α = .98***	***α = .97***
I put my trust in a higher force (God, spiritual being).	.97	.96
I find comfort in my religion or spirituality.	.97	.96
I find guidance from my religion.	.98	.96
I pray.	.95	.93
Minimizing	***α = .74***	***α = .76***
I tell myself it is not the end of the world if I play badly or not.	.76	.68
I tell myself it's just another concert, everyone will forget it.	.69	.74
I tell myself a live concert will never be perfect.	.74	.81
I tell myself that even professionals make mistakes.	.80	.80
Self-kindness & self-acceptance	***α = .91***	***α = .81***
I am kind to myself when I experience worries about what the audience may think of my performance.	.86	.73
I am tolerant of the mistakes I make.	.87	.87
I am accepting of myself when I feel that the performance is not going well.	.94	.76
I forgive myself when I make mistakes.	.88	.83
I accept that there is nothing wrong with how I feel.[M]		.56

	Factor Loadings	
	Pilot	Main
The following items were not used in final analyses due to poor KMO and Cronbach alpha values.		
Reminiscing	***α = .47***	***α = .35***
I look back and tell myself that my past performance experiences have prepared me well for this performance.	.80	.78
I enjoy thinking about how I have learnt from my past performances.[P]	.70	.60
I only think about past mistakes if I have time to correct them through practice.[R]	.57	.78
Response modulation: (comfort eating**)**		
To help me cope I ate food even when I was not physically hungry.		
I used food to help me deal with the pressures of performing.		
I use alcohol to help me cope.		
I try to do things to help me relax such as breathing exercises, yoga, tai chi, Feldenkrais, or other relaxing activities.		
Interest only items		
I let others know how I feel about the upcoming performance.		
I give up my desire to socialize in order to prioritize my practice.		

Note: [M] = new item for main study; [P] = pilot study only; [R] = reversed score.

Table 6.6
Item Factor Loadings for the CDMP Measure using Principal Component Analysis with Varimax Rotation

	Factor Loadings	
	Pilot	Main
Planning		**α = .87**
I used strategies that I had planned to recover from distracting thoughts.[M]		.89
I used strategies that I had planned to recover from memory slips.[M]		.74
I used strategies that I had planned to recover from feeling too anxious.		.84
I used strategies that I had planned to recover my concentration.[M]		.90
Emotional suppression	***α = .83***	***α = .88***
I try to hide how I feel about the performance from my audience.	.62	.66
I try to hide any concerns or anxiety I may feel from my fellow performers.	.65	.80
I save face by not telling anyone how I feel.	.89	.83
I keep my feelings to myself in order not to worry my parents or partner.	.81	.81
I save face by only thinking about my problems by myself.	.87	.86
I keep my feelings of anxiety to myself.[M]		.77
Thought suppression	***α = .77***	***α = .88***
I try to put problems out of my mind.	.62	.85
There are things that I try not to think about.	.87	.91
I have thoughts that I try to avoid.	.82	.88
I try not to think about what the audience thinks of me.	.73	.79
Positive focus	***α = .72***	***α = .91***
I focus on the positive aspects of performance.	.49	.63

	Factor Loadings	
	Pilot	Main
I see myself as giving a gift to the audience.	.70	.74
I see myself acting as a vehicle for the music.	.74	.70
I try to feel in a special zone when I perform.	.64	.78
I enjoy the excitement and inspiration of performing.	.74	.79
I try to see my nerves as helping rather than hindering me.	.53	.81
I tell myself I have ability and I have prepared well for this.[M]		.75
I tell myself the performance is really exciting.[M]		.79
Í try to focus on how the performance is exciting and fun.[M]		.84
I try to view the performance as a positive experience.[M]		.77
Cognitive flexibility		
I try to divert my attention away from irrelevant thoughts.	.67	.62
I try to screen out irrelevant external distractions.	.80	.68
I try to let go of mistakes.	.62	.70
I try to focus on what I am doing.	.65	.60
I try to focus on the music and/or sound, in order to divert my attention from any feelings of anxiety or worry.	.72	.78
I try to let my thoughts just flow by.	.60	.71
I try to let go of distracting physical sensations.	.76	.81
I try to think only about the music and nothing else.[M]		.80
I try to screen out any negative or critical thoughts.[M]		.80
Religion	***α = .97***	***α = .97***
I put my trust in a higher force (God, spiritual being).	.95	.97
I find comfort in my religion or spirituality.	.97	.97
I find guidance from my religion.	.98	.97
I pray.	.94	.95

	Factor Loadings	
	Pilot	Main
Minimizing	***α = .84***	***α = .77***
I tell myself it is not the end of the world if I play badly.	.80	.85
I tell myself it's just another concert, everyone will forget it.	.74	.84
I tell myself a live concert will never be perfect.	.89	.71
I tell myself that even professionals make mistakes.	.84	.66
Self-kindness & self-acceptance	***α = .91***	***α = .87***
I am kind to myself when I experience worries about what the audience may think of my performance.	.87	.80
I am tolerant of the mistakes I make.	.86	.87
I am accepting of myself when I feel that the performance is not going well.	.90	.85
I forgive myself when I make mistakes.	.92	.85
I accept that there is nothing wrong with how I feel.[M]	.71	.68
The following items were retained for exploratory purposes and to assess prevalence and frequency of use of these strategies		
Response Modulation		
I try to remain calm and relaxed.		
I try to feel a loss of self.		
I use alcohol or drugs to help me cope.		
I try to do things to help me relax such as deep breathing, yoga, Tai Chi, Feldenkrais, or other relaxation strategies.		
Comfort eating		
To help me cope I ate food even when I was not physically hungry.		
I used food to help me deal with the pressures of performing.		

Note: [M] = item added to main study.

Table 6.7
Items in the CBMP and CDMP Pilot that were deleted

Practice
I try to remain calm and relaxed.*
I am not sure what the best way to prepare is.*
I try to visualize my performance to give me a clear and positive sense of performing well.*
I try to find opportunities to perform in front of others.*
I reward myself when I meet my practice goals (retained for interest).
I punish myself if I do not meet my practice goals (retained for interest).
Planning
I plan in advance how to relax my muscles if they should tighten up during the performance (α increased with item deletion).
Hope
I have a good pre-performance ritual that I know works for me.[xl]
I can think of many ways to prepare myself to do well in a performance (item was reworded).
Positive focus
I tell myself the audience wants me to play well.*
I tell myself I am in control.*
I tell myself don't worry, just keep going.*
Cognitive flexibility
I try to move attention from difficult technical places to other points of focus.[xl]
Denial
I find myself putting too much time into other activities instead of practicing (α increased when item deleted).

Notes: * = loadings <.20; [xl] = crossloading.

Prior to use in the main study, one new item ("I keep my feelings of anxiety to myself.") was added to the emotional suppression subscale. Two new items ("I try to focus on how the performance will be exciting and fun." and "I try to view the performance as a positive experience.") were added to the positive focus subscale for both coping measures. One new item ("I express my worries and concerns about the performance with others.") was added to the social support and expression subscale of the CBMP. These items were added to assess these dimensions more comprehensively. Four subscales (practice, the adapted hope, social support/expression and denial) were left out of the CDMP as they were considered less relevant to coping while giving a performance. This resulted in measures consisting of 89 items (CBMP) and 59 items (CDMP).

Main Study Testing of Coping Measures

Principal components analyses were conducted from the main study data on the CBMP and CDMP to further test the stability of component loadings. Component loadings on the CBMP ranged between .59 and .96, and on the CDMP loadings ranged between .62 and .97. Factor loadings are presented in Table 6.5 and Table 6.6. All subscales loaded with an eigenvalue of 1 except for 'positive focus' which loaded with an eigenvalue of 1.1 on both measures. This subscale contains items that express both positive focus and positive self-talk: with an eigenvalue of 1, the factor showed a tendency to split towards each domain. For the purposes of this study, the items were combined to form a comprehensive measure of positive focus but it is suggested that further scale development could generate more items to measure these components separately.

Measures

Five Facet Mindfulness Questionnaire (FFMQ).

The Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006) is a 39-item scale designed to measure a general tendency to be mindful in daily life; it does not require experience with meditation. This scale was chosen due to its multidimensional assessment of mindfulness. The observe facet measures the degree to which one notices and attends to both internal stimuli, such as bodily sensations and thoughts, as well as external stimuli, such as sound and smells. The describe facet measures the degree to which a person notes and labels observations. The act with awareness facet measures the extent to which one engages fully in one's current activities with relatively undivided attention. The non-judge facet measures the degree to which one is non-judgmental and non-evaluative about one's present-moment experiences. The non-react facet measures the ability to step back and 'let-go' of thoughts, images, and feelings without overly identifying with them. This scale allows mindfulness to be measured at a facet level: which enables researchers to evaluate whether facets are differentially related with other variables.

The FFMQ in this study (see Appendix G) was an adapted version utilizing a 4-point response option ranging from 1 (*never or very rarely true*) to 4 (*very often or always true*) rather than the 5-point response normally used ranging from 1 (*never or very rarely true*) to 5 (*very often or always true*). A pilot study with 61 music performance students, comparing the two versions of the measure at the beginning (Time 1) and at the end (Time 2) of a two-week period, revealed that the two versions yield virtually identical patterns of relationships with other variables in the

study. For example; the correlations between the mindfulness facet act with awareness (4-point response) and mindfulness facet act with awareness (5-point response) were equivalent for music performance anxiety at Time 1 (r = -.43 and r = -.44, respectively) and music performance anxiety at Time 2 (r = -.42 and r = -.46 respectively). For anxiety sensitivity (AS) at Time 1 (r = -.31 and r = -.32 respectively) and AS at Time 2 (r = -.36 and r = -.36 respectively). And for Depression at Time 1 (r = -.43 and r = -.44 respectively) and Depression at Time 2 (r = -.39 and r = -.46). In addition, the correlations between the 4-point and 5-point response versions on all mindfulness subscales were strong: act aware (r = .84); non-judge (r = .89); observe (r = .84); describe (r = .91); and non-react (r = .66).

The FFMQ subscales have shown adequate to good internal consistency: Baer and colleagues (2006) reported Cronbach's alpha of non-react α = .75, observe α = .83, act with awareness α = .87, describe α = .91, and non-judge α = .87. The FFMQ demonstrated strong convergent validity with other mindfulness measures and constructs that appear to include elements of mindfulness (e.g., openness to experience, emotional intelligence, and self-compassion), and discriminant validity with constructs that appear to reflect an absence of mindfulness (e.g., experiential avoidance, thought suppression, and neuroticism (Baer et al., 2006).

In the main study, the full FFMQ demonstrated good internal consistency at Time 1 (Cronbach's α = .87). Cronbach's alpha values for facets were act with awareness α = .86; observe α = .79; describe α = .87; non-judge α = .86; and non-react α = .80. These results were replicated at Time 3 with the full FFMQ demonstrating (Cronbach's α = .86). Cronbach's alpha values for facets were: act

with awareness α = .89; observe α = .84; describe α = .85; non-judge α = .87; and non-react α = .82. The FFMQ facets demonstrated good test-retest reliability over a two week test-retest study (act aware *r* = .84; observe *r* = .84; describe *r* = .91; non-judge *r* = .89; non-react *r* = .66). The complete FFMQ is given in Appendix G.

Performance Anxiety Inventory (PAI).

The Performance Anxiety Inventory (PAI; Nagel et al., 1981, 1989) (see Appendix F) includes 20 items assessing the trait of experiencing anxiety in music performance situations. The PAI was based on Spielberger's Test Anxiety Inventory (1980), and measures cognitive, behavioural, and physiological components of performance anxiety experienced by musicians. Questions are answered on a 4-point Likert scale ranging from 1 (*almost never*) to 4 (*almost always*). Scores can range from 20 to 80 with higher scores indicating greater music performance anxiety. This study adopted the modifications suggested by Osborne and Franklin (2002) to improve the comprehension of three items for New Zealanders. The original statements – "I seem to defeat while working on important recitals."; "During recitals I find myself thinking about the consequences of blocking."; and "During a recital I get so nervous that I block." – were modified. The new statements read: "I seem to give up easily while working on important recitals."; "During recitals I find myself thinking about the consequences of my mind going blank."; and "During a recital I get so nervous that my mind goes blank".

The PAI is one of only three scales that assess cognitive, behavioural, and physiological components. The PAI has been the measure of choice in numerous studies (Chang et al., 2003; Liston et al., 2003; Osborne & Franklin, 2002). Although

the K-MPA (Kenny, Davis & Oates, 2004) is the most recent music performance anxiety scale to be developed it was not chosen as some items assessing depression and evocation of anxious propositions overlap with other constructs being measured.

The PAI has high internal consistency with Cronbach's α = .89 to .94 (Nagle et al., 1989; Osborne & Franklin, 2002). In the main study Cronbach's α = .93 at all three time points, suggesting good internal consistency of the measure in a population of music performance students. The complete PAI is given in Appendix F.

State-Trait Anxiety Inventory (STAI-T).

The State-Trait Anxiety Inventory (STAI-T form Y-2) (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) (see Appendix I) is a 20-item self-report scale that assesses relatively stable trait differences in the tendency to perceive stressful situations as dangerous or threatening. Participants respond to items according to how they "generally" feel; ratings range from 1 (*almost never*) to 4 (*almost always*). The STAI-T has been used in music performance anxiety studies and has demonstrated test-retest reliability in a population of high school students (Males r = .71, Females r = .75) (Spielberger et al., 1983). Good internal consistency was reported in the current study (Cronbach's α = .90).

Anxiety Sensitivity Index 3 (ASI-3).

The Anxiety Sensitivity Index-3 (ASI-3; Taylor et al., 2007) (see Appendix H) is an 18-item version of the original Anxiety Sensitivity Index (Reiss et al., 1986). The ASI-3 was chosen because anxiety sensitivity scores have been found to be more

predictive of music performance anxiety than trait anxiety. In particular, musicians with music performance anxiety have reported an anxiety response to sensations of cognitive dyscontrol as measured by the Anxiety Sensitivity Index (Stephenson & Quarrier, 2005). Anxiety sensitivity is considered to be multidimensional consisting of three-factors: (i) fear of physical symptoms (e.g., "It scares me when my heart beats rapidly."); (ii) fear of cognitive dyscontrol (e.g., "When I cannot keep my mind on a task, I worry that I might be going crazy."); and (iii) fear of social concerns (e.g., "When I tremble in the presence of others, I fear what people might think of me.") (Zinbarg, Mohlman, & Hong, 1999). Respondents indicate on a 5-point scale (0 = *very little*, 1 = *a little*, 2 = *some*, 3 = *much*, 4 = *very much*) the degree to which anxiety symptoms are distressing. Scores range from 0 to 72. Psychometric and structural properties of the ASI-3 are good. Cronbach's alpha for subscales range from .73 to .91 across multiple samples (Taylor et al., 2007). In the present study, Cronbach's $\alpha = .88$ which suggests good internal consistency of the measure in a population of music performance students. The ASI-3 demonstrated good test-retest reliability over a two week test-retest study ($r = .92$, $p < .01$).

Centre for Epidemiologic Studies-Depression scale short version (CES-D).

The 11-item short-version of the CES-D (Radloff, 1977) (see Appendix J) was chosen to measure depression because of its successful use in a broad range of populations, including a healthy general population. Participants report how often they have experienced 11 different aspects (e.g., "I felt everything I did was an effort."). Ratings range from 0 (*rarely or none of the time*) to 4 (*most/all of the time*), and are summed to generate a total score. Higher scores indicate more symptoms of

depression, and a criterion of 8.8 is regarded as an indicator of depressive disorder (Radloff, 1977). The CES-D has demonstrated good internal consistency ($\alpha = .76$) (Kohout, Berkman, Evans & Cornonoi-Huntley, 1993). A depression scale has been included in this study because depression has rarely been measured by studies examining music performance anxiety, even though a survey of 2,212 musicians reported 17% as having experienced depression (Fishbein et al., 1988).

To our knowledge, the CES-D has not been tested in a musician population but is considered acceptable for use with young adults (Radloff, 1991). In the present study, the CES-D demonstrated good internal consistency; (Cronbach $\alpha = .85$) and adequate test-retest reliability over a two week test-retest study ($r = .64$, $p < .01$), taking into account expected variability when testing mood states.

Revised Impact of Event Scale (RIES).

The RIES (Horowitz, Wilner & Alvarez, 1979) (see Appendix K) measures stress experienced due to a specific event. In the current study participants were asked to focus on intrusive thoughts and avoidance related to the performance situation. The current study rated items according to the frequency of their occurrence when preparing for a performance situation: 0 (*not at all*); 1 (*rarely*); 3 (*sometimes*); and 5 (*often*). The scale has two subscales that measure: (i) *intrusion*; defined as a tendency for people to experience intrusive ideas, memories, and emotion associated with the event (performance), and (ii) *avoidance* responses, including emotional numbness, diverting attention away from thoughts and feelings, and behavioural inhibition (Horowitz et al., 1979), related to music performance anxiety. Internal consistency for the subscales has been reported as high (Intrusion α

= .78; Avoidance α = .82), including test-retest reliability for total stress scores (r = .87, $p < .05$), Thought Intrusion (r = .89, $p < .05$), and Avoidance subscales (r = .79, $p < .05$) (Horowitz et al., 1979). In the current study, the RIES demonstrated good internal consistency α = .90, Intrusion subscale α = .84, and Avoidance subscale α = .85.

Post-Event Processing Questionnaire (PEPQ).

The refined Post Event Processing Questionnaire (Fehm, Hoyer, Schneider, Lindeman & Klusman, 2008) (see Appendix L) measures prolonged rumination and negative thinking about a past event such as a musical performance. This scale was chosen because it measures negative cognitions characteristic of biased processing associated with music performance anxiety. This scale is a refined version of the PEPQ developed by Rachman, Gruter-Andrew & Shafran (2000). The 17-items are rated on a visual analogue scale from 0 (*not at all*) to 100 (*always*). Face validity of the measure was improved for this population by substituting the words 'event' and 'situation' by the word 'performance'. Fehm and colleagues (2008) have proposed a four-factor model (cognitive impairment, negative self, past and future, and avoidance); however, they noted high factor correlations suggesting one dominant factor. Fehm and colleagues (2008) also report a high internal consistency, α = .90. In the present study, α = .95 suggesting good internal consistency of the measure in a population of music performance students.

Perception of Performance Quality Measures

Performance problems scale.

Participants rated their perceived ability to practice, rehearse, and perform without mental or physical problems interfering with their artistic work (see Appendix O). Three items were rated from 1 (*with no problems*) to 5 (*with severe problems*). The items chosen addressed perceptions of practice and performance, and were adapted from a scale of five items used by Kreutz, Ginsborg & Williamon (2008). In the present study, the measure demonstrated good internal consistency, α = .86 (Time 1) α = .87 (Time 2) and α = .83 (Time 3).

Satisfaction with performance.

Participants rated both their level of satisfaction with their performance and their effort on a visual analogue scale ranging from 0 (*very dissatisfied*) to 10 (*very satisfied*) (see Appendix P). Esplen (1991) assessed satisfaction with musical performance through a comparable thermometer rating. The relationship between the two satisfaction items was strong (r = .60, p < .001), so analyses were first conducted on each item separately, because comparable results were obtained, the items were then combined in the final analyses. In the present study, the two items demonstrated adequate internal consistency α = .76.

Perception of performance versus practice scale.

Finally, participants rated the quality of their own performance in comparison to their best performance during practice on ten items (see Appendix Q). These items included: technique, articulation, tempo, rhythm, dynamics, phrasing, expressiveness,

tone quality, tempo accuracy, and performance. In the present study, the items were rated on a scale from 0 (*much worse*) to 5 (*same level*) to 10 (*much better*). This measure was adapted from one used by Yoshie, Shigemasu, Kudo and Ohtsuki (2009). In this study, the measure demonstrated a high internal consistency $\alpha = .95$.

Final grade.

Participants consented to have their final performance grade collected from university administration at the end of the exam period. The final grade was a composite figure comprising course work and an assessment of performance in front of a panel of assessors (at stage three and post-graduate level, an audience was also present). Only results on the performance component were used for analyses.

Data Analysis

Statistical analyses were performed using Version 19 of the Statistical Package for Social Science (SPSS). For all statistical tests, a significance level of $p < .05$ was utilized. Power analyses were conducted using G* Power 3 (Faul, Erdfelder, Lang & Buchner, 2007). The study's sample size ($N = 159$) provides sufficient statistical power (98%) for a multiple regression test with five predictors in the model to detect a medium (.15) effect size with a two-tailed hypothesis at $p < .05$ significance level for baseline (Time 1) analyses, and (96%) power for the time of performance (Time 3) analyses. Medium-sized effects are preferable over small effects (.02) because they are more likely to indicate meaningful differences.

The analyses were conducted in five sets related to the main hypotheses of the study. Prior to running these sets of analyses, descriptive statistics on all self-

report measures were first examined to ascertain mean scores, screen for gender differences and to obtain a rich picture of coping behaviour through examining item frequencies. Each set of analyses then examined correlations between key variables across the three time points: (Time 1) at the start of the semester; (Time 2) preparation for a performance leading up to one week prior to performance; and (Time 3) at the time of performance. Multiple regression analyses were conducted to assess relationships proposed in the self-regulation process model of music performance anxiety (Figure 1). Significant predictors were assessed for their ability to mediate significant relationships of interest as outlined within the model.

Pearson's correlations were conducted to examine relationships between key variables across the three time points. In line with the proposed self-regulation process model of music performance anxiety (Figure 1), the first set of analyses, investigated associations among dispositional mindfulness (Time 1), situational mindfulness (Time 3), and music performance anxiety (Times 1, 2 & 3). The second, third and fourth sets of analyses investigated relationships among dispositional, situational mindfulness, coping strategies at Times 2 and 3 including practice, and music performance anxiety (Time 3). The fifth set of analyses investigated relationships among situational mindfulness, music performance anxiety and performance outcome variables (Time 3).

Multiple regression analyses were used within each set of analyses to assess independent associations among key mindfulness, coping strategies, music performance anxiety, and performance outcome variables.

Preacher and Hayes' (2008) bootstrapping procedure was used to assess the mediating effect of situational mindfulness, coping strategies (Time 2 and 3), and music performance anxiety (Time 3) on key relationships proposed within the self-regulation model of music performance anxiety (Figure 1).

Assessing mediation.

In assessing mediation, it is important to make a distinction between various effects and their corresponding weights. The *total effect* (weight *c*) of an independent variable (IV) on a dependent variable (DV) consists of a *direct effect* (weight *c'*) of the IV on the DV and an *indirect weight* (weight *a* x *b*) of the IV on the DV through a particular mediator (M). Weight *a* represents the effect of the IV on the M; weight *b* represents the effect of the M on the DV, partialling out the effect of the IV. Testing multiple mediators, it is possible to estimate total indirect effects (sum of all *a* x *b* weights) as well as specific indirect effects for each mediator (i.e., $c = c' + a \times b$).

Given recent criticisms of the Baron and Kenny (1986) guidelines for mediation, this study followed recommendations by Preacher and Hayes (2008), Shrout and Bolger (2002), and MacKinnon, Lockwood, and Williams (2004), to apply a bootstrapping sampling procedure for assessing indirect effects. Bootstrapping is a nonparametric resampling procedure where samples are drawn at random (in this study, 5,000 bootstrap resamples), and the mediated effect and its standard error is computed for each sample dataset. Based on all of the samples, approximations of the distribution of indirect effects are constructed and point estimates and 95% confidence intervals are calculated (Shrout and Bolger, 2002).

This procedure provides an estimate of the indirect effect of a mediator while controlling for other potential mediators. Preacher and Hayes (2008) and MacKinnon et al. (2004) recommend the bootstrapping procedure over the causal steps approach used by Baron and Kenny (1986) and the product of coefficients approach or Sobel test, because these methods involve the implicit assumption that the sampling distribution of the indirect effect is normal whereas bootstrapping does not impose this assumption. Statisticians take issue with the use of the standard normal distribution for deriving the *p* value for the indirect effect since the sampling distribution of the product term *ab* is often normal only in large samples, and can be questionable in small samples such as this study. Bootstrapping was conducted using a SPSS macro provided by Preacher and Hayes (2008). It was used to estimate the point estimates, 95% confidence intervals, and 95% bias-corrected confidence intervals of the indirect effect. A point estimate for an indirect effect (the total effect of all mediators or a specific effect of a single mediator) was considered significant if zero was not contained in the confidence intervals.

Screening for covariates.

Based upon research, theory, and current significant correlations between gender, anxiety sensitivity, and music performance anxiety across time, these variables were included as covariates in analyses. Trait anxiety was also correlated with music performance anxiety. In line with previous research, however, trait anxiety was a weaker predictor of music performance anxiety than anxiety sensitivity was (Stephenson & Quarier, 2005; Liston et al., 2003). Moreover, the strong correlation between trait anxiety and anxiety sensitivity, created problems with

multicollinearity. Trait anxiety may not capture the important dimensions of anxiety pertinent to musicians and performance, whereas the physiological, psychological, and social concerns contained within the anxiety sensitivity construct better capture anxiety relevant to musicians and performance. Consequently, a decision was made not to control for trait anxiety.

Relationships between depression and music performance anxiety were also investigated. Interestingly, mean depression scores (M = 9.36, SD = 5.74) were high with 42.8% reporting depression scores of nine or above (criterion for depression is specified as 8.8). An item-by-item investigation highlighted that 74.9% of participants felt happy and 73.0% enjoyed life. However, 59.1% felt lonely and 40.3% felt people disliked them. In addition, everything they did felt like an effort for 68.6%, and 63.6% felt they could not 'get going'. Interpreting these frequencies, it is not unreasonable to think that students were not feeling depressed but were possibly struggling with adjusting to the start of a new academic year after a long summer break. In addition, study within the School of Music environment brings high expectations, demands, and competition that could contribute to feelings of isolation. Support for this hypothesis is found in research: Barker-Collo (2003) has indicated that New Zealanders produced scores higher than normative data on a symptom checklist of psychopathology including depression, which led to an overidentification of caseness. This research also noted a higher endorsement of items related to loneliness, and attributed this to the sample's status of being drawn from a population of first-year university students. In addition, Barker-Collo (2003) found Asian students gave higher endorsements to items concerned with compliance.

Considering this, it is possible that an item related to effort and difficulties 'getting going' could be confusing and, if interpreted literally, could lead to endorsements that demonstrate a cultural concern to apply effort and not abandon study demands. A final decision not to control for depression was made after the inclusion of depression as a covariate in mediational models did not alter the pattern of results.

Data screening prior to analysis.

Prior to analysis, all variables across the three time points were examined through relevant SPSS programs for accuracy of data entry, missing values, and fit between their distributions and the assumptions of multivariate analysis. The proportion of missing data was small (under 3%) and, through Little's Missing Values Analysis, was considered to be missing completely at random. At Time 1, missing data was less than 1%. Because maximum likelihood estimation failed to converge, a mean score based on existing items was calculated and used to replace missing values on individual items. This method is considered adequate when missing data is small (Tabachnick & Fidell, 2007). All missing items at Times 2 and 3 were replaced with maximum likelihood estimation. Missing questionnaires due to attrition of participants between time points were not replaced, consequently Time 3 analyses were conducted on 144 participants.

The normality assumption was tested for all variables at all three time points. Table 6.1 displays means, standard deviations, skewness, and kurtosis for the main variables at the three time points. In accordance with Tabachnick and Fidell (2007), normality was considered to have been violated if either skewness or kurtosis values exceeded two times the standard error of the skewness or kurtosis values. The

findings revealed skewed distributions for music performance anxiety (Time 1) and RIES Avoidance (Time 2). Skewness on these variables was controlled for by truncating outliers to within three standard deviations of the mean. No multivariate outliers exceeded the Mahalanobis value of 20.52 for the 5 independent variables (Tabachnick & Fidell 2007). Skew was controlled through Logarithmic transformations on the CBMP planning subscale, and CDMP denial and comfort eating subscales, as well as performance problems measures (Times 2 & 3). The results obtained from analyses run on transformed variables were not significantly different from those run on the untransformed variables: for this reason, the study reports results of analyses conducted with untransformed variables. For all regression analyses, the Durbin-Watson statistic ranged from d =1.87 to d = 2.19, suggesting no problematic autocorrelation. Levene's tests indicated no violation of homogeneity of variance (Field, 2005). Tolerance (not less than .10) and variance inflated factor values (not above 10) were within range, indicating no problems due to multicollinearity (Tabachnick and Fidell (2007).

CHAPTER 7

Results

Introduction

For the purposes of exploring the relationships and mediational effects proposed in the self-regulation model of music performance anxiety (Figure 1), analyses first identified relationships among key variables of dispositional and situational mindfulness, coping strategies, and music performance anxiety. This included the identification of the most significant mindfulness facet associated with music performance anxiety across time. Once relationships were established, a series of multiple regression analyses were used to assess the ability of key independent variables to predict dependent variables of situational mindfulness, and music performance anxiety (Time 3), and finally for these dependent variables to predict performance outcome variables. Preacher and Hayes' (2008) bootstrapping procedure tested the effect of potential mediators. The proposed model was tested in sections, and not as an overall path model, due to insufficient sample size.

The results of the current study will be presented in six sections detailed below. Section 1 describes patterns on all self-report measures including a summary of coping item frequencies, for the purpose of providing a rich picture of coping behaviour. Section 2 through Section 6 presents the results of five sets of correlation, multiple regression and mediational analyses. Section 2 presents results from analyses conducted to establish key relationships among mindfulness (Time 1 & 3), and music performance anxiety (Times 1, 2 & 3). Section 3 presents results from analyses conducted for the purpose of investigating coping strategies (Time 2),

through which dispositional mindfulness influences situational mindfulness. Section 4 presents results from analyses conducted for the purpose of investigating coping strategies, through which dispositional mindfulness exerts its influence on practice efforts (Time 2). Section 5 presents results from analyses conducted to investigate coping strategies (Time 3), through which situational mindfulness influences music performance anxiety (Time 3). Section 6 presents results from analyses conducted to investigate the mediating effect of music performance anxiety on the relationship between situational mindfulness, and performance outcome variables. These results will be summarized before being discussed in the following chapter.

Section 1

Patterns on all Self-Report Measures

A detailed inspection of means for all key variables across the three time points indicated that the mean for music performance anxiety was moderate across time (see Table 7.1). The means for mindfulness facets measured at Time 1 and Time 3 were moderate and complementary to those found in a community of young adults (McKee et al., 2007). The mean for anxiety sensitivity (Time 1) was moderate and in line with a community sample (McKee et al., 2007). Mean scores on the Revised Impact of Event Intrusion and Avoidance subscales were low. Examining avoidance items in more detail, 37.9% of participants reported (*sometimes* to *often*) "having a lot of feelings about the forthcoming performance that they don't deal with", and 61.5% reported that they (*sometimes* to *often*),"avoid getting upset about the forthcoming performance when they think about it".

Table 7.1
Means, Standard Deviations, Skewness and Kurtosis of the Main Variables at Times Points 1, 2 and 3

Time Point	Measures	*M*	*SD*	Observed Range	Skew	Kurtosis
1	Music performance Anxiety	41.67	12.46	20-77	.60	-.13
2	Music performance Anxiety	43.37	12.25	22-77	.29	-.65
3	Music performance Anxiety	42.53	12.07	21-76	.48	-.18
1	FFMQ observe	22.70	4.77	9-32	-.40	-.21
1	FFMQ describe	22.23	5.25	8-32	.03	-.31
1	FFMQ non-judge	19.43	5.51	8-32	.17	-.57
1	FFMQ non-react	18.03	4.20	7-28	.14	-.27
1	FFMQ act aware	20.38	5.04	9-32	.14	-.51
1	FFMQ total	102.77	14.64	61-147	.37	.61
3	FFMQ observe	21.99	5.20	9-32	-.16	-.33
3	FFMQ describe	21.91	5.46	8-32	.08	-.33
3	FFMQ non-judge	20.66	5.75	8-32	.10	-.42
3	FFMQ non-react	17.47	3.90	8-27	.10	-.22
3	FFMQ act aware	20.00	5.30	8-32	.16	-.19
3	FFMQ total	102.03	13.89	69-146	.36	.61
1	Anxiety sensitivity	16.27	11.84	0-57	.73	.09
2	RIES Intrusion	13.60	8.43	0-35	.21	-.82
2	RIES Avoidance	11.34	8.87	0-36	.81	.03
3	Post-event rumination	56.73	39.98	0-158	.71	-.21

Time Point	Measures	*M*	*SD*	Observed Range	Skew	Kurtosis
1	Performance problems	5,87	2.30	3-15	.87	1.01
2	Performance problems	5.47	2.03	3-13	1.19	2.35
3	Performance problems	5.41	2.01	3-15	1.37	3.62
3	Satisfaction	15.22	4.03	2-22	-.65	.44
3	Performance vs. Practice	59.04	16.30	13-107	.20	.93
3	Final Grade	77.92	12.58	32-98	-1.06	1.49
2	CBMP planning	7.10	3.27	4-16	1.01	.28
2	Hope	19.13	4.49	7-28	.01	-.18
2	Emotional suppression	11.41	4.99	6-24	.76	-.37
2	Thought suppression	9.45	3.05	4-16	.17	-.69
2	Positive focus	27.11	7.05	10-40	-.19	-.46
2	Cognitive flexibility	22.87	4.83	9-32	-.16	-.35
2	Denial	4.53	2.12	3-12	1.45	1.62
2	Social support	10.92	3.73	5-20	.53	-.20
2	Religion	9.70	4.85	4-16	.11	-1.61
2	Minimizing	9.97	2.96	4-16	.14	-.33
2	Self-kindness	11.16	3.29	5-20	.34	.14
2	Comfort eating	3.55	1.79	2-8	.92	-.24
3	CDMP planning	7.56	2.98	4-16	.75	.10

Time Point	Measures	*M*	*SD*	Observed Range	Skew	Kurtosis
3	Emotional suppression	7.01	2.01	3-12	.03	-.90
3	Thought suppression	9.85	3.51	4-16	.01	-.88
3	Positive focus	27.45	7.35	10-40	.04	-.88
3	Cognitive flexibility	27.70	6.63	12-40	-.23	-.50
3	Religion	9.65	4.98	4-16	.10	-1.66
3	Minimizing	9.69	2.97	4-16	.20	-.43
3	Self-kindness	11.38	3.62	5-20	.43	.02
3	Comfort eating	3.24	1.61	2-8	1.23	.69

Investigating performance outcome frequencies, the percentage of participants who experienced mental and physical problems during practice and performance, in the range of *many* to *severe*, decreased from Time 1 to Time 3 (Time 1 = 17.6%; Time 2 = 8.8%; and Time 3 = 10.3%). At Time 3, 70.5% of participants gave a satisfaction rating of 6 or more out of 10 for the quality of their performance, and 73.3% gave a satisfaction rating of 6 or more out of 10 for their effort during performance. When participants rated, from 0 (*much worse*) to 10 (*much better*), the quality of their exam performance in comparison to their best performance during practice, 33.6% rated their exam performance a 6 or better. Other areas of their exam performance that were rated a 6 or better included: 76% for technique; 65.1% for articulation; 56.2% for tempo; 54.1% for rhythm; 69.9% for dynamics; 61.6% for

phrasing; 75.3% for expressiveness; 68.5% for tone quality; and 63.7% for tone accuracy. The final mean grade for performance was a high B+.

Summary of High Scoring CBMP and CDMP Items

An investigation of item frequencies of the CBMP coping strategies (Time 2) helps to develop a rich picture of performers' coping behaviour. The frequencies on some of the highest scoring items for the CBMP subscales are summarized in Table 7.2. An investigation of CDMP item frequencies at the time of performance reveals similar patterns to the CBMP except for a notable increase in attempts to exercise self-kindness (tolerance, kindness, and acceptance of the self) at the time of performance (Time 3) (see Table 7.3).

Section 2

Set 1 of Analyses Exploring Relationships between Dispositional and Situational Mindfulness, and Music Performance Anxiety (Times 1, 2, & 3)

A central aim of this study was to investigate how musicians' dispositional and situational ability to be mindful was associated with their levels of music performance anxiety; furthermore, investigations wished to identify the facet of mindfulness that was the most strongly associated with music performance anxiety across time. Correlations and regression analyses test for these relationships.

Table 7.2
Selected High Scoring Items on the CBMP Subscales

Items	Frequency	
Coping Before Music Performance (Time 2)	*Never* to *sometimes*	*Often* to *always*
Practice		
I prepare my pieces well in advance of the performance.		71.5%
I try to practice as much as possible.		64.0%
I try to practice until I can perform the piece automatically.		61.0%
I plan practice goals and timetables to help me make good progress.		34.0%
Hope		
My past concert experiences have prepared me well for my future performance.		66.5%
I can meet most of the performance goals that I set myself.		57.9%
I energetically pursue my practice and performance goals.		57.9%
Emotional suppression		
I try to hide from my friends any concerns or anxiety I may feel.	75.2%	
I save face by not telling anyone how I feel.	72.8%	
Thought suppression		
I try not to think about what the audience thinks of me.		49.5%
I try to put problems out of my mind.		45.5%
Positive focus		
I try to feel in a special zone when I perform.		68.7%
I enjoy the excitement and inspiration of preparing for performance.		66.7%
I try to view the performance as a positive experience.		76.9%

Items	Frequency	
Coping Before Music Performance (Time 2)	*Never* to *sometimes*	*Often* to *always*
Cognitive flexibility		
I try to focus on what I am doing.		86.4%
I try to focus on the music and sound, in order to divert my attention from any feelings of anxiety or worry.		78.2%
I try to think only of the music and nothing else.		61.9%
Social support		
I talk to other performers about how to cope with performance anxiety.	68.7%	
I talk to my teacher about how to cope with performance anxiety.	66.0%	
Religion		
I pray.		47.0%
Minimizing		
I tell myself it is not the end of the world if I play badly.		64.0%
Self-kindness		
I am kind to myself when I experience worries about what the audience may think of my performance.		32.0%
I am tolerant of the mistakes I make.		28.5%
I am accepting of myself when I feel that the performance is not going well.		24.5%

Table 7.3
Selected High Scoring Items on the CDMP Subscales

Items	**Frequency**	
Coping During Music Performance (Time 2)	*Never* to *sometimes*	*Often* to *always*
Planning		
I used strategies that I had planned to recover my concentration.	41.7% (*never*)	
Emotional suppression		
I try to hide any concerns or anxiety I may feel from my fellow performers.	66.0%	
I save face by not telling anyone how I feel.	76.4%	
Thought suppression		
I try not to think about what the audience thinks of me.		48.0%
I try to put problems out of my mind.		52.1%
Positive focus		
I try to feel in a special zone when I perform.		63.7%
I enjoy the excitement and inspiration of performing.		72.9%
I try to view the performance as a positive experience.		70.8%
Cognitive flexibility		
I try to focus on what I am doing.		84.0%
I try to focus on the music and sound, in order to divert my attention from any feelings of anxiety or worry.		73.6%
I try to think only of the music and nothing else.		71.6%
Religion		
I pray.		32.6% (*always*)
Minimizing		
I tell myself it is not the end of the world if I play badly.		64.6%

Items	Frequency	
Coping During Music Performance (Time 2)	*Never* to *sometimes*	*Often* to *always*
Self-kindness		
I am kind to myself when I experience worries about what the audience may think of my performance.		64.6%
I am tolerant of the mistakes I make.		72.2%
I am accepting of myself when I feel that the performance is not going well.		69.5%
Comfort eating		
I used food to help me deal with the pressures of performing.		11.0% (often)
Alcohol		
I use alcohol or drugs to help me cope.		9.7%

Correlations between dispositional mindfulness (Time 1) and music performance anxiety (Times 1, 2 & 3).

Table 7.4 presents correlations between the five facets of mindfulness (Time 1), music performance anxiety (Times 1, 2 & 3), gender, and anxiety sensitivity. The hypothesized negative relationship between dispositional mindfulness and music performance anxiety across time was supported for the dispositional mindfulness facet act with awareness. Dispositional facet act with awareness had a moderate negative correlation with music performance anxiety (Time 1) and a small negative correlation at Times 2 and 3. These findings indicate that participants' ability to mindfully engage in their current activities with relatively undivided attention was associated with less music performance anxiety.

Table 7.4

Intercorrelations between Gender, Anxiety Sensitivity, Mindfulness Facets (Time 1), Performance Problems (Time 1), and Music Performance Anxiety (Times 1, 2 & 3)

	1	2	3	4	5	6	7	8	9	10	11
1. Gender	-										
2. Anxiety sensitivity	.05	-									
3. Observe	-.12	-.02	-								
4. Describe	-.11	-.17*	.24**	-							
5. Non-judge	-.23**	-.28**	-.15	.34**	-						
6. Non-react	-.11	-.24**	.40**	.27**	.18*	-					
7. Act aware	-.02	-.24**	-.02	.21**	.32*	.06	-				
8. FFMQ Total	-.02	-.32**	.47**	.72**	.61**	.60**	.55**	-			
9. MPA (Time 1)	.23**	.41**	-.11	-.25**	-.36**	-.25**	-.36**	-.45**	-		
10. MPA (Time 2)	.21*	.47**	-.06	-.07	-.19**	-.12	-.24**	-.25**	.74**	-	
11. MPA (Time 3)	.23**	.40**	.01	-.05	-.08	-.08	-.19*	-.13	.68**	.85**	-
12. Performance problems (Time 1)	.08	.24**	-.09	-.12	-.21**	-.17*	-.36**	-.32**	.34**	.29**	.23**

Note: * $p<.05$, ** $p<.01$.

Contrary to expectations, no other dispositional mindfulness facet correlated with music performance anxiety across all time points. The dispositional mindfulness facets non-judge, non-react and describe had moderate negative correlations with music performance anxiety at Time 1. These findings suggest that the ability to be non-judgmental about one's present-moment experiences – to step back and 'let-go' of thoughts, images, and feelings without overly identifying with them – as well as an ability to note observations was associated with less music performance anxiety at the start of the semester. At Time 2, only non-judge had a small negative correlation with music performance anxiety. There was no support for a relationship between the observe facet and music performance anxiety. This finding suggests that the degree to which one observes internal and external stimuli was not associated with music performance anxiety. There was a moderate, negative correlation between total mindfulness scores and music performance anxiety at Time 1, indicating higher mindfulness was associated with lower baseline music performance anxiety. There was a small, negative correlation between total mindfulness scores and music performance anxiety at Time 2; however, the hypothesized association at Time 3 was non-significant (although the relationship was in the expected negative direction). Based on the above findings, subsequent regression analyses focused solely on relationships with the mindfulness facet act with awareness.

Correlations between Gender, Anxiety Sensitivity and Music Performance Anxiety (Time 1, 2 & 3).

As expected, gender had a small relationship with music performance anxiety across time. Females had significantly higher levels of music performance anxiety in

comparison to males. There was a moderate positive relationship between anxiety sensitivity and music performance anxiety across time. Based on the above findings all mediational analyses controlled for gender and anxiety sensitivity.

Correlations between dispositional mindfulness and situational mindfulness (Time 3).

Correlation analyses assessed the relationships between the five facets of dispositional mindfulness (Time 1) and the five facets of situational mindfulness (Time 3). Situational tendencies were explored by asking participants to indicate how frequently the comments were true for them during the week of performance. The expected positive relationships between dispositional and situational mindfulness facets were supported for all facets, although the association for non-judge was somewhat lower than for the other facets (Table 7.5). These results suggest that participants' dispositional level of mindfulness was associated with the level of situational mindfulness they brought to their performanc*e.*

Correlations between situational mindfulness (Time 3) and music performance anxiety (Time 3).

Table 7.6 presents correlations between situational mindfulness and music performance anxiety (Time 3). As hypothesized, situational mindfulness had a moderate negative relationship with music performance anxiety (Time 3). The negative relationships were reported for the facets describe, non-judge, and act with awareness. These results indicate that higher situational tendencies to bring awareness, attention, observation, and a non-evaluative stance to the performance

Table 7.5
Intercorrelations between Five Facets of Dispositional Mindfulness (Time 1) and Five Facets of Situational Mindfulness (Time 3)

	Situational observe	Situational describe	Situational non-judge	Situational non-react	Situational act aware	FFMQ Total
Dispositional observe	.69**	.18*	-.07	.30**	-.06	.35**
Dispositional describe	.08	.61**	.10	.04	.16	.37**
Dispositional non-judge	-.07	.14	.44**	.11	.14	.29**
Dispositional non-react	.29**	.08	.04	.55**	-.05	.29**
Dispositional act aware	-.03	.14	.02	0.06	.55**	.23**
FFMQ total	.33**	.44**	.21*	.30**	.29**	.56**

Note: ** $p < .01$; * $p < .05$.

Table 7.6

Correlations between Five facets of Mindfulness (Time 3) and Music Performance Anxiety (Time 3)

Pearson Correlation	Music Performance Anxiety (Time 3)
Five Facets of Mindfulness Total (Time 3)	-.49**
Observe	.05
Describe	-.25**
Non-judge	-.43**
Non-react	-.12
Act aware	-.53**

Note: ** $p < .01$.

week and the performance were associated with less music performance anxiety (Time 3).

Multiple regression analyses assessing relationships between dispositional act with awareness (Time 1), and music performance anxiety (Times 1, 2 & 3).

The results of multiple regression analyses assessing relationships between dispositional act with awareness and music performance anxiety at Times 1, 2 and 3 are presented in Table 7. 7. Consistent with predictions, act with awareness (Time 1) predicted lower music performance anxiety scores (Time 1), explaining 7.1% (R^2 change) of the variance. Although act with awareness (Time 1) was correlated with lower music performance anxiety at Time 2 and Time 3, these associations were not significant when anxiety sensitivity was controlled for.

Table 7.7
Multiple Regression Analysis of Dispositional Act with Awareness (Time 1) as a Predictor of Music Performance Anxiety at All Time Points

Variable	*B*	*SE B*	B	*T*	Model *F*	R^2
Music performance anxiety (Time 1)					20.14***	.28
Gender	5.29	1.74	.21	3.05**		
Anxiety sensitivity	.35	.07	.33	4.71***		
Act aware (Time 1)	-.68	.17	-.27	-3.91***		
Music performance anxiety (Time 2)					17.40***	.27
Gender	4.02	1.82	.16	2.21*		
Anxiety sensitivity	.44	.08	.43	5.82***		
Act aware (Time 1)	-.35	.18	-.14	-1.92		
Music performance anxiety (Time 3)					12.42***	.21
Gender	4.77	1.89	.20	2.52*		
Anxiety sensitivity	.37	.08	.37	4.76***		
Act aware (Time 1)	-.25	.19	-.10	-1.31		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. Dependent variable: music performance anxiety (Times 1-3) is marked in bold at the start of the model.

Multiple regression analysis assessing relationships between dispositional act with awareness (Time 1) and situational act with awareness (Time 3).

The regression analysis assessing the relationship between dispositional act with awareness, and situational act with awareness revealed that, as hypothesized, dispositional act with awareness (Time 1) predicted higher situational act with awareness (Time 3) explaining 25% of the variance (see Table 7.8).

Table 7.8
Multiple Regression Analysis of Dispositional Act Aware (Time 1) as a Predictor of Situational Act Aware (Time 3)

Variable	*B*	*SE B*	B	*t*	Model *F*	R^2
					51.59***	.32
Gender	-1.01	.75	-.09	-1.34		
Anxiety sensitivity	-.05	.03	-.12	-1.66		
Act aware (Time 1)	.54	.08	.52	7.18***		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. Dependent variable: situational act aware (Time 3).

Multiple regression analysis assessing relationships between situational act with awareness (Time 3) and music performance anxiety (Time 3).

Table 7.9 presents results from multiple regression analyses conducted to assess relationships among situational act with awareness and music performance anxiety (Time 3). Results revealed that, as predicted, situational act with awareness (Time 3) was independently associated with lower music performance anxiety (Time 3), and explained 19% of the variance in music performance anxiety (Time 3) after gender, anxiety sensitivity, and dispositional act with awareness were controlled for.

To conclude this first set of analyses, a bootstrapping procedure (Preacher & Hayes, 2008) was used to assess mediation of the effect of dispositional act with awareness on music performance anxiety (Time 3) through situational act with awareness. Results indicated that situational act with awareness partially mediated the effect of dispositional act with awareness (Time 1) on music performance

Table 7.9
Multiple Regression Analysis of Situational Act with Awareness (Time 3) as a Predictor of Music Performance Anxiety (Time 3)

Variable	*B*	*SE B*	B	*t*	*Model F*	R^2
					23.85**	.41
Gender	3.91	1.62	.16	2.41*		
Anxiety sensitivity	.31	.07	.31	4.52***		
Act aware (Time 1)	.43	.19	.18	2.29*		
Act aware (Time 3)	-1.27	.18	-.53	-6.71***		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. Dependent Variable: Music Performance Anxiety (Time 3).

Table 7.10
Mediation of the Effect of Dispositional Act with Awareness on Music Performance Anxiety (Time 3) through Situational Act with Awareness

			Bootstrapping			
	Product of coefficients		*Percentile 95% CI*		*BC 95% CI*	
	Point Estimate	SE	Lower	Upper	Lower	Upper
Total Indirect Effects	-.6659	.1395	-.9623**	-.4175**	-.9896**	-.4318**

Note: ** significant at the 95 percent confidence level. Boldface type highlights a significant effect as determined by the 95% bias corrected (BC) confidence interval (CI).

anxiety (Time 3). The point estimate, standard error (SE) and confidence intervals (CIs: percentile and bias-corrected) are reported in Table 7.10. An examination of the indirect effects indicated that situational act with awareness was a mediator, because the 95% CI did not contain zero.

Section 3

Set 2 of Analyses Investigating Relationships between Dispositional Act with Awareness (Time 1), Coping before Music Performance Subscales (Time 2), and Situational Act with Awareness (Time 3)

Analyses had revealed that dispositional act with awareness was associated with lower music performance anxiety (Time 3), and that this relationship was partially mediated through situational act with awareness (Time 3), a second set of analyses were conducted to investigate the coping mechanisms through which dispositional act with awareness exerted influence on situational act with awareness. The practice subscale was investigated in a separate set of analyses (see Section 4 below). Practice was isolated for separate analysis due to its important status as the dominant preparatory behaviour musicians engage in, and its fundamental role in achieving the skill set required for an accomplished performance. Practice efforts represent a major goal of over 60% of the participants.

Table 7.11 presents correlations between dispositional act with awareness, coping subscales (Time 2), impact of event intrusion and avoidance subscales (Time 2), and situational act with awareness. As expected, dispositional act with awareness had a moderate positive correlation with hope and a small positive correlation with positive focus. This suggests that participant's act with awareness

Table 7.11
Correlations between Dispositional Act with Awareness (Time 1), Coping Subscales (Time 2), Impact of Event (Time 2) and Situational Act with Awareness (Time 3)

Coping before Music Performance (Time 2)	Dispositional act with awareness (Time 1)	Situational act with awareness (Time 3)
Planning	.14	.24**
Hope	.32**	.38**
Emotional suppression	.05	-.17*
Thought suppression	-.17*	-.28**
Positive focus	.20*	.22**
Cognitive flexibility	.07	.04
Denial	-.06	-.20*
Social support	-.04	.15
Religion	-.02	.01
Minimizing	-.12	-.13
Self-kindness	-.00	.16
Intrusion (RIES)	-.17*	-.25**
Avoidance (RIES)	-.27**	-.37**

Note: ** $p < .01$; * $p < .05$. RIES = Revised Impact of Event Scale.

tendencies at the start of semester were associated with higher levels of hope and positive focus, in the months leading up to the week of performance. Contrary to hypotheses, dispositional act with awareness was not associated with higher levels of planning, cognitive flexibility, religion, and self-kindness. As expected, dispositional act with awareness was associated with less thought suppression, intrusion of thoughts, and avoidance indicating that participants attempted less to push thoughts away or avoid thoughts and feelings and experienced fewer intrusive thoughts and

worry. The expected negative associations with emotional suppression, denial, and minimizing were not significant.

Correlation analyses between Coping before Music Performance subscales (Time 2) and situational act with awareness (Time 3) identified positive correlations with planning, hope, and positive focus. These relationships suggest that participants stronger in hope and positive focus, who planned for eventualities while preparing for performance, experienced greater situational act with awareness during the week of performance. The expected negative associations with thought suppression, emotional suppression, denial, intrusion, and avoidance were significant. This suggests that participants who suppressed thoughts, denied the performance, or avoided feelings and thoughts experienced less situational act with awareness during the week of performance. Expected positive associations with cognitive flexibility, social support, religion, and self-kindness were not significant.

Multiple regression analyses assessing relationships between dispositional act aware (Time 1) and Coping before Music Performance subscales (Time 2).

The regression analyses conducted to assess relationships between dispositional act with awareness and coping strategies (Time 2) revealed that, as expected, dispositional act with awareness predicted greater hope, and positive focus, and lower avoidance (see Table 7.12). Although dispositional act with awareness was correlated with lower thought suppression, and thought intrusion (Time 2), these relationships became non-significant when anxiety sensitivity was controlled for.

Table 7.12
Multiple Regression Analyses of Dispositional Act with Awareness (Time 1) as a predictor of Coping before Music Performance Subscales (Time 2)

Variable	*B*	*SE B*	*B*	*t*	Model *F*	R^2
Hope					7.17***	.13
Gender	.52	.73	.06	.71		
ASI-3	-.06	.03	-.16	-2.03*		
Act aware (Time 1)	.26	.07	.29	3.67***		
Positive focus					2.32***	.05
Gender	.22	1.20	.02	.18		
ASI-3	-.05	.05	-.08	-.90		
Act aware (Time 1)	.26	.12	.18	2.20*		
Avoidance					17.50***	.27
Gender	2.38	1.30	.13	1.84		
ASI-3	.31	.05	.42	5.69***		
Act aware (Time 1)	-.32	.13	-.18	-2.49*		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. Dependent variable: each coping subscale is indicated in bold.

Multiple regression analyses assessing relationships between Coping before Music Performance subscales (Time 2) and situational act with awareness (Time 3).

Multiple regression analyses assessing relationships between coping strategies (Time 2) and situational act with awareness revealed that, consistent with expectation, hope and positive focus (Time 2) predicted greater situational act with awareness (Time 3). Thought suppression and avoidance were independently

Table 7.13
Multiple Regression Analyses of Coping before Music Performance Subscales (Time 2) as Predictors of Situational Act with Awareness (Time 3)

Variable	*B*	*SE*	*B*	*t*	*Model F*	R^2
					10.23***	.18
Gender	-1.03	.85	-.09	-1.22		
Anxiety sensitivity	-.07	.04	-.17	-2.14*		
Hope	.41	.09	.34	4.33***		
					5.60***	.11
Gender	-.60	.89	-.06	-.67		
Anxiety sensitivity	-.08	.04	-.18	-2.05*		
Thought suppression	-.36	.15	-.21	-2.42*		
					5.50***	.11
Gender	.90	.88	-.08	-1.05		
Anxiety sensitivity	-.10	.04	-.22	-2.72**		
Positive focus	.14	.06	.19	2.36*		
					8.02***	.15
Gender	-.51	.87	-.05	-.59		
Anxiety sensitivity	-.04	.04	-.10	-1.10		
Avoidance	-.19	.05	-.32	-3.55***		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. Dependent variable: situational act aware. Each predictor variable is indicated in bold.

associated with lower situational act with awareness (Time 3). The negative correlation between intrusion and situational act with awareness became non-significant when anxiety sensitivity was controlled for (see Table 7.13).

Table 7.14 presents results from a multiple regression analysis assessing relationships among dispositional and situational act with awareness, hope, positive

Table 7.14
Multiple Regression Analyses of Hope, Positive Focus, and Avoidance (Time 2) as Predictors of Situational Act with Awareness (Time 3)

Variable	*B*	*SE*	*B*	*T*	Model *F*	R^2
					14.20***	.39
Gender	-.80	.74	-.07	-1.07		
Anxiety sensitivity	-.01	.03	-.01	-.19		
Act aware (Time 1)	.45	.08	.43	5.90***		
Hope	.26	.11	.22	2.28*		
Positive focus	-.04	.07	-.05	-.53		
Avoidance RIES	-.11	.05	-.18	-2.27*		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. Dependent variable: Situational act aware.

focus, and avoidance (Time 2). Results revealed that, as predicted, hope predicted greater situational act with awareness (Time 3), and avoidance predicted lower situational act with awareness. Dispositional act with awareness remained significantly associated with situational act with awareness indicating partial mediation.

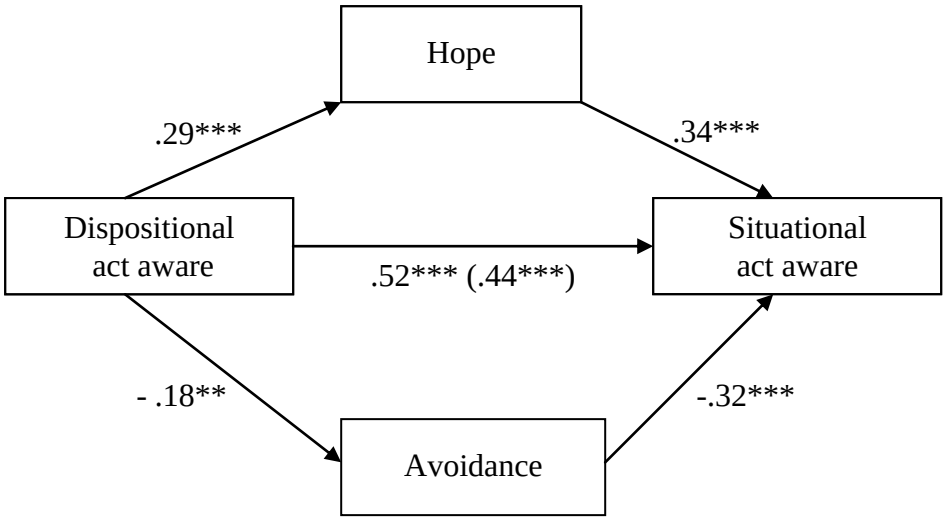
Mediation of the effect of dispositional act with awareness (Time 1) on situational act with awareness (Time 3), through hope and avoidance (Time 2).

To conclude this second set of analyses, bootstrapping (Preacher & Hayes, 2008) was used to assess mediation of the effect of dispositional act with awareness on situational act with awareness (Time 3) through hope and avoidance (Time 2). Results indicated the total and direct effects of dispositional act with awareness on situational act with awareness (Time 3) was $B = .5521$, $p < .001$ and $B = .4645$, $p < .001$. The total indirect effect exerted through hope and avoidance, with a point

estimate .0876 and a 95% BC bootstrap CI of .0369 to .1605, indicated that, taken as a set, hope and avoidance significantly partially mediated the effect of dispositional act with awareness on situational act with awareness. Examination of specific indirect effects indicates that hope (point estimate .0544 and 95% BC bootstrap CI of .0080 to .1198) and avoidance (point estimate .0332 and 95% BC bootstrap CI of .0034 to .0947) were each mediators of the relationship between dispositional act with awareness and situational act with awareness. Directions of significant paths are consistent with an interpretation that greater dispositional act with awareness leads to stronger hope and lower avoidance, which, in turn, leads to greater situational act with awareness (see Figure 2).

Figure 2

Partial Mediation of the Effect of Dispositional Act with Awareness (Time 1) on Situational Act with Awareness (Time 3) through Hope and Avoidance (Time 2) after Controlling for Gender and Anxiety Sensitivity



Note: * $p < .05$; ** $p < .01$; *** $p < .001$. All figures represent standardized coefficients. (Bracket represents coefficient after mediation).

Section 4

Set 3 of Analyses Investigating Relationships between Practice (CBMP) and Key Study Variables

Practicing efforts are fundamentally necessary to achieve the skill sets required for an accomplished performance. Consequently, another aim of this study was to discover relationships between practice, act with awareness (Times 1 & 3), coping strategies (Time 2), and music performance anxiety (Time 3). Due to constraints related to reporting this study, no further relationships between coping strategies were investigated.

Table 7.15 presents correlations between practice (Time 2) and key study variables. Practice was positively associated with gender (Male $M = 12.62$, $SD = 3.68$; Female $M = 13.75$, $SD = 3.02$) suggesting that more females than males may

Table 7.15
Correlations between Practice and Key Study Variables

Variables	Practice
Gender	.17*
Dispositional act aware	.31**
Situational act aware	.33**
Music performance anxiety (Time 3)	-.13
Performance problems (Time 3)	-.08
Satisfaction (Time 3)	.23**
Performance *vs*. practice (Time 3)	.07
Final grade	.06
Anxiety sensitivity	-.12

Note: * $p < .05$;** $p < .01$.

use practice strategies. Practice was positively associated with dispositional act with awareness suggesting that participants with a greater ability to attend to their activities were more likely to engage in practice efforts, such as preparing pieces in advance and practicing to a level of automaticity in the months leading up to the week of a performance. Practice was also positively correlated with situational act with awareness (Time 3) and performance satisfaction (Time 3), suggesting that participants who engaged in high levels of practice achieved a greater ability to attend to the performance moment. They also felt more satisfied with both their effort and their performance at the time of performance. Contrary to expectation, practice was not significantly correlated with music performance anxiety (Time 3), performance problems, or perceptions of performance versus their best performance during practice.

Table 7.16 presents relationships between practice and the CBMP coping subscales. Practice positively correlated with coping subscales of planning, hope, positive focus, cognitive flexibility, and social support. This suggests that participants who engaged in high levels of practice planned how to recover from memory slips and distractions, they had a strong sense of agency and ways to achieve performance goals, and a greater ability to focus on the excitement of preparing for a performance. They also could focus on the music and screen out negative thoughts; in addition, they used other performers, teachers, and family members for emotional support. A multiple regression analysis was conducted to determine relationships between dispositional act aware and practice. Results revealed that, as predicted, dispositional act aware was independently associated with greater practice and

Table 7.16
Intercorrelations between Coping before Music Performance Subscales

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	Practice	-												
2	Planning	.23*	-											
3	Hope	.66**	.24**	-										
4	Emotional suppression	-.05	-.03	-.11	-									
5	Thought suppression	.08	..08	.53**	.53**	-								
6	Positive focus	.53**	.15	-.12	-.12	-.01	-							
7	Cognitive flexibility	.36**	.31**	.24**	.24**	.41**	.38**	-						
8	Denial	-.10	.05	.32**	.32**	.36**	.13	.16	-					
9	Social support	.22**	.30**	-.29**	-.29**	-.01	.15	.14	.02	-				
10	Religion	.09	.06	-.08	.04	.02	.13	.08	.08	.28**	-			
11	Minimizing	-.00	.03	-.07	-.07	.05	.12	.24**	.18*	.13	.08	-		
12	Self Kindness	.04	.14	-.26**	-.26**	-.18*	.32**	.06	-.04	.23**	.25**	.25**	-	
13	Comfort eating	-.08	.03	-.20*	.23**	.30**	-.18*	.13	.17*	.00	.07	-.05	-.11	-

Note: * $p < .05$; ** $p < .01$; *** $p < .001$.

explained 8.4% (R^2 change) of the variance in practice after controlling for gender and anxiety sensitivity (see Table 7.17)

To determine the unique ability of planning, hope, positive focus, cognitive flexibility and social support to predict practice, these variables were entered simultaneously into a regression equation with dispositional act aware, gender, and anxiety sensitivity (see Table 7.18). Results revealed that hope was the only coping mechanism to be independently associated with greater practice. Hope explained 10.7% (R^2 change) of the variance in practice.

A multiple regression analysis was conducted to assess the relationship between practice and situational act with awareness. Practice was entered simultaneously into a regression equation with dispositional act with awareness, gender, and anxiety sensitivity. Results revealed that, as predicted, practice was associated with greater situational act with awareness and explained 3.2% (R^2 change) of the variance situational act with awareness (see Table 7.19).

Table 7.17

Multiple Regression Analysis of Dispositional Act with Awareness (Time1) as a Predictor of Practice (Time 2)

Variable	*B*	*SE B*	*β*	*t*	Model *F*	R^2
					7.34***	.13
Gender	1.19	.53	.18	2.25*		
Anxiety sensitivity	-.02	.02	-.06	-.69		
Act aware (Time 1)	.20	.05	.30	3.71***		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. Dependent variable: practice.

Table 7.18

Multiple Regression Analysis of Planning, Hope, Positive Focus, Cognitive Flexibility and Social Support (Time2) as Predictors of Practice (Time 2)

Variable	*B*	*SE B*	*B*	*t*	Model *F*	R^2
					17.42***	.50
Gender	.98	.41	.15	2.41*		
Anxiety sensitivity	.00	.02	.01	.21		
Dispositional act aware	.09	.04	.13	2.01*		
Planning	.03	.07	.03	.38		
Hope	.35	.07	.47	5.40***		
Positive focus	.06	.04	.14	1.65		
Cognitive flexibility	.04	.04	.08	1.09		
Social support	.09	.06	.10	1.62		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. Dependent variable: practice.

Table 7.19

Multiple Regression Analysis of Practice (Time 2) as a Predictor of Situational Act Aware (Time 3)

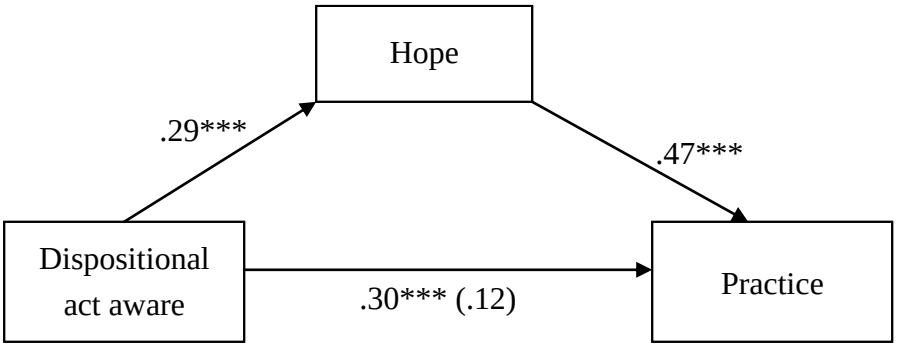
Variable	*B*	*SE B*	*β*	*t*	Model *F*	R^2
					18.83***	.35
Gender	-1.37	.75	-.13	-1.82		
Anxiety sensitivity	-.05	.03	-.11	-1.53		
Act aware (Time 1)	.48	.08	.46	6.20***		
Practice	.31	.12	.19	2.63*		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. Dependent variable: Situational act aware.

Mediation of the effect of dispositional act with awareness (Time 1) on practice (Time 2), through hope (Time 2).

To conclude this third set of analyses, a bootstrapping procedure (Preacher & Hayes, 2008) was used to assess mediation of the effect of dispositional act with awareness on practice (Time 2), through hope (Time 2). The total and direct effects of dispositional act aware on practice (Time 2) were $B = .2010$, $p < .001$ and $B = .0799$, $p = .06$. The total indirect effect through hope had a point estimate of .1211 and a 95% BC bootstrap CI of .0568 to .1975, indicating that hope mediated the relationship between dispositional act with awareness and practice. Directions of significant paths are consistent with an interpretation that greater dispositional act with awareness leads to stronger hope, which, leads to greater practice (see Figure 3). Further mediational analyses did not find practice to be a mediator of the relationship between hope and situational act with awareness; however, practice was a predictor of situational act aware.

Figure 3
Mediation of the Effect of Dispositional Act Aware (Time 1) on Practice (Time 2) through Hope (Time 2) after Controlling for Gender and Anxiety Sensitivity



Note: * $p < .05$; ** $p < .01$; *** $p < .001$. All figures represent standardized coefficients. (Brackets represents coefficient after mediation).

Section 5

Set 4 of Analyses Investigating Relationships between Situational Act Aware, Coping during Music Performance Subscales, and Music Performance Anxiety (Time 3)

Analyses revealed that the coping mechanisms of greater hope and less use of avoidance (Time 2) partially mediated the effect of dispositional act with awareness on situational act with awareness. In addition, analyses had found that situational act with awareness partially mediated the relationship between dispositional act with awareness and music performance anxiety (Time 3). To investigate how situational act with awareness was influencing music performance anxiety (Time 3), a fourth set of analyses investigated the coping mechanisms used at the time of performance to test their mediational effect on the relationship between situational act with awareness and music performance anxiety (Time 3).

Correlations between situational act aware, Coping during Music Performance (CDMP) subscales, and music performance anxiety (Time 3).

Table 7.20 presents correlations between situational act with awareness (Time 3) and coping strategies employed at the time of performance. As expected, situational act with awareness was correlated positively with planning, positive focus, and self-kindness, and correlated negatively with emotional suppression, and thought suppression. Results suggest that participants who engaged fully on the moment viewed their performance as more exciting, felt greater self-kindness, greater tolerance of their mistakes, and used strategies they had planned to recover from distracting thoughts, anxious feelings, and memory slips. Participants who attempted to save face did not share their thoughts and feelings and suppressed their

thoughts experienced less ability to mindfully attend during the week of performance. Relationships with religion, and minimizing were not significant.

Results of correlation analyses between Coping during Music Performance subscales and music performance anxiety (Time 3) are reported in Table 7.20. In agreement with coping (Time 2) results, music performance anxiety (Time 3) demonstrated negative correlations with positive focus, and self-kindness. Participants' ability to view the performance as positive, fun, and exciting, to feel in a special zone when performing, and to bring to their performance a quality of tolerance, forgiveness, and self-acceptance, was associated with less music performance anxiety. As expected positive relationships between emotional suppression, thought suppression and music performance anxiety were significant. The suppression of emotions and thoughts was associated with the experience of higher music performance anxiety, and higher music performance anxiety was associated with more post-event rumination. Contrary to expectation, but in agreement with coping at Time 2, cognitive flexibility was positively correlated with music performance anxiety. This indicates that trying to divert attention and screen out distractions was associated with higher levels of music performance anxiety. The relationships between planning, religion and minimizing, and music performance anxiety were not significant.

Table 7.20
Correlations between Situational Act Aware, CDMP Subscales, and Music Performance Anxiety at Time 3

Coping during Music Performance	Act Aware (Time 3)	Music Performance Anxiety (Time 3)
Planning	.19*	.01
Emotional suppression	-.20*	.41**
Thought suppression	-.22**	.48**
Positive focus	.27**	-.33**
Cognitive flexibility	-.01	.17*
Religion	.07	.09
Minimizing	.06	-.06
Self-kindness	.29**	-.52**

Note: * $p < .05$; ** $p < .01$.

Multiple regression analyses assessing relationships between situational act with awareness (Time 3) and Coping during Music Performance subscales (Time 3).

Multiple regression analyses were conducted to assess relationships among situational act with awareness and Coping during Music Performance subscales (Time 3) (see Table 7.21). Consistent with predictions, situational act with awareness was an independent predictor of positive focus and self-kindness after controlling for gender, anxiety sensitivity, and dispositional act with awareness, explaining 5% and 7.2% (R^2 change) of the variance, respectively, in positive focus and self-kindness. Although situational act with awareness was negatively correlated with emotional suppression and thought suppression, these associations were not significant when gender and anxiety sensitivity were controlled for.

Table 7.21
Multiple Regression Analyses of Situational Act with Awareness as a predictor of CDMP: Positive Focus and Self-Kindness (Time 3)

Variable	*B*	*SE B*	*B*	*t*	Model *F*	R^2
Positive focus					2.85*	.08
Gender	.35	1.23	.02	.30		
Anxiety sensitivity	-.02	.05	-.03	-.32		
Act aware (Time 1)	.03	.14	.02	.22		
Act aware (Time 3)	.36	.14	.26	2.60**		
Self-kindness					6.48***	.16
Gender	.45	.58	-.20	-2.59*		
Anxiety sensitivity	-.04	.03	-.13	-1.56		
Act aware (Time 1)	-.12	.07	-.16	-1.74		
Act aware (Time 3)	.22	.07	.33	3.45***		

Note: * $p < .05$; ** $p < .01$; ***$p < .001$. Dependent Variables: positive focus and self-kindness.

Multiple regression analyses assessing relationships between Coping during Music Performance subscales and music performance anxiety (Time 3).

Multiple regression analyses were conducted to assess the ability of Coping during Music Performance subscales to predict music performance anxiety (Time 3) (see Table 7.22). As expected, the coping subscales of positive focus and self-kindness were independently associated with lower music performance anxiety and the coping subscales of emotional suppression and thought suppression were independently associated with higher music performance anxiety. The negative association with cognitive flexibility was not significant when gender and anxiety sensitivity were controlled for.

Table 7.22
Multiple Regression Analyses of Coping during Music Performance Subscales as Predictors of Music Performance Anxiety at Time 3

Variable	*B*	*SE B*	*β*	*t*	Model *F*	R^2
					18.75***	.29
Gender	3.79	1.80	.15	2.11*		
Anxiety sensitivity	.33	.08	.32	4.32***		
Emotional suppression	1.38	.35	.30	3.97***		
					21.11***	.31
Gender	2.90	1.80	.12	1.61		
Anxiety sensitivity	.29	.08	.29	3.90***		
Thought suppression	1.22	.26	.35	4.62***		
					19.54***	.30
Gender	5.14	1.75	.21	2.93**		
Anxiety sensitivity	.37	.07	.37	5.13***		
Positive focus	-.49	.12	-.30	-4.20***		
					28.60***	.38
Gender	2.68	1.69	.11	1.59		
Anxiety sensitivity	.33	.07	.32	4.74***		
Self-kindness	-1.45	.23	-.44	-6.26***		

Note: * $p < .05$; ** $p < .01$; ***$p < .001$. Dependent variable: Music performance anxiety (Time 3).

Mediation of the effect of situational act aware on music performance anxiety (Time 3) through coping strategies of positive focus and self-kindness (Time 3).

Coping subscales positive focus and self-kindness (Time 3) – both significantly associated with situational act aware and music performance anxiety (Time 3) – were entered simultaneously into a regression equation. Self-kindness was independently

associated with music performance anxiety and explained 7.4% (R^2 change) of variance in music performance anxiety (Time 3) after controlling for gender, anxiety sensitivity, and situational act with awareness (see Table 7.23). Because positive focus was a significant predictor of music performance anxiety when situational act with awareness was removed from the model, it was entered into a final bootstrapping procedure to test for mediational effects.

Table 7.23
Multiple Regression Analyses of Positive Focus, Self-Kindness (Time 3) as Predictors of Music Performance Anxiety (Time 3)

Variable	*B*	*SE*	*B*	*t*	Model *F*	R^2
					27.27***	.50
Gender	2.55	1.54	.10	1.65		
Anxiety sensitivity	.26	.06	.25	4.00***		
Act aware (Time 3)	-.77	.15	-.34	-5.12***		
Positive focus	-.16	.11	-.10	-1.44		
Self-kindness	-1.24	.25	-.37	-4.97***		

Note: * $p < .05$; ** $p < .01$; ***$p < .001$. Dependent variable: music performance anxiety (Time 3).

To conclude the fourth set of analyses, bootstrapping (Preacher & Hayes, 2008) was used to assess mediation of the effect of situational act with awareness on music performance anxiety (Time 3) through positive focus and self-kindness (see Table 7.24). The total effect of situational act with awareness on music performance anxiety was $B = -1.01$, $p < .001$, and the direct effect was equal to $B = -.7721$, $p <$

.001. Mediation results indicate that, taken as a set, positive focus and self-kindness partially mediated the effect of situational act with awareness on music performance anxiety (Time 3). An examination of the specific indirect effects indicated that positive focus was not a specific mediator but self-kindness was a mediator, because the 95% CI did not contain zero (see Figure 4).

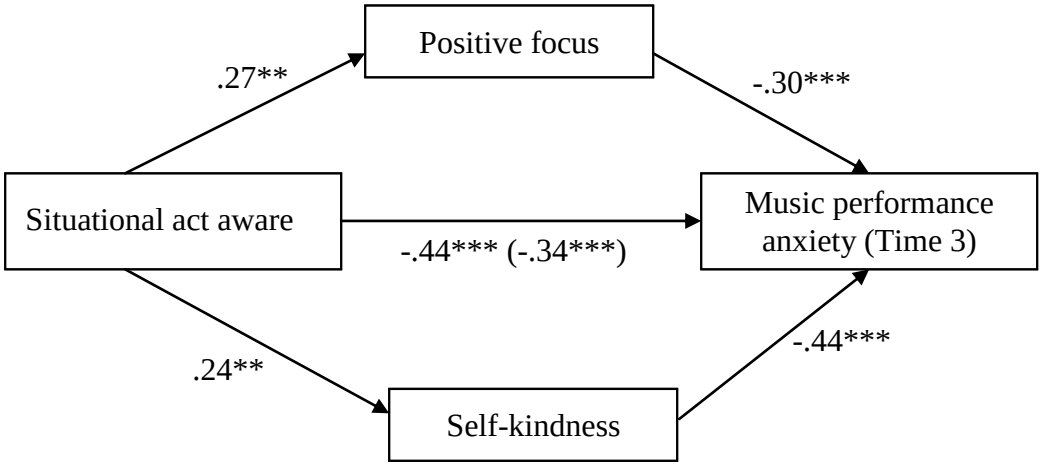
Table 7.24
Mediation of the Effect of Situational Act Aware on Music Performance Anxiety through Positive Focus and Self-Kindness (Time 3)

			Bootstrapping			
	Product of coefficients		*Percentile 95% CI*		*BC 95% CI*	
Indirect Effects	Point Estimate	SE	Lower	Upper	Lower	Upper
Total	-.2347**	.0853	-.4119**	-.0787**	-.4283**	-.0907**
Positive focus	-.0583	.0477	-.1618	.0271	-.1812	.0150
Self-kindness	-.1764**	.0754	-.3419**	-.0459**	-.3553**	-.0555**

Note: ** significant at the 95 percent confidence level.

Figure 4

Partial Mediation of the effect of Situational Act with Awareness on Music Performance Anxiety (Time 3) through Positive Focus and Self-Kindness (Time 3) controlling for Gender and Anxiety Sensitivity



Note: * $p < .05$; ** $p < .01$; *** $p < .001$. All figures represent standardized coefficients. (Brackets represents coefficient after mediation)

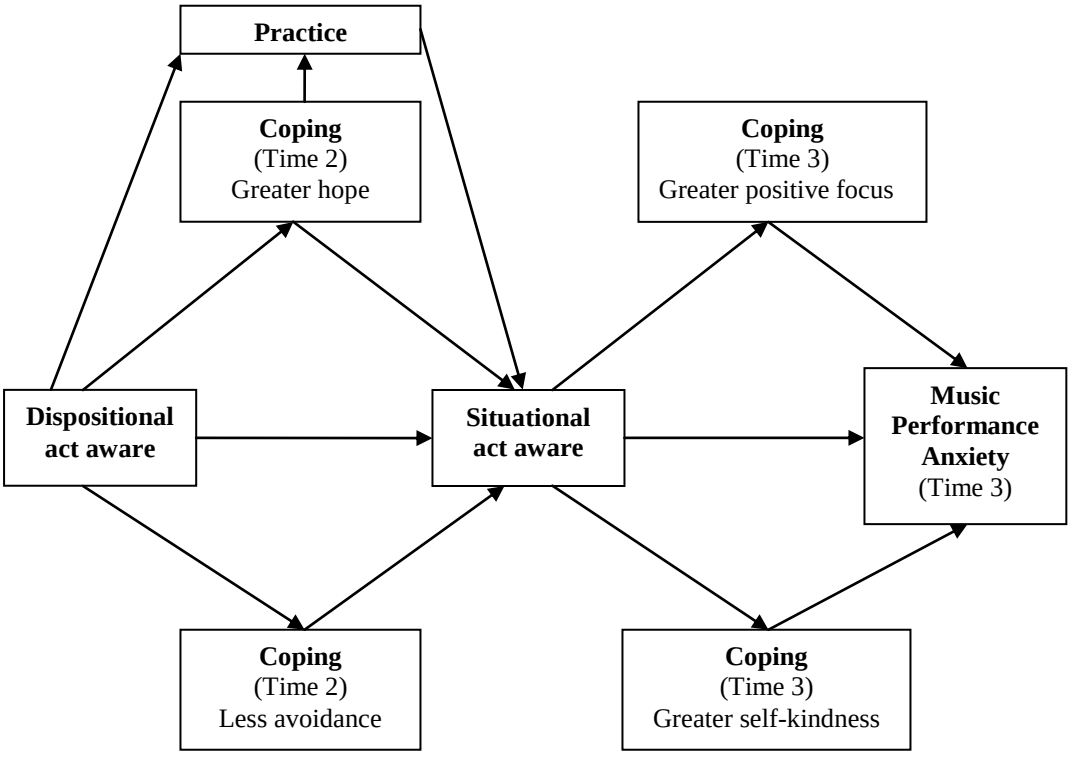
Summary.

The results from the above analyses provide partial support for the mediational relationships proposed in the self-regulation model of music performance anxiety (see Figure 5). Analyses identified dispositional mindfulness facet act with awareness as being the only mindfulness facet significantly associated with music performance anxiety across three time points: (i) the start of the semester of study; (ii) preparation leading up to one week prior to performance exams; and (iii) at the time of a performance exam.

The proposed model was partially supported by the analyses. Coping mechanisms of greater hope and less avoidance emerged as partial mediators of the

relationship between dispositional act with awareness and situational act with awareness. Investigating coping mechanisms in greater detail, hope also mediated a relationship between dispositional act with awareness and practice, which, in turn, was a predictor of stronger situational act with awareness. The coping strategies of positive focus and self-kindness (Time 3) emerged as partial mediators of the effect of situational act with awareness on music performance anxiety. In line with the model, situational act with awareness partially mediated the relationship between dispositional act with awareness and music performance anxiety (Time 3). A summary of this mediation path is depicted below (see Figure 5).

Figure 5
Summary Mediational Model



Section 6

Set 5 of Analyses Investigating Relationships between Situational Act with Awareness, Music Performance Anxiety, Performance Outcomes, and Post-Event Rumination.

Set 5 of analyses examined the relationships between Time 3 variables: situational act with awareness; music performance anxiety; post-event rumination; and performance outcome variables. Performance outcome measures consisted of: (i) extent of mental and physical problems encountered during practice and performance (performance problems); (ii) satisfaction with effort and performance (satisfaction); (iii) perceptions of performance versus best performance during practice (performance vs. practice); and (iv) participants' final grade.

Correlations between dispositional and situational act with awareness, post-event rumination, and performance outcomes.

Table 7.25 presents correlations between dispositional and situational act with awareness, post-event rumination, and performance outcomes. As expected, dispositional act with awareness (Time 1) was negatively correlated with performance problems (Time 1) but this association did not hold for Times 2 and 3. Situational act with awareness (Time 3) correlated negatively with performance problems, but positively with satisfaction with one's effort and performance, and with one's performance versus practice. This suggests that participants who bought greater ability to attend to the moment were less likely to experience mental and physical problems, were more likely to be satisfied with their effort and performance, and to consider their performance to be better than their best performance during practice. Participants who experienced greater situational act with awareness during

the week of performance ruminated less after the performance; for example, they thought less about wishing they could do it again, had fewer thoughts about avoiding future performance situations, and experienced less self-criticism and shame.

Music performance anxiety (Time 3) was positively correlated with the experience of greater mental and physical problems during practice and performance, and was negatively correlated with satisfaction, performance versus practice, and post-event rumination. These results suggest that a greater level of satisfaction with effort and performance, and a positive perception of technical and musical skills

Table 7.25
Pearson Correlations of Performance Problems, Satisfaction, and Performance versus Practice with Dispositional and Situational Act with Awareness, Music Performance Anxiety, and Post-Event Rumination

	Act Aware (Time 1)	Music Performance Anxiety (Time 3)	Act Aware (Time 3)	Post-Event Rumination (Time 3)
Performance problems (Time 1)	.36**	.22**	(-.18*)	-
Performance problems (Time 2)	-.01	.31**	(-.13)	-
Performance problems (Time 3)	-.08	.31**	-.23**	.39**
Satisfaction (Time 3)	.12	-.46**	.28**	-.59**
Performance *vs.* practice (Time 3)	.11	-.33**	.17*	-.44**
Final grade		.01	.03	-.04
Post-event rumination		.69**	-.41**	

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. Significant results relevant to temporal hypotheses of interest. Brackets indicate associations not relevant due to temporal hypotheses.

during performance (in comparison to best performance during practice), were associated with lower music performance anxiety and post-event rumination. Participants' final grade failed to reach significance with act with awareness, music performance anxiety or, post-event rumination. Further analyses found greater hours of practice in the months leading up to performance did predict a higher final grade, explaining 9.8% of the variance.

Multiple regression analyses assessing relationship between situational act with awareness and performance outcomes.

Multiple regression analyses were conducted to assess relationships between situational act with awareness, music performance anxiety (Time 3), and performance outcome variables. Results of the analyses indicate that, as predicted, situational act with awareness was independently associated with fewer performance problems, and greater satisfaction with effort and quality of the performance (see Tables 7.26 and 7.27). It is to be noted that these relationships remained significant when dispositional act aware was also controlled for. Although situational act with awareness was correlated with performance versus practice, this association became non-significant when gender and anxiety sensitivity were controlled for.

Results of further multiple regression analyses indicate that, as expected, music performance anxiety is independently associated with greater performance problems, less satisfaction with one's effort and performance, and a poorer perception of the performance compared to the best performance during practice. Tables 7.28 through 7.30 summarize the regression statistics for each of these variables.

Table 7.26
Multiple Regression Analyses Assessing Relationships between Situational Act with Awareness, and Performance Problems (Time 3)

Variable	*B*	*SE B*	*B*	*t*	Model *F*	*R²*
					3.53*	.07
Gender	.48	.34	.12	1.44		
Anxiety sensitivity	.01	.01	.05	.59		
Situational act aware	-.08	.03	-.21	-2.45*		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. Dependent variable: performance problems.

Table 7.27
Multiple Regression Analyses Assessing Relationships between Situational Act with Awareness, and Satisfaction (Time 3)

Variable	*B*	*SE B*	*B*	*t*	Model *F*	*R²*
					5.77***	.11
Gender	-1.29	.66	-.16	-1.96		
Anxiety sensitivity	-.02	.03	-.07	-.88		
Situational act aware	.19	.06	.25	3.00**		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. Dependent variable: satisfaction.

Table 7.28
Multiple Regression Analyses Assessing Relationships between Music Performance Anxiety, and Performance Problems (Time 3)

Variable	*B*	*SE B*	*B*	*t*	Model *F*	*R²*
					5.86***	.11
Gender	-.75	2.73	-.02	-.27		
Anxiety sensitivity	-.04	.12	-.03	-.36		
Music performance anxiety (Time 3)	-.43	.12	-.32	-3.52***		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. Dependent variable: performance problems.

Table 7.29
Multiple Regression Analyses Assessing Relationships between Music Performance Anxiety, and Satisfaction (Time 3)

Variable	*B*	*SE B*	*B*	*t*	Model *F*	R^2
					13.12***	.22
Gender	-.71	.63	-.87	-1.12		
Anxiety sensitivity	.02	.03	.05	.59		
Music performance anxiety (Time 3)	-.15	.03	-.46	-5.47***		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. Dependent variable: satisfaction.

Table 7.30
Multiple Regression Analyses Assessing Relationships between Music Performance Anxiety, and Performance versus Practice (Time 3)

Variable	*B*	*SE B*	*B*	*t*	Model *F*	R^2
					5.86***	.11
Gender	-.75	2.73	-.02	-.27		
Anxiety sensitivity	-.04	.12	-.03	-.36		
Music performance anxiety (Time 3)	-.43	.12	-.32	-3.52***		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. Dependent Variable: performance *vs.* practice.

A hierarchical regression was conducted to determine the ability of situational act aware and music performance anxiety to predict post-event rumination. Results of the analyses indicate that music performance anxiety positively predicted post event rumination (see Table 7.31). Music performance anxiety accounted for an additional 49% (R^2 change) of the variance in post-event rumination after the effects of gender, anxiety sensitivity, and situational act with awareness were controlled for.

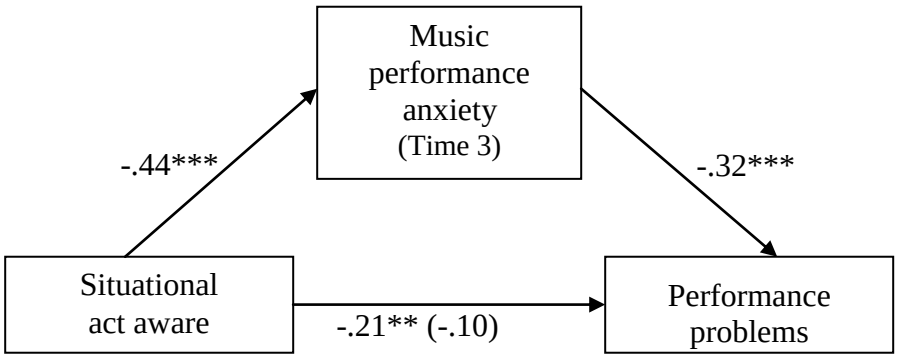
Table 7.31
Hierarchical Regression Predicting Post-Event Rumination (Time 3) by Situational Act Aware and Music Performance Anxiety (Time 3)

Variable	*B*	*SE B*	*B*	*t*	Model *F*	R^2
Model 1					8.27***	.11
Gender	16.26	6.52	.20	2.50*		
Anxiety sensitivity	.83	.27	.25	3.09**		
Model 2					13.31***	.22
Gender	13.42	6.13	.16	2.19*		
Anxiety sensitivity	.54	.26	.16	2.08*		
Act aware (Time 3)	-2.69	.59	-.36	-4.59***		
Model 3					32.77***	.49
Gender	4.54	5.11	.06	.88		
Anxiety sensitivity	-.09	.23	-.03	-.42		
Act aware (Time 3)	-.52	.54	-.07	-.95		
Music performance anxiety	2.17	.26	.65	8.44***		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$. Dependent variable: post-event rumination.

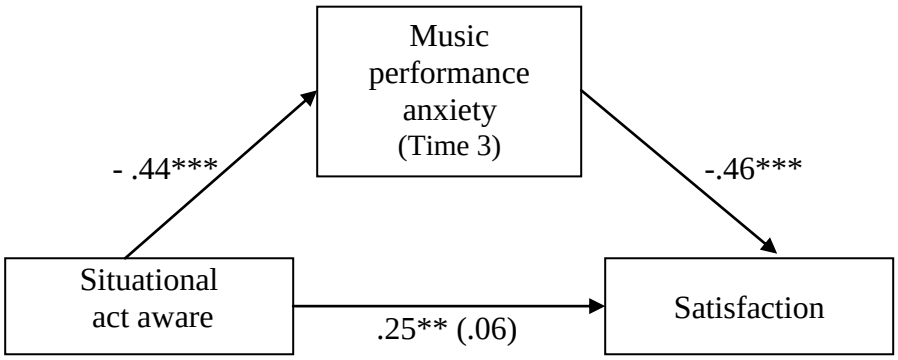
To conclude set 5 of analyses, bootstrapping (Preacher & Hayes, 2008) was used to assess mediation of the effect of situational act with awareness on: (i) performance problems; (ii) satisfaction; (iii) performance versus practice (Time 3); and (iv) post-event rumination, through music performance anxiety (Time 3). Results indicate that music performance anxiety (Time 3) mediates the effect of situational act with awareness on performance problems, satisfaction, performance versus practice, and post-event rumination (Time 3) (see Figures 6-9). The total indirect relation of situational act with awareness on performance problems (Time 3) through the mediating variable music performance anxiety (Time 3) was significant with a point estimate = -.0525; BC 95% CI: -.0970 to -.0180. The total indirect relation of situational act with awareness on satisfaction with effort and performance (Time 3) through the mediating variable music performance anxiety was significant with a point estimate = .1733; BC 95% CI: .0980 to .2671. The total indirect relation of situational act with awareness on performance versus practice (Time 3) through the mediating variable music performance anxiety (Time 3) was significant with a point estimate = .5549; BC 95% CI: .2599 to .9222. In addition, the total indirect relation of situational act with awareness on post-event rumination (Time 3) through the mediating variable music performance anxiety (Time 3) was significant with a point estimate = -2.1839; BC 95% CI: -3.0856 to -1.3125.

Figure 6
Mediation of the effect of Situational Act with Awareness on Performance Problems (Time 3) through Music Performance Anxiety (Time 3)



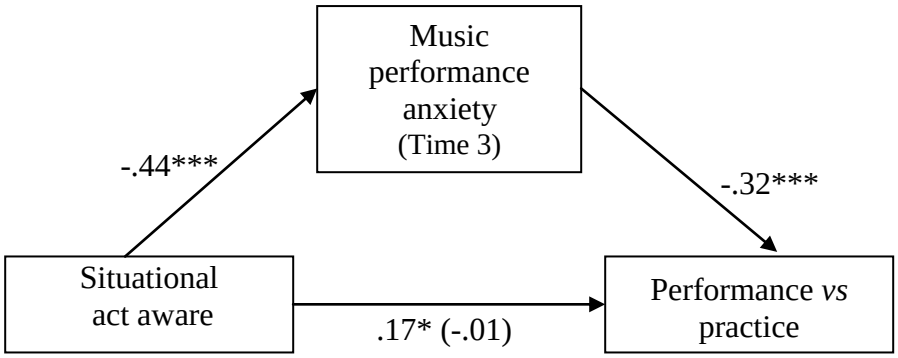
Note: * $p < .05$; ** $p < .01$; *** $p < .001$. All figures represent standardized coefficients. (Bracket represents coefficient after mediation).

Figure 7
Mediation of the effect of Situational Act with Awareness on Satisfaction (Time 3) through Music Performance Anxiety (Time 3)



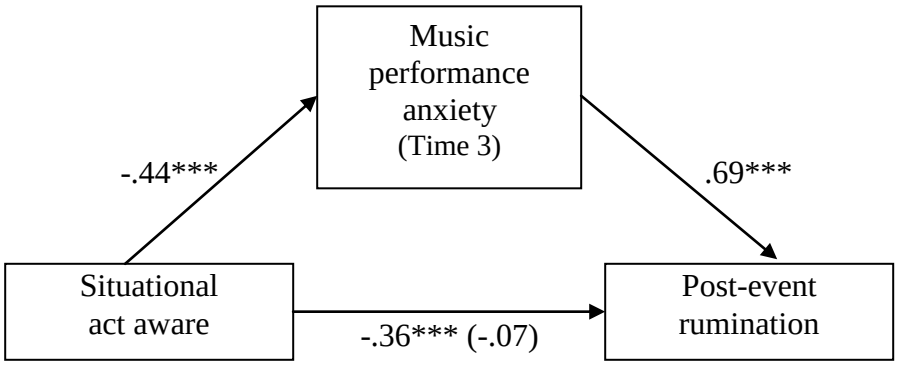
Note: * $p < .05$; ** $p < .01$; *** $p < .001$. All figures represent standardized coefficients. (Bracket represents coefficient after mediation).

Figure 8
Mediation of the effect of Situational Act with Awareness on Performance vs. Practice (Time 3) through Music Performance Anxiety (Time 3)



Note: * $p < .05$; ** $p < .01$; *** $p < .001$. All figures represent standardized coefficients. (Bracket represents coefficient after mediation).

Figure 9
Mediation of the effect of Situational Act with Awareness on Post-Event Rumination (Time 3) through Music Performance Anxiety (Time 3)



Note: * $p < .05$; ** $p < .01$; *** $p < .001$. All figures represent standardized coefficients. (Bracket represents coefficient after mediation).

Summary.

The results from the analyses above supported the final mediational relationships proposed in the self-regulation model of music performance anxiety (Figure 1). Situational act with awareness correlated with all performance outcome variables and these relationships were mediated by music performance anxiety (Time 3). These results suggest that situational act with awareness exerted its influence on lower performance problems, greater satisfaction and a better perception of performance versus practice through less music performance anxiety experienced at the time of the performance (Time 3). In line with the model, situational act with awareness influenced lower post-event rumination through less music performance anxiety experienced at the time of the performance. In addition, participants who experienced fewer performance problems (mental and physical), more satisfaction with their performance, and a better perception of their performance compared to their best performance during practice ruminated less.

CHAPTER 8

Discussion

Introduction

Music performance anxiety is a significant problem for a large number of musicians, especially university music students, and for some the severity of symptoms can lead to impaired performance, poor grades, and the abandonment of performance. This study investigated how levels of mindfulness – expressed in both dispositional and situational forms – leveraged coping efforts to impact levels of music performance anxiety and final performance outcomes. A subsidiary aim examined how mindfulness motivated practice efforts. Practice was investigated because it is the fundamental behaviour required in order to achieve the skill sets necessary to deliver an accomplished performance. Theories of self-regulation and emotion regulation provided a framework for understanding the cognitive and emotional processes involved in coping with music performance anxiety.

In summary, the findings highlighted mediational paths that offered partial support for the proposed self-regulation model of music performance anxiety (see Figure 1). The mindfulness facet act with awareness (attending to one's activities with relatively undivided attention) emerged as the facet that most strongly influenced self-regulatory coping efforts. Levels of dispositional act with awareness during the preparatory months promoted higher levels of situational act with awareness at the time of performance through the coping responses of greater hope and less avoidance. Hope also drove increased practice efforts during this period. Participants' level of act with awareness during the performance week partially

mediated the effect of their dispositional levels of act with awareness on levels of music performance anxiety. In addition, the effect of situational act with awareness on levels of music performance anxiety (Time 3) was partially mediated through the coping responses of positive focus, self-kindness and self-acceptance. Finally, lower music performance anxiety led to a better perception of performance quality, increased satisfaction, and less post-performance rumination.

The discussion of these findings and prior research will be presented in six sections. Section 1 discusses the development of two new coping with music performance measures. Section 2 discusses relationships found between dispositional and situational facets of mindfulness, and music performance anxiety. Section 3 will address the mediational effects of coping strategies (Time 2) on the relationship between dispositional and situational mindfulness. Section 4 will discuss how mindfulness influences practice efforts. Section 5 will discuss the mediational effects of coping strategies (Time 3) on the relationship between situational mindfulness and levels of music performance anxiety at the time of performance. Section 6 discusses the mediational effects of music performance anxiety on the relationship between situational mindfulness and performance outcomes. Finally, the strengths and limitations of the study are considered, before discussing potential implications and future research.

Section 1

The Development of two New Coping Measures

A primary study aim was to measure musicians' self-regulatory coping efforts to manage levels of music performance anxiety, and to promote successful

performance outcomes. Although calls for systematic evaluations of coping with music performance anxiety date back over 16 years (Brodsky, 1996), the lack of appropriate measurement tools has limited these endeavours. Measures of general coping used in prior research (Kane, 2008; Langendorfer et al., 2006; Sinden, 1999) fail to capture specific coping behaviours used by musicians such as practice, goal-directed cognitions, hope, self-kindness, and self-acceptance.

This study contributed to the advancement of research by developing two parallel self-report coping measures that are suitable for the assessment of coping strategies used to manage music performance anxiety as it unfolds over time: (i) when preparing for a performance (CBMP); and (ii) at the time of performance (CDMP). Psychometric analyses from the pilot and main study evidenced the reliability and construct validity of both measures.

The new measures demonstrated utility in extending a theoretical understanding of the relationships between mindfulness and the self-regulation of music performance anxiety. Specifically, the study highlighted dispositional and situational forms of mindfulness as predictors of adaptive coping strategies across time, and adaptive coping strategies as predictors of lower levels of music performance anxiety. Furthermore, the mediational roles played by significant coping responses were consistent with the proposed self-regulation model of music performance anxiety (see Figure 1). Because the CBMP and CDMP measure distinct cognitive, emotional, and behavioural coping strategies, the precision of how each coping strategy influences music performance anxiety is increased. This aids the potential value these measures have to assist clinicians, and to stimulate and inform

the design of interventions to enhance musicians' adaptive coping efforts and management of music performance anxiety.

Section 2

Relationships between Gender, Anxiety Sensitivity, and Music Performance Anxiety

An investigation of the demographics and characteristics of people who suffer from music performance anxiety was undertaken prior to main analyses. Analyses revealed gendered differences in levels of music performance anxiety. Consistent with prior research, female participants tended to report higher levels of music performance anxiety across the three time points than male participants (Ginsberg, 2004; Osborne & Franklin, 2002; Sinden 1999; Wesner et al., 1990). A prior explanation offered for the gender difference in music performance anxiety is that men may have similar anxiety experiences but are less likely to express them (Abel & Larkin, 1990; Sinden, 1999). In the current study, gender did not predict avoidant responses; however more males than females demonstrated less judgment of inner experiences. Another possible explanation is that males potentially experience music performance anxiety to a similar degree as females, but are less judgmental of their symptoms and, consequently, are less likely to report music performance anxiety as problematic.

As predicted, characteristics of trait anxiety and anxiety sensitivity were positively associated with music performance anxiety and negatively associated with mindfulness. In line with previous research, trait anxiety was found to be a weaker predictor of music performance anxiety than anxiety sensitivity (Stephenson & Quarier, 2005; Liston et al., 2003). These findings indicate the importance of

screening for gender and anxiety sensitivity in research examining relationships between mindfulness and music performance anxiety.

Support for Relationships between Dispositional Mindfulness, Situational Mindfulness, and Music Performance Anxiety

The primary hypothesis that dispositional mindfulness would be negatively associated with music performance anxiety at the time of performance was supported for the mindfulness facet act with awareness across the three time points: Time 1 (the start of a study semester); Time 2 (the preparatory months leading up to the week of performance); and Time 3 (the time of performance). However, the predictive ability of dispositional act with awareness did not hold across time when anxiety sensitivity was controlled for. Anxiety sensitivity is a prominent predictor of music performance anxiety and, as such, accounted for a significant part of the total variance in music performance anxiety.

The identification of act with awareness as the facet most strongly associated with lower levels of music performance anxiety reinforces the central role awareness and attention occupy in the concept of mindfulness; moreover, it indicates that an ability to bring one's focus, attention, and awareness to the present moment (in contrast to worrying, being distracted, or running on automatic pilot without much awareness of what one is doing) is important in the self-regulation of music performance anxiety. Prior research has demonstrated that act with awareness, as measured by the MAAS (Brown & Ryan, 2003), is associated with lower perceived stress and less anxiety (Weinstein et al., 2009). Act with awareness, as measured by the KIMS (Baer, Smith, & Allen, 2004), is also associated with less worry, social

fears, and difficulty letting-go of negative thinking (Frewen, Evans, Maraj, Dozois, & Partridge, 2008). These components are reflected within cognitive items (e.g., worry, concern about receiving a negative evaluation, and catastrophic thinking) that make up the music performance anxiety measure (PAI), and are inversely related with act with awareness. Understanding these relationships encourages researchers, educators, and clinicians to consider how to develop strategies that increase levels of act with awareness with view to helping music students orient towards performance in a receptive and attentive manner, and give less attention to cognitive concerns associated with music performance anxiety. In addition, this study supports the recommendation to measure mindfulness at the facet level (Leary & Tate, 2007), and adds to research by being the first to measure the five facets of mindfulness (FFMQ) in a population of university music students.

In line with prior research that has measured situational tendencies of mindfulness (Weinstein et al., 2009), situational act with awareness demonstrated a stronger inverse relationship with music performance anxiety at the time of performance than dispositional act with awareness, and explained 19% additional variance in music performance anxiety beyond that predicted by covariates and dispositional act with awareness. The negative association between mindfulness and levels of music performance anxiety supports the findings of previous studies (Chang, 2001; 2003; Lin et al., 2008), and extends them by demonstrating the role that both dispositional and situational forms of act with awareness play in reducing levels of music performance anxiety. This finding lays the foundation for future research to investigate the efficacy of an awareness and attention-based mindfulness

intervention to increase levels of both dispositional and situational act with awareness for the management of music performance anxiety among university music students.

As hypothesised, situational act with awareness partially mediated the relationship between dispositional act with awareness and music performance anxiety (Time 3). Despite a call for longitudinal studies to investigate mediators of the beneficial effects of mindfulness (Brown & Ryan, 2003), the mediational effects of situational mindfulness on the relationship between dispositional mindfulness and outcome variables have been neglected. These findings support prior research that suggests that: (i) both forms of mindfulness are at least partially independent: and (ii) the effects of situational mindfulness are stronger than the effects of dispositional mindfulness (Brown & Ryan, 2003; Weinstein et al., 2009). It appears that the ability to self-regulate music performance anxiety is partially representative of a musician's dispositional level of mindfulness, both directly and indirectly through situational mindfulness. This finding extends prior research by highlighting the interaction between dispositional and situational forms of act with awareness in the self-regulation of music performance anxiety.

The benefits associated with bringing mindful act with awareness to performance preparation and performance invite musicians and educators to reflect on how they promote attention and awareness within their practice, performance strategies, and learning. Performance literature has championed less use of didactic teaching (e.g., Do it this way.), and greater use of awareness and exploration (e.g., How does that sound? What is another way that could be executed?). By creating a

learning environment that fosters mindful awareness and exploration, students' learning can be based more upon their own discovery, experience, and less upon direct instruction (Green, 1986; Riley, 2012). An ability to learn by bringing mindful awareness to sensing what is happening taps into an innate learning process all humans have as evidenced through the exploration, trial, and error that underpins learning to crawl and walk. Movement disciplines, such as the Feldenkrais Method (Feldenkrais, 1977), tap this learning potential to change and refine movement. It is possible that increasing a musician's mindful awareness could facilitate learning based on curiosity and exploration, which in turn, leads to a fuller experience, improved motoric skill, and a better performance. It may also help them to develop a Teflon mind (Linehan, 1983) that allows negative thoughts to slide away – and, by doing so, facilitate the self-regulation of cognitive and physiological symptoms of music performance anxiety. It is recommended that future research investigate these broader implications of training musicians in mindful attention and awareness.

Other facets of mindfulness. As predicted, an ability to be non-judgmental (non-judge) about one's present-moment experiences, and an ability to label observations (describe), demonstrated a negative association with music performance anxiety (Times 1 and 3). However, these facets failed to predict additional variance in music performance anxiety beyond that explained by anxiety sensitivity and the mindfulness facet act with awareness. Rather than being of no relevance to the management of music performance anxiety, these facets may offer nuances yet to be explored. Furthermore, the inability of non-react to predict music performance anxiety may be due to interpretative demands that require a musician to selectively

react to the music as a means of conveying the music's emotion to the audience. Consequently, reacting, without being overwhelmed, is an integral component of musical expression, and, because of this, could lead to a non-significant association between this facet and music performance anxiety. Future research will need to investigate these hypotheses and ascertain further what contribution other mindfulness facets make in the management of music performance anxiety.

Section 3

Support for the Mediating Effects of Coping Subscales (Time 2) on the Relationship between Dispositional Act with Awareness (Time 1), and Situational Act with Awareness (Time 3)

Investigating the mediational effects of coping strategies used during the four months preparing for a performance exam on the relationship between dispositional act with awareness and situational act with awareness revealed partial mediation through greater hope and less avoidance. Although positive focus was significantly associated with both forms of act with awareness, it did not contribute uniquely as a mediator.

The role of hope.

The coping response of hope emerged as a mechanism through which a musician's dispositional level of act with awareness drove goal-directed behaviour, confidence, and an ability to bring greater awareness and attention to the performance moment.

Self-regulation theory posits that as an individual works to realize their goals, they constantly compare and appraise where they are with what they desire (Carver

& Scheier, 1998). Within this process, mindfulness is proposed to play a role in modifying primary (perception of threat versus challenge) and secondary appraisals (appraisal of one's resources) (Garland et al., 2009), evidenced in the current study through increases in hope and goal-directed behaviour. Prior research has indicated that individuals who are more mindful have a tendency to appraise future situations in non-threatening ways, and to use less avoidant coping strategies (Weinstein et al., 2009). Although the current study did not measure anticipatory cognitive appraisals of threat or challenge, findings support self-regulation theory and past research by indicating the role of mindfulness in supporting adaptive behavioural choices (Brown & Ryan 2003, 2004; Garland et al., 2009; Weinstein et al., 2009), and, by inference, less threatening appraisals of the performance situation.

Hope components emphasize cognitive appraisals of goal-related capabilities, suggesting that a high-hope musician should focus on success (rather than failure) and feel a sense of confidence, as goal-related activities are conceptualized and undertaken (Carver & Scheier, 2002). In the current study, an expectation of success was indicated by 66.5% (often or always) of participants endorsing that their past concert performances had prepared them well for their future performances. Based on these findings, it is recommended that future research investigate a mindfulness-based intervention to help musicians gravitate towards positive emotion-regulation strategies such as hope. By increasing hope, a musician is likely to increase goal-related activities, confidence, and motivation to attend during performance.

Another step for future research will be to unravel the mechanisms through which mindfulness exerts its effects on adaptive coping responses. This study's

findings suggest that act with awareness may be driving hope and goal-directed motivation through reductions in doubt and negative thinking styles such as catastrophizing. Prior research has reported increases in hope and reductions in anxiety following reductions in faulty thinking after meditation training (Sears & Kraus, 2009). These routes of influence remain an important area in need of investigation.

The role of avoidance.

In the months prior to performance, music students used less avoidance of thoughts, feelings, and physical engagement related to performance issues. Less avoidant coping and increased hope promote a sense of competence and confidence as musicians work toward performance goals: this, in turn, facilitates increased focus and awareness brought to the week of performance. The current findings support previous research that has found an association between levels of mindfulness, less frequent use of avoidant coping strategies, and higher use of approach coping prior to a final course test (Weinstein et al., 2009).

In the area of music performance anxiety, avoidant coping has been associated with higher levels of music performance anxiety (Langendorfer et al., 2006). However, past research has reported findings based on avoidance variables comprised of a number of diverse strategies (denial, social withdrawal, cognitive-emotional avoidance). This approach has limited an ability to know which avoidant strategy was the most influential (Langendorfer et al., 2006; Sinden, 1999). The current study expands an understanding of the role of avoidant coping in the management of music performance anxiety by demonstrating that less use of

cognitive avoidance, emotional numbing, and physical disengagement during the preparatory months contributed to a greater ability to orient attention and awareness during the performance week, and lower levels of music performance anxiety during the performance. This finding invites clinicians to consider how to target these specific components of avoidance within therapy; it is suggested that a mindfulness-based cognitive-behavioural approach could potentially assist musicians in the self-regulation of music performance anxiety.

The role of positive focus

Positive focus (defined as meaning-based coping efforts that reframe stressor events as positive, exciting, and beneficial) did not contribute as a mediator of the relationship between dispositional and situational act with awareness but was a predictor of situational act with awareness (Garland et al., 2009). Positive focus may be influential in terms of other outcomes such as improved health or persistence in study, but it remains for future research to investigate this potential. Overall, during the preparatory months before performance, 78.2% of participants tried to view the performance as a positive experience. It is apparent that musicians who were more mindful used strategies that cultivated positive affect. Positive focus can infuse an event with positive meaning (Garland et al., 2009), and hope can promote confidence, problem-focused efforts to prepare, and a sense of personal control (Carver & Scheier, 2002; Synder et al., 1991; Thompson, 2002). These coping processes support the adaptive function of positive affect that is evidenced to act as a buffer to stress (Folkman & Moskowitz, 2000).

Relationships with other coping subscales.

Contrary to predictions, there were no significant associations between dispositional act with awareness and the subscales of planning, cognitive flexibility, religion, self-kindness and self-acceptance, emotional suppression, denial, social support and minimizing. As always, it is hard to interpret these null findings. Mindfulness may have indirect effects, but not direct effects, through other variables. For example, further analyses did find a positive indirect effect through hope on planning. In addition, temporal issues must be considered: for example, self-kindness and self-acceptance were significant during performance when musicians were under greater pressure. The lack of association between act with awareness and cognitive flexibility is surprising. One explanation may be the preface "I try" on each item which implies conscious effort: musicians may not, however, have been conscious of their efforts (for example, of screening out negative thoughts or distractions). Consistent with prior research (Bishop et al., 2004; Hayes et al., 2004; Weinstein et al., 2009), denial, thought suppression, and emotional suppression were negatively associated with act with awareness at the time of performance, and minimizing (although non-significant) was in the direction predicted. Once again, the situational demands of performance appear to heighten mindful attention and awareness, and contribute to negative associations with less adaptive forms of coping. Research in the area of mindfulness and coping is growing, and researchers should be encouraged to explore the role of mindfulness facets as both predictors and moderators of coping responses.

Section 4

Understanding the Impact of Dispositional Mindfulness, and Coping (Time 2), on Practice Efforts (Time 2)

Research emphasizes the importance of practice as a preparatory strategy to achieve the necessary skills required to deliver an accomplished performance (Kane, 2008; Roland, 1992, 1994; Salmon, 1990). In the present study, the majority of participants affirmed the importance of practice by indicating that they prepared their pieces well in advance of the performance, and tried to practice until they could perform their pieces automatically. As hypothesised, a higher dispositional level of act with awareness was associated with greater practice efforts over the months leading up to the week of performance. Significantly, musicians who practiced more over this period experienced greater satisfaction with their final effort and performance quality. To our knowledge, this research is the first to investigate the relationship between musicians' level of dispositional mindfulness and their practice efforts.

These findings reveal the potential of mindfulness to increase practice efforts over the semester: in addition, they infer that mindfulness may not be detrimental to the desired development of automaticity. Mindfulness may indeed enhance the acquisition of automaticity. Because an important goal for musicians is to practice until a piece reaches a level of automaticity, it is reasonable to think that much of this repetitive practice is undertaken mindlessly. Theory and research investigating the development of expertise indicates that increased practice effort – consisting of deliberate exploration, analysis, and refinement – is associated with the development of expertise and the ability to overcome performance plateaus (Ericsson, 2009;

Salomon & Globerson, 1987). This implies that practice needs to include mentally demanding reflection on components that are new or need refining. Mindful attention, when aimed at deriving the essence of a problem, could facilitate deliberate practice, and the refinement of desired automaticity skills by laying down secure skills based on increased exploration and deep processing of material. This role of mindfulness in practice and skill acquisition is an area worthy of empirical testing.

The benefits of mindful practice

A musician's ability to bring mindful act with awareness to their practice through levels of hope contributes to goal-directed determination and greater practice efforts. Prior research has found that performers use practice during the preparation phase to build skill, confidence, and excitement about the forthcoming performance (Kane, 2008). The current findings extend this research by indicating the role that mindfulness plays in driving goal-directed thoughts and feelings that promote practice efforts, and the generation of positive emotions such as confidence and satisfaction. Clinically, these findings suggest that developing the ability to act with awareness has the potential to build musicians' positive emotional states which are known to be associated with greater well-being, resources, and resilience (Fredrickson et al., 2008; Tugade & Fredrickson, 2007). The implications are that increasing a musician's ability to act with awareness could facilitate their practice efforts, increase explorative practice, mastery, positive emotional states, and well-being.

Section 5

Support for the Mediational Effect of Coping Strategies (Time 3) on the relationship between Situational Act with Awareness, and Music Performance Anxiety (Time 3)

During performance, coping responses of self-kindness and self-acceptance, and positive focus partially mediated the effect of situational act with awareness on music performance anxiety. However, a specific indirect effect through positive focus was not significant. As can be the case with statistical analyses, these findings are not as clean as desired, but they do indicate the important role both coping responses played in explaining the relationship between situational act with awareness and the management of performance anxiety at the time of performance. These findings suggest that participants who brought a greater awareness and ability to attend to the performance situation focused on the positive aspects of performance and adopted goals of a high level of abstraction where they saw themselves as acting as a vehicle for the music, and as giving a gift to the audience. These goals were linked with taking a path of greater self-acceptance when the performance was not going well, greater self-kindness when thoughts about negative evaluation from others intruded, and greater tolerance of the self when mistakes were made. Overall, they contributed to a lower level of music performance anxiety.

The role of self-acceptance and positive focus in the management of music performance anxiety.

The current findings support prior evidence for the positive effects of acceptance and positive reframing on levels of concurrent distress (Carver et al., 1993) and music performance anxiety (Kane, 2008; Steptoe & Fidler, 1987; Wolfe, 1990). The findings suggest that fostering positive focus and self-acceptance could

possibly reduce levels of music performance anxiety and potentially counter musicians' less adaptive strategies, such as resignation and wallowing in self-pity, that are related to higher levels of music performance anxiety (Langendorfer et al., 2006).

Contrary to prior research, the current study found positive focus (including positive self-talk) to be associated with lower levels of music performance anxiety. Previous research explained a positive association between these variables as an attempt by musicians to try an array of strategies, effective and ineffective, that were together insufficient to reduce overall levels of music performance anxiety (Langendorfer et al., 2006; Steptoe, 2001). However, these past studies limit a clear differentiation of significance between variables by including positive self-talk in a composite variable. In addition, these studies did not investigate what mechanisms leverage coping efforts.

The current findings add new insight by demonstrating that musicians with a higher ability to bring awareness and attention to the performance situation employ coping strategies (self-kindness and self-acceptance, and positive focus) that drive positive emotions of compassion and excitement. The adaptive potential of positive emotion is of importance to musicians. Coping through a high-activation emotion such as excitement may motivate musicians' engagement in performance (Folkman & Moskowitz, 2000). In addition, the regulation of positive emotion may fulfill other adaptive functions such as those suggested by Frederickson (1998) – e.g., cognitive broadening, physiological recovery – or they may provide an antidote to negative cognitions and affect (Frederickson et al., 2008; Frederickson & Levenson, 1998;

Tugade & Fredeerickson, 2006). Future research can investigate these beneficial outcomes. In the meantime, a therapist working with a sufferer of music performance anxiety needs to give attention to interventions and mindfulness strategies that promote self-kindness, self-acceptance, and positive focus, as well as developing skills of positive reappraisal that are known to build positive affect (Stein, Folkman, Trabasso, & Richards, 1997).

The role of mindfulness in developing self-acceptance and positive focus.

The association of situational act with awareness with self-kindness and self-acceptance suggests that techniques to develop a mindful perspective could assist in the development of self-acceptance. Indeed, a mindful perspective is considered a prerequisite to experiencing fully a compassionate attitude towards the self (Neff, 2003). A core component of mindfulness includes a metalevel of awareness where thoughts and feelings are observed without evaluation or over-identification. This process leads to metacognitive activity that is said to promote an extension of kindness and compassion towards the self (Neff, 2003). Furthermore, Carson and Langer (2006) propose that a mindful individual comes to realize that they have a choice of multiple perspectives about their own behaviour, rather than those presented by others and coloured by their personal set of experiences. It follows that, developing a mindful perspective and self-acceptance may help free a music student from past adverse experiences and fears of evaluation. Given the pivotal role fears of negative evaluation from self and others play in the manifestation of music

performance anxiety, self-acceptance is potentially a potent self-regulation strategy to develop.

Finally, other coping strategies of emotional suppression and thought suppression were negatively associated with situational act with awareness. However, these relationships did not hold when covariates were controlled for. Rather than saying that these responses do not matter, it is suggested that the benefits of situational act with awareness during the performance situation may be broader than levels of statistical significance suggest.

Section 6

The Role of Situational Act with Awareness and Music Performance Anxiety (Time 3) on Perceptions of Performance Outcomes and Final Grade

Musicians' ability to bring awareness and attention to the performance week was associated with fewer mental and physical problems during practice and performance, a perception that their performance was better than their best performance during practice. a greater likelihood of feeling satisfied with their effort and quality of performance, and less rumination after the performance. Music performance anxiety was a mediator of these relationships.

These findings are inconsistent with prior research that reported a positive association between performance quality and music performance anxiety after mindfulness meditation training (Lin et al., 2007). This earlier finding was attributed to mindfulness facilitating an ability to "channel" excessive anxiety into focused attention (p. 139). This interpretation is perplexing considering that the meditation and control groups did not differ significantly in performance quality.

The current research extends prior research by demonstrating significant relationships between a musician's level of situational act with awareness and performance outcomes. These findings are important as they suggest a music student higher in situational levels of act with awareness is more likely to perceive their performance as having less problems and being better than it was in practice. In addition, they are more likely to feel satisfied with their effort, and ruminate less over performance related issues through a reduction in levels of anxiety experienced during performance.

The current study appears to be the first to demonstrate the impact of situational act with awareness on a range of performance outcomes and rumination in a population of music students. In support of past research, mindfulness was associated with less use of rumination (Raes & Williams, 2010), and higher levels of music performance anxiety were associated with greater use rumination (Baker, 2005; Lehrer, 1990; Steptoe & Fidler, 1987).

The potential to reduce musicians' levels of rumination has important implications for musicians. Rumination is proposed to prevent musicians from experiencing a reduction in anxiety even after repeated exposure to performance events (Fehm et al., 2007). Furthermore, the distorted thought patterns associated with rumination may partially explain the development and maintenance of anxious apprehension about future performances (Fehm et al., 2007). Within her model for the genesis of music performance anxiety, Kenny (2011) has stressed the need to reduce anxious apprehension before anxiety responses become conditioned to performance. Mindfulness-based interventions have demonstrated reductions in

anxiety through reduced rumination (Ramel et al., 2004), suggesting that a mindfulness-based intervention may hold the potential to reduce musicians' level of rumination and anxious apprehension. It is, therefore, recommended that future research explores the impact of a mindfulness-based intervention on musicians' use of rumination, with a view to reducing anxious apprehension, music performance anxiety and improving performance quality.

Contrary to hypotheses, no significant relationships were found between musicians' final grade and their levels of situational act with awareness and music performance anxiety. However, greater hours practiced during the months and final week leading up to the performance did predict participants' final grade, and explained 9.8% of the variance. Future research could investigate how mindfulness might moderate practice. Overall, research investigating mindfulness and academic achievement remains sparse (Shapiro, Brown & Astin, 2011), and studies differ in their findings (Hall, 1999; Weinstein et al., 2009). A failure to detect a relationship between mindfulness and achievement may be due the mean of the overall grades being relatively high, which would contribute to little variance to account for. Future research will need to find a more sensitive measure of achievement where there is greater range.

Implications

Theoretical

The present study provided empirical support for theoretical perspectives on self-regulation (Carver & Scheier, 1981) and emotion regulation (Gross,1998b), that

can be extended to include the role of mindful attention and awareness on regulation processes.

The current findings are consistent with research that has demonstrated an intersection of mindfulness and coping theory on the modification of appraisals (Garland et al., 2009; Weinstein et al., 2009). The current study evidenced the adaptive potential of goal-oriented coping responses of increased hope and lower use of avoidance during the antecedent phase of preparing for a performance. In accordance with hope theory, musicians' use of hope represented cognitive efforts to appraise goals in terms of challenges (Synder et al., 1991). According to self-regulation theory, hope is said to enable one to hold on to valued goals, to remain engaged in goal-directed activity and to stay committed to moving forward (Scheier & Carver, 2003). In the current study, less avoidance of thoughts, feelings, and activities associated with the performance event reinforced goal-oriented movement. Although appraisal plays a central role in Lazarus and Folkman's (1984) transactional model of stress and coping, the model does not explain the generation of positive affect in the midst of working toward a stressful performance event; within their classic model, positive affect is the result of successful resolution of the stressful event. We turn to models of self-regulation to identify how cognitions and emotions interact to influence goal-directed behaviour, positive emotion, and well-being (Carver & Scheier, 1981; Gross, 1998b).

In line with self-regulation theory, the current study observed the interaction of cognitions and emotions in the coping efforts musicians used to regulate music performance anxiety across time. During the months preparing for performance,

dispositional act with awareness drove greater levels of hope which influenced appraisals of threat or challenge, and encapsulated expectancies of success and confidence that success could be obtained (Carver & Scheier, 2002). Positive expectancies and confidence play an important role in the self-regulation of activity as they are said to foster persistence and perseverance (Scheier & Carver, 2003), evidenced in the current study through greater practice efforts.

During performance, musicians' focus shifted from concrete goals associated with practice to goals of a higher level of abstraction where they saw themselves as acting as a vehicle for the music, and as giving a gift to the audience. These goals were associated with focusing on the positive aspects of performance and on taking a path of greater self-kindness and self-acceptance. In accordance with self-regulation theory, these goals and coping responses appeared to maintain confidence even in the face of technical mishaps or imperfections during performance. By doing so, they contributed to higher levels of satisfaction with effort and performance quality, and lower levels of music performance anxiety. Ultimately, the up-regulation of positive emotion has the potential to increase musicians' resilience to stress.

The current study extends self-regulation theory by demonstrating the role mindful act with awareness played in promoting the use of adaptive emotion-regulation coping responses to: (i) meet the discrepancies observed when musicians moved towards a performance goal; (ii) adopt either concrete or abstract goals that promoted either task-oriented coping, or person-centred coping (excitement, confidence, and satisfaction); and (iii) to build positive emotion.

In accordance with emotion regulation theory, mindful act with awareness influenced the 'deployment of attention' and 'change of cognitions'. For example, musicians that were more mindful brought increased awareness and attention to their preparation and to their performance, and adopted goal-oriented coping strategies. It is reasonable to assume that these strategies served to decrease negative thoughts and feelings. A future task of research will need to unravel the temporal complexities between perception of stress, appraisal, mindful attending, coping, and reappraisal that appear to make up adaptive coping responses. This task may be difficult as these processes may manifest instantaneously and as an integrated whole (Garland et al., 2009).

Overall, the current study demonstrated the role dispositional levels of act with awareness played in the promotion of adaptive cognitive-emotional self-regulation coping strategies. This has important implications for the development of theoretical models and for the role of mindfulness in the development of interventions to aid the self-regulation of music performance anxiety.

Clinical Implications

The findings from the current research have applied relevance. They add further support to the thesis that mindfulness is associated with well-being, manifest in this study through lower levels of music performance anxiety, and higher levels of positive emotions (including hope, excitement, and satisfaction).

Despite the knowledge that adaptive coping underpins psychological health (Folkman & Moskowitz, 2000; Lazarus & Folkman, 1984), little research has investigated how mindfulness leverages coping in the management of music

performance anxiety. The current research helped to shed some light on this gap. The findings support the development and testing of a mindfulness-based intervention for the management of music performance anxiety through a good randomized control trial. Whether mindfulness can be trained, and whether adaptive coping responses can be fostered, with all musicians are questions worth investigating.

The observation that meditation training may have little effect on enhancing the mindfulness facet act with awareness for highly educated individuals (Baer et al., 2008), suggests that clinical interventions developed for musicians based on the results of this study may need to explore a variety of mindfulness procedures. This may mean training awareness and attention within daily tasks as used in ACT therapy, or training a metalevel of awareness in the face of a stressor. However, some students may also benefit from traditional mindfulness meditation teaching that seeks to develop awareness and insight into the nature of our minds, and an ability to differentiate between one's conditioned and unconditioned self (Singh, Lancioni, Wahler, Winton, & Singh, 2008). It remains for future research to investigate the efficacy of these possibilities. The utilization of the CBMP and CDMP measures will assist these future studies by providing reliable tools to assess musicians coping responses. Furthermore, these measures would benefit from further validation with other outcome measures and music populations.

Clinicians faced with assisting musicians suffering from music performance anxiety need to consider how to foster coping responses that build positive emotion and the ability to act with awareness in the present moment. A functional analysis of an experience of music performance anxiety will help to identify thoughts, feelings,

and behaviour that precede and maintain coping styles and anxiety symptoms. This information should then form the basis of a formulation driven therapy plan. Through CBT, unhelpful thinking styles, feelings, and behaviours can be identified, challenged and modified. Alternatively, ACT would encourage looking at thoughts, defusing them, and letting them go. Both therapeutic interventions offer possibilities to encourage the adaptive potential of coping responses such as hope, self-kindness and self-acceptance, and lower levels of avoidance. In particular, the results of this study suggest that a therapeutic approach that includes mindfulness techniques to develop awareness and attention may help a musician gain agency over negative cognitive-emotional processes and rumination. These areas are in need of investigation and offer a rich terrain for future research.

Strengths of the Current Study

This study had a number of strengths for developing an understanding of how mindful act with awareness influences musicians' self-regulatory coping efforts to manage music performance anxiety.

Longitudinal Design

The measurement of mindfulness, coping, and music performance anxiety over time provided information about the direction of relationships, as well as change in the type of coping strategies musicians used across time. In addition, it provided information about the different relationships mindfulness – expressed in both dispositional and situational forms – had with coping variables and music performance anxiety.

Real-life Stressor

The real-life challenge of preparing for a solo performance exam within an academic environment presented an appropriate context within which to examine hypotheses concerning the predictive role of mindfulness in coping responses to manage the challenges of performance and music performance anxiety as it unfolded over the semester. In particular, it allowed the measurement of variables close to the time of their occurrence.

Positive and Negative Outcomes

The assessment of the relationships between positive outcomes (hope, excitement, and satisfaction) and negative outcomes (music performance anxiety, rumination, and avoidance) and levels of mindfulness and music performance anxiety extends the possibilities for how future interventions are designed to manage music performance anxiety and build musicians' emotional resilience.

Bootstrapping Tests of Mediation

Statistical tests of mediation used the bootstrapping procedure outlined by Preacher and Hayes (2008). This method is recommended over the causal steps approach used by Baron and Kenny (1986) and the product of coefficients approach (Sobel test) because it does not involve the implicit assumption that the sampling distribution of the indirect effect is normal, especially as the sampling distribution can be questionable in small samples (under 200).

New Coping Measures

The CBMP and CDMP focus on distinct coping strategies and thus increase the precision for assessing how each domain influences the management of music performance anxiety. In addition, both measures provide flexibility in their application. The different coping subscales addressed in both measures can be varied as required.

Limitations of the Current Study

The study had a number of limitations that warrant discussion.

Self-report

This study is limited by the use of self-report measures. For a variable such as music performance anxiety, responses may be over-reported due to a motivation to appear on-top of issues, or under-reported, motivated by a desire not to 'lose-face' or feel inadequate.

Physiological Reactions

When developing this study consideration was given to the potential of measuring physiological reactions to performance anxiety by means of heart rate and blood pressure monitoring, voice monitoring, cortisol levels, and the measurement of inter-beep heart rate variability. Due to the exertion expended during performance, the use of heart rate and blood pressure measures were considered less reliable as objective measures. A potential method was to measure the inter-beep heart rate variability as an indication of autonomic arousal and anxiety. However, due to the pre-performance demands of monitoring, we considered this method of data

collection to be unacceptable as it had the potential to disrupt pre-performance routines. Likewise, voice monitoring and salivary cortisol collection were considered to have the potential to disrupt pre-performance routines. In addition, the logistics of testing and equipment-related expenses made these methods prohibitive for this study. However, future research with alternative designs should explore the use of a psychophysiological outcome measure to increase the objectivity of results .

Type I Error

The higher number of tests conducted across analyses increased the probability of Type I error. However, a focus on hypothesis-driven analyses and a coherent pattern of findings across analyses partially reduces concerns that observed findings were due to Type 1 error. These findings can guide future research using larger samples and refined analyses with more stringent controls of Type 1 error.

State Mindfulness Measure

The FFMQ explored situational tendencies of mindfulness through a modified instruction to note how frequently the comments were true for participants during their performance week. Because no measure appears to exist to measure situational mindfulness in a non-meditation sample at the facet level, results can only indicate situational tendencies. It is recommended that further research designs parallel measures to assess dispositional and situational mindfulness at the facet level.

Social Desirability

One further consideration for the present study is the influence of social desirability. We could assume that self-representation concerns may be high within a performance context, leading participants to minimize negative qualities in themselves. However, because a measure of social desirability such as the Marlow-Crowne Social Desirability Scale (Crown & Marlow, 1960) was not included, there is no substantiation for this assumption. The study endeavoured to reduce the possibility of social desirability by having participants complete all measures in their own time on-line using a code name. In addition, they were not explicitly aware of the studies intention to investigate levels of mindfulness.

Self-selection and Generalisability

The study may be limited by the self-selection of the sample. As the overall mean for music performance anxiety was moderate, and the range was good, it did not indicate that overly anxious or under anxious individuals predominated. In addition, the sample represented a good proportion of the enrolled population.

The present study tested hypotheses with tertiary music students only. Tests of the generality of the present findings to community and adult professional performers is needed before firmer conclusions about the role of mindfulness in adaptive coping and the management of music performance anxiety can be drawn.

Future Directions

As indicated in places throughout this discussion, there are a number of avenues for further research. A first step would be to test the benefits of a

mindfulness-based intervention for the management of music performance anxiety through a full-randomized control trial. A future trial should consider contrasting a variety of mindfulness procedures designed to increase awareness and attention, compassion, acceptance, and kindness to oneself for their effects on coping strategies, situational act with awareness, challenge and threat appraisals, anxious apprehension, music performance anxiety, performance quality, satisfaction, and rumination. This design would enable a better understanding of what mindfulness procedure most influences musicians: (i) coping styles; (ii) levels of act with awareness brought to the performance situation; (iii) appraisal of performance stressors; (iv) levels of anxious apprehension; (v) levels of music performance anxiety; (vi) satisfaction, performance quality, and; (vii) rumination. To assist research in the area of coping with music performance anxiety, the two new coping with music performance measures (CBMP and CDMP) offer psychometrically tested tools that need to be validated further in future studies. Methodologically, it is important for future research to use a larger sample so that path-analytic techniques can investigate and verify the mediational paths presented in this study.

Another logical step in the research would be to investigate the processes by which mindfulness training facilitates various self-regulated coping strategies musicians employ. For example, a randomized controlled trial of mindfulness training could investigate how the process of adopting a metacognitive stance might contribute to positive reappraisal. Theorists propose that metacognition may represent an unexplained link between the appraisal of stressful events and their reappraisal (Garland et al., 2009). If future research also incorporated qualitative data

assessing the process of appraising stressors, this would capture a richer view of the phenomena in question.

Additionally, a number of other characteristics observed in people who suffer from music performance anxiety including: perfectionism, confidence, low self-efficacy, low self-esteem, narcissism and shame also contribute to the prediction of music performance anxiety (Kenny, 2011; Sinden, 1999). Unfortunately, this study had to work within the constraints of a doctoral thesis that prevented an examination of all of these characteristics. Future studies will need to investigate this complex array.

Finally, the inclusion of psychophysiology tests of anxiety would add physiological correlates that would further increase an understanding of how mindfulness contributes to the successful self-regulation of music performance anxiety.

CONCLUSION

This study contributes to our understanding of the relationship between mindfulness and the self-regulation of music performance anxiety in three important ways. First, dispositional and situational forms of the mindfulness facet act with awareness play an important role in the self-regulation of music performance anxiety. A music student's general ability to bring awareness and attention to the moment related directly and indirectly, through situational levels of act with awareness, to lower levels of music performance anxiety experienced during performance. This central finding offers new insight into how both forms of the facet act with awareness are integral in assisting music students' self-regulation of music performance anxiety, and it invites reflection on how to develop this innate potential through interventions and learning style.

Second, both forms of act with awareness drive adaptive coping processes that act as significant mediational paths. In the four months prior to performance a music student's dispositional level of act with awareness exerted some of its influence on levels of attention and awareness brought to the week of performance through the coping responses of greater hope and lower avoidance. While, during performance, levels of situational act with awareness contributed to lower levels of music performance anxiety through the coping styles of positive focus, self-kindness and self-acceptance. In accordance with self-regulation theory, these findings signal an initial period where coping efforts fueled expectancies of success, confidence that success could be obtained, goal-focused determination and practice efforts. During performance, goals became more abstract and coping efforts promoted focus on the

positive aspects of performance and positive emotion. This study extends self-regulation theory by highlighting the role act with awareness played in the selection and monitoring of adaptive goal-oriented coping styles that appeared to drive confidence, self-compassion, and excitement even in the face of potential imperfections during performance. By doing so, it demonstrated the interaction of both cognitive and emotion-based coping styles, and the importance of building positive emotion in the self-regulation of music performance anxiety.

Third, levels of situational act with awareness drive perceptions of improved performance quality through reductions in levels of music performance anxiety. This study appears to be the first to demonstrate the impact of situational act with awareness on increasing satisfaction, perceptions of performance quality, and decreasing perceptions of physical and mental problems during practice and performance, and post-performance rumination. This suggests that a musician able to bring greater situational act with awareness to their performance is more likely to manage negative thoughts and rumination processes associated with performance through greater self-kindness and self-acceptance, and reductions in music performance anxiety. An understanding of how a mindfulness-based intervention could increase act with awareness and associated adaptive coping strategies is especially important if we are to make progress in developing effective coping-related interventions to reduce music performance anxiety.

Future research needs to test the benefits of a mindfulness-based intervention for the management of music performance anxiety through a full-randomized control trial. The important role of act with awareness and the coping strategies of greater

hope, positive focus, self-kindness and self-acceptance, and less use of avoidance point to factors researchers, educators and clinicians should target when developing interventions to reduce music performance anxiety, when increasing music students' self-regulation strategies, and when developing curriculum and teaching techniques within a tertiary academic environment.

APPENDIX A

Participant Information Sheet

DEPARTMENT OF PSYCHOLOGY
Faculty of Science

THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
Te Whare Wānanga o Tāmaki Makaurau

Dept. of Psychology
Tamaki Campus
Cnr Morrin and Merton Roads
St Johns
Auckland 1072.

The University of Auckland
Private Bag 92019
Auckland 1142, New Zealand

Title: Investigating how music students cope with music performance anxiety.

Researcher: Virginia Farnsworth, Doctoral Student, University of Auckland

Supervisor: Professor Linda Cameron

To: Potential Participants

My name is Virginia Farnsworth and I am Doctorate student in Clinical Psychology at the University of Auckland. I would like to invite students enrolled in a performance course (classical, jazz, pop, voice or conducting) to complete three online surveys. These surveys investigate how your coping strategies influence your experience of music performance and music performance anxiety.

About the research

It is common for music students to feel anxious about situations in which they will have to perform and/or be evaluated. Anxiety can either help or hinder an individual's performance, we want to find out what coping strategies benefit your ability to perform. Findings from existing studies indicate that music students experience high levels of music performance anxiety. Little research has investigated how coping strategies influence a music student's experience of music performance, music performance anxiety and health.

We are inviting all performance students, regardless of year of study. We aim to recruit 130 participants. We believe that the findings from this study will increase our

understanding of how to help music students manage both positive and negative consequences of music performance anxiety. Results will also help inform future methods and learning tools to assist music students optimize their performance and health.

Your involvement

- You are invited to take part in this research. If you do take part, you will be required to sign a consent form stating that you understand the reasons for the research and that you understand the procedure. Following this there is an initial questionnaire which should take no more than 20-25 minutes to complete. You can complete this questionnaire online, once you have completed the online consent form.
- You will then be contacted one week prior to performance exams and will be asked to fill in questionnaire two online, this should take about 12-15 minutes to complete.
- Once your performance is over you will complete the final questionnaire online. This final questionnaire will take about 12- 15 minutes to complete.
- You will also be asked to volunteer your performance coursework mark and performance grade for this semester as part of the studies data collection investigating impact on performance outcomes.
- In total, this study should take no more than 1 hour of your time.

As the study requires completion of questionnaires, individuals will need to be able to read and understand written English. There are no known risks caused by this study. However, there is a chance that the questionnaires may raise concerns about your experiences of music performance anxiety. In the unusual circumstance that you were to experience significant worry and emotional distress, a referral to an appropriate support service may be arranged at your request.

Right to withdraw

Your participation is entirely **voluntary** (your choice). If you do take part in this research, you are free to withdraw from the study at any time without having to give a reason. Please note, however, that questionnaire responses cannot be withdrawn from the study once they have been submitted.

Confidentiality/Anonymity

All of your responses will be dealt with in ways that prevent anyone other than the researchers from identifying you as a source. Code names will be used through the study so that your name will not appear in any electronic datasets or research reports. The data will be reported in a Doctoral thesis prepared by Virginia Farnsworth and in reports published in scientific journals. Any data reported in research documents and publications will be presented in ways that do not identify you as their source.

Data will be stored in a password-protected database on a password-protected computer or paper files will be stored in a locked filing cabinet on the University of

Auckland premises for 6 years and may be used for publication and future research. After six years the data will be deleted or shredded.

Payment and results

Upon completing the studies data collection, a $10 book voucher will be provided as a token of our appreciation for the time and effort contributed to this project. You will also receive a complimentary CD of mindfulness exercises to help promote attention and calm. At the end of the study, you will receive a report of the study findings if you choose to. This report will be emailed to you.

Please contact us for more information

Thank you for considering taking part in this research. Please contact me if you have any questions or concerns about the study, if the study raises any questions or concerns about music performance anxiety, or if you would like to have more information about the study, or wish to participate:

Contacts

Researcher: Virginia Farnsworth, virginia.f@xtra.co.nz or mail Department of Psychology (Tamaki Campus), The University of Auckland, Private Bag 92019, Auckland 1142. Ph: (09) 3737599 extn 86852.

Supervisor: Professor Linda Cameron, l.cameron@auckland.ac.nz, Department of Psychology (Tamaki Campus), The University of Auckland, Private Bag 92019, Auckland 1142. Ph: (09) 3737599 extn 86869.

Head of Department: Professor Fred Seymour, F.Seymour @auckland.ac.nz, Department of Psychology, The University of Auckland, Private Bag 92019, Auckland 1142. Ph: (09) 3737599 extn 87830.

If you have any concerns of an ethical nature you can contact the Chair of the University of Auckland Human Participants Ethics Committee, Office of the Vice Chancellor, research Office, Level 2, 76 Symonds Street, Auckland. Ph: (09) 3939599 extn 87830.

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON11/11/2009 FOR 3 YEARS REFERENCE NUMER 2009/465

APPENDIX B

Consent Form

DEPARTMENT OF PSYCHOLOGY
Faculty of Science

THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
Te Whare Wānanga o Tāmaki Makaurau

Dept. of Psychology
Tamaki Campus
Cnr Morrin and Merton Roads
St Johns
Auckland 1072.

The University of Auckland
Private Bag 92019
Auckland 1142, New Zealand

THIS CONSENT FORM WILL BE HELD FOR A PERIOD OF SIX YEARS

Title of Project: **Investigating how music students cope with music performance anxiety.**

Researcher: **Virginia Farnsworth**

Participants: **Music performance students**

- I have read and understood the Participant Information Sheet describing the aims and content of the study.
- I have had an opportunity to ask questions and have them answered.
- I understand that I am volunteering to take part in completing three questionnaires online.
- I understand that the project involves a total of one hour of my time.
- I understand that my responses will be confidential and remain anonymous.
- I understand that I may withdraw myself from the research at any time without giving reason.
- I understand that I am free to withdraw my information up to the time that I complete the final questionnaire, but that my study responses cannot be withdrawn from the study after that time.
- I understand that, if the information I provide is included in any report or publication, it will be done in a way that does not identify me as its source.

- I agree to have my data stored in a locked cabinet and a password-protected database for a period of six years.
- I understand that a general summary of the results of this study will be sent to any participant if requested.
- I wish to receive a summary of results and have provided the researcher with a current mailing or emailing address to which to send it. Yes/No (Delete One)
- I agree to volunteer my final performance mark as part of data collection and analyses for this study.
- I agree to take part in this research under the terms indicated in the Participant Information Sheet.

Participant Name:_____

Signed:_____

Date:_____/_____/_____

Participant Email address:_____

In order to protect your privacy and to help with data analysis, we would like you to select a codename to use on the questionnaires. It can be any name you like – a pet's name, a favourite food, or mother's maiden name, or any other codename- as long as it is a name that will be easy for you to remember over the next few months.

Please indicate your project codename below.

CODENAME: _____

APPROVED BY THE UNVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 11/11/2009 FOR 3 YEARS, From 11/11/2002 to 11/11/2012 REFERENCE NUMBER 2009/465

APPENDIX C

Demographic and Music Characteristics

Please answer the following questions about yourself and your current situation. These questions provide an understanding of how results relate to age, gender and specific discipline areas (i.e., conducting, voice, instruments, jazz).

Tick/circle

Which University are you enrolled in?

□ University of Auckland
□ University of Waikato

What is your current age? (in years)

_____

My gender is

□ Male
□ Female

Your Ethnicity (Please tick as many boxes as required. Please note that ethnicity refers to cultural identity, not your citizenship or birthplace)

□ Pakeha/NZ European
□ Maori
□ Pacific Islander
□ Asian
□ South East Asian
□ Other (please specify)

_____

Your current year of degree

□ First year
□ Second year
□ Third year
□ Post graduate

Are you an instrumental, voice or conducting student?

□ Instrumental
□ Voice
□ Conducting

Are you enrolled in

□ Classical
□ Jazz
□ Pop

What is your main instrument (voice or conducting)?

_____

What is your second instrument (voice or recording)?

_____

How many years have you been playing your instrument (singing or conducting)?

_____

What is your highest level of achievement as a performer? (select all that apply)

□ Grade 5-7 (music exams)
□ Grade 8 (music exams)
□ Performance Diploma
□ Tertiary music degree
□ Competition place winner
□ Concerto soloist
□ Community or church performances
□ Other (please specify)

_____

What is your highest level of achievement as a member of an ensemble? (select all that apply)

□ Performance Diploma
□ Tertiary music degree
□ Competition place winner
□ Concert tours
□ Community or church performances
□ Other (please specify)

APPENDIX D

Music Performance Anxiety Characteristics

Tick/circle:

Is performance anxiety a problem for you (i.e., negatively affects your performance)?

□ Yes
□ No
□ Sometimes

Are you currently on antidepressants, anxiolytic medication or beta blocker medication?

□ Yes
□ No

In the past year have you used beta-blocker medication to manage performance anxiety?

□ Yes
□ No
□ Sometimes

Tick which of the following you currently use

□ Meditation
□ Progressive muscle relaxation
□ Yoga
□ Tai Chi
□ Feldenkrais method
□ Alexander Technique
□ Deep breathing
□ Exercise
□ Counselling
□ None of these
Other (please specify) _____

Have you been trained by a professional in any techniques to manage performance anxiety?

□ Yes
□ No

What techniques to manage performance have you trained in?

APPENDIX E

Practice Characteristics

Tick/circle:

In the past week how many days have you practised?

_____

In the past week how long have you practised (average time practising on your instrument, singing or conducting) each day?

□ 0 - 30 minutes
□ 31 - 60 minutes
□ 1 – 2 hours
□ 3 – 4 hours
□ 5 – 6 hours
□ More than 6 hours

How much of your practice time is spent practising exam repertoire each day?

□ 0 - 30 minutes
□ 31 - 60 minutes
□ 1 – 2 hours
□ 3 – 4 hours
□ 5 – 6 hours
□ More than 6 hours

How long do you practice before you take a practice break?

□ 0 – 15 minutes
□ 16 – 30 minutes
□ 31 – 45 minutes
□ 46 – 60 minutes
□ More than 60 minutes

What do you do when you take a practice break? (select all that apply)

□ Stretch
□ Walk and/or exercise
□ Eat and/or drink
□ Plan the next practice period
□ Nothing in particular
□ Other (please specify)

APPENDIX F

Performance Anxiety Inventory

Below are some statements about how you feel *before* and *during* a performance. Please tick the number to indicate how much you agree or disagree with each statement.

	Almost never	*Sometimes*	*Almost always*	*Always*
I feel confident and relaxed while performing before an audience.	1	2	3	4
While giving a performance my hands are cold.	1	2	3	4
Thinking about the evaluation I may get in a concert interferes with my performance.	1	2	3	4
If I make a mistake, I usually panic.	1	2	3	4
During a concert I find myself thinking about whether I'll even get through it.	1	2	3	4
The harder I work in preparing for a concert the more likely I am to make a serious mistake.	1	2	3	4
Thoughts of doing poorly interfere with my performance.	1	2	3	4
I feel very jittery when giving an important concert.	1	2	3	4
Even when I'm well prepared for a concert, I feel very anxious about it.	1	2	3	4
I start feeling very uneasy before getting feedback on my performance.	1	2	3	4
During performance my hands sweat.	1	2	3	4
I wish concerts did not bother me so much.	1	2	3	4
During concerts I am so tense that my stomach gets upset.	1	2	3	4

	Almost never	*Sometimes*	*Almost always*	*Always*
I seem to give up easily while working on important concerts.	1	2	3	4
I feel very panicky when I approach an important concert.	1	2	3	4
If I were to take an important performance exam, I would worry a great deal before taking it.	1	2	3	4
During concerts I find myself thinking about the consequences of my mind going blank.	1	2	3	4
I feel my heart beating very fast during concerts.	1	2	3	4
As soon as a concert is over, I try to stop worrying about it, but I just can't.	1	2	3	4
During a performance I get so nervous that my mind goes blank.	1	2	3	4

APPENDIX G

Five Facets of Mindfulness Questionnaire

Please rate each of the following statements.
Tick the number that best describes your own opinion of what is *generally* true for you.

	Never or *very rarely true*	*Rarely true*	*Sometimes true*	*Very often* or *always true*
When I am walking, I deliberately notice the sensations of my body moving.	1	2	3	4
I am good at finding words to describe my feelings.	1	2	3	4
I criticize myself for having irrational or inappropriate emotions.	1	2	3	4
I perceive my feelings and emotions without having to react to them.	1	2	3	4
When I do things, my mind wanders off and I am easily distracted.	1	2	3	4
When I take a shower or bath, I stay alert to the sensations of water on my body.	1	2	3	4
I can easily put my beliefs, opinion, and expectations into words.	1	2	3	4
I don't pay attention to what I am doing because I am daydreaming, worrying, or otherwise distracted.	1	2	3	4
I watch my feelings without getting lost in them.	1	2	3	4
I tell myself I shouldn't be feeling the way I am feeling.	1	2	3	4
I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.	1	2	3	4
It's hard for me to find the words to describe what I am thinking.	1	2	3	4

	Never or *very rarely true*	*Rarely true*	*Sometimes true*	*Very often* or *always true*
I am easily distracted.	1	2	3	4
I believe some of my thoughts are abnormal or bad and I shouldn't think that way.	1	2	3	4
I pay attention to sensations, such as the wind in my hair or sun on my face.	1	2	3	4
I have trouble thinking of the right words to express how I feel about things.	1	2	3	4
I make judgments about whether my thoughts are good or bad.	1	2	3	4
I find it difficult to stay focused on what is happening in the present.	1	2	3	4
When I have distressing thoughts or images, I step back and am aware of the thought or image without getting taken over by it.	1	2	3	4
I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.	1	2	3	4
In difficult situations, I can pause without immediately reacting.	1	2	3	4
When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.	1	2	3	4
It seems I am running on automatic without much awareness of what I am doing.	1	2	3	4
When I have distressing thoughts or images, I feel calm soon after.	1	2	3	4
I tell myself that I shouldn't be thinking the way I am thinking.	1	2	3	4
I notice the smells and aromas of things.	1	2	3	4
Even when I am feeling terribly upset, I can find a way to put it into words.	1	2	3	4

	Never or *very rarely true*	*Rarely true*	*Sometimes true*	*Very often* or *always true*
I rush through activities without being really attentive to them.	1	2	3	4
When I have distressing thoughts or images I am able just to notice them without reacting.	1	2	3	4
I think some of my emotions are bad or inappropriate and I shouldn't feel them.	1	2	3	4
I notice visual elements in art or nature, such as colours, shapes, textures, or patterns of light and shadow.	1	2	3	4
My natural tendency is to put my emotions into words.	1	2	3	4
When I have distressing thoughts or images, I just notice them and let them go.	1	2	3	4
I do jobs or tasks automatically without being aware of what I am doing.	1	2	3	4
When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.	1	2	3	4
I pay attention to how my emotions affect my thoughts and behaviour.	1	2	3	4
I can usually describe how I feel at the moment in considerable detail.	1	2	3	4
I find myself doing things without paying attention.	1	2	3	4
I disapprove of myself when I have irrational ideas.	1	2	3	4

Note: To assess situational tendencies of mindfulness participants were asked, to indicate how frequently the comments were true for them during their performance week.

APPENDIX H

Anxiety Sensitivity Index -3

Below are a number of statements which people have used to describe themselves. Please mark the number that best indicates how much each statement relates to you.

	Very little	*A little*	*Some*	*Much*	*Very Much*
It is important for me not to appear nervous.	0	1	2	3	4
When I cannot keep my mind on a task, I worry that I might be going crazy.	0	1	2	3	4
It scares me when my heart beats rapidly.	0	1	2	3	4
When my stomach is upset, I worry that I might be seriously ill.	0	1	2	3	4
It scares me when I am unable to keep my mind on a task.	0	1	2	3	4
It scares me when I am unable to keep my mind on a task.	0	1	2	3	4
When my chest feels tight, I get scared that I won't be able to breathe properly.	0	1	2	3	4
When I feel pain in my chest, I worry that I'm going to have a heart attack.	0	1	2	3	4
I worry that other people will notice my anxiety.	0	1	2	3	4
When I feel "spacey" or spaced out I worry that I may be mentally ill.	0	1	2	3	4
It scares me when I blush in front of people.	0	1	2	3	4
When I notice my heart skipping a beat, I worry that there is something seriously wrong with me.	0	1	2	3	4
When I begin to sweat in a social situation, I fear people will think negatively of me.	0	1	2	3	4
When my thoughts seem to speed up, I worry that I might be going crazy.	0	1	2	3	4

	Very little	*A little*	*Some*	*Much*	*Very Much*
When my throat feels tight, I worry that I could choke to death.	0	1	2	3	4
When I have trouble thinking clearly, I worry that there is something wrong with me.	0	1	2	3	4
I think it would be horrible for me to faint in public.	0	1	2	3	4
When my mind goes blank I worry there is something terribly wrong with me.	0	1	2	3	4

APPENDIX I

Trait Anxiety Inventory

Below are a number of statements which people have used to describe themselves. Mark the number that indicates how you generally feel. (There are not right or wrong answers.)

	Not at all	*Somewhat*	*Moderately so*	*Very much so*
I feel pleasant.[R]	1	2	3	4
I feel nervous and restless.	1	2	3	4
I am satisfied with myself.[R]	1	2	3	4
I wish I could be as happy as others seem to be.	1	2	3	4
I feel like a failure.	1	2	3	4
I feel rested.[R]	1	2	3	4
I am "calm, cool, and collected".[R]	1	2	3	4
I feel that difficulties are piling up so that I cannot overcome them.	1	2	3	4
I worry too much over something that doesn't really matter.	1	2	3	4
I am happy.[R]	1	2	3	4
I have disturbing thoughts.	1	2	3	4
I lack confidence.	1	2	3	4
I feel secure.[R]	1	2	3	4
I make decisions easily.[R]	1	2	3	4
I feel inadequate.	1	2	3	4
I am content.[R]	1	2	3	4
Some unimportant thought runs through my mind and bothers me.	1	2	3	4
I take disappointments so keenly that I can't put them out of my mind.	1	2	3	4

	Not at all	*Somewhat*	*Moderately so*	*Very much so*
I am a steady person.[R]	1	2	3	4
I get in a state of tension or turmoil as I think over my recent concerns and interests.	1	2	3	4

Note: [R] = reversed scored

APPENDIX J

Centre for Epidemiologic Studies – Depression Scale Short Version

Below is a list of the ways you might have felt or behaved. Please mark the number which best describes how often you have felt this way during the past week.

During the past week...

	Rarely/none of the time	*Occasionally*	*Moderate amount of time*	*Most of the time*
I did not feel like eating; my appetite was poor.	0	1	2	3
I felt depressed.	0	1	2	3
I felt that everything I did was an effort.	0	1	2	3
My sleep was restless.	0	1	2	3
I was happy.[R]	0	1	2	3
I felt lonely.	0	1	2	3
People were unfriendly.	0	1	2	3
I enjoyed life. [R]	0	1	2	3
I felt sad.	0	1	2	3
I felt that people disliked me.	0	1	2	3
I could not 'get going'.	0	1	2	3

Note: [R] = reversed scored.

APPENDIX K

Revised Impact of Event Scale

Below is a list of comments people make when preparing for a performance. Please check each item, indicating how frequently these comments are *true* for you during your preparation for your forthcoming performance. If they do not occur, please mark the "*not at all*" column.

Please indicate how frequently these comments are true for you during your preparation for your forthcoming performance.

	Not at all	*Rarely*	*Sometimes*	*Often*
I think about it when I don't mean to.	0	1	3	4
I avoid letting myself get upset when I think about it or am reminded of it.	0	1	3	4
I try to remove it from my memory.	0	1	3	4
I have trouble falling asleep or staying asleep.	0	1	3	4
I have waves of strong feelings about it.	0	1	3	4
I have dreams about it.	0	1	3	4
I stay away from reminders of it.	0	1	3	4
I feel as if it isn't happening or isn't real.	0	1	3	4
I try not to talk about it.	0	1	3	4
Pictures about it pop into my mind.	0	1	3	4
Other things keep making me think about it.	0	1	3	4
I am aware that I have a lot of feelings about it but I don't deal with them.	0	1	3	4
I try not to think about it.	0	1	3	4
Any reminder brings back feelings about it.	0	1	3	4
My feelings about it are kind of numb.	0	1	3	4

APPENDIX L

Post Event Processing Questionnaire

We would like you to remember the performance you have just completed and to refer to this performance when you answer the following questions. Please mark the number that represents the extent of your answer, where 0 is *none*/*not at all*/*never* and 10 is *very strong*/*all the time*/*always*.

	Never/ Negative										*Always/Positive*
After the performance was over, did you think about it a lot?	0	1	2	3	4	5	6	7	8	9	10
Did your memories and thoughts about the performance keep coming into your head even when you did not wish to think about it again?	0	1	2	3	4	5	6	7	8	9	10
Did the thoughts about the performance interfere with your concentration?	0	1	2	3	4	5	6	7	8	9	10
Did you find it difficult to forget about the performance?	0	1	2	3	4	5	6	7	8	9	10
Did you try to resist thinking about the performance?	0	1	2	3	4	5	6	7	8	9	10
If you repeatedly thought about the performance, did your feelings about the performance worsen?	0	1	2	3	4	5	6	7	8	9	10
Have you ever wondered about whether you could have avoided or prevented your feelings/behaviour during the performance?	0	1	2	3	4	5	6	7	8	9	10
Have you ever wondered about whether you could have avoided or prevented your feelings/behaviour during the performance?	0	1	2	3	4	5	6	7	8	9	10

	Never/ Negative										*Always/Positive*
Have you ever wished that you could turn the clock back and do it again but better this time?	0	1	2	3	4	5	6	7	8	9	10
As a result of the performance, are you now avoiding similar performance situations?	0	1	2	3	4	5	6	7	8	9	10
Did this performance reinforce your pre-existing avoidance of similar performance situations?	0	1	2	3	4	5	6	7	8	9	10
Did you experience a sense of shame while remembering your behaviour during the performance?	0	1	2	3	4	5	6	7	8	9	10
Did you think about anxious feelings that you had experienced during the performance?	0	1	2	3	4	5	6	7	8	9	10
When remembering the performance did other instances of past failure that you had experienced come into your head?	0	1	2	3	4	5	6	7	8	9	10
Did you criticize yourself for your behaviour in the performance?	0	1	2	3	4	5	6	7	8	9	10
Did you think about the performance more than you wanted to?	0	1	2	3	4	5	6	7	8	9	10
Did you think about the bodily sensations you experienced in the performance?	0	1	2	3	4	5	6	7	8	9	10
In your memories about the performance did you see yourself (behaviour, attributes) in a positive or negative way?^{R}	0	1	2	3	4	5	6	7	8	9	10

Note: ^{R} = reversed scored.

APPENDIX M

Coping before Music Performance

Below is a list of comments musicians make, and strategies musicians use when preparing for a performance. Please check each item, indicating how true these statements are for you when *preparing* for your *forthcoming performance*. If they do not apply, please mark the *almost never*/*never* column.

	Almost never/ Never	*Sometimes*	*Often*	*Almost always*
I prepare my pieces well in advance of the performance.	1	2	3	4
I try to practice as much as possible.	1	2	3	4
I try to practice until I can perform the piece automatically.	1	2	3	4
I plan practice goals and timetables to help me make good progress.	1	2	3	4
I try to finish every practice session feeling positive.	1	2	3	4
I plan in advance what I will do to recover if I were to become distracted by my own thoughts during performance.	1	2	3	4
I plan in advance how I will recover if I had a memory slip during performance.	1	2	3	4
I plan in advance how I will recover if I were to become too anxious at some point in the performance.	1	2	3	4
I plan in advance how I will recover my concentration if I were to be distracted by some external disturbance during performance.	1	2	3	4
I can think of many ways to practice my music, such as visualization, mental rehearsal and/or, practicing at a slow tempo.	1	2	3	4
Even if others find a piece too difficult, I know I can find a way to master the difficult parts of my music.	1	2	3	4
There are a lot of ways around any problems I have when preparing for a performance.	1	2	3	4
I can think of many ways to achieve the performance goals that are most important to me.	1	2	3	4

	Almost never/ Never	*Sometimes*	*Often*	*Almost always*
My past concert experiences have prepared me well for my future performance.	1	2	3	4
I have been pretty successful in my music performances.	1	2	3	4
I can meet most of the performance goals that I set myself.	1	2	3	4
I energetically pursue my practice and performance goals.	1	2	3	4
I try to hide from my family how I feel about the performance.	1	2	3	4
I try to hide from my friends any concerns or anxiety I may feel.	1	2	3	4
I keep my feelings of anxiety to myself.	1	2	3	4
I save face by not telling anyone how I feel.	1	2	3	4
I keep my feelings to myself in order not to worry my parents or partner.	1	2	3	4
I save face by only thinking about my problems by myself.	1	2	3	4
I try to put problems out of my mind.	1	2	3	4
There are things that I try not to think about.	1	2	3	4
I have thoughts that I try to avoid.	1	2	3	4
I try not to think about what the audience thinks of me.	1	2	3	4
I focus on the positive aspects of performance.	1	2	3	4
I see myself as giving a gift to the audience.	1	2	3	4
I see myself acting as a vehicle for the music.	1	2	3	4
I try to feel in a special zone when I perform.	1	2	3	4
I enjoy the excitement and inspiration of preparing for performance.	1	2	3	4
I try to see my nerves as helping rather than hindering me.	1	2	3	4
I tell myself, I have ability and I have prepared well for this.	1	2	3	4
I tell myself the performance is going to be really exciting.	1	2	3	4

	Almost never/ Never	*Sometimes*	*Often*	*Almost always*
Í try to focus on how the performance will be exciting and fun.	1	2	3	4
I try to view the performance as a positive experience.	1	2	3	4
I try to divert my attention away from irrelevant thoughts.	1	2	3	4
I try to screen out irrelevant external distractions.	1	2	3	4
I try to let go of mistakes.	1	2	3	4
I try to focus on what I am doing.	1	2	3	4
I try to focus on the music and/or sound, in order to divert my attention from any feelings of anxiety or worry.	1	2	3	4
I try to think only about the music and nothing else.	1	2	3	4
I try to screen out any negative or critical thoughts.	1	2	3	4
I pretend that the performance is not happening.	1	2	3	4
I act as if the performance is not happening.	1	2	3	4
I refuse to think about the performance.	1	2	3	4
I talk to other performers about how they cope with performance anxiety.	1	2	3	4
I talk to my teacher about how to cope with performance anxiety.	1	2	3	4
I seek emotional support from my family, partner or friends.	1	2	3	4
I share my feelings with my family.	1	2	3	4
I express my worries and concerns about the performance with others.	1	2	3	4
I put my trust in a higher force (God, spiritual being).	1	2	3	4
I find comfort in my religion or spirituality.	1	2	3	4
I find guidance from my religion.	1	2	3	4
I pray.	1	2	3	4
I tell myself it is not the end of the world if I play badly or not.	1	2	3	4

	Almost never/ Never	*Sometimes*	*Often*	*Almost always*
I tell myself it's just another concert, everyone will forget it.	1	2	3	4
I tell myself a live concert will never be perfect.	1	2	3	4
I tell myself that even professionals make mistakes.	1	2	3	4
I am kind to myself when I experience worries about what the audience may think of my performance.	1	2	3	4
I am tolerant of the mistakes I make.	1	2	3	4
I am accepting of myself when I feel that the performance is not going well.	1	2	3	4
I forgive myself when I make mistakes.	1	2	3	4
I accept that there is nothing wrong with how I feel.	1	2	3	4
I look back and tell myself that my past performance experiences have prepared me well for this performance.	1	2	3	4
I only think about past mistakes if I have time to correct them through practice.	1	2	3	4
I let others know how I feel about the upcoming performance.	1	2	3	4
I give up my desire to socialize in order to prioritize my practice.	1	2	3	4
I try to do things to help me relax such as breathing exercises, yoga, Tai Chi, Feldenkrais or other relaxing activities.	1	2	3	4
I use alcohol or drugs to help me cope.	1	2	3	4

APPENDIX N

Coping during Music Performance

Below is a list of comments musicians make, and strategies musicians use at the time of their performance. Please check each item, indicating how true these statements were for you *during* your performance. If they did not apply, please mark the *almost never*/*never* column.

	Almost never/ Never	*Sometimes*	*Often*	*Almost always*
I used strategies that I had planned to recover from distracting thoughts.	1	2	3	4
I used strategies that I had planned to recover from memory slips.	1	2	3	4
I used strategies that I had planned to recover from feeling too anxious.	1	2	3	4
I used strategies that I had planned to recover my concentration.	1	2	3	4
I try to hide how I feel about the performance from my audience.	1	2	3	4
I try to hide any concerns or anxiety I may feel from my fellow performers.	1	2	3	4
I save face by not telling anyone how I feel.	1	2	3	4
I keep my feelings to myself in order not to worry my parents or partner.	1	2	3	4
I save face by only thinking about my problems by myself.	1	2	3	4
I keep my feelings of anxiety to myself.	1	2	3	4
I try to put problems out of my mind.	1	2	3	4
There are things that I try not to think about.	1	2	3	4
I have thoughts that I try to avoid.	1	2	3	4
I try not to think about what the audience thinks of me.	1	2	3	4
I focus on the positive aspects of performance.	1	2	3	4
I see myself as giving a gift to the audience.	1	2	3	4

	Almost never/ Never	*Sometimes*	*Often*	*Almost always*
I see myself acting as a vehicle for the music.	1	2	3	4
I try to feel in a special zone when I perform.	1	2	3	4
I enjoy the excitement and inspiration of performing.	1	2	3	4
I try to see my nerves as helping rather than hindering me.	1	2	3	4
I tell myself, I have ability and I have prepared well for this.	1	2	3	4
I tell myself the performance is really exciting.	1	2	3	4
Í try to focus on how the performance is exciting and fun.	1	2	3	4
I try to view the performance as a positive experience.	1	2	3	4
I try to divert my attention away from irrelevant thoughts.	1	2	3	4
I try to screen out irrelevant external distractions.	1	2	3	4
I try to let go of mistakes.	1	2	3	4
I try to focus on what I am doing.	1	2	3	4
I try to focus on the music and/or sound, in order to divert my attention from any feelings of anxiety or worry.	1	2	3	4
I try to let my thoughts just flow by.	1	2	3	4
I try to let go of distracting physical sensations.	1	2	3	4
I try to think only about the music and nothing else.	1	2	3	4
I try to screen out any negative or critical thoughts.	1	2	3	4
I put my trust in a higher force (God, spiritual being).	1	2	3	4
I find comfort in my religion or spirituality.	1	2	3	4
I find guidance from my religion.	1	2	3	4
I pray.	1	2	3	4
I tell myself it is not the end of the world if I play badly or not.	1	2	3	4
I tell myself it’s just another concert, everyone will forget it.	1	2	3	4
I tell myself a live concert will never be perfect.	1	2	3	4
I tell myself that even professionals make mistakes.	1	2	3	4

	Almost never/ Never	*Sometimes*	*Often*	*Almost always*
I am kind to myself when I experience worries about what the audience may think of my performance.	1	2	3	4
I am tolerant of the mistakes I make.	1	2	3	4
I am accepting of myself when I feel that the performance is not going well.	1	2	3	4
I forgive myself when I make mistakes.	1	2	3	4
I accept that there is nothing wrong with how I feel.	1	2	3	4
I try to remain calm and relaxed.	1	2	3	4
I try to feel a loss of self.	1	2	3	4
I use alcohol or drugs to help me cope.	1	2	3	4
I try to do things to help me relax such as breathing exercises, yoga, Tai Chi, Feldenkrais or other relaxing activities.	1	2	3	4
To help me cope I ate food even when I was not physically hungry.	1	2	3	4
I used food to help me deal with the pressures of performing.	1	2	3	4

APPENDIX O

Performance Problems Scale

Thinking about your performance over the past week, did you encounter mental or physical problems that interfered with your ability to:

	With no problems	*With a few problems*	*With many problems*	*With constant problems*	*With severe problems*
Practice and rehearse to my usual standard (musical ability)	1	2	3	4	5
Perform to my usual standard (musical ability)	1	2	3	4	5
Perform with my usual standard of technique	1	2	3	4	5

APPENDIX P

Satisfaction with Performance Scale

Thinking about the performance you have just given, please indicate:

	Very dissatisfied				*Neutral*					*Very Satisfied*
How satisfied are you with the quality of your performance?	1	2	3	4	5	6	7	8	9	10
How satisfied are you with your effort?	1	2	3	4	5	6	7	8	9	10

APPENDIX Q

Perception of Performance *versus* Practice Scale

Thinking about the performance you have just given, please rate:

	Much Worse				*Same Level*					*Much Better*
How would you compare your performance to your best performance during practice?	1	2	3	4	5	6	7	8	9	10
How would you compare your technique to your best performance during practice?	1	2	3	4	5	6	7	8	9	10
How would you compare your articulation to your best performance during practice?	1	2	3	4	5	6	7	8	9	10
How would you compare your tempo to your best performance during practice?	1	2	3	4	5	6	7	8	9	10
How would you compare your rhythm to your best performance during practice?	1	2	3	4	5	6	7	8	9	10
How would you compare your dynamics to your best performance during practice?	1	2	3	4	5	6	7	8	9	10
How would you compare your phrasing to your best performance during practice?	1	2	3	4	5	6	7	8	9	10
How would you compare your expressiveness to your best performance during practice?	1	2	3	4	5	6	7	8	9	10
How would you compare your tone quality to your best performance during practice?	1	2	3	4	5	6	7	8	9	10
How would you compare your tone accuracy to your best performance during practice?	1	2	3	4	5	6	7	8	9	10

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