CONCEPTUALIZING PSYCHOLOGICAL PERFORMANCE ENHANCEMENT IN A MUSIC DOMAIN

by

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ABSTRACT

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Contrary to sport, the study of performance enhancement in music is at an earlier stage of development in its research, practice, and performer acceptance (Pecen, Collins, & MacNamara, 2016). In the absence of music performance enhancement research, practitioners frequently utilize sport as a template to inform both research and applied practice with musicians to optimize performance (Hays, 2002, 2012). While sport provides an evidence-based framework for studying performance enhancement, musicians have unique performance considerations that differ from athletes (Pecen et al., 2016), and these divergences in domains are not well understood. Using the McLeroy framework (McLeroy, Bibeau, Steckler, & Glanz, 1988), the purpose of this research was to conceptualize psychological performance enhancement (PPE) in a music domain. This purpose was achieved by way of two studies as part of a sequential explanatory mixed-methods design (Creswell & Plano Clark, 2011). Study 1 (N = 459) used descriptive surveys to identify musicians' psychosocial responses to performance, the psychological skills and strategies

that musicians use during practice/rehearsal and performance, and the professionals specialized in performance enhancement with whom musicians have worked. Building upon study 1, study 2 (N = 12) utilized interpretative phenomenological analysis (IPA; Smith, Flowers, & Larkin, 2009) to deeply explore musicians' lived experiences of psychological performance enhancement. The results from descriptive and inferential statistical analyses revealed that the psychological skills musicians employ may not appropriately address their psychosocial responses to performance. Furthermore, musicians' performance needs are limited by the psychological skills training (PST) model of practice (Hardy, Jones, & Gould, 1996), as musicians seem to benefit from more mindfulness and acceptance-based models of performance enhancement (Gardner & Moore, 2007) that consider the well-being of the total performer and the environmental context. Results from the IPA demonstrated that the musicians employed a plethora of general and music-specific coping strategies to optimize performance, and also discussed various health and wellness behaviors, the influence that "others" play in the performance process (e.g., instructors, family), the influence of the external environment (e.g., acoustics, audience), the role of the music community (e.g., supportive behaviors, unsupportive behaviors), as well as the perceived access to and utilization of support systems as they relate to PPE. Musicians also considered seeking a performance psychology professional, preferably one with a background in music performance, so long as an individualized person-centered approach was utilized. Results support a systems-based approach to evaluating PPE in a music domain. Recommendations for musicians, educators/instructors, and performance psychology professionals are discussed, in addition to concerns related to musicians' access to psychological performance enhancement services.

To all the musicians who helped make this project possible.

PREFACE

"Being an intellectual creates a lot of questions and no answers. You can fill your life up with ideas and still go home lonely. All you really have that really matters are feelings. That's what music is to me." – Janis Joplin

As a PhD student in the Kinesiology department, a question I often get is "why are you interested in studying musicians?" To many, music seems to be a bit of a departure from the athletes and exercisers that are associated with the study of human movement. Music has been a part of my life for as long as I can remember. As a kid with bright red hair, I was convinced that I was little orphan Annie (from the musical "Annie"). I would go out onto my parents' front lawn with a wooden spoon and belt "Tomorrow" at the top of my lungs with no shame or embarrassment (my parents' embarrassment is a different story). My parents figured that if I was going to sing all of the time I might as well get some voice lessons. I am so grateful that they provided me the opportunity to study music privately. I ended up taking lessons with the same voice teacher every week throughout my entire adolescence until I was 18 years old and I moved out of state for college.

While music was always a part of my life, it was never my entire life. I was equally interested in sports, and I played year round on various teams (basketball, soccer, track & field) and I even played basketball in college. I cannot count the amount of times that I changed out of a sports uniform in the car, while driving on my way to a gig (thanks again, parents). As I participated heavily in both "worlds", I noticed a lot of similarities and differences in how I approached performance, especially from the mental side of things. I remember one of my basketball coaches pulled me aside and said "how does a girl like you sing with a band on live television, then come to my practice timid and afraid to turn the ball over?" I put so much pressure on myself to succeed in sports that I was often afraid to make a mistake. However, I did not exhibit those same fears of failure on the stage singing. I did not care as much about being "good" in music; I just enjoyed the process. Why? What was the difference? What strategies did I use to perform well in one domain, and why was I "choking" in the other?

I spent over a decade of higher education chasing that "why"; trying to understand the nuances of performance and how psychological skills and strategies can optimize performance. Throughout my studies I was satisfied with exploring performance within the context and lens of sport and exercise, but I could not help but notice how little research was available for musicians' performance enhancement needs, as well as how little attention was paid to the arts within the domain of performance, overall. Again, having lived in both "worlds", I felt that this was a disservice to the many musicians who could possibly be helped by the systematic implementation of psychological skills and strategies to optimize performance.

To study this further, I needed to go to the source. I took on this project to better understand what musicians are currently doing to enhance performance from a psychological perspective, and to explore if they even needed any help in the first place. And if they did need help, how can they be best supported? Before I could devise evidence-based performance enhancement interventions to meet their needs, I needed to know exactly what their needs were in the first place.

My research paradigm in exploring performance enhancement in a music domain can be characterized as pragmatic. Pragmatism asserts that researchers should use whatever methods best answer the research problem to be investigated (Tashakkori & Teddlie, 1998), which often includes multiple methods or a mixed methods approach (Creswell & Plano Clark, 2011). Given the nuances to personality in performance, the novelty of the domain, as well as the lack of research available on the topic broadly, I wanted to evaluate the objective use of specific psychological skills and strategies through a more positivistic, quantitative lens (e.g., identifying skill type, frequency, etc.) as well as dive deeply into the lived experiences musicians had with performance enhancement qualitatively. I needed to know the "what", but I also needed to know the "why" and the "how".

My ability to speak both domain "languages", for lack of a better term, allowed me to build rapport with participants but also challenged me to keep my presumptions and agenda removed from the interviews and data collection. To my surprise, musicians were more than willing to share their experiences with psychological performance enhancement, and I never thought that I would be in a position to actually have to turn people away from my work. I am excited for what this foundational research can bring in the future. While I came into this PhD journey looking for answers for myself, I ended this process embarking on a journey that will hopefully help many more musicians perform to the best of their abilities.

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LIST OF ABBREVIATIONS

AASP ..... Association for Applied Sport Psychology

ACA ..... Affordable Care Act

ACSI-28 ..... Athletic Coping Skills Inventory-28

ANT ..... Attention Network Test

APA..... American Psychological Association

ASTQS..... Automatic Self-Talk Questionnaire for Sport

AT .....Alexander Technique

ATQ-R ..... Automatic Thoughts Questionnaire-Revised

B-H..... Benjamini-Hochberg

CBT..... Cognitive Behavioral Therapy

CFA..... Confirmatory Factor Analysis

CMPC ..... Certified Mental Performance Consultant

CRDI ..... Continuous Response Digital Interface

EFA ..... Exploratory Factor Analysis

EMG..... Electromyography

FDR..... False Discovery Rate

FFMQ..... Five Facet Mindfulness Questionnaire

IPA ..... Interpretative Phenomenological Analysis

MAAS ..... Mindful Attention Awareness Scale

MAC .....Mindfulness Acceptance Commitment

MBSR ..... Mindfulness-Based Stress Reduction

MES-M .....Motivation and Engagement Scale-Music

MPPQ..... Musicians and Performance Psychology Questionnaire

MPA..... Music Performance Anxiety

MSQ (Bull's) ..... Bull's Mental Skills Questionnaire

PETTLEP (Imagery).....Physical, Environment, Task, Timing, Learning, Emotion, Perspective

PMR..... Progressive Muscle Relaxation

PPE..... Psychological Performance Enhancement

PSI ..... Performance Skills Inventory

PSIS..... Psychological Skills Inventory for Sports

PSPQ..... Physiotherapists and Sport Psychology Questionnaire

PST..... Psychological Skills Training

REBT ..... Rational Emotive Behavior Therapy

SLMQ ..... Self-regulated Learning in Music Questionnaire

SMART(s)(Goals).... Specific, Measurable, Achievable, Realistic, Time-Bound, Self-Determined

S-TQ..... Self-Talk Questionnaire

TAIS ..... Test of Attention and Interpersonal Style

TOPS-2 ..... Test of Performance Strategies-2

TOPS-2M..... Test of Performance Strategies-2 Musicians

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This project would not have been possible without the support of the hundreds of musicians who volunteered their time and emotional energy to assist me with this project. Thank you! It is my hope that I can give some knowledge back to you all in return. Thank you for letting me into your world and for sharing your life experiences with me so freely. There are lots of other individuals that I would like to thank:

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Chapter I: Introduction

The study of performance enhancement in sport is argued to be the oldest performance discipline in terms of scientific advancement (Pecen, Collins, & MacNamara, 2016). Contrary to sport, the study of performance enhancement in music is at an earlier stage of development in its research, practice, and performer acceptance (Pecen et al., 2016). Due to the limited amount of music performance enhancement research, practitioners frequently utilize sport as a template to inform continued performance research and applied interventions with musicians (Hays, 2002, 2012). While sport provides an evidence-based framework for studying performance enhancement, musicians have unique performance considerations that differ from athletes (Pecen et al., 2016). Since these divergences in domains are not well understood (Pecen et al., 2016), it is important to explore the nuanced psychological and psychosocial aspects of music performance to better inform research and the use of psychological performance enhancement (PPE) interventions.

Given that the primary aim of this research is to conceptualize psychological performance enhancement (PPE) in a music domain, clarifying key terms is of importance. A simplistic definition of performance "*is any activity or gathering of reactions that leads to an outcome or has an impact on the surroundings*" (Merriam-Webster, 2018; as cited in Arvinen-Barrow & Clement, 2019, p. xxiii). A "music performance" on the other hand is typically characterized as *a process by which ideas are conveyed to a listener, and the manner by which such ideas are conveyed* (e.g., instrument, vocal) *differ based on the musician(s)* (adapted from Thomas, Foss, & Carr, 1998, para. 1). For many decades, music performance was defined solely by the type of skills required by musicians to execute such performance. For example, McPherson (1995) elucidated five distinct skills that defined a music performance: sight-reading, performing

rehearsed music, playing from memory, playing by ear, and improvisation. During a given music performance, musicians are simultaneously: executing physical techniques from hours of practice, recalling lyrics/notes/musical structure, conveying expressive emotion, making connections to the audience, adapting to the stage/venue structure, improvising, navigating any health or injury concerns, collaborating with other performers seamlessly, and adjusting to errors or unexpected incidents which may arise (list adapted from Geeves, McIlwain, & Sutton, 2016).

Aside from the inclusion of musician-specific skills, it is evident that "music performance" distinguishes itself from the basic definition of "performance" with the inclusion of a listener in the music performance process. Music performance does not necessarily require the presence of an audience. Many musicians play music for its own sake, alone, and without seeking the approval of others. Music-making without the presence of an audience is associated with improved well-being (Osborne, Greene, & Immel, 2014), but the psychological, physical, and tactical demands associated with music performance are arguably heightened with the presence of an audience (Williamon & Thompson, 2006). The presence of an audience – even an audience of one, such as an instructor – plays a pivotal role in music interpretation, music dissemination, the communication of emotion, performance evaluation, and overall music composition. Drawing from the definitions discussed above, for the purpose of the present research, "music performance" will be defined as music-oriented actions and behavior (i.e., sight-reading, performing rehearsed music, playing from memory, playing by ear, and improvisation) conducted in the presence of an audience.

Musicians have long demonstrated how psychological factors impact their performance (Hays, 2017). For example, musicians traditionally believe that performance anxiety, or "feelings of nervousness, worry, and apprehension associated with activation or arousal of the body"

(Weinberg & Gould, 2015, p. 78), is debilitative but also an integral and necessary part of performance (Hays, 2002). Musicians tend to be highly perfectionistic, obsessive, ruminate extensively on errors, and are tasked with meeting subjective and ill-defined standards of performance excellence (Hays, 2017). Regardless of preparation, musicians often feel a complete lack of control of the performance outcome, and this exacerbates psychological concerns, resulting in low confidence and high anxiety (Pecen et al., 2016). Other psychological factors that impact music performance include; a lack of motivation, developmental concerns (e.g., early specialization, identity foreclosure, overinvestment), a lack of concentration, depression (Hays, 2002), interpersonal stress (Kenny & Ackermann, 2012), disordered eating (Kapsetaki & Easmon, 2017), poor health habits (Panebianco-Warrens, Fletcher, & Kreutz, 2015), burnout (Teasley & Buchanan, 2016), and overuse injuries (Kenny & Ackermann, 2012).

In addition to the psychological factors affecting music performance, musicians have unique performance considerations. As noted above, musicians are tasked with navigating the presence of an audience during a performance (Williamon & Thompson, 2006). Musicians rely heavily on memorization (Hays, 2017) and expressivity (Juslin, Karlsson, & Lindström, 2006) during a performance, and must simultaneously master emotion regulation, emotional expression, and tactical execution (Juslin, Frisberg, Schoonderwaldt, & Karlsson, 2004). Those musicians who perform occupationally must navigate financial insecurity, the process of living and practicing completely alone, being subjected to constant public evaluation, and travelling inconsistently to meet performance demands (Kenny & Ackermann, 2012). Musicians must also adapt to changing performance environments (e.g., stage location, acoustics) and frequently adjust to the roles, skills, and presence of other performers (Bishop, 2018). Despite acknowledging these unique performance considerations, the facets of performance enhancement

aimed to address the demands of performance are not widely understood in the music literature (Pecen et al., 2016).

Musicians have culturally embraced the pursuit of performance excellence (Hays, 2017), but their efforts may be misguided (Hatfield, 2016). Musicians tend to focus on repetitiously perfecting their craft; receiving guidance on *what* to practice, rather than *how* to practice (Hatfield, 2016). The "more is better" approach to practice and performance preparation relates to fatigue, somatic complaints, and burnout, as musicians are reinforced to seek unrealistic perfection rather than excellence (e.g., Hatfield, 2016; Hays, 2017). Performance enhancement interventions can target these biopsychosocial facets of music performance (e.g., confidence, motivation, interpersonal relationships, developmental considerations), but the nuances of music performance are largely misunderstood by performance psychology professionals who are often trained explicitly in a sport domain.

Defined as psychological, social, or psychosocial "actions or processes that alter function and/or performance through changes in an individual's thought [and/or] behavior" (Brown & Fletcher, 2017, p. 77), psychological performance enhancement (PPE) interventions have been proposed as beneficial to optimizing the biopsychosocial facets of music performance. Contrary to physical practice where tangible results are observed, music performers have been found to be generally unaware of the mechanisms by which psychological skills enhance performance. Allan (2016) found that 71% of the 500 elite musicians sampled demonstrated a lack of awareness of the psychological skills necessary to perform optimally, and thus, are underutilizing PPE interventions to enhance those skills (see Hays, 2017).

Researchers have acknowledged the underutilization of PPE interventions among musicians, and consequently, PPE interventions conducted with musicians are on the increase

(c.f. – Clark & Williamon, 2011; Hays, 2017; Hoffman & Hanrahan, 2012; Osborne et al., 2014; Pecen et al., 2016; Steyn, Steyn, Maree, & Panebianco-Warrens, 2015; Talbot-Honeck & Orlick, 1998). However, it is unclear how musicians are being taught to use these interventions and how they may be applying them in their work. Additionally, while existing interventions generally yield positive results, these interventions are often borrowed directly from sport, and fail to holistically address the unique facets that comprise music performance. Ignoring the specific needs and cultural milieu of a performance domain is especially problematic when practitioners are communicating PPE to an audience that is unfamiliar with the concept (c.f. – Willmott & Collins, 2015, as cited by Pecen et al., 2016). To remedy these shortcomings, Pecen et al. (2016) recommended that researchers and/or practitioners looking to work in a music domain need to better understand the domain-specific music challenges associated with the population. Furthermore, researchers and/or practitioners must rigorously evaluate the appropriate methods and/or performance enhancement interventions employed with musicians, communicate with musicians in a domain appropriate manner, and effectively demonstrate what performance psychology training is (Pecen et al., 2016). The utility of these specific recommendations warrant future research, since training performance psychology professionals to work within a music domain is still a relatively new idea (Pecen et al., 2016).

To evaluate these deficiencies in knowledge, a global conceptualization of performance informed by a systems-based social ecological theory (e.g., Bronfenbrenner, 1979) is most appropriate, as this theory takes into consideration the multifaceted interactions of the personal skills, task characteristics, and environmental characteristics associated with performance (e.g., Bronfenbrenner, 1979). Taken further, the McLeroy framework (McLeroy et al., 1988), directly influenced by Bronfenbrenner's social ecological theory (1979), delineates various

interdependent evaluative intervention points at the policy, community, organizational, interpersonal, and intrapersonal levels of influence. Given the paucity of research in this domain, and the layers associated with a systems-based investigation, a mixed-methods approach to the conceptualization of performance is warranted. Taken together, ecologically conceptualizing PPE in a music domain will help to inform evidence-based interventions for performance psychology professionals to best optimize performance among musicians.

In summary, it is evident that musicians actively support the pursuit of excellence, but may be unaware of the most influential mechanisms to enhance the psychological factors of their performance. There may be better methods that can be adapted to music performance, and musicians generally have an unclear understanding of PPE interventions (Hays, 2017). This misunderstanding is complicated by a lack of awareness about psychological skills, psychological strategies, and/or a lack of access to performance psychology professionals that work with musicians. It is also unclear how musicians utilize, understand, and apply PPE strategies before, during, and after a given performance. At present, performance psychology researchers are complicating this matter by employing PPE interventions traditionally utilized in sport, without fully understanding the unique needs of musicians. While some previous performance enhancement interventions with musicians have demonstrated promise, and research has been done exploring excellence in music performance (see Williamon, 2004), knowledge about *how* to execute appropriate PPE interventions is still missing from the existing body of music performance literature (Hays, 2002; Pecen et al., 2016). A holistic and contextually appropriate conceptualization of music performance that is informed by musicians themselves is needed to fill these gaps so that researchers and practitioners can better understand the various mechanisms associated with PPE.

1.1. Purpose statement

Using the McLeroy framework (McLeroy et al., 1988), the overarching purpose of this research was to conceptualize psychological performance enhancement in a music domain. This purpose was achieved by way of two studies as part of a sequential explanatory mixed-methods design (Creswell & Plano Clark, 2011).

1.2. Research questions

Study 1 used quantitative surveys to address the following research questions:

(1) What are musicians' psychosocial responses to performance?

(2) What psychological skills and strategies do musicians use during practice and performance?

(3) What professionals specialized in psychological performance enhancement have musicians worked with?

Building upon Study 1, Study 2 utilized interpretative phenomenological analysis (IPA; Smith, Flower, & Larkin, 2009) to address the following research question:

(4) What are musicians' lived experiences of psychological performance enhancement?

1.3. Specific aims

The research questions were driven by the following aims:

(1) To identify musicians' psychosocial responses to performance.

(2) To identify what psychological skills and strategies musicians use during practice and performance.

(3) To identify professionals specialized in psychological performance enhancement with whom musicians have worked.

(4) To explore musicians' lived experiences of psychological performance enhancement.

1.4. Practical significance

The present research will help to inform domain-specific and contextually appropriate psychological performance enhancement interventions for musicians. These interventions can enrich the physical, psychological, and tactical elements associated with music performance. The present research will also compliment the expansion of "sport psychology" into non-sport performance domains by providing an evidence-based conceptualization of psychological performance enhancement among musicians.

Chapter II: Literature Review

The purpose of this literature review is to explicate the need to conceptualize psychological performance enhancement (PPE) in a music domain. The review will begin by elucidating the multidimensional aspects of music performance (e.g., personal characteristics, task characteristics, environmental characteristics). Next, the review will present the reader with theoretical models that help to explain the psychological processes of music performance. This explanation will provide a theoretical rationale for a systems-based framework (i.e., McLeroy et al., 1988) to examine the conceptualization of PPE in a music domain. The review will then argue the importance of psychological skills and implementing psychological strategies as a mechanism to enhance the aforementioned personal, task, and environmental characteristics of music performance. Lastly, the review will explore the current use of psychological skills and psychological strategies in a music domain and will identify the gaps in the literature associated with PPE intervention implementation and intervention efficacy among musicians.

2.1. The multidimensional aspects of music performance

Kenny (2011) asserts that music performance involves an interaction of personal characteristics, task characteristics, and performance settings. While a music performance (Cotterill, 2015; Hays, 2017) requires complex motor skills, the definition of music performance extends beyond the skills associated with the moment of performance, as previously defined. During a given music performance, musicians are simultaneously: executing physical techniques from hours of practice, recalling lyrics/notes/musical structure, conveying expressive emotion, making connections to the audience, adapting to the stage/venue structure, improvising, navigating any health or injury concerns, collaborating with other performers seamlessly, and adjusting to errors or unexpected incidents which may arise (list adapted from Geeves et al., 2016). These performance demands may further change contingent upon a pre-performance,

performance, or post-performance situation (e.g., Hays, 2017). It is evident that performance is multidimensional in nature. Therefore, to further conceptualize music performance and build a rationale for the importance of PPE, the personal characteristics, task characteristics, and performance settings associated with music performance will be explicated. Due to the novelty of this research, the elements of music performance will involve as many types of musician as necessary (e.g., music students, professional musicians, amateur musicians), with relevant population differences addressed when appropriate.

2.1.1. Personal characteristics. Personal characteristics are the psychological skills, psychological strategies, psychological concerns, physical skills, and physical concerns prevalent in the execution of a music performance (definition adapted from Kenny, 2011).

2.1.1.1. Psychological skills. Thus far, various psychological skills and psychological strategies have been identified in previous music literature (see Hays, 2017). It is important to note the distinction between psychological "skills" and psychological "strategies". While sometimes used interchangeably in performance literature, psychological *skills* are defined as teachable mental abilities (e.g., self-regulation) whereas psychological *strategies* are defined as performance enhancement techniques that utilize psychological skills (e.g., imagery) (Weinberg & Gould, 2015).

The psychological *skills* identified by musicians include: motivation (e.g., the direction and intensity of effort), coping under pressures (e.g., mastering or minimizing stressful demands), executing appropriate social skills (e.g., exuding competence in communicating with others), commitment (e.g. having dedication to a cause), arousal regulation (e.g., the ability to moderate psychological and physical activation), self-regulation (e.g., self-governing without external influence), emotional control (e.g., responding to demands in a socially tolerable

manner) and attentional focus (e.g., attending to the correct performance cues) (e.g., Hatfield, 2016; MacNamara, Holmes, & Collins, 2006, 2008; Weinberg & Gould, 2015). To add to the existent list, Osborne, Greene, and Immel (2014) argued that self-confidence, concentration, resilience, and mental toughness were also crucial to music performance. Therefore, they should not be ignored in the explication of psychological skills and strategies associated with performance. Self-efficacy, though arguably not an explicit psychological skill, is a factor shown to be the strongest predictor of music performance outcomes (Clark & Williamon, 2011; McCormick & McPherson, 2003; McPherson & McCormick, 2006). Thus, it is important to address its utility in music performance. Self-efficacy is the belief that a person is going to achieve, and it is often referred to as state-dependent self-confidence (e.g., Weinberg & Gould, 2015).

Musicians' use of psychological skills are the least understood and most under-researched aspect of music performance (Clark & Williamon, 2011) and thus, an aim of the present study. In a recent qualitative analysis of musicians' coping skills, Pecen, Collins, and MacNamara (2017) noted that musicians had difficulty distinguishing the differences among musical skills, technical skills, and psychological skills associated with their music performance. The interviewer needed to frequently prompt and probe for information relative to psychological skills, as the elite musician population being interviewed could not easily identify any psychological skills associated with their performances (Pecen et al., 2017). Despite the above, the elite musicians often elucidated complex aspects of psychological skills when describing their performances, but were completely unaware that they were doing so (Pecen et al., 2017). The musicians interviewed also did not understand how or why they implemented, or even practiced, psychological skills (Pecen et al., 2017). This statement further reflects the notion that

musicians' use of the psychological skills is not well understood.

2.1.1.2. Psychological strategies. The psychological *strategies* commonly associated with music performance include: goal-setting (e.g., the systemic process of establishing long and short term goals), relaxation (e.g., providing freedom from tension and anxiety; the act of relaxing), imagery (e.g., visualization, vivid mental rehearsal), executing quality practice (e.g., having self-controlled specificity in practice goals; integrating feedback into practice), engaging in realistic performance evaluations (e.g., participating in opportunities for constructive feedback), and facilitative self-talk (e.g., utilizing appropriate dialogue spoken to the self) (e.g., Hatfield, 2016; MacNamara et al., 2006, 2008; Weinberg & Gould, 2015).

One can argue that these skills and strategies listed above are necessary for *any* effective performance, and are not limited to just music performance. While this may be true, it is important to acknowledge that the psychological skills and psychological strategies addressed above are those most heavily identified in the music performance literature (Ford & Arvinen-Barrow, 2019; MacNamara et al., 2006, 2008). Much is still unknown regarding the types of psychological strategies and psychological skills that musicians employ during a performance. Interventions aimed to optimize music performance often target one or more of the aforementioned psychological skills. The utility of such psychological skills and strategies in music performance will be addressed in extensive detail throughout the discussion of PPE interventions in a music domain.

2.1.1.3. Psychological concerns. Despite lack of research on the psychological skills and strategies necessary for music performance, psychological concerns have been heavily identified in a musician population. Musicians have been identified as one of the top five occupations most likely to report a mental illness (Brodsky, 1996), with clinically high levels of reported mood

disorders and anxiety-related disorders, as well as high levels of suicide (see Kenny & Asher, 2016). Music performance anxiety (MPA) has received much attention in the literature and is often considered to be the most debilitating aspect of music performance (Kenny, 2011). Musicians traditionally believe that anxiety is debilitative but also an integral and necessary part of performance (Hays, 2002). It is not a question of whether or not musicians will feel anxiety, but a question of how much anxiety they will experience and thus, need to mediate (Hays, 2002). Performance tensions due to a somatic (i.e., physical) anxiety response have a bidirectional relationship with poor performance, concentration, and decreased memory (Clark, 1989; Hays, 2002; Lockwood, 1989). More specifically, hand tremors, an overt somatic anxiety response, may completely deter instrumentalists from being able to execute a performance or other fine motor tasks at all (Hays, 2002). Cognitive ruminations about the potential of a somatic anxiety response occurring paradoxically exacerbates the physical symptoms (e.g., Hays, 2002).

Many musicians are highly perfectionistic and ruminate extensively on errors (e.g., Hays, 2017). Digital recordings that present "perfect" versions of material often provide an illogical mental representation of a final product (Hays & Brown, 2004; Pecen et al., 2016). Regardless of preparation, musicians may feel a complete lack of control of the outcome, and this exacerbates psychological concerns (Pecen et al., 2016). As a result of the perfectionistic culture, psychoticism and neuroticism, as identified by Eysenck's Personality Questionnaire (1987), are quite high among artistic professions (Booker, Feam, & Francis, 2001). Kenny and Ackermann (2012) note that occupational and individual psychological stressors (for example: financial insecurity, living and practicing completely alone, being subjected to public evaluation, inconsistent travel) in musicians cannot be easily deciphered. To complicate matters further, Pecen et al. (2016) argue that there are limited resources available for musicians to address

psychological concerns.

Psychological concerns among musicians also stem from developmental processes such as involuntary early specialization, and identity foreclosure and/or overinvestment into their craft (Hays, 2002). Musicians who are forced to leave music earlier than anticipated (due to injury or other debilitative condition) often suffer from a range of identity-related psychological concerns (see MacDonald, Hargreaves, & Miell, 2017) analogous to death and dying (e.g., Kübler-Ross, 1969), such as depression. The developmental transition from music student to professional musician is often cited as a psychological concern for musicians, as it evokes self-doubt, fear, and frustration (Creech et al., 2009). These concerns are exacerbated by new financial constraints and the need to compete with other musicians for gainful employment (Creech et al., 2009). Furthermore, musicians who pursue musical excellence at the expense of personal excellence (Miller & Kerr, 2002) tend to also exhibit adverse psychological concerns (i.e. loneliness) and may perceive their life to be unfulfilled (see Miller & Kerr, 2002).

In an academic setting, music students are more likely than their non-music peers to suffer from depression (Young, Winner, & Cordes, 2013), and frequently characterize their day to day lives as isolating, exhausting, and lonely (Butler, 1995). Attrition of college students in music programs is a growing educational concern, with negative experiences in the music program and a perceived lack of fit cited as primary reasons students have for withdrawing (see Gavin, 2012). Additionally, music students commonly suffer from burnout (Teasley & Buchanan, 2016), defined as exhaustion characterized by excessive demands (Freudenberger, 1974), and it too could be related to attrition among music students (e.g., Teasley & Buchanan, 2016). Unfortunately, these aforementioned psychological concerns permeate musicians and play an adverse role in music performance.

Though presented as a physical manifestation of a psychological disorder, yet another psychological concern prevalent among musicians is eating disorders and disordered eating (Kapsetaki & Easmon, 2017). It is important to note that eating disorders are pathological whereas disordered eating behaviors are unhealthy patterns of food consumption that do not meet the qualifying criteria for a clinical eating disorder diagnosis (see Diagnostic and Statistical Manual of Mental Disorders-5; American Psychological Association, 2013). Musicians are a population of individuals at extremely high risk of developing eating disorders due to the biopsychosocial demands associated with performance (e.g., Kapsetaki & Easmon, 2017). Some of these demands include a cultural idealization of thinness/media, unrealistic competition, parental/instructor pressures, as well as perfectionism, which is a documented risk factor for eating disorder development (Kapsetaki & Easmon, 2017). Furthermore, pressures to specialize during the formative years associated with puberty seem to further relate to disordered eating behaviors and/or eating disorders among musicians (Kapsetaki & Easmon, 2017). The high prevalence of disordered eating behaviors and the inherent psychological concerns such behavior presents are necessary to consider in a musician population.

Taken together, the psychological concerns of musicians have been extensively explored in the music performance literature. The treatment of such psychological concerns is underutilized, as many musicians rely on self-help books or other musicians for treatment (Pecen et al., 2017), or normalize pathological behaviors (Hays & Brown, 2004). While the psychological concerns of musicians are heavily reported, it is generally unclear how, from whom, and if musicians seek assistance for such concerns. A lack of mental health resources for musicians, coupled with a lack of understanding of the clinical and nonclinical modalities of treatment for psychological concerns, further complicate the pursuit of excellence in music

performance.

2.1.1.4. Physical skills. Musicians routinely have physiological demands associated with balance, coordination, breathing, stamina, and posture while performing (Williamon, 2004). A music performance is a complex physical task, with the musculoskeletal system absorbing the majority of the physical demand, as the joints, nerves, and muscles frequently move beyond their physiologic abilities (Steinmetz, Seidel, & Muche, 2010). Musicians execute complex fine motor expression and motor timing at levels far more advanced than non-musicians (Kincaid, Duncan, & Scott, 2002). The physical skills implemented during a music performance require extensive sensorimotor integration, or use of brain networks that process sensory information (e.g., sound) to generate such motor responses (e.g., movement; Altenmüller, Bangert, & Gruhn, 2000). Research examining motor behavior in a music domain has garnered increased interest within the last decade (e.g., Duke, Cash, & Allen, 2011). Skilled musicians undergo numerous cerebral adaptations during the acquisition of physical skills through the lifespan, which associate with sound production, vocal or instrumental control, clarity, range, and intonation, for example (Schlaug, 2001; Williamon, 2004). Kenny and Ackermann (2012) noted that musicians are analogous to athletes in that they execute extensive hours of training and practice for their craft, requiring superior neuromuscular adaptation (e.g., Tubiana, 2000), and thus, experience high rates of musculoskeletal injuries (Manchester, 2006). Leaver, Harris, and Palmer (2011) found that 86% of professional musicians reported physical pain throughout a previous 12-month period. The physical skills associated with performance are intense, and mastering the necessary physical skills are essential to an effective music performance.

2.1.1.5. Physical concerns. As noted previously, the physical demands of music are often associated with physical concerns, such as injury. Kenny and Ackermann (2012) state that the

majority of musician injuries are a result of overuse, which are often exacerbated by poor working conditions (e.g., improper chairs, heavy lifting, noise induced hearing loss) and poor health habits (e.g., smoking, improper sleep). In line with existing occupational health literature, music programs are beginning to implement evidence-based exercise programs to address the pain related and/or physical concerns associated with music performance, (see Chan, Driscoll, & Ackermann, 2014). Additionally, illicit drug and substance use, including abuse of prescription opioid medication, tends to be normalized within the music culture, and this often exacerbates physical concerns, as improper use of medication dulls rather than treats the pervasive pain (Pecen et al., 2017). Relatedly, musicians are a performance population suffering high levels of drug related deaths (see Kenny & Asher, 2016).

The majority of musicians' physical concerns are characterized as atraumatic, invisible, and generating slowly over time (e.g., Hays, 2017). It is the continuous repetition of an exact physical position that most contributes to musician injury, primarily impacting the upper limbs, neck, and lower back (Fjellman-Wiklund, Brulin, & Sundelin, 2003; Kenny & Ackermann, 2012; Slade, Mahoney, Dailinger, & Baxamusa, 1999), and sometimes culminating in irreversible degenerative conditions for older musicians (e.g., arthritis, nerve compression disorders, focal dystonia; Ascenso, Williamon, & Perkins, 2017; Kenny & Ackermann, 2012). Huron (2013) argues that music is the only performance domain predicated exclusively on its repetitiveness. Even vocalists are subjected to impairment by way of vocal fold hemorrhaging, the development of vocal fold nodules and granulomas, and disorders of the larynx (e.g., laryngitis) (Behlau & Oliveira, 2009). It is clear that physical concerns associated with overuse injuries, mostly as a result of repetition, adversely impact a musicians' performance.

Unfortunately, treatment options for physical concerns are traditionally limited to clinical

expertise rather than evidence-based research (Kenny & Ackermann, 2012; Schuele & Lederman, 2004). Musicians have previously indicated that health professionals have limited understand of musicians' physical concerns (Park, Guptill, & Sumsion, 2007). Williamon and Thompson (2006) affirmed that music students are more likely to seek medical advice from teachers and music peers rather than medical professionals. Hays (2017) and Stanhope (2016) echo the sentiment that musicians generally have limited access to healthcare options, which is coupled with a general lack of understanding by medical professionals about how injury adversely impacts performance in both the short and the long term.

Pervasive in the music domain is the stress-recovery balance associated with physical performance concerns and rest (Kenny & Ackermann, 2012). Exercises aimed to facilitate motor recruitment to reduce fatigue, such as strength and conditioning exercises, are not as common among performing artists, especially in comparison to the strength and conditioning programs employed with athletes (Watson, 2006). However, periodization of training has gained momentum in the music performance literature as a means of decreasing training load and the physical concerns associated with overuse injuries (Rocha, 2014). Musicians are slowly recognizing the importance of active rest and a systematic reduction in training volume and intensity (Rocha, 2014). But unfortunately, a "more is better" approach to mastering physical skill is socio-culturally pervasive within a music domain (Quarrier, 1993). To summarize, the physical concerns associated with repetitious overuse, improper working conditions, a lack of access to healthcare, and a lack of awareness about the physical concerns associated with music are all threats associated with music performance.

2.1.2. Task characteristics. Task characteristics are defined as the tactical skills, technical skills, as well as the task-relevant technical demands necessary to execute a music

performance (definition adapted from Kenny, 2011).

2.1.2.1. Tactical skills. In contrast to physical or psychological skills, tactical skills involve the decision-making processes employed to gain an advantage (Martens, 2012). Music performance is rife with tactical skills. For example, individual music performance differences are moderated by deliberate practice (Ericsson, Krampe, & Tesch-Roemer, 1993). Deliberate practice consists of intentional effort toward a performance goal that is sustained without exhaustion (e.g., Ericsson et al., 1993). However, deliberate practice does not necessarily involve repetitious skill acquisition. Repetition, or blocked practice, is pervasive in music pedagogy, but cognitive psychologists are aggressively challenging this notion, arguing that repetition leads to less information processing, which decreases the potential for long-term learning (Carter & Grahn, 2016). Within the last decade, musicians and music instructors have started to incorporate random practice orders to maximize cognitive interference and thus, long-term learning and mastery (Stambaugh, 2011). However, repetition for learning still underpins the skill acquisition ideals in music performance. Shifting away from this premise represents a tactical shift in the traditional principle that looped or repetitive practice is best for learning. Additionally, the process of self-regulated learning, or taking personal ownership of the skill acquisition process through ongoing evaluation, can influence deliberate practice and the associated performance quality (McPherson & Zimmerman, 2002).

In addition to deliberate practice, musicians frequently employ the tactical skill of simulated learning (e.g., “dress rehearsal”) by replicating performance conditions. The dress rehearsal process allows musicians to modify errors, manage performance expectations, and regulate psychological, physiological, and practical processes in a simulated environment that closely matches the main performance (Waddell, Perkins, & Williamon, 2019). Perhaps different

than other performance domains, musicians get the opportunity to practice their main performances in a manner that closely, if not identically, aligns to the main performance. If a dress rehearsal cannot occur in the same environment as the actual performance, virtual environments have demonstrated success in music performance preparation (Williamon, Aufegger, & Eiholzer, 2014). In contrast to musicians, athletes may have a scouting report for a team that they are playing, and they may practice under game-like conditions, but rarely do they have an opportunity to "dress rehearse" the exact scenario against another team, as there are too many individual differences and external variables that mediate a sport practice and a sport competition. As such, it is important to include simulated learning as an important tactical skill associated with music performance. These tactical skills (e.g., blocked practice, simulated learning) employed to gain an advantage are essential to the music performance process and are equivalent in necessity to the physical and psychological skills of music performance.

2.1.2.2. Technical skills. While the tactical skills elucidated above are necessary for music performance, technical skills are equally critical. The technical skills associated with music performance include: music literacy (e.g., ability to read music and/or sight-read; Crouch, 2010), linguistic fluency (e.g., word pronunciation; Crouch, 2010), motor coordination (e.g., physical accuracy; Sloboda, 1994), pitch acuity (Seashore, Lewis, & Saetveit, 1960), tonal memory (e.g., aurally recalling a previously played note; Seashore et al., 1960), tonal imagery (e.g., executing harmony and melody; Gordon, 1979), appropriate execution of rhythm, timbre, and timing (Seashore et al., 1960), improvisational ability (Hallam, 2010), and general music sensitivity (e.g., appropriate phrasing, style, balance; Gordon, 1979). Empirical discussion regarding the acquisition of a musicians' technical skills tends to fall heavily on the evolutionary versus genetics debate (e.g., Law & Zenter, 2012; Patel, 2008), the deliberate practice debate

(e.g., Ericsson et al., 1993), in addition to pedagogical research exploring the appropriate methods of teaching such technical skills (McPherson, 1997). The aforementioned technical skills are unique to a music domain and therefore must be delineated as necessary elements of music performance. Without such technical skills, music performance would not exist, and in consequence, a conceptualization of PPE would not be necessary.

2.1.2.3. Task-relevant demand: Expressivity. In contrast to a technically sound performance, a unique task-relevant demand inherent in all music performance is expressivity (Woody, 2000), defined as the ways in which moods or emotions are represented in a performance (Gabrielsson & Juslin, 1996; Woody, 2000). Expressivity is frequently discussed as a separate entity of technical skill (e.g., Boyd & George-Warren, 1992). Musicians are implicitly or explicitly tasked with communicating meaning through expression, such as an emotion, mood, or feeling (Gabrielsson & Lindström, 1995; Woody, 2000). Audiences tend to prefer expressive musicians over those who are technically proficient (Boyd & George-Warren, 1992), and expressivity tends to set musicians apart during instances of evaluation (Lindström, Juslin, Bresin, & Williamon, 2003). Boyd and George-Warren (1992) indicated that popular musicians frequently reference the quality of expression found in "the feel" for the music (p. 103). Lindström et al. (2003) demonstrated that expressivity can (and should) be practiced and taught, as it is an essential element of music performance.

The task-relevant demand of expressivity in music performance ranges from structural changes in the actual written music (e.g., use of tempo, loudness, intonation, crescendos, diminuendos, vibrato; Woody, 2000) to physical manifestations of emotion by way of facial expressions (Livingstone, Thompson, & Russo, 2009), body sway/movement (Chang, Kragness, Livingstone, Bosnyak, & Trainor, 2019), and body language (Sloboda, 1994). While musicians

have eluded to feeling enjoyment or catharsis on stage through emotional expression, other musicians have cited emotional expressivity as detrimental to performance due to forced and overemotional expressions and the associated exposed vulnerabilities associated with emotional expression (Pecen et al., 2017). Despite the divergences in the musicians' appraisals of expressivity, it is universally accepted that presentation and communication of emotion is a task-relevant demand necessary in music performance (Woody, 2000).

2.1.3. Performance setting. The performance setting is defined as the environmental context with which a musician directly or indirectly interacts during the performance process (definition adapted from Kenny, 2011). This includes the physical setting associated with a performance, the interpersonal performance setting (e.g., the individuals and the relationships involved), and the cultural context impacting performance on a macro level.

2.1.3.1. The physical setting of a performance. The physical setting by which a performance takes place is an essential component of a music performance (Beranek, 2004). For example, stage acoustics play a crucial role in music performance evaluation, as acoustics influence both the objective and subjective interpretations of performance from both the performer as well as the audience (Kim, Kim, Jeon, & Cabrera, 2010). According to Kim et al. (2010), the subjective interpretations of stage acoustics involve the degree to which a stage supports hearing oneself, the degree to which performed music is "well blended by diffusivity of stage enclosure", the size of the stage, the degree of spreading after a sound, and the perceived reverberance of sound (p. 3). Objective acoustic parameters can be further measured by sound impulses and are used to make adaptations to music performance, such as a musicians' stance location for optimal sound (Kim et al., 2010). Seemingly innocuous items in the physical setting can also play a major role in music performance. For example, hanging stage curtains, existing

stage scenery, hollow doors, and hanging lights on stage can all adversely impact sound (Wenger Corporation, 2019). Without appropriate shelling, absorber paneling, or diffuser paneling – which are not guaranteed in many performance spaces – the quality of sound can be reduced. Intruding sounds from audience members or activity backstage further interferes with sound isolation (Wenger Corporation, 2019). Acousticians are often employed in newer theatre spaces to maximize the sound production for both the performer and the audience (Wenger Corporation, 2019). However, in contrast, bars and restaurants - sometimes colloquially referred to as "non-listening spaces" - are hardly ever designed in consideration of the live music that may be performed there, and these spaces rarely allocate costs for acousticians on behalf of musical talent (Ramakrishnan & Dumoulin, 2016). Musicians, especially those who tour, must constantly adapt to the seemingly uncontrollable aspects of a venue which impact sound quality and subsequently, performance.

The type of stage or venue not only impacts sound production but also the perceived intimacy, engagement, participation, and perception of performance quality from the audience. For example, in a qualitative study examining music listeners' perceptions of stage venues and performance (Pitts, 2005), when comparing stage type (e.g., a stage "in the round" with the audience close and surrounding, versus a theatre that put the performance at a distance from the audience), many listeners preferred an "in the round" setting, favoring the clear view, active engagement, and intimacy with either the score, the sound, or the performers themselves (Pitts, 2005). However, not all interpretations of an intimate stage setting were deemed favorable. One participant felt that the intimate stage setting deterred performance quality because the audience was so distracted looking at other members within the audience, rather than the performer (Pitts, 2005). Pitts (2005) referenced Mackintosh (1993), who argued that theatre architects generally

ensure that “the energy of the actors and audience be channeled, exchanged, and heightened through effective theatre structure” (p. 59), but often this discussion is driven by acoustics rather than a shared social experience with the audience. Given the bidirectional nature the audience has with the performer, and its subjective interpretation of performance quality, a discussion on stage dynamics contextualizes musical excellence.

Musicologists argue that the role of the audience in a musical performance has shifted within the last few decades, and this has implications for classical music performers, specifically (e.g., Pitts, 2005). Driven by the growth of technology, music listening has become more accessible, self-regulated, emotionally expressive, and interpersonal (Pitts, 2005). This experience is in direct contrast to older stage architecture, which favors listening as a passive and quiet activity, and puts the audience at a distance (Pitts, 2005). Western audiences are favoring more contemporary, laid back, intimate settings to the formal, passive, suit-and-tie experience of classical performance in years past (Pitts, 2005). This apparent “classical crisis” has been heavily debated by musicologists in light of recent social trends and associated physical performance settings (Johnson, 2002; Levitt & Rennie, 1999).

Geeves, Mcllwain, and Sutton (2016) asserted that performance literature tends to favor the live performance experience of the audience over the live performance experiences of the musicians. In their grounded theory qualitative investigation conducted solely from the perspective of the elite musician, Geeves et al. (2016) found that musicians inherently strive to make a connection to the audience through attentiveness and attunement, openness to variability, execution of pre-performance and post-performance routines, and the consistent gauging and regaining connection throughout. Despite a musicians’ own preparation, it is apparent that the performance experience is largely predicated on the connection with the audience.

In summary, the physical setting associated with a music performance plays a role in how the performance is objectively and subjectively appraised by the musicians as well as the listeners of the music. The setting of music performance and its associated acoustics vary drastically, and musicians must constantly adapt to the sound demands and stage designs in new locations. Lastly, the role of the audience and its physical proximity to the performers have been deemed important to the music performance process.

***2.1.3.2. The interpersonal setting associated with performance*.** The performance environment does not exist in a vacuum – many individuals outside of the performer play a role in music performance. The interpersonal connections with other musicians, instructors, and family/significant others are important aspects of performance particularly as a form of social support or a lack of thereof (see Nogaj & Ossowski, 2015). Given its performance implications, social support (e.g., emotional, informative, instrumental, and evaluative) is frequently assessed in music domains (see Nogaj & Ossowski, 2015), but understanding regarding musicians' perception of social support is lacking from music performance literature (Pecen et al., 2017).

2.1.3.2.1. Other musicians. The process of music collaboration and its impact on performance has been studied extensively (Blank & Davidson, 2007; Ford & Davidson, 2003; King, 2006). Musicians often create social groups underpinned by a shared experience, identity, and/or struggle (Nogaj & Ossowski, 2015). While some music environments thrive on competition, musicians have cited a positive motivational climate evoked from other musicians as an important factor for musical achievement (Lehmann, Sloboda, & Woody, 2007; Nogaj & Ossowski, 2015). However, in music education settings, friendships are often stronger among musicians of differing talents, as they do not fall in direct competition (Crozier, 2009). It appears as though musicians either find support from other musicians or see other musicians as

detrimental to performance success.

2.1.3.2.2. Instructors. Music instructors who are knowledgeable, inspirational, philosophical, and open-minded were qualitatively cited as having a positive impact on musician's coping throughout the performance process (Pecen et al., 2017). In contrast, elite musicians have cited dangerous advice, sexual harassment, manipulation, and abuse of power as inappropriate social support from instructors that were detrimental to performance (Pecen et al., 2017). Music instructors who strongly criticize students foster an environment that breeds negative emotions and anxiety toward music performance (Pecen et al., 2017). Additionally, musical achievement is often mediated by the relationship musicians have with instructors and/or educational interactions (Nogaj & Ossowski, 2015). Thus, when considering the pursuit of musical excellence, the role of the instructor may be essential to consider in the process.

2.1.3.2.3. Family. On the whole, family is seen as a robust source of social support (Pecen et al., 2017). Parents foster environments that breed musical excellence (e.g., Nogaj & Ossowski, 2015). To elucidate social support further, parents foster behavioral support by way of organizing study and structuring music practice activities, cognitive/intellectual support by way of providing opportunities for children to foster musical sensitivity (e.g., listening to music, attending concerts, participating in musical activity), and personal support by way of showing understanding, responding emotionally, fostering motivation, and providing overall assistance in their child's pursuit of musical goals (see Nogaj & Ossowski, 2015). Additionally, parents that provide financial support, emotional stability, music supervision, and impose realistic performance expectations tend to foster musical excellence in their offspring (Campayo-Muñoz & Cabedo-Mas, 2016). Conversely, unsupportive parents or parents that do not make an investment in the musical development of their children may negatively influence growth (e.g.,

Sosniak, 1987). Thus, exploring the ways in which family impact music performance is important in the conceptualization of performance.

The role that social support plays in the pursuit of musical excellence warrants additional research, but literature has thus far demonstrated the ways in which social support can positively influence music performance, respectively.

2.1.3.3. The musical learning environment. The environment in which musicians learn and create often indirectly impacts a musicians' performance. Music learning environments characteristically have poor support for students in areas of health, wellbeing, and psychological self-management (Perkins, Reid, Araújo, Clark, & Williamon, 2017). Perhaps unfortunately, musical learning environments are predicated on identifying "talent" and enforcing repetitious practice and instruction from expert performers to improve performance (Pecen et al., 2017). Pecen et al. (2017) note that this approach does not take into account the many elements associated with talent development, which leaves musicians ill-prepared for the actual demands of the music industry (see Pecen et al., 2016). In support, Demirbatir (2015) argued that music learning environments are characteristically stressful due to practice isolation, intense competition with others, failure to meet goals, authoritarian instructional methods, as well as intolerance against making errors. As such, fear-avoidance is a common coping strategy in a music domain, and relates strongly to pervasive performance anxiety (Burin & Osorió, 2017). The climate associated with the musical learning environment is important to consider when conceptualizing PPE in a music domain, as it demonstrates a micro-level of influence on musicians, respectively.

2.1.3.4. Competition. Competitions are often a part of the music performance experience, especially among music schools (Eisenberg & Thompson, 2011; Glejser & Heyndels, 2001;

Lowe, 2018). The music competition environment has mixed reviews from both scholars and educators. Some argue that competition is necessary for character building and real-world preparation (Neil, 1944; Payne, 1997; Rogers, 1985), others feel that competition threatens educational value (i.e., puts an emphasis on winning, not learning), adjudicator value (i.e., puts an emphasis on seeking prestige and program distinction, not performance excellence), and student welfare (evokes stress and facilitates a lack of motivation) (Lalonde, 2013; LaRue, 1986; Lowe, 2018; Miller, 1994; Payne, 1997; Rohrer, 2002). Pecen et al. (2017) found that competition was perceived by elite musicians as counterintuitive to music, a "means to an end", and full of biases (i.e., the winners were often students of the jury) and educational politics. Despite the roles and attitudes that competitions evoke within the music community, especially those in music education, it is evident that music competition and its associated preparation may involve psychological, social, and physical performance elements that must be considered when exploring performance holistically.

2.1.3.5. Cultural context. Music is deemed a universal experience across all known human societies (Trehub, Becker, & Morley, 2015), so the cultural context of music performance associated with the environmental setting cannot be overlooked in the conceptualization of music performance. Music-making is defined as a cultural performance with social implications, (i.e., pleasure, isolation, communication, social bonding, imitation/conformity to ideals, synchronous action/arousal, rituals, and caregiving/attachment; Trehub et al., 2015). Additionally, value systems and certain stereotypes of a given culture of people (e.g., having male machismo, being rebellious) are often implied from music listening (see Trehub et al., 2015) or certain music types, with "ethics and aesthetics being one in the same" (Wittgenstein, 2001 [1922], p. 421). The process of music listening, music making, and the cultural norms associated with music

performance are receiving increased attention from anthropologists and biologists (Trehub et al., 2015), as the patterns associated with music listening and music making tend to correlate with cultural ideals and cultural climates of a given society.

Public policy and government funding have adversely impacted music performance, and the pursuit of musical excellence – especially in the United States. Access to music education and programs that facilitate an enhanced performance continue to be limited. For example, funding for music, music educators, and art programs within school systems, continue to be cut (see McKinstry, 2017). Private music lessons tend to be utilized only among families with a high socioeconomic status, limiting access to training for many musicians (Sergeant & Thatcher, 1974). The conceptualization of PPE in a music domain must be placed within a cultural context, as access to appropriate music programming by way of policy decisions adversely impacts the pursuit of musical excellence and further reflects the value systems of a culture.

2.2. Multidimensional aspects of music performance: The conclusion

The above section described the personal characteristics, task characteristics, and environmental characteristics associated with music performance. Through these descriptions, the various physical, psychological, tactical, and technical skills and concerns that play a unique role in music performance were elucidated. Taken together, these aspects of music performance provide a backdrop by which PPE can be further explored, as PPE interventions can support and/or enhance many of the multidimensional elements of performance described. To study the interactions among these skills, as well as the role PPE strategies play in facilitating optimal performances, it is useful to explore music performance in the context of existing theoretical frameworks.

2.3. Placing the multidimensional aspects of music performance into a theoretical framework

It is evident by the personal, task, and environmental characteristics noted above that music performance is multidimensional (e.g., MacNamara et al., 2008). However, when it comes to theoretically conceptualizing the relationships between these factors, it appears that existing theoretical models explaining music performance are simplistic and fail to address these factors comprehensively (Windsor, 2009). Thus far, there are hundreds of conceptual models that address singular, uni-centric, aspects of music performance, some of which include: models of rhymnic grouping (e.g., Todd, 1994), perception (e.g., Lerdahl & Jackendoff, 1983), the social antecedents of musical excellence (e.g., Williamon, 2004), models of musical sound and contextual input (e.g., Qureshi, 1987), timekeeping/movement/kinematics (e.g., Palmer, 1997), performance anxiety (e.g., Papageorgi, Hallam, & Welch, 2007), models of music education (e.g., Akuno, 2000), and models of music performance learning (e.g., Papageorgi et al., 2010).

The dearth of multidimensional conceptualizations of performance from a theoretical perspective is challenging for music psychology researchers and applied practitioners. It is unclear what mechanisms are appropriate to target as a means of facilitating optimal performance. Tensions among academic researchers, music educators, applied practitioners, and music performers have divisively impacted the advancement of performance enhancement research, as arguments about differing epistemologies have prevented a productive dialogue on how to appropriately conceptualize performance ecologically (see Kartomi, 2014).

To address the above tensions, Kartomi (2014) proposed a conceptual model of music "performativity", or the analyzable, quantifiable aspects of a performance. The Kartomi (2014) conceptual model consist of four components: (a) the actual music performed; (b) the execution

of the music and the factors that affect it, such as performance style, psychological approach, and the performers' competence; (c) the effects of the performers on the audience and the audience's effect on the performers; and (d) the contributions of all stakeholders to the success of the event, including the roles of the event organizers and the media. Kartomi (2014) noted that this model of understanding can provide a methodology for capturing the socio-cultural aspects of music performativity in an interdisciplinary manner, but Kartomi (2014) only gave anecdotal evidence as to how this model can categorize aspects of a performance. It is also unclear how, and if, each level of the model is interrelated. Though Kartomi (2014) addresses individual aspects of a musician's performativity as part of her conceptualization (e.g., talent, giftedness, musicality), there are various individual musician qualities missing from the model (e.g., personality). While the model appears to address music in the most "potentially comprehensive" manner (Kartomi, 2014, p. 207), there appears to be no sound theoretical framework to underpin the work.

Kartomi (2014) argues that there is a need to develop a "comprehensive methodology with which to document and analyze" performativity (p. 207). Thus, introducing a theoretical framework to conceptualize music performance may position Kartomi's (2014) work in a manner accessible to academic researchers, applied practitioners, and music performers alike. Through such framework, we can better understand the mechanisms that are appropriate to target as a means of facilitating optimal performance from a psychological perspective.

One existing theory that has the potential to explain factors affecting music performance is the social ecological theory (Bronfenbrenner, 1979). The theory asserts that human development is influenced by a variety of systems. These systems include: the settings with which a person directly interacts (e.g., school, home, work); the settings with which a person indirectly interacts (e.g. the music learning environment); and the systems with which a person

has no indirect or direct interaction, but whose existence plays a role in development (e.g., public policy, social norms). The McLeroy framework (McLeroy et al., 1988; see Figure 1), directly influenced by the social ecological theory (Bronfenbrenner, 1979), delineates various interdependent evaluative intervention points at the policy, community, organizational, interpersonal, and intrapersonal levels of influence (see Table 1). With roots in public health, the McLeroy (1988) framework "has been recommended as a theoretical, methodological tool capable of supporting a consistent, holistic approach…[to] interventions" (Moore, de Silva-Sanigorski, & Moore, 2013, p. 1001). Given that the purpose of the present research is to conceptualize PPE in the music domain to inform ecologically valid performance enhancement interventions for musicians, it is likely that the McLeroy (1988) framework could be applicable

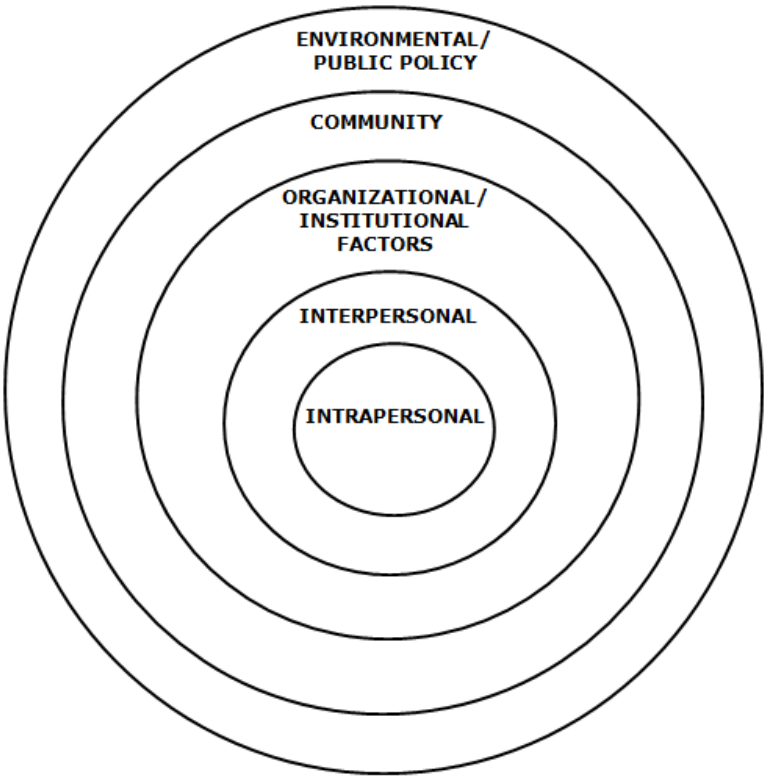

Figure 1. A graphical adaptation of the McLeroy framework (McLeroy et al., 1988)

Table 1

The McLeroy Framework (adapted from McLeroy et al., 1988)

Level of influence	Approach
Intrapersonal	Individual characteristics (attitudes, beliefs, personality)
Interpersonal	Group influences (social networks, social support)
Organizational/ Institutional Factors	Domain-specific rules and regulations that may promote or threaten performance
Community	Shared identities, community relationships
Environmental/ Public Policy	Laws and governmental structures that impact performance at a macro level

to music performance. It may also help overcome the identified limitations to comprehensively examining music performance (e.g., Kartomi, 2014). By understanding how musicians perceive PPE and currently use psychological skills and by placing them into an appropriate theoretical framework, researchers can further conceptualize PPE.

When placing existing research presented above into the McLeroy framework (McLeroy et al., 1988), it appears to be suitable for music performance. The evidence presented earlier in this chapter – such as the personal (e.g., intrapersonal, interpersonal), task (e.g., organizational), and environmental (e.g., community, policy) characteristics of music performance – fit well within the McLeroy framework (McLeroy et al., 1988; see Table 2). For example, the *organizational* rule of repetitious practice influences the *interpersonal* relationship a music student has with her instructor, culminating in a negative *intrapersonal* belief about practice. However, it is unclear how these characteristics interact across various levels of the framework during a given music performance.

Table 2

Personal, Environmental, and Task Characteristics of Music Performance within the McLeroy (1988) Framework

Level of Influence	Musician Examples
Intrapersonal	Personality traits (e.g., narcissism, perfectionism, psychoticism) Psychological skills (e.g., motivation, coping under pressure, executing appropriate social skills, arousal regulation, self-regulation, emotional control, attentional focus, self-confidence, concentration, self-efficacy, attitude) Physical skills (e.g., balance, coordination, breathing, stamina, posture, fine motor expression, sensorimotor integration, injury) Technical skills (e.g., expressivity, memorization, linguistic fluency, pitch acuity, tonal memory tonal imagery [executing harmony and melody], appropriate execution of rhythm/timbre/timing, improvisational ability, general music sensitivity)
Interpersonal	Social support (e.g., friends, significant others) The role of other musicians (e.g., music collaboration) The role of the family The role of the instructor
Organizational/Institutional Factors	The presence of an audience The music learning environment The practice process (e.g., isolation, living and practicing alone, repetition, blocked practice, dress rehearsal, periodization) Threat of financial insecurity Being subjected to constant public evaluation Inconsistent travel Inconsistent stage environments/acoustics/sound systems
Community	The process of a shared performance experience The pursuit of performance excellence Social implications from music listening (e.g., pleasure, isolation, communication, social bonding, imitation/conformity to ideals, synchronous action/arousal, rituals, caregiving/attachment; value systems, musician stereotypes)
Environmental/Public Policy	Funding for music education in school systems Access to music lessons Access to affordable healthcare

It is further argued that PPE strategies can bi-directly influence the various interdependent elements of the framework. For example, a PPE intervention aimed to decrease performance anxiety may simultaneously: (a) decrease the physical symptoms of anxiety which adversely impact health and longevity, such as an increased heart rate/sympathetic nervous system activation (*interpersonal*); (b) improve tactical skills by facilitating deliberate practice during rehearsal (*organizational*) and healthy interaction with other musicians (*intrapersonal*); and (c) decrease the cognitive ruminations that occur as a psychological anxiety response to an upcoming performance (*interpersonal*). Access to performance psychology professionals to facilitate said performance anxiety intervention may further be associated with the music *community's* values (e.g., embracing the pursuit of excellence).

Much is still not known about the nuanced psychosocial aspects of music performance, and where interventions can be best implemented to facilitate enhanced performance. Conceptualizing PPE in a music domain through a social ecological framework will help researchers and practitioners understand the various levels of influence that play an impactful role in music performance as well as the appropriate PPE interventions to target each level of influence, respectively.

As it is feasible to assume that music performance, with all its multidimensional factors, can be theoretically conceptualized through the social ecological model based frameworks (e.g., the McLeroy framework; McLeroy et al., 1988), there are a number of psychological strategies that have been proven to be beneficial for performance enhancement. These psychological strategies affect one or more of the identified factors in the framework (i.e., intrapersonal, interpersonal, organizational/institutional, community, environmental/public policy) that influence performance. PPE research has been heavily conducted in sport, but research in music

performance is still somewhat in its infancy (Pecen et al., 2016). What follows is a brief review of the existing literature to date exploring the usefulness of a range of PPE interventions utilized by musicians in the hope of improving their performance.

2.4. Psychological performance enhancement (PPE)

First characterized as "psychological doping" for soldiers (e.g., Davids, 1997, p. 251), PPE is typically defined as the use of skills and mental strategies to improve physical performance and to promote holistic well-being (Murphy, 1995; Nesti, 2010). Existing research from sport and music has highlighted that PPE interventions have the potential to enhance the integrated personal characteristics, task characteristics, and performance settings associated with a performance. Fagéus (1999) argues that PPE interventions for musicians work in three ways: (a) they help musicians to feel and function well, (b) they increase physical and psychological health, and (c) they help musicians to develop the capacity to deal with relationships (e.g., instructors, intimate relationships, fellow musicians).

PPE interventions are defined as psychological, social, or psychosocial "actions or processes that alter function and/or performance through changes in an individual's thought [and/or] behavior" (Brown & Fletcher, 2017, p. 77). These skills and strategies are primarily grounded in the principles of cognitive-behavioral therapy, operating under the assumption that one can manipulate their own internal processes with a goal to facilitate performance (e.g., Sappington & Longshore, 2015). These internal processes have a bidirectional impact on individual's feelings, thoughts, and behaviors, all of which also interact in a bidirectional manner, ultimately affecting the overall performance and its outcome (e.g., Sappington & Longshore, 2015).

Thus far, the literature suggests that there is no singularly accepted performance

enhancement modality in a music domain (Hays, 2017). While there is much evidence to support its effectiveness in a sport setting (for a review, see Zakrajsek & Blanton, 2017), PPE interventions are "not common within performing arts" and "the most important means of providing [PPE] training…for musicians… is not well understood" (Clark & Williamon, 2011, p. 343). As stated previously, interventions grounded in cognitive behavioral techniques have demonstrated promise within a music domain (e.g., Braden, Osborne, & Wilson, 2015). Literature also contrasts the above, as Gardner and Moore (2012) have argued that cognitively "controlling" mental processes may use up excess mental energy, take focus away from the task, and paradoxically elicit more negative thoughts. As a consequence, many performance professionals have taken to this way of thinking, and the philosophical underpinnings of PPE have shifted from a purely cognitive orientation toward acceptance-based and mindfulness approaches (Gardner & Moore, 2007; Kaufman, Glass, & Arnkoff, 2009; Sappington & Longshore, 2015).

It is important to note that while PPE contains elements of cognitive-behavioral training, (Sappington & Longshore, 2015), PPE is defined as a set of performance enhancement skills and techniques, and it is not a type of therapy or treatment (see Herzog & Hays, 2012). PPE skills and strategies are aimed to be psychoeducational and performance-oriented, rather than clinical, and need not be delivered or assessed in a counseling setting by a therapist or psychologist (Weinberg & Gould, 2015). Traditionally, PPE skills and strategies are delivered by performance psychology professionals (e.g., performance psychology consultant or mental skills coach) who have an educational background in performance enhancement (Weinberg & Gould, 2015). Therefore, when examining PPE, the present research excludes studies that employ clinical interventions (e.g., psychotherapy, counseling), pharmacological interventions (e.g., beta

blockers, anxiolytic medications) and studies that utilize clinical assessments (e.g., Diagnostic and Statistical Manual of Mental Disorders). While depression, eating disorders, and mood disorders were previously discussed as psychological concerns inherent in a music population, and are important psychological concerns to acknowledge in the multidimensional context of music performance, these presenting concerns would require a referral to a licensed professional and are not treated by way of PPE intervention (see Herzog & Hays, 2012).

Drawing from the existing theoretical and intervention literature, the aforementioned PPE interventions (i.e., imagery, self-talk, concentration, motivation, goal-setting, relaxation, mindfulness, and the Alexander Technique) and their associated psychological skills and psychological strategies will be reviewed as they relate to music performance. Conclusions about the efficacy of such interventions with musicians will also be explored.

2.4.1. Imagery

Defined as a "creation or re-creation of an experience generated from memorial information, involving quasi-sensorial, quasi-perceptual, and quasi-affective characteristics" (Morris, Spittle, & Watt, 2005, p. 19), imagery is one of the most commonly used psychological strategies across many performance domains. In music performance, musical imagery is characterized as a "multimodal process" involving a "mental experience of auditory…and/or visual, proprioceptive, kinesthetic, and tactile properties of music-related movements that are not (or not yet) necessarily present in the physical world" (Keller, 2012, p. 206).

Existing literature has proposed a number of theoretical conceptualizations as to how imagery can influence performance, none of which explicitly provide robust evidentiary support (e.g., psychoneuromuscular theory; triple code model; bioinformational theory; symbolic learning theory) (see Weinberg & Gould, 2015). However, Rodgers, Hall, and Buckolz (1991)

determined that imagery ability and thus, its effectiveness, can be improved through practice. Lehmann (1997) asserted that there are three types of imagery that a musician can employ: visual representations of the performance, audiations of the performed music, and a "photographic ear" (p. 146). The "photographic ear" represents the automatic access to music notes that musicians possess through practice (Lehmann, 1997). These differences in imagery types have not been explicitly parceled out in the music literature, but they provide domain-specific utility for imagery use among musicians. Little applied research has explored how imagery is employed with musicians (Keller, 2012). Keller (2012) hypothesizes that this limitation in imagery research may be related to difficulties associated with auditory imagery among musicians. Auditory imagery related to visualization of sound, perceptions of pitch, rhythm, and tempo, etc., are essential elements of music preparation, but the relationship between these auditory perceptions and music behavior are difficult to quantify (Hubbard, 2010).

It is also known that imagery is used for a number of purposes, such as enhancing expressivity, assisting in the prevention/treatment of injuries, pre-experiencing performance scenarios, and facilitating learning and memorization of music (Clark, Williamon, & Aksentijevic, 2012). In the existent literature, musical imagery has been implemented singularly or as part of a PPE intervention with musicians. For example, Clark and Williamon (2011) employed a nine week intervention that included imagery. At the conclusion of the intervention, there was a significant improvement in imagery vividness for the experimental group when compared to the control group on visualizing a sensory experience (Clark & Williamon, 2011). However, the process of imagery implementation was not informed by any theoretical models or frameworks. Thus, it is difficult to decipher what was actually introduced to musicians to produce a significant change in imagery from pre to post intervention.

Drawing from the intervention of Clark and Williamon (2011), Steyn, Steyn, and Panebianco-Warren (2015) utilized the PETTLEP model (i.e. imagery targeting the physical, environment, task, timing, learning, emotion, and perspective of imagery) as part of a seven week PPE intervention with musicians. However, in contrast, the experimental group's imagery did not significantly improve pre to post as a result of the intervention, as measured by the imagery subsets of Bull's Mental Skills Questionnaire (Bull, Albinson, & Shambrook, 1996). Additionally, it was unclear how imagery was presented to the musicians, as it appeared to be a characteristic of the intervention, but not the foci.

Hoffman and Hanrahan (2012) implemented imagery with musicians as part of a three week intervention targeting music performance anxiety, but a qualitative follow-up found musicians frequently discussing the importance and relevance of imagery within the context of their performances. Differing from the previously discussed interventions, the modalities by which imagery was delivered was elucidated in the study (Hoffman & Hanrahan, 2012). Musicians were read an imagery script and were asked to visualize the situation (Hoffman & Hanrahan, 2012). Musicians were further encouraged to develop their own detailed and individualized imagery scripts to facilitate performance (Hoffman & Hanrahan, 2012). Hoffman and Hanrahan (2012) noted that long-term imagery interventions may be more impactful for musicians. This makes intuitive sense, as imagery ability is a learned skill, and thus, may build on itself.

Additional studies implemented imagery as part of a comprehensive PPE program with musicians (Braden et al., 2015; Cohen & Bodner, 2018; Osborne, 2013). More specifically, Braden et al. (2015) and Osborne (2013) implemented imagery as one of the weekly topics in an eight week program with conservatory musicians entitled "Unleash Your Music Potential!"

(Brandon & Ivens, 2009) though imagery was not assessed pre/post. The "Unleash Your Music Potential!" was deemed collectively efficacious at enhancing performance and decreasing music performance anxiety (Osborne, 2013), but again, the mechanisms by which imagery is employed with musicians is unclear, and the extent to which imagery improvements related to program efficacy was not addressed.

A recent integrative summary of imagery interventions in a music domain (Finch & Moscovitch, 2016) identified eight studies that incorporated imagery with musicians, but these were all implemented as part of a performance anxiety intervention. Many of the reviewed studies implemented imagery along with some type of clinical therapy (e.g., hypnotherapy, behavioral therapy), and thus, do not meet the criteria for a PPE intervention, explicitly.

Musical imagery has three features which can be measured: (a) controllability (ease of image manipulation), (b) image vividness, and (c) accuracy of the imaged reference (e.g., Clark et al., 2012; Denis, 1991; Moran, 1993). According to a review by Clark et al. (2012), measuring musical imagery occurs by way of self-report questionnaires, such as Betts' Questionnaire upon Mental Imagery (Sheehan, 1967), Test of Performance Strategies-2 (Hardy, Roberts, Thomas, & Murphy, 2010), and the Vividness of Visual Imagery Questionnaire (Marks, 1973); behavioral tasks (e.g., Fine, 2002; Fine & Younger, 2004); mental chronometry, or the temporal aspects and timing of music performance to gauge "feel" (measured in conditions without kinesthetic or auditory feedback) (e.g., Repp, 1999a, 1999b); and physiological responses, but only under certain conditions (when examining motor improvements).

Taken together, it appears as though the time to practice and acquire imagery skills, as well as the mechanisms by which imagery is employed and executed, are glaring limitations to existing musical imagery research and practice. Musicians have qualitatively indicated its

effectiveness, but researchers cannot conclude how or why musical imagery works. With the exception of some qualitative follow-up in PPE intervention studies, the voice of the musician is glaringly missing from research examining imagery use. Researchers and practitioners do not have a solid understanding of why or how these interventions work, the extent to which imagery is actually used in practice by musicians, or musicians' beliefs about utilizing imagery. It is argued that evaluating musicians' actual use of imagery in practice, rather than evaluating imagery solely as a consequence of an intervention, may help to inform additional research into the mechanisms by which imagery is effective for a music population. Capturing musicians' actual use of imagery may provide a more ecologically valid assessment of imagery utilized as a strategy to enhancement music performance.

2.4.2. Self-Talk

Self-talk, or internal dialogues, has been identified as a technique to enhance music performance (e.g., Clark & Williamon, 2011; Emmons & Thomas, 1998; Hays & Brown, 2004; Osborne, 2013; Steptoe & Fidler, 1987; Wilson & Roland, 2002). In general, two types of self-talk have been identified: instructional self-talk (e.g., guiding oneself through a task) and motivational self-talk ("psyching" yourself up) (Hardy, 2006).

The mechanisms by which self-talk is effective are theoretically supported by the cognitive triangle, or the interplay of thoughts, feelings, and behaviors (Beck, 1976). The cognitive triangle suggests that what we say to ourselves bi-directionally impacts our thoughts and our feelings (see Fenn & Byrne, 2013). Thus, in theory, regulation of internal thought patterns by way of self-talk can facilitate modified behavioral action and feelings. Self-talk is also associated with self-efficacy, as verbal persuasion is a mechanism by which a person can develop self-efficacy beliefs about success in a given performance endeavor (Bandura, 1997;

Hardy, 2006).

Positive self-talk allows individuals to maintain present-moment focus and to not dwell on previous mistakes (Hatzigeorgiadis, Theodorakis, & Zourbanos, 2004). Self-talk has also been shown to influence attentional focus, improve the technical aspects of a performance, facilitate arousal management, improve focus on task-relevant demands, and encourage motivational efforts in performance (Hatzigeorgiadis et al., 2004). The majority of empirical research on the use of self-talk among musicians is only examined in a performance anxiety context (see Kenny, 2011). While self-talk has shown promise for ameliorating performance anxiety (Ely, 1991; Patston, 1996), self-talk may have other functions within a music domain that have been rarely investigated or explored. Other performance domains have demonstrated self-talks' ability to regulate arousal levels, acquire new skills, sustain effort over a period of time, and enhance motivation, respectively (Weinberg & Gould, 2015).

In a qualitative study, Clark, Lisboa, and Williamon's (2014) sample of musicians engaged in negative self-talk when things were not going well during a performance, which often led to further mistakes. However, this study was examining performance quality, rather than studying self-talk explicitly. Self-talk emerged as a facilitative and debilitative aspect of music performance (Clark et al., 2014). For example, Clark et al. (2014) further found that musicians had difficulty controlling their negative self-talk and expressed concerns about how to regain their concentration. Self-talk further related to levels of happiness expressed in regards to performance quality and musician self-efficacy (Clark et al., 2014). Clark et al. (2014) recommended that musicians are provided with training on how to "control" their thought processes, but did not offer suggestions on how that might be implemented. In light of the ironic processes effect, neurological research suggests that telling yourself not to do something ("don't

mess up") inadvertently instigates its occurrence (e.g., Janelle, 1999). Thus, "controlling" negative thought processes may not be intuitively helpful to performance, and may utilize unnecessary cognitive energy (see Gardner & Moore, 2012).

In an 8-week pre/post intervention study specifically examining the relationship between self-talk and music performance cognitions, Weiss (2008) found that musicians who received instruction in how to incorporate positive self-talk had increased confidence and a significant decrease in music performance anxiety as compared to a control group of music students who did not receive self-talk instruction. The psychoeducational intervention incorporated reframing (changing negative self-talk to positive self-talk) and thought-stopping (i.e., noticing when a negative thought is occurring and yelling "STOP" to change your thought to a task-oriented cue) exercises derived from Rational Emotive Behavior Therapy (REBT; Ellis, 2003), as well as personalized cue word utilization (Weiss, 2008). Unfortunately, results from the study questioned the validity of the Automatic Thoughts Questionnaire–Revised (ATQ-R; Kendall, Howard, & Hays, 1989) measure utilized for a musician population, as Weiss (2008) noted that the negative self-talk examples in the ATQ-R – though validated for a general population – did not reflect the self-statements musicians typically use in performance. Thus, the efficacy of the intervention is called to question as the measure utilized to capture self-talk was inappropriate for the population. However, qualitative follow-up interviews may provide some insight into self-talk utilization for musicians. For example, many musicians interviewed noted that they already utilized self-talk, but appreciated the structured nature of self-talk implementation by way of the intervention. Weiss (2008) argued for additional research into this domain, emphasizing one-on-one contact with musicians to tailor interventions to the specific needs of the musician, respectively.

Burton and Raedeke (2008) argued that self-talk is the least utilized psychological skill for performance enhancement for athletes as well as for the general population. Perhaps these limitations in identifying empirical studies examining self-talk among musicians is mirroring this assertion. An exception to this exploration of self-talk is the experimental PPE intervention studies conducted by Clark and Williamon (2011), Steyn et al. (2015), Hoffman and Hanrahan (2012), Braden et al. (2015), Osborne (2013), and Osborne et al. (2014). However, these studies do not explicate the mechanisms by which self-talk was taught or executed, but rather note that self-talk was included as part of a psychoeducational curriculum (e.g., Unleash Your Potential!: Thinking Skills for Enhanced Performance; Brandon & Ivens, 2009), workshop, or intervention targeting multiple psychological skills. For example, Hoffman and Hanrahan (2012) provided only the following insight into the details of the self-talk intervention: "for the third and final workshop…participants practiced how to identify negative thoughts, stop the thoughts, and use cues to help them overcome the negative thoughts" (p. 5). No other explicit instructions were provided for implementing self-talk effectively in music performance among the PPE intervention studies reviewed. However, not all negative self-talk is deemed to be unhelpful, and in some instances, negative self-talk may facilitate performance (Tod, Hardy, & Oliver, 2011). Regardless, these specific techniques may not be feasible for a musician population, and additional research is warranted into the specific techniques musicians use, require, or find useful in regards to their self-talk. The remainder of the studies utilizing self-talk with musicians, as cited above, did not measure self-talk specifically, but included self-talk as part of their PPE intervention (i.e., Braden et al., 2015; Clark & Williamon, 2011; Hoffman & Hanrahan, 2012; Osborne, 2013; Steyn et al., 2015).

Though almost explicitly utilized and validated in a sport domain, the amount of self-talk

and the effectiveness of self-talk is primarily measured by questionnaire, including the Test of Performance Strategies (TOPS-2; Hardy et al., 2010); Psychological Skills Inventory for Sports (PSIS; Mahoney, Gabriel, & Perkins, 1987), the Athletic Coping Skills Inventory-28 (ACSI-28; Smith, Schutz, Smoll, & Ptacek, 1995), and the Athletes' Positive and Negative Self-Talk Scale (Zourbanos, Hatzigeorgiadis, & Theodorakis, 2007). The functions of self-talk in a performance context can be measured by the Self-Talk Questionnaire (S-TQ) for Sports (Zervas, Stavrou, & Psychountaki, 2007), Functions of Self-Talk Questionnaire (Theodorakis, Hatzigeorgiadis, & Chroni, 2008), the Automatic Self-Talk Questionnaire for Sports (ASTQS; Zourbanos, Hatzigeorgiadis, Chroni, Theodorakis, & Papaioannou, 2009), and the Thought Occurrence Questionnaire for Sport (Hatzigeorgiadis & Biddle, 2000). Self-talk diaries, brain scans, descriptive experience sampling methods, video recordings, or observational data can further be utilized as measurement tools for a performer's self-talk (e.g., Van Raalte & Vincent, 2017). In a music domain, the existent literature tends to measure the impact self-talk has on another phenomena, such as performance anxiety, rather than measuring actual self-talk. In fact, one music researcher deemed self-talk interventions to be "virgin territory" among musicians (Weiss, 2008, p. 24), warranting greater exploration.

Taken together, it appears as though many music researchers felt it necessary to include self-talk as part of a comprehensive PPE intervention, but were unaware of how self-talk is best utilized with musicians in practice and in actual performances. Many existing measures used to examine self-talk are borrowed directly from sport and are not tailored to meet the specific needs of a musician population. Given that self-talk has been cited as the least utilized psychological skill for performance enhancement (Burton & Raedeke, 2008), more research is warranted in regards to how musicians use and benefit from self-talk.

2.4.3. Relaxation

Defined as "temporary deliberate withdrawal from everyday activity that aims to moderate the functions of the sympathetic nervous system which is usually activated under stress" (Hill, 2001; as cited in Walker & Heaney, 2013, p. 87) relaxation techniques and its associated interventions, are commonly employed as part of a music performance anxiety (MPA) intervention (Braden et al., 2015; Burin & Osório, 2016; Kenny & Halls, 2017; Su et al., 2010; Sweeney & Horan, 1982). In a review of relaxation interventions aimed to specifically target music performance anxiety (McGrath, 2012), the following relaxation interventions were presented: progressive muscular relaxation (PMR) (Jacobsen, 1929), physiological relaxation training (Bernstein & Borkovec, 1973), meditation (Gerrig & Zimbardo, 2002), and biofeedback (Levee, Cohen, & Rickles, 1976). Although most commonly utilized with music performance anxiety interventions, these aforementioned relaxation techniques are also part of many PPE interventions conducted with musicians (Braden et al., 2015; Clark & Williamon, 2011; Cohen & Bodner, 2018; Deen, 1999; Osborne, 2013; Steyn et al., 2015). Musicians possess a high level of self-awareness related to temporal breathing and breath control (Sakaguchi & Aiba, 2016) and therefore, find relaxation interventions necessary for optimal performance and easy to implement in practice.

The physiological theory of relaxation demonstrates the effects relaxation has on the autonomic nervous system, and this biological mechanism is universal across performance domains. Physiologically, the parasympathetic and sympathetic nervous system manage the body's arousal state (Benson, 2000; Payne, 2000). When presented with a threat, such as an upcoming music performance, the sympathetic nervous system becomes engaged to help the body cope with the perceived threat (e.g., Benson, 2000; Payne, 2000). During this process, the

parasympathetic nervous system no longer has control of the body as a way to protect itself from danger (i.e., “fight or flight” response). Instead, the sympathetic nervous system increases heart rate, blood pressure, and sweat gland activity to protect the body from the threat (Benson, 2000; Payne, 2000). Once the threat has gone away, the parasympathetic system works to restore the body back to homeostasis and calmness (Benson, 2000; Payne, 2000). Relaxation techniques intervene to help balance the autonomic nervous system demands and thus, assist a person in returning to a calm state (Boon, 2004).

Many techniques noted above have been explored to facilitate relaxation. To explicate further, progressive muscle relaxation involves a systematic process of intentionally tensing then relaxing various muscles to identify tension in the body (Jacobsen, 1929). Physiological relaxation training traditionally involves regulation of the breath (i.e., slow, controlled belly breathing or ratio breathing, where the exhalation is twice that of the inhalation) and thus, regulation of the heart rate and respiration (e.g., Bernstein & Borkovec, 1973). Meditation is a form of consciousness alternation by which a participant actively participates in self-reflection, coupled with deep breathing (e.g., Gerrig & Zimbardo, 2002). Biofeedback is a process that allows participants to physically witness quantified bodily functions (i.e., heart rate, skin temperature) on a screen by way of sensors strategically placed throughout the body (e.g., McGrath, 2012). Biofeedback facilitates relaxation by allowing the participant to witness the body-mind connection in real time (e.g., McGrath, 2012).

Unlike imagery and self-talk, the mechanisms by which relaxation interventions are delivered in a music domain are quite clear and are consistently reported throughout the music performance literature. However, in nearly all existing PPE studies among musicians, the levels of relaxation are not specifically measured from pre to post intervention, but rather, explored in

relation to another phenomena (e.g., the impact of breathing on decreased anxiety). Some exceptions are a pre/post physiological evaluation of musicians' heart rate, as measured by a heart monitor (Hoffman & Hanrahan, 2012), and a measure of musicians' muscle tension, as measured by biofeedback equipment (Cutietta, 1986). It is important to note that relaxation interventions are often conducted in tandem with other PPE interventions, rather than as standalone interventions. In fact, relaxation may be paired with other PPE interventions as part of a multidimensional process (see Zakrajsek & Blanton, 2017). Hays and Brown (2004) indicated that a state of complete relaxation may be impossible prior to a music performance, and many musicians who operate optimally when highly aroused find relaxation strategies to have limited use (Pecen et al., 2016). There also appears to be an unclear understanding of the timing of the relaxation intervention (pre-performance, during performance, post-performance; at all stages of performance, etc.). It appears as though many musicians are aware of the various relaxation strategies, but are unclear when to use them effectively.

Within a music domain, relaxation has been measured with quantitative surveys, such as a Likert-type Relax Rating Scale (Skotnicka & Mitas, 2014), as well as with biomedical measurements of relaxation, such as: heart rate, heart rate variability, electroencephalography, blood pressure, and body temperature (Skotnicka & Mitas, 2014), or simply through subjective inquiry (Park, Song, & Miyazaki, 2017). Given that relaxation targets both somatic and cognitive elements of musician performance, measurements should be tailored to the specific need of the musician.

In summary, relaxation and relaxation interventions are familiar to all performers, with musicians possessing a keen understanding of the physiological mechanisms associated with breathing/breath control, as the process is a technical skill inherent to the craft (Sakaguchi &

Aiba, 2016). Existing research on PPE among musicians demonstrates that relaxation skills and strategies are taught in tandem with other psychological skills. Hays and Brown (2004) note that a state of complete relaxation may be impossible prior to a music performance, and many musicians who operate optimally when highly aroused find relaxation strategies to have limited use (Pecen et al., 2016). The voice of the musicians in how, when, and why relaxation strategies are implemented is missing from the literature. Music researchers and performance practitioners are unclear of when to implement the relaxation interventions to maximize a performance, and have yet to effectively measure relaxation outside of physiological markers, respectively.

2.4.4. Concentration

Defined as the focus and direction of attention, concentration plays a central role in a musician's physical skill execution (Mornell & Wulf, 2018). Consequently, only a few studies have examined concentration interventions among music performers (Atkins, 2017; Atkins & Duke, 2013; Duke et al., 2011; Mornell & Wulf, 2018). This assertion does not include the expansive literature base demonstrating how listening to music enhances concentration inherently (e.g., Darrow, Johnson, Agnew, Fuller, & Uchisaka, 2006). Music performance literature has demonstrated that external focus (i.e., focus on the audience): diverts attention from the self (Wulf & Lewthwaite, 2016), suppresses self-focused attention and associated rumination (Mornell & Wulf, 2018), facilitates automaticity of movement (McNevin, Shea, & Wulf, 2003), produces better sound quality (Atkins, 2017), and frees up mental capacity for the performance task (Kal, van der Kamp, & Houdijk, 2013), which Mornell and Wulf (2018) argue can be used for artistic expressivity rather than skill execution. Focused concentration is also a construct of flow theory, associated with total immersion in a task (Csikszentmihalyi, 1990).

Performers attend to both external and internal stimuli, and most maintain a balance as

they shift the stimulus back and forth depending on the task (e.g., Nideffer, 1976). According to Wulf et al. (2001), the constrained-action hypothesis is the most extensively accepted theory of concentration in musicians. The constrained-action hypothesis states that when performers use an internal focus of attention, this may interfere with the automaticity normally associated with regulating movement (e.g., Wulf et al., 2001). Conversely, an external focus of attention allows the movement to self-organize in a natural manner and thus, execute a performance (Wulf et al., 2001).

Greene's Performance Success Program (Greene, 2002) has been implemented explicitly with musicians as a means to enhance concentration, among other psychological skills (Osborne et al., 2014). The foundational element of Greene's Performance Success Program is the process of centering (Osborne et al., 2014). Centering is a self-regulating process that can be used before or during a music performance to refocus attention toward the appropriate cue (Greene, 2002; Osborne, 2014). Osborne et al. (2014) identified four parts to centering: (a) setting a clear intention for the task; (b) distributing body weight to the center of mass; (c) taking deep breaths into the lower abdomen to release bodily tension; (d) shifting attention away from the left hemisphere (language) to the right brain hemisphere (hearing and feeling). Osborne et al. (2014) argue that Greene's techniques are colloquially used by many musicians but that the techniques are rarely tested empirically as an intervention to improve attentional focus and thus, facilitate optimal performance. Osborne et al. (2014) cited Kageyama's (2007) study as the only other empirical study examining centering, and the study had inconclusive results. Kageyama (2007) found that the attentional control group that utilized centering had the largest reduction in pre-performance state anxiety in comparison to the no treatment group and arousal control, but results were not statistically significant (e.g. Osborne et al., 2014). But notably, the musicians in

Osborne et al.'s study (2014) increased concentration and focus from pre to post participation in Greene's Performance Success Program. Concentration was measured as a subset of the Performance Skills Inventory (PSI; Greene, 2013). While the Performance Skills Inventory is tailored toward a musician population, it has not been validated for further use.

Hatfield's mixed methods study (2016) examining a sport-oriented PPE program revised for musicians showed that musicians improved concentration from pre to post intervention, as measured by the Self-regulated Learning in Music Questionnaire (SLMQ) developed by Hatfield and Lemyre (2016), rather than a specific concentration measure. Qualitatively, Hatfield (2016) found that every participant discussed a lack of concentration as being detrimental to their optimal performance, which appeared to be related to goals and self-efficacy. This study demonstrated the effectiveness of individualized, long term PPE program tailored to musicians with ecologically valid tasks (e.g., preparing concert pieces from intervention start to finish). However, it is unclear what exact mechanisms were specifically employed as part of the intervention, as concentration was only a minor part of the intervention. While the work aimed to overcome limitations to PPE duration, its small sample size (< 30) makes analysis of findings less meaningful. A similar conclusion can be drawn from the PPE intervention of Steyn et al. (2015), who noted that a "concentration grid", and "single minded versus multitasking" were practical exercises employed to facilitate concentration as part of a multi-week PPE intervention with musicians (p. 603), but these were the only exercises enumerated to target concentration as part of the intervention.

Talbot-Honeck and Orlick (1998) conducted qualitative interviews with elite classical musicians about the mental factors associated with performance excellence, and found that many elite musicians identified concentration as an important element to optimal performance. Some

musicians noted that concentration could not be "forced" but rather, should flow naturally (Talbot-Honeck & Orlick, 1998, p. 69). This qualitative study is often cited as the first to bridge the gap between sport and music in regards to the examination of mental skills and excellence in performance (Steyn et al., 2015). While these interviews elucidate what an "excellent" musician does, it does not provide any evidence into the types of interventions musicians may employ to enhance such skills, as this would be the logical next step in the research process.

Nideffer's Test of Attention and Interpersonal Style (TAIS) (1976) quantitatively measures attentional style (e.g., broad-external, broad-internal, narrow-external, narrow-internal). Those with superior concentration can tend to external and internal stimuli effectively and thus, score higher on broad-external and broad-internal constructs of the TAIS (e.g., Weinberg & Gould, 2015). Attentional styles have theoretical consequences if employed improperly. For example, if a performer narrowly focuses on motor skills rather than broadly on the external audience, performance quality may suffer. Those who concentrate well can also seamlessly shift from a broad to a narrow focus without overloading the cognitive system (e.g., Weinberg & Gould, 2015). Regrettably, the TAIS has not been examined in a musician population, so conclusions regarding its efficacy in a music population cannot be deciphered. But recently, Medina and Barraza (2019) utilized the Attention Network Test (Posner & Petersen, 1990) to compare the executive attention of musicians and non-musicians. The ANT asks participants to identify the direction of the central arrow, which is flanked by two other arrows on either side of the central arrow (e.g., Medina & Barraza, 2019). While this test is generally utilized as a measure of executive functioning, it is the only empirical study evaluating concentration in a music population. Psychophysiological measures, such as electroencephalogram (brain activity) and electrocardiography (heart activity) may further assist

in understanding a performer's concentration (Weinberg & Gould, 2015), but its use is unclear in a musician population.

In summary, aspects of concentration have been explored with musicians and possess a sound theoretical basis, but the exact interventions and exercises utilized for enhancing concentration – aside from a concentration grid, centering, and single minded shift versus multitasking – seem limited in the music performance literature. Mornell and Wulf (2018) suggested that an external focus seems to yield beneficial results for musicians. While musicians could articulate that concentration was helpful for a performance, musicians did not indicate *why* concentration is helpful, or what strategies they typically execute to enhance concentration. Most measures of concentration tend to focus only on the executing functioning aspects of attention, with the exception of Nideffer's Test of Attention and Interpersonal Style (TAIS) (1976), which examines attentional styles. However, the more common measures of attentional style (e.g., TAIS) have not been validated or utilized with a musician population.

2.4.5. Goal-setting

Goal-setting, or the process of establishing behavior(s) to work toward an outcome (see Locke & Latham, 1990), has mixed reviews in a music domain (Hatfield, 2017). Despite being a central tenet in PPE interventions implemented in a sport domain (Hatfield, 2016; Weinberg & Gould, 2015), goal-setting interventions employed in a music domain represent what Hatfield (2017) calls "opposing trends" in experience-based (applied) versus pedagogical (theoretical) literature (p. 272). For example, applied research denotes the importance of goal-setting to achieve performance excellence, however, the pedagogical and scientific literature reflects that very few musicians employ goal-setting strategies (Hatfield, 2017; Jørgensen & Lehmann, 1997; Miksza & Tan, 2015; Nielsen, 2004). Bratlie and Jørgensen (2015) determined that music

performance students preferred a day-to-day plan on how or what to practice.

Locke and Latham's goal-setting theory (1990) is utilized as a mechanism to explain goal-setting in performance (see Figure 2), demonstrating the mechanisms (e.g., choice/direction, effort, persistence, strategies) and moderators (e.g., goal commitment, goal importance, self-efficacy, feedback, task complexity) of specific goals on performance. Locke and Latham's theory is underpinned by the notion that humans have objectives to their behaviors (see Ryan, 1970).

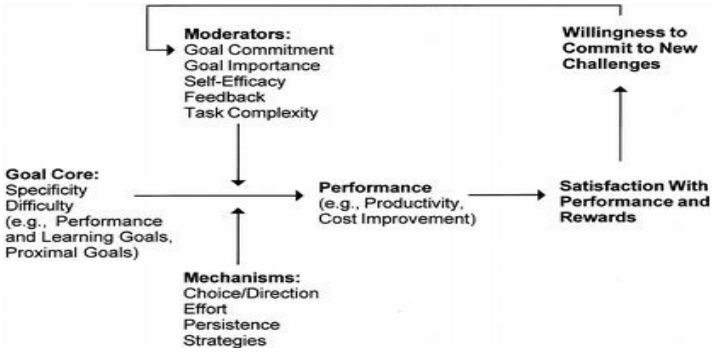

Figure 2. Main components of Locke and Latham's goal-setting theory (Locke & Latham, 2002)

Locke and Latham (2002) posit that there are four mechanisms that mediate the relationship between goals and performance. First, high goals relate to greater effort than easier or vague goals (Locke & Latham, 2002). Next, goals also "direct attention, effort, and action toward goal-relevant actions at the expense of non-relevant actions" (Locke & Latham, 2006, p. 265). Third, goals also require you to possess the essential knowledge and skills associated with the tasks of the goals, and may motivate one to either use existing abilities or acquire new knowledge to complete the task (Locke & Latham, 2002). Lastly, goals can combine with self-efficacy to mediate other motivating variables, like "personality traits, feedback, participation in decision-making, job autonomy, and monetary incentives" (Locke & Latham, 2006, p. 265).

Hatfield (2017) indicated that musicians are frequently involved in goal-directed actions,

but these goals are often too general in nature and thus, more apt to be unsuccessful. Osborne (2013) and Osborne et al. (2014) utilized goal-setting in their PPE intervention, but the ways in which goal-setting was taught to musicians was not specified. Hatfield (2017) further determined that music students in collegiate settings collectively seem passionate about setting goals (Bonneville-Roussy, Genevieve, & Vallerand, 2011), but are unaware of the mechanisms and resources necessary to achieve their long-term goals (Hatfield, Halvari, & Lemyre, 2016; Lehmann & Jørgensen, 2012; Nielsen, 2004). It appears as though goals are set but are not frequently revisited throughout the process of achieving said goals. In another intervention study, music students who set more specific goals in tandem with long terms goals had increased motivation to practice (Hatfield, 2016). However, musicians often cite that they are never taught how to plan or prepare (e.g., set performance goals), but instead, are frequently instructed on what to do, and when to do it (Hatfield, 2017). The autonomous nature of goal-setting appears to be lost in a music population, and it is unclear how musicians utilize goal-setting to influence their performances, respectively.

Measurement of goal-setting is quite vast and often domain-specific, given the individualized nature of the goal-setting process. As such, there are no explicit surveys that "measure" goal-settings, as success in goal completion is an individualized endeavor (e.g., Locke & Latham, 2002). Many domains employ goal attainment scaling approaches, such as that developed by Kiresuk and Sherman (1968). Kiresuk and Sherman (1968) indicated that goals should be best "measured" by the unique needs and problems of the person setting the goals at any given time. To utilize the Kiresuk and Sherman (1968) method, the person setting the goals assigns a numerical weight to each goal area (1-99). Follow-up time periods are set for goal completion, the outcome is stated for each goal, and various benchmarks achieved throughout

the process of getting the goal are also established and scaled with quantitative numerical values to achieve along the way (e.g., +1 point for an increase toward the outcome, -1 for a decline).

Goal-setting literature within performance domains also frequently references the importance of setting "SMART(s)" goals (Specific, Measureable, Achievable, Relevant, Time-Bound, Self-Determined) (see Locke, 1968). This acronym is frequently referenced as a mechanism for measuring appropriate goals, but such principles lack empirical rigor in its utility.

In general, it appears as though goal-setting is a term of importance among musicians, but the mechanisms by which goal-setting is employed or valued in a music culture is not understood. Musicians appear to lack autonomy in their performance preparation, as they are often told what to practice, rather than how to practice (Hatfield, 2017). Thus, goal-setting strategies are not executed properly, if at all. Measurement of goals appears to be individualized and the application of goal-setting strategies seems to reflect "opposing trends" in experience-based (applied) versus pedagogical (theoretical) literature (Hatfield, 2017, p. 272).

2.4.6. Motivation

Motivation is defined as one's drive and energy to perform (Martin, Collie, & Evans, 2016). Martin (2007) suggested that musicians' motivation and engagement is predicated on adaptive cognition (self-efficacy, valuing, mastery orientation), adaptive behavior (planning, task management, persistence), maladaptive cognition (failure avoidance, uncertain control, anxiety), and maladaptive behavior (self-handicapping, disengagement). Twenty percent of the variance in musical achievement is argued to be explained by musician motivation (Asmus, 1995). Music education research is rife with investigations into motivation, as educators have practical interest in exploring task-involved versus ego-involved performance and student learning, students' development of competence versus fear of failure, the motivational conditions surrounding

dropout and persistence (e.g., Evans, 2015), as well as the quality of strategies utilized in music practice (e.g., McPherson, 2005).

Thus far, a number of theories have been proposed to explain motivation from different perspectives (e.g., need achievement theory, attribution theory, achievement goal theory, competence motivation theory; Weinberg & Gould, 2015). Martin (2005) argues that the construct is fragmented, with a need for a more integrated theory to describe motivation. Evans (2015) suggested that self-determination theory (Deci & Ryan, 2000) can unify the study of motivation in a music domain, specifically. Self-determination theory argues that conditions fostering a person's autonomy, relatedness, and competence facilitate quality motivation (e.g., Deci & Ryan, 2000).

Cogdill (2014) noted that a musician's self-concept, or the beliefs musicians have about themselves, may be stronger than other performance domains, given the evaluative nature of music practice and the frequent comparison to others (e.g., Bong & Clark, 1999; Greenberg, 1970; Lamont, 2011). Having a strong self-concept relates heavily to whether music students will have the motivation to continue pursuing music (Cogdill, 2014). Steyn et al. (2015) further noted that there is a need to evaluate musician motivation as it relates to associated music outcomes, as motivation is associated with goal achievement (e.g., Locke & Latham, 1990). As part of a PPE intervention with musicians, motivation significantly increased from pre-intervention to post-intervention (Steyn et al., 2015). However, the specific PPE intervention mechanisms employed with musicians were unclear, as the description of the intervention only described the 20 year expertise of a sport psychology professional who adapted the intervention to musicians, but did not enumerate what was adapted and why (see Steyn et al., 2015). Longitudinal studies examining music motivation and music engagement are absent from the

music performance literature (Steyn et al., 2015).

To measure motivation, Martin, Collie, and Evans (2016) recommend the music form of the Motivation and Engagement Scale (MES-M; Martin, 2010) to measure musicians' motivation and engagement through adaptive cognitive dimensions of self-efficacy, mastery orientation, and values. Aspects of musician motivation have further been captured in PPE interventions with Bull's Mental Skills Questionnaire (Bull et al., 1996; Steyn et al., 2015). Bull's MSQ measures a performer's capacity to utilize the following mental skills: imagery, mental preparation, self-confidence, anxiety and worry management, concentration, relaxation, and motivation (Bull et al., 1996). While all constructs have high alpha levels ranging from .59 to .80, the measure was developed in South Africa and standardized in both South Africa and the United Kingdom (Edwards, Steyn, Buscombe, Edwards, & Denyer, 2014). The measure has yet to be implemented with musician populations in the United States, and the measure does not decipher between the psychological skills and psychological strategies musicians implement in practice and in performance.

Motivation in music performance is difficult to capture theoretically, but understanding a musician's motivation is important, as musicians characteristically have a strong sense of self-concept, which relates to the motivation to continue pursuing music (Cogdill, 2014). Additionally, the subjectively evaluative nature of music performance may adversely impact motivation (Bong & Clark, 1999; Hays, 2017). The ways in which motivation is measured among musicians appears to be unclear, and the mechanisms and processes by which motivation interventions are employed are absent from the music performance literature.

2.4.7. Mindfulness

Defined as "paying attention in a particular way: on purpose, in the present moment, and

nonjudgmentally" (Kabat-Zinn, 1994, p. 4), the practice of mindfulness has been examined in the context of music performance anxiety (Chang, Midlarsky, & Lin, 2003), music listening (Díaz, 2011), and in conjunction with other music-oriented intervention modalities for therapeutic or psychological reasons (e.g., Coholic, 2011; Steyn et al., 2015). Performers must be able to execute even on days that they are not feeling their best (Wilson & Richards, 2011). Mindfulness allows musicians to commit to the performance task, even when experiencing negative thoughts, pain, and negative feedback (see Steyn et al., 2015).

Mindfulness represents a paradigm shift in performance enhancement from the cognitive elements associated with PPE interventions (Gardner & Moore, 2012). Mindfulness seeks to build a stronger relationship and acceptance of one's thoughts rather than work to modify them through PPE (Gardner & Moore, 2012). Mindfulness may share conceptual similarities to self-regulation (Shapiro & Schwartz, 2000). However, in a systematic review of mindfulness research in a music domain, Lecuona de la Cruz and Rodríguez-Carvajal (2014) argue that a majority of research on the use of mindfulness to enhance music performance is theoretical rather than empirical. As such, researchers are generally unaware of the extent to which mindfulness is utilized in music performance practice.

Steyn et al. (2015) suggest that mindfulness (specifically mindfulness, acceptance, and commitment or the MAC approach) can be a "safety net" when a performer has maximized their training and utilized PPE but is still unable to reach the optimal state necessary to achieve a good performance (p. 598). In a PPE intervention that includes the MAC approach as a complement to the intervention, Steyn et al. (2015) found that musicians did not differ significantly from pre to post intervention on any of the FFMQ subscales except the "describe items" construct and "non-judge items" construct. However, the control group demonstrated no change in mindfulness from

pre to post, demonstrating that mindfulness did play a role in facilitating enhanced performance. Steyn et al. (2015) drew upon Kee and Wang's (2008) mindfulness and PPE research, which argued that mindfulness may facilitate the learning of PPE interventions and thus, should be considered when developing performance programs.

In the only known study exploring mindfulness specifically for singers, Czajkowski and Greasley (2015) noted that the breathing exercises and the enhanced focus apparent in mindfulness could be of benefit to the singer population. Czajkowski and Greasley's (2015) mixed methods examination of mindfulness found that musicians qualitatively discussed improvements to breathing, muscular awareness, problem solving, vocal tone, and text communication as a result of the intervention. Quantitatively, the musicians improved on all aspects of the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2008) from pre to post (Czajkowski & Greasley, 2015). Contrary to the Mindfulness Acceptance Commitment (MAC) approach utilized by Steyn et al. (2015), Czajkowski and Greasley (2015) utilized the Mindfulness Based Stress Reduction (MBSR) approach (Kabat-Zinn, 1990). Both approaches (MAC and MBSR) are manualized interventions but have little application-based research in a music domain. Researchers have further suggested that future mindfulness based interventions with musicians should be explored to help musicians to deal with stress, manage repetitive injury strains, quell nerves, and bolster creativity on stage (Czajkowski & Greasley, 2015). However, it is unknown how often or how frequently musicians currently utilize and embrace present-moment awareness in their practice.

A mindfulness measure that has demonstrated utility with musicians is the Five Facet Mindfulness Questionnaire (FFMQ) (Baer et al., 2008). The FFMQ evaluates five facets associated with achieving a mindful state: observing, describing, acting with awareness, a non-

judging approach of one's inner experience, and non-reactivity to inner experience (Baer et al., 2008). Another measure of mindfulness is the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), which measures dispositional mindfulness through constructs of awareness and attention. Mindfulness has also been evaluated qualitatively through in-depth interviews (e.g., Sappington & Longshore, 2015). Continuous Response Digital Interface (CRDI) is yet another mechanism for evaluating mindfulness (Lecuona de la Cruz & Rodríguez-Carvajal, 2014).

In conclusion, mindfulness practice represents a paradigm shift from *controlling* one's thoughts and associated behaviors to *accepting* such thoughts and associated behaviors (Sappington & Longshore, 2015). The extent to which musicians utilize and embrace the practice of mindfulness is empirically unknown. Mindfulness has been proposed in music literature as a "safety net" when psychological skills and techniques have been employed by the performer, but they are unable to reach the optimal state necessary to achieve a good performance (Steyn et al., 2015). Developing manuals for certain mindfulness-based interventions has been proposed in other performance domains such as sport (Sappington & Longshore, 2015), and at present, none are adapted specifically for use among musicians.

2.4.8. The Alexander Technique

The Alexander Technique (AT) is a psychophysiological technique to facilitate kinesthetic awareness and thus, avoid unnecessary body movements (Klein, Bayard, & Wolf, 2014). Reeducating the body to avoid unnecessary movements helps release bodily tension and musculoskeletal pain (Klein et al., 2014). The Alexander Technique differs from other bodywork techniques because it incorporates verbal instructions with hands-on techniques, encapsulating a mind-body connection (Klein et al., 2014). The Alexander Technique is deemed an effective

technique for treating musicians' injuries as well as performance anxiety (Klein et al., 2014). It is an intervention commonly employed to enhance performance in performing artists, specifically (for a review, see Klein et al., 2014).

The Alexander Technique is generally limited to physical therapy and performing arts populations (Cranz, 2000). Klein and colleagues (2014) conducted a systematic review of all Alexander Technique interventions that contained a control group, finding only twelve studies meeting the inclusion criteria. While the manualized modalities by which Alexander Technique are employed (Macdonald, 1989) appear to be better understood in a music population than PPE interventions, there are still inconsistencies related to session frequency and session duration across interventions.

Valentine, Fitzgerald, Gorton, Hudson, and Symonds (1995) empirically explored the impact Alexander Technique had on music performance quality and performance anxiety. The Alexander Technique group demonstrated improvement to technical quality of music, as well as improvements to heart rate variance, self-rated anxiety, and positive attitudes toward performance (Valentine et al., 1995, as cited in Klein et al., 2014). From the same study, qualitative interviews showed that the AT group became more cognizant of bodily tension and felt an increased ability to relax (Valentine et al., 1995, as cited in Klein et al., 2014). The mechanisms by which AT is proposed to be effective is the process of decreasing muscular tension and facilitating bodily awareness by reeducating the body away from habitual postures (e.g., Klein et al., 2014).

Existing studies that have employed the Alexander Technique did not measure the technique itself but rather the associated outcomes of implementing the technique. Cited outcome measurements often include music performance (e.g., posture, breath control,

movement; Dennis, 1988), heart rate (Valentine et al., 1995), respiratory function (Dennis, 1988), pain (Mozeiko, 2011), performance anxiety (Hoberg, 2008; Lorenz, 2002), judge-rated performance quality (e.g., Egner & Gruzelier, 2003), muscle activity measured by EMG (Engelhart, 1989), tone quality (Engelhart, 1989), and postural faults (Barlow, 1956). Brennan (1996) published an Alexander Technique manual that is widely utilized among musicians, however, the postural movements are difficult to quantitatively measure.

The Alexander Technique is accepted and widely utilized in a musician population and thus, should be considered when evaluating musicians' use of performance strategies. While an Alexander Technique manual permeates the music literature (Brennan, 1996), it is difficult to quantify the efficacy of such technique, despite its association with numerous psychophysiological improvements in music performance.

2.5. General implications of PPE interventions and its relation to theory

From the psychological skills and psychological strategies explored as part of the PPE interventions, mindfulness, and Alexander Technique interventions discussed above, the infancy of utilizing performance enhancement interventions in music performance is apparent. The uni-centric nature by which these interventions have been employed, coupled with a lack of explicated details of the interventions used (i.e., how they were actually implemented, how long they were implemented, and why they were implemented) and measured make the evaluation of intervention efficacy difficult. While the performance needs of musicians are well documented and known, the ways in which these needs inform PPE interventions is not clear.

When placing the evidence presented above into the McLeroy (1988) framework, it is evident that these PPE interventions fit well in each of the layers (e.g., interpersonal, intrapersonal, organizational, community, policy). Though the PPE interventions tend to be

implemented at an intrapersonal level and are executed by the individual, the impact of the intervention permeates throughout all layers of the McLeroy (1988) framework, though not necessarily in a linear manner. For example, implementing a positive self-talk PPE has been found to enhance a musicians' attentional focus (*intrapersonal factor*), which then improves the technical aspects of a performance (*organizational factor*), thus reinforcing motivational efforts to practice (*intrapersonal factor*), culminating in an improved relationship with instructors and/or other performers (*interpersonal factor*). For example, a musician who demonstrates technical mastery may be given more performances or feel less pressure from the ensemble to deliver a solid performance. As a result of this enhanced performance, the same musician executing this positive self-talk PPE intervention may feel more connected to their identity as a musician and feel intrinsic enjoyment out of their shared experience playing with other musicians (*community factors*). Because this musician had access (*policy factors*) to a performance psychology professional, they can continue to work with the professional to build on the PPE strategies in a person-centered manner to meet the specific performance needs, respectively.

PPE interventions may also theoretically align with McLeroy's (1988) framework. Due to the lack of applied literature to draw from (Hays, 2017; Pecen et al., 2016), it is difficult to decipher which PPE interventions are most impactful and/or most consistently used by and with musicians. Many of the PPE strategies that musicians use have not been systematically examined and instead are used primarily through trial and error (e.g., Nair, 1999). The quantitative measures employed in the present literature are not adapted adequately for musicians, and the qualitative voice of the musician as it relates to a global conceptualization of psychological skills use is also missing from the present literature. Musicians may be missing out on resources and

techniques to facilitate performance, and it is likely that researchers and applied practitioners may also be limiting their scope of intervention implementation. Taken together, these shortcomings highlight the need to conceptualize psychological performance enhancement in a music domain.

2.6. Summary

The purpose of this literature review was to first elucidate the multidimensional elements commonly associated with music performance (e.g., personal characteristics, task characteristics, environmental characteristics). These elements of music performance were placed into a theoretical framework (McLeroy et al., 1988). The review argued the importance of implementing PPE interventions as a mechanism to enhance the aforementioned personal, task, and environmental characteristics of music performance. Lastly, the review explored the current use of PPE interventions in a music domain to identify the gaps in the literature associated with PPE implementation and PPE efficacy among musicians, with an example of how PPE interventions can feed back into McLeroy's framework (1988) to work toward a conceptualization of PPE in a music domain.

Chapter III

Exploring musicians' views on the psychological content of music performance

Target Journal: Sport, Exercise, and Performance Psychology

3.1. Abstract

Contrary to sport, the study of performance enhancement in music is at an earlier stage of development in its research, practice, and performer acceptance (Hays, 2012). Practitioners have indicated that a shortage of performance psychology professionals trained in music may lead to more sport-trained professionals working in a music domain (Pecen et al., 2016). Sport provides an evidence-based framework for studying performance enhancement, but musicians have unique performance considerations that differ from athletes and are not fully understood among sport-trained professionals (Pecen et al., 2016). Using a descriptive survey design, the present study aimed to identify musicians' psychosocial responses to performance, the psychological skills and strategies that musicians use during practice and performance, and the various professionals specialized in psychological performance enhancement with whom musicians have worked. Results from descriptive and inferential analyses demonstrated that musicians experience a range of psychosocial responses to performance (e.g., stress, bodily tension, performance anxiety), and use a variety of strategies to optimize their performance (e.g., goal-setting, executing quality practices), though such strategies may not adequately address their psychosocial responses and performance concerns. The majority of musicians sampled indicated that they have not worked with any professionals for performance enhancement, with many relying on other musicians and instructors to provide psychological guidance. Results further revealed that the performance enhancement needs of musicians are limited by the psychological

skills and strategies commonly identified in the psychological skills training (PST) model popularized in sport (Hardy, Jones, & Gould, 1996). Based on the multidimensional psychosocial responses to performance that musicians have indicated, it is suggested that musicians may benefit from more mindfulness and acceptance-based models of performance enhancement (Gardner & Moore, 2007) that consider the well-being of the whole performer and environmental context, respectively.

During a performance, musicians are simultaneously executing physical techniques from hours of practice, recalling lyrics/notes/musical structure, conveying expressive emotion, making connections to the audience, adapting to the stage/venue structure, improvising, navigating any health or injury concerns, collaborating with other performers seamlessly, and adjusting to errors or unexpected incidents which may arise (list adapted from Geeves et al., 2016). While many musicians play music for its own sake, alone, and without seeking the approval of others (Osborne et al., 2014), the above listed psychological, physical, and tactical demands associated with music performance are arguably heightened with the presence of an audience (Williamon & Thompson, 2006). An audience – even an audience of one, such as an instructor – plays a pivotal role in music interpretation, music dissemination, the communication of emotion, performance evaluation, and overall music composition. Thus, for the purpose of the present research, "music performance" will be characterized as a music-oriented action and behavior (i.e., sight-reading, performing rehearsed music, playing from memory, playing by ear, and improvisation) conducted in the presence of an audience.

Musicians have long demonstrated how psychological factors impact their performance (Hays, 2017). For example, musicians traditionally believe that performance anxiety, or "feelings of nervousness, worry, and apprehension associated with activation or arousal of the body" (Weinberg & Gould, 2015, p. 78), can be debilitative, yet an integral and necessary part of a performance (Hays, 2002). Musicians have also been found to ruminate on errors, exhibit perfectionism, and perceive themselves to be tasked with meeting subjective and ill-defined standards of performance excellence (Hays, 2017). Regardless of the extent of preparation, musicians often feel a complete lack of control over the performance outcome, exacerbating psychological concerns, resulting in low confidence and high anxiety (Pecen et al., 2016). Other

psychological factors that have been found to impact music performance include: burnout (Teasley & Buchanan, 2016), depression (Hays, 2002), developmental concerns (e.g., early specialization, identity foreclosure, overinvestment; Hays, 2002), disordered eating (Kapsetaki & Easmon, 2017), interpersonal stress (Kenny & Ackermann, 2012), lack of concentration (Hays, 2002), lack of motivation (Hays, 2002), overuse injuries (Kenny & Ackermann, 2012), and poor health habits (Panebianco-Warrens et al., 2015).

In addition to the psychological factors affecting music performance, musicians have unique performance considerations. In addition to being tasked with navigating the presence of an audience (Williamon & Thompson, 2006), they must also adapt to changing performance environments (e.g., stage location, acoustics) and frequently adjust to the roles, skills, and presence of other performers (Bishop, 2018). Musicians rely heavily on memorization (Hays, 2017) and expressivity (Juslin, Karlsson, & Lindström, 2006), and must simultaneously master emotion regulation, emotional expression, and tactical execution (Juslin et al., 2004). Those musicians who perform occupationally navigate financial insecurity, the process of living and practicing completely alone, being subjected to constant public evaluation, and travelling inconsistently to meet performance demands (Kenny & Ackermann, 2012). Despite acknowledging these unique performance considerations, the facets of effective performance enhancement strategies are not widely understood in the music literature (Pecen et al., 2016), nor is it known if these vary due to nuanced differences across music genres, subdomains, and musicians' demographic factors (e.g., age, sex). Exploration of potential group differences as they relate to performance enhancement strategies is also warranted.

Defined as psychological, social, or psychosocial "actions or processes that alter function and/or performance through changes in an individual's thought [and/or] behavior" (Brown &

Fletcher, 2017, p. 77), psychological performance enhancement (PPE) interventions have been proposed as beneficial to optimizing the biopsychosocial facets of music performance (e.g., confidence, motivation, interpersonal relationships, developmental considerations), but the nuances of music performance are largely misunderstood by performance psychology professionals who are often trained explicitly in a sport domain. Therefore, nuanced aspects of music performance should be further investigated before attempting to tailor interventions to this respective population.

Allan (2016) found that 71% of the 500 elite musicians sampled demonstrated a lack of awareness of the psychological skills necessary to perform optimally, and thus, are likely underutilizing PPE interventions to enhance those skills (see Hays, 2017). Due to the limited amount of music performance enhancement research, practitioners frequently utilize sport as a template to inform continued performance research and applied interventions with musicians (Hays, 2002, 2012). While sport provides an evidence-based framework for studying performance enhancement, musicians have unique performance considerations that differ from athletes (Pecen et al., 2016). Since these divergences in domains are not well understood (Pecen et al., 2016), it is important to explore the nuanced psychological and psychosocial aspects of music performance to better inform research and the use of psychological performance enhancement (PPE) interventions.

The study of performance enhancement in the domain of music is at an early stage of development in regards to its research, practice, and performer acceptance (Pecen et al., 2016). Research has demonstrated how psychological factors impact music performance, but knowledge on musicians' current use of PPE interventions is limited (Hays, 2017). Thus, the purpose of the present study was three-fold: (a) to identify musicians' psychosocial responses to performance,

(b) to understand what psychological skills and strategies musicians use during practice and performance, and (c) to document the various professionals specializing in psychological performance enhancement with whom musicians have worked.

3.2. Method

3.2.1. Participants

A total of 459 musicians (N_{male} = 244, N_{female} = 211, N_{other} = 4) participated in the study (see Table 3). A musician was defined as any person who performs, composes, or conducts music for an audience. Given the novelty of the proposed research, there were no exclusionary criteria related to type of performer (e.g., vocalists, instrumentalist), music category sub-domains (e.g., classical, jazz), professional classifications of musician (e.g., elite, amateur), and/or performance frequency. For the purposes of group comparisons, musicians were asked to self-identify their primary, secondary, and/or tertiary musician identity to account for the talent overlap that is often seen in a music population (e.g., vocalists that also play an instrument).

Approximately 57.8% of the participants primarily identified as an instrumentalist (*N* = 255), 18.2% (*N* = 80) identified primarily as a vocalist, 11.6% (*N* = 51) identified primarily as a conductor, and 10.9% (*N* = 48) primarily identified as something “other”. “Other” identifications included, in order of frequency: composer, music educator/instructor/teacher, music theorist, producer, musicologist, and music therapist. Musicians had an average of 32.51 (*SD* = 15.87) years of experience as an instrumentalist, 24.04 years of experience as a vocalist (*SD* = 17.95), 20.90 years as a conductor (*SD* = 14.83), and 25.10 years of experience as “other” (e.g., composer, music educator/instructor/teacher, music theorist, producer, musicologist, and music therapist) (*SD* = 14.22).

Table 3

Demographic Characteristics of Participants

Characteristic	Percent by Category (N)
Gender	
Female	46.32% (211)
Male	52.81% (244)
Other	.87% (4)
Age	
18-21	4.52% (20)
21-34	22.15% (102)
35-44	16.77% (78)
45-54	17.63% (81)
55-64	27.31% (127)
65+	11.61% (54)
Race/Ethnicity	
African American	2.04% (10)
Alaska Native	0.0% (0)
American Indian	0.82% (4)
Asian	3.47% (16)
Black	1.22% (6)
Hispanic	3.06% (15)
Latinx	1.02% (5)
Native Hawaiian or Pacific Islander	0.61% (3)
White or Caucasian	85.51% (417)
Prefer not to answer	1.63% (8)
Other	0.61% (3)

3.2.2. Measures

3.2.2.1. Demographic questionnaire. The demographic questionnaire asked questions related to the participants' age, gender, race/ethnicity, years of performance experience, and primary, secondary, and tertiary musician identity (e.g., instrumentalist, composer). Participants were further asked if they wanted to be interviewed as part of a secondary study exploring musician's use of psychological strategies, but this question was posed separately at the end of the survey (yes/no).

3.2.2.2. Musician and Performance Psychology Questionnaire (MPPQ). The MPPQ is a ten-item measure adapted from the Physiotherapist and Sport Psychology Questionnaire (PSPQ; Hemmings & Povey, 2002). The PSPQ has been previously used as a tool to assess views on the psychological aspects of a given population (e.g., athletic trainers; Clement, Granquist, & Arvinen-Barrow, 2013; Larson, Starkey & Zaichkowsky, 1996; and physiotherapists; Arvinen-Barrow, Hemmings, Weigand, Becker & Booth, 2007; Heaney, 2006). The original content of the PSPQ was adapted for a musician population. For example, physiotherapist was changed to "musician" and "sport psychology" was changed to "performance psychology" to better represent the terminology of a musician population (Hays, 2017). Because the population being evaluated are musicians and not medical professionals, questions related to patient referral and training were removed. To document the various professionals specialized in psychological performance enhancement with whom musicians have worked, dichotomous (yes/no) questions were added to the MPPQ to assess the access that participants have to professionals, respectively (for the full measure, see Table 4).

No psychometric properties of the PSPQ exist (Clement et al., 2013). As recommended by Clement et al. (2013), Cronbach α values were calculated in the present study to establish internal consistency for the main sections of the questionnaire, due to no reported reliability properties for the PSPQ. These values for the MPPQ questionnaire items (.83 and .86) represent good levels of internal consistency (Cortina, 1993).

Table 4

Musicians and Performance Psychology Questionnaire (MPPQ)

Question	Question-type
1) How often do you encounter the following psychosocial responses to music performance?	Rating scale (1 = *Never*, 5 = *Very often*)

2) What are the top four (4) behaviors/characteristics believed to be present in musicians who cope successfully with performance?	Open-ended
3) What are the top four (4) behaviors/characteristics believed to be present in musicians who DO NOT cope successfully with performance?	Open-ended
4) How often do you use the following psychological skills/psychological strategies in your music performance?	Rating scale (1 = *Never use*, 5 = *Use 100% of the time*)
5) Have you ever worked with a performance psychology consultant (e.g., Certified Mental Performance Consultant; Mental Performance Coach) for situations related to psychological performance enhancement?	Dichotomous response (yes/no)
6) Have you ever worked with a counselor or mental health professional for situations related to psychological performance enhancement?	Dichotomous response (yes/no)
7) Have you ever worked with any other professional(s) for situations related to psychological performance enhancement?	Dichotomous response (yes/no)
8) Do you have access to, or current use of, a sport/performance psychology consultant?	Dichotomous response (yes/no)
9) Question included a list of 11 psychological skills/techniques that previous music literature suggested were important to the enhancement of a musician's performance. Musicians were asked how often they use the listed psychological skills/techniques in their music performance. Additional space was provided for musicians to add any skills/techniques they felt may be missing from the list.	Rating scale (1 = *never*, 5 = *100% of the time*)
10) Are there any comments or additional information that you wish to supply?	Open-ended

Note. Modified from the Physiotherapist and Sport Psychology Questionnaire (PSPQ; Hemmings & Povey, 2002)

3.2.2.3. Test of Performance Strategies-2 for Musicians (TOPS-2M). Modified from the Test of Performance Strategies-2 (Hardy, Roberts, Thomas & Murphy, 2010) which was designed to be implemented with athletes, the TOPS-2 for Musicians (TOPS-2M) is a 64-item questionnaire which measures the use of psychological skills and strategies (e.g., emotional control, activation, relaxation, self-talk, goal-setting, imagery, automaticity, negative thinking, and attentional control) in practice as well as in competition. Items were scored on a 5-point Likert-type rating scale (i.e., 1 = *never*, 5 = *always*). Sample items associated with practice were: "I say things to myself to help my practice performance"; and "during practice, I visualize successful past performances". Sample items associated with competition were: "During competition I set specific goals for myself"; and "I perform at competitions without consciously thinking about it".

To accommodate the musician population, the word "competition" was changed to "performance". While many musicians participate in intense competitions, especially as part of music education, competition is seen as a means to an end in a music domain (e.g., competing for first chair), rather than a primary focus (Hamilton, 1997b; Hays, 2002). Many musicians are preparing for a given performance, rather than a competition (Hays, 2017). Additionally, the word "training" was changed to "rehearsal" when appropriate, but questions related to "practice" were maintained, as this term is consistent with the music population.

The original TOPS-2 has appropriate psychometric properties, with strong validity and reliability (Hardy et al., 2010). Confirmatory factor analysis (CFA) has revealed relatively acceptable internal consistencies for both practice and competition subscales with Cronbach α levels ranging from .62 to.89 (Hardy et al., 2010). Results of the CFA have also indicated a good fit for both the eight-factor competition subscale ($\chi^2 = 695.16$; SRMR = 0.06; RMSEA = 0.05;

NNFI = 0.97; CFI = 0.97) and the eight-factor practice subscale (χ^2 = 603.39; SRMR = 0.06; RMSEA = 0.04; NNFI = 0.96; CFI = 0.96) (Hardy et al., 2010).

With the exception of the automaticity during practice subscale (Cronbach's α = .57), the TOPS-2M items represented good levels of internal consistency (Cortina, 1993), with Cronbach's α ranging from .65-.88. While an alpha of .60 may be minimally acceptable, Loewenthal (2001) indicated that an alpha of .60 is adequate for subscales containing only four items, which holds true for most items of the TOPS-2 and TOPS-2M.

3.2.3. Procedure

After obtaining approval from the Institutional Review Board (IRB) of the authors' affiliate university, 546 self-identified musicians 18 years of age or older were cross-sectionally recruited through email by way of the first author's personal and local contacts. Of those recruited, 459 participants fully completed at least one of the two surveys hosted by Qualtrics (Qualtrics, Provo, UT), with 352 participants fully completing both surveys due to attrition. The surveys took between 15-20 minutes to complete.

3.2.4. Data Analyses

To identify the participants' psychosocial responses to performance as well as the various professionals specialized in psychological performance enhancement with whom musicians have worked, descriptive statistics (means, standard deviations), and frequencies among the variables were obtained for the close-ended questions associated with the MPPQ. To understand what psychological skills and strategies the participants used during practice and performance, descriptive statistics of the TOPS-2M were obtained (means, standard deviations), and inferential statistics (independent samples *t*-test, one-way analyses of variance, Kruskal-Wallis H test) were performed on both the performance and the practice data of the TOPS-2M. To protect against the

Type 1 error associated with multiple group comparisons, a 5% Benjamini-Hochberg (B-H) (see Benjamini & Hochberg, 1995) False Discovery Rate (FDR) procedure was employed across all analyses.

An exploratory factor analysis was also conducted to demonstrate if the factors of the TOPS-2M perform similarly to those in the original TOPS-2 measure. Even though the factor structures of the TOPS-2 are known for an athlete population (Hardy et al., 2010), which could warrant the use of a confirmatory factor analysis (CFA) of the TOPS-2M, an EFA was conducted in the present study because the revisions to the measure (re: modified language) have never been tested before, so the latent variables that influence the measured variables must be first explored (e.g., Fabrigar, Wegener, MacCallum, & Strahan, 1999). Furthermore, the TOPS-2M was completed by participants in a different contextual setting than those participants taking the TOPS-2 (i.e., in a music domain rather than sport domain) which further warrants the use of a data-driven exploratory process, as assumptions about the factors cannot be made within this new population (e.g., Fabrigar et al., 1999). Fabrigar and colleagues (1999) indicated that an EFA can "provide a basis for specifying a CFA model in a subsequent study" (p. 277). In the present study, there is not a large enough sample size to split the data in half to appropriately power a separate EFA and CFA.

For the open-ended questions associated with the MPPQ, a thematic analysis (Braun & Clarke, 2006) was utilized to analyze the responses using NVivo Qualitative Software (QSR NVivo 12 Plus). After data familiarization, initial codes (e.g., "nodes" in NVivo) were generated deductively, presenting emergent ideas reflected in the data (Braun & Clarke, 2006). From the initial codes, broader level concepts were deciphered (Braun & Clarke, 2006). To establish validity, triangulation with an external individual who was not affiliated with the research

reviewed the emergent themes associated and deciphered any discrepancies in its conceptualization. Triangulation remediated possible biases in the interpretation of the MPPQ (see Denzin, 1978).

3.3. Results

3.3.1. Exploratory factor analysis (EFA) of the TOPS-2M

An EFA was performed separately for the TOPS-2M practice variables and the performance (i.e., "competition") variables using Principle Axis Factoring and oblique rotation to replicate the EFA conducted for the initial TOPS measure (Thomas, Murphy, & Hardy, 1999). The data in the present sample was sufficient to conduct the EFAs, as the Kaiser-Meyer-Olkin values were above .5, reflecting .847 (practice) and .879 (performance).

Bartlett's test of sphericity $\chi 2(465) = 4630.40$, $p < .000$ (practice) and $\chi 2(496) = 4948.51$, $p < .000$ (performance) also demonstrated a significant, patterned relationship among the items. Using an eigenvalue cut-off of 1.0, there were 8 factors that explained a cumulative variance of 55.42% for practice, and 7 factors that explained a cumulative variance of 54.24% for performance. The scree plot confirmed the findings of the factors for both analyses. The criterion for the eigenvalue cut-off rules and scree plot confirmation for EFA have been criticized for its simplistic process (O'Connor, 2000), but these methods were employed to duplicate the process undertaken by Thomas and colleagues (1999) in their preliminary validation of the TOPS. Table 5 displays the factor loadings for practice and Table 6 displays the factor loadings for performance, each after rotation using a significant factor criterion of .4, again to replicate previous TOPS research (e.g., Thomas et al., 1999).

Results of the EFA demonstrated that the factors associated with the adapted TOPS-2M practice items and performance items were generally similar to those of the original TOPS-2

validated with athletes (Hardy et al., 2010). An exception to this finding was the questions associated with the original TOPS-2 factors of "emotional control" and "negative thinking" associated with music performance (formally "competition"). These questions loaded onto the same factor, making the factor loadings 7 instead of 8 for performance. Emotional control and negative thinking may be more interrelated as a metacognitive consequence of regulating certain feelings and cognitions (e.g., negative thoughts) during performance (e.g., Smith et al., 1995). Thus, emotional control and negative thinking may be better represented and interpreted as a broader, self-regulatory emotional process in performance.

Table 5

Pattern Matrix after Rotation: TOPS-2M Practice Variables

TOPS-2M Practice	Factor Loadings								Item-total Correlations	Communalities
	1	2	3	4	5	6	7	8		
Factor 1: Goal-setting										
53. I have very specific goals for practice.	**.887**								.768	.809
37. I set goals to help me use practice time effectively.	**.812**								.725	.672
58. I don't set goals for practices; I just go out and do it. (R)	**.700**								.617	.470
1. I set realistic but challenging goals for practice.	**.629**								.540	.402
Factor 2: Emotional Control										
60. I have trouble controlling my emotions when things are not going well at practice. (R)		**.932**							.757	.798
61. My emotions keep me from performing my best during practice.		**.719**							.730	.733
20. I get frustrated and emotionally upset when practice does not go well. (R)		**.694**							.609	.448

39. My performance suffers when something upsets me in practice. (R)	**.463**				.515	.337
Factor 3: Self-talk						
51. I talk positively to myself to get the most out of practice.		**.885**			.750	.719
47. I motivate myself to practice through positive self-talk.		**.868**			.766	.765
2. I say things to myself to help my practices.		**.725**			.654	.541
16. I manage my self-talk effectively during practice.		**.571**			.594	.527
Factor 4: Attentional Control						
50. I have trouble maintaining my concentration during long practices. (R)			**.836**		.656	.664
19. I am able to control distracting thoughts when I am practicing.			**.665**		.669	.611
4. My attention wanders while I am practicing.			**.645**		.608	.521
45. During practice, I focus my attention effectively.			**.467**		.550	.509
49. In practice, I have difficulty getting into an ideal performance state. (R)			**.442**		.477	.377
Factor 5: Relaxation						
6. In practices I use relaxation techniques to improve performance.				**.915**	.835	.827
5. I practice using relaxation techniques.				**.903**	.813	.794
15. I use practice time to work on my relaxation techniques.				**.754**	.743	.662
Factor 6: Imagery						
42. At practice, when I visualize my performance, I imagine what it will feel like.				**.794**	.629	.664
12. During practice, I visualize successful past performances.				**.608**	.483	.493

3. I rehearse my performance in my mind before I practice.	**.599**			.546	.447
64. At practice, when I visualize my performance, I imagine watching myself as if on a video replay.	**.464**			.396	.311
Factor 7: Automaticity					
23. During practice, I perform automatically without having to consciously control each movement.		**.747**		.443	.512
10. During practice, I am able to perform skills without consciously thinking about it.		**.707**		.479	.478
29. At practice, I can allow the whole skill or movement to happen naturally without concentrating on each part of the skill.		**.614**		.505	.532
Factor 8: Activation					
40. I can psych myself up to perform well during practice.			**.669**	.527	.475
38. I can get myself "up" if I feel flat during practice.			**.564**	.542	.483
35. I can get my intensity level just right at practice.			**.467**	.430	.368
Underperforming question:					
48. During practice, I monitor the details of each move to successfully execute skills.				.081	.226

Note. (R) denotes that the item is reverse-scored. Only loadings above .4 are reported.

Table 6

Pattern Matrix after Rotation: TOPS-2M Performance Variables

TOPS-2M Performance	Factor Loadings 1	2	3	4	5	6	7	Item-total Correlations	Communalities
Factor 1: Emotional Control and Negative Thinking									
14. During a performance, I have thoughts of failure. (R)	**.792**							.717	.571
31. I have difficulty with emotions at performances. (R)	**.773**							.694	.566
62. My emotions keep me from performing my best during performances. (R)	**.755**							.734	.644
25. I have difficulty controlling my emotions if I make a mistake during a performance. (R)	**.732**							.677	.556
63. My emotions get out of control under the pressure of a performance. (R)	**.713**							.714	.593
32. I keep my thoughts positive during a performance.	**.698**							.600	.498
9. My self-talk during a performance is negative. (R)	**.669**							.610	.437
56. I imagine screwing up during a performance. (R)	**.665**							.579	.399
Factor 2: Imagery									
59. I rehearse my performance in my mind before a performance.		**.863**						.731	.705
55. I imagine my performance routine before I do it live.		**.826**						.735	.693
18. I visualize my performance going exactly the way I want it to go.		**.701**						.671	.598
34. At performances, I rehearse the feel of my performance in my imagination.		**.620**						.606	.496

Factor 3: Goal-Setting						
26. I set very specific goals for a performance.	**.875**				.759	.767
46. I set personal performance goals.	**.798**				.693	.631
7. During a performance, I set specific goals for myself.	**.713**				.619	.522
22. I evaluate whether I achieve my performance goals.	**.513**				.536	.330
Factor 4: Self-talk						
33. I say things to myself to help my performances.		**1.006**			.738	.873
57. I talk positively to myself to get the most out of a performance.		**.719**			.696	.617
21. I have specific cue words or phrases that I say to myself to help my performance.		**.565**			.538	.381
36. I manage my self-talk effectively during performances.		**.514**			.487	.441
Factor 5: Relaxation						
17. In a performance, I use relaxation as a coping strategy.			**.892**		.674	.728
8. In performances I use relaxation techniques to improve my performance.			**.786**		.669	.606
43. During performances, if I am starting to "lose it", I use a relaxation technique.			**.614**		.577	.500
Factor 6: Activation						
13. I can psych myself up to perform well in a show when necessary.				**.777**	.618	.546
52. I can increase my energy to just the right level for performances.				**.678**	.540	.562
44. I can get myself "up" if I feel flat during a performance.				**.631**	.537	.471
28. I psych myself up at a performance to get ready to perform.				**.549**	.470	.395
Factor 7: Automaticity						
30. During performances, I am sufficiently prepared to perform on "automatic pilot".					**.821**	.571	.572
54. During a performance, I allow the skill to happen					**.709**	.565	.537

naturally without focusing on each part.			
11. I trust my body to perform skills during a performance.	**.534**	.506	.524
Underperforming items			
24. When I need to, I can relax myself at a performance to get ready to perform.		.262	.423
41. During a performance, I am unable to perform skills without consciously thinking. (R)		.283	.172

Note. (R) denotes that the item is reverse-scored. Only loadings above .4 are reported.

3.3.2. Psychosocial responses to performance

The results from the MPPQ revealed that participants reported a range of psychosocial responses to performance (see Table 7). The psychosocial response most frequently experienced was stress (M = 3.10, SD = 1.01), followed by bodily tension (M = 3.04, SD = .98), and performance anxiety (M = 2.92, SD = 1.07). Results were reported on a Likert-type rating scale ranging from 1 (*never experience*) to 5 (*experience very often*). The psychosocial responses least frequently experienced by participants was disordered eating (M = 1.47, SD = .85), followed by depression (M = 1.95, SD = 1.02), and sleep disturbance (M = 2.17, SD = 1.05). In addition to the psychosocial responses listed on the MPPQ, participants also identified other symptoms not listed on the survey which they deemed important, such as rapid heartbeat, diarrhea/digestive issues, and facial tics as psychosocial responses. A full list of "other" identified psychosocial responses can be found in Table 8.

Table 7

Average Frequency of Psychosocial Responses to Music Performance

Psychosocial responses	M (SD)
Stress	3.10 (1.01)
Bodily tension	3.04 (0.98)
Performance anxiety	2.92 (1.07)
Decreased confidence	2.88 (0.95)
Decreased motivation	2.37 (0.96)
Problems with attention/concentration	2.35 (0.99)
Sleep disturbance	2.17 (1.05)
Depression	1.95 (1.02)
Disordered eating	1.47 (0.85)

Note. Scores ranged from 1 (*Never*) to 5 (*Very Often*).

Table 8

"Other" Identified Psychosocial Responses to Music Performance

Psychosocial responses
Rapid heartbeat
Feeling lightheaded
Feeling detached
Diarrhea/digestive issues
Imposter syndrome
Distraction
Sweaty palms
Fear of not meeting others' expectations
Shaky hands
Dizziness
Intolerance to poor performers
Asthma symptoms
Facial tics

Note. The table reflects specific fill-in responses listed in the "other" category.

3.3.3. Psychological skills and strategies that musicians use during practice and performance

In response to the types of psychological skills and strategies musicians use to enhance their performance, data from the MPPQ revealed that over 40% of the sample reported using

"goal-setting" (41.62%; *N* = 191), "executing quality practice" (40.05%, *N* = 184) and exuding "self-confidence" (36.94%, *N* = 170), to enhance their performance 100% of times that they played music. The highest identified skills and strategies that musicians utilized 75% of the time included "motivation" (38.22%; *N* = 175) and "emotional control" (35.60%; *N* = 163). Over half of the sample surveyed had never used the Alexander Technique to enhance their performance (59.64%; *N* = 274). See Table 9 for a full list of strategies and their frequency of use among musicians.

Table 9

Musicians' Use of Psychological Skills and Strategies to Enhance Performance

	Never Use	**Use 25% of the time**	**Use 50% of the time**	**Use 75% of the time**	**Use 100% of the time**
Alexander Technique	59.64	20.57	7.29	6.51	5.99
Emotional Control	7.59	12.57	19.63	35.60	24.61
Goal-Setting	3.14	7.85	16.23	31.15	41.62
Imagery/Visualization	8.64	14.14	19.90	30.89	26.44
Mindfulness	5.26	11.58	17.11	32.63	33.42
Motivation	1.05	5.24	17.02	38.22	38.48
Relaxation Technique	10.18	20.89	24.02	25.85	19.06
Self-Confidence	2.37	8.97	20.05	31.66	36.94
Self-Regulation	5.74	9.40	21.93	34.46	28.46
Self-Talk	16.41	18.23	18.75	22.66	23.96
Social Support	7.31	17.75	25.33	26.37	23.24
Arousal Regulation	43.65	20.90	19.05	10.58	5.82
Attentional Focus	6.35	6.88	15.08	33.60	38.10
Executing Quality Practice	2.62	6.81	18.85	31.68	40.05
Engaging in Realistic Performance Evaluations	3.67	17.06	23.62	28.08	27.56

Note. Results are reported as a percentage (%). "Other" skills and strategies identified by musicians that were not listed in the survey: "body mapping", positive relationship with audience, "inclusive awareness", "slow practice", "breathing", "yoga", "spiritual exercises", "nutrition", "Feldenkrais Method", "researching music/concepts", "body regulation outside of Alexander Technique", "focus[ing] on the right hemisphere of the brain", "purposefully creating circumstances to play terribly"; "Chekov acting technique", "physical exercise", "Taubman Technique", "meditation", "practice using the body in the most natural way", "Brain Gym", "score study".

As part of the MPPQ, participants also identified various characteristics of musicians who cope well with performance (see Table 10) as well as various characteristics of musicians who do not cope well with performance (see Table 11). In accordance with the reporting methods in previous literature (Arvinen-Barrow et al., 2007), Table 10 and Table 11 reflect the top ten characteristics and frequencies (%) conveyed by the participants. The most frequently identified characteristics of musicians who cope well with performance were "they are prepared" (44.17%, *N* = 166) and "they have confidence" (43.06%, *N* = 161). The most frequently identified characteristics of musicians who do not cope well with performance were "they are unprepared/lack preparation" (37.30%, *N* = 140) and "they display symptoms of performance anxiety and/or nervousness" (23.54%, *N* = 88).

Table 10

Top Ten Characteristics of Musicians Who Cope Well with Performance

Characteristic	Frequency (%)
1. They are prepared.	44.17%
2. They have confidence.	43.06%
3. They exhibit good health habits (e.g., appropriate sleep, good nutrition/hydration).	20.63%
4. They have appropriate focus.	18.00%
5. They have lots of experiencing performing for an audience.	12.96%
6. They are relaxed/calm.	11.11%
7. They enjoy/are happy performing music.	7.94%
8. They have intentional and effective practice sessions.	7.40%
9. They execute proper breathing techniques.	6.34%
10. They have good time management skills.	4.76%

Note. This was an open-ended question in which the musicians were asked to list the top four observed characteristics.

Table 11

Top Ten Characteristics of Musicians Who Do Not Cope Well with Performance

Characteristic	Frequency (%)
1. They display symptoms of performance anxiety and/or nervousness.	23.54%
2. They exhibit bad health habits (e.g., alcohol and drug dependence, lack of sleep, poor nutrition).	22.75%
3. They lack confidence.	16.14%
4. They are unfocused.	9.91%
5. They experience fear (e.g., of failure, of the audience, of what others might think).	8.99%
6. They are perfectionists.	8.73%
7. They have little experience performing for an audience.	7.67%
8. They are stressed.	7.67%
9. They have bodily tension.	7.14%

Note. This was an open-ended question in which the musicians were asked to list the top four observed characteristics.

The Test of Performance Strategies-2M identified the usage of various performance strategies employed by participants, with the distinction of classifying strategies by performance and by practice. Table 12 contains the average frequency of performance strategies utilized in music practices as well as in music performances. The top strategies participants utilized in practice were goal-setting (M = 3.80, SD = .84), automaticity (M = 3.60, SD = .62), and activation (M = 3.51, SD = .60). The top strategies participants utilized during performance was a lack of negative thinking (M = 3.80, SD = .78), automaticity (M = 3.77, SD = .63), and activation (M = 3.69, SD = .75).

Table 12

Test of Performance Strategies-2 Musicians (TOPS-2M)

TOPS-2M item	M (SD)
Activation (Practice, Performance)	3.51 (.60), 3.69 (.75)
Attentional Control (Practice)	3.46 (.70)
Automaticity (Practice, Performance)	3.60 (.62), 3.77 (.63)
Emotional Control (Practice, Performance)	3.27 (.40), 3.27 (.40)

Goal-Setting (Practice, Performance)	3.80 (.84), 3.56 (.95)
Imagery (Practice, Performance)	3.00 (.57), 3.40 (1.02)
Negative Thinking (Performance)	3.80 (.78)
Relaxation (Practice, Performance)	2.58 (.98), 3.04 (.84)
Self-Talk (Practice, Performance)	3.07 (.99), 2.94 (.98)

Note. Modified from TOPS-2 (Hardy, Roberts, Thomas, & Murphy, 2010). Scores refer to frequency of strategy use, and range from 1 (*Never*) to 5 (*Always*). "Attentional Control" is only evaluated during practice. "Negative Thinking" is only evaluated during performance. M = Mean. SD = Standard Deviation.

3.3.3.1. Inferential statistics. An independent samples *t*-test of the TOPS-2M strategies by sex revealed that females (M = 3.40, SD = .85) utilized more self-talk during practice in comparison to males (M = 2.78, SD = 1.02), t (337) = 6.054, p = .000. Females (M = 3.26, SD = .91) also utilized more self-talk during performance in comparison to males (M = 2.66, SD = .97), t (339) = 5.858, p = .000. Females (M = 2.79, SD = .89) utilized more relaxation during practice in comparison to males (M = 2.40, SD = .94), t (356) = 3.944, p = .000. Females (M = 3.24, SD = .79) also utilized more relaxation during performance in comparison to males (M = 2.86, SD = .86), t (345) = 4.175, p = .000. There were no significant differences in any other performance strategies utilized across males and females (see Table 16 in Appendix E).

A series of one-way ANOVAs comparing the effect of musician identity (vocalist, instrumentalist, conductor, "other") on the performance strategies utilized found no significant differences across all musician types and performance strategies utilized (for a full summary of results, see Tables 18-25 in Appendix E). When comparing performance strategies across age categories, the assumption of normality was violated, so a Kruskal-Wallis H nonparametric test was employed. The Kruskal-Wallis H test provided strong evidence of a difference ($p < 0.002$) between the mean ranks of at least one pair of age groups associated with automaticity (performance) $H(5) = 26.452$, p =.000; emotional control (practice) $H(5) = 37.204$, p =.000; emotional control (performance) $H(5) = 18.460$, p =.002; activation (practice) $H(5) = 31.684$, p

=.000; negative thinking (performance) $H(5) = 42.418$, $p = .000$; and attentional control (practice) $H(5) = 42.835$, $p = .000$. Dunn's post hoc test (1964) was carried out to determine which specific age groups were significant upon comparison. In general, there was strong evidence of a difference between skill utilization among the older musicians (ages 65+, 55-64) as compared to the younger musicians (ages 18-21, 21-34), whereas older musicians utilized performance strategies more frequently than younger musicians. Refer to Table 17 in Appendix E for a full summary of findings and additional analyses.

3.3.4. Professionals specialized in psychological performance enhancement with whom musicians have worked

In regards to the types of professionals participants have worked with to help with psychological performance enhancement, data from the MPPQ revealed that 7.57% ($N = 35$) of participants had previously worked with a sport/performance psychology consultant (e.g., CMPC). In addition, 14.14% ($N = 65$) had worked with a mental health professional (e.g., licensed psychologist/counselor) to help with psychological performance enhancement, and 17.24% ($N = 79$) identified another professional that helps them with psychological performance enhancement. There was a breadth of identified "other" professionals, including: body mapping educator, meditation, teachers/instructors, brain gym/transformational psychology, physician/MD, Alexander technique teachers, cranio-sacral therapy, neurofeedback, hypnosis, applied instructor in graduate school, other colleagues, yoga, voice/instrument teachers, speech/voice therapist, college professors, tai chi master, and the help of other musicians. Of the sample, 96.58% ($N = 443$) of participants also indicated that they did not have access to a performance psychology professional or Certified Mental Performance Consultant (CMPC, Association for Applied Sport Psychology).

3.4. Discussion

The present study sampled a variety of musicians to identify musicians' psychosocial responses to performance, the psychological skills and strategies that musicians use during practice and performance, and the various professionals specialized in psychological performance enhancement with whom musicians have worked. While musicians reported experiencing a range of psychosocial responses to performance (e.g., stress, bodily tension, performance anxiety), and the use of psychological skills and strategies to optimize their performance (e.g., goal-setting, executing quality practices, exuding self-confidence), the vast majority of musicians sampled did not have access to, nor have ever worked with, a performance psychology professional. The plethora of coping strategies commonly utilized by musicians in the sample (e.g., preparation, confidence, good health habits) suggest that musicians are adjusting to performance demands independently and perhaps intuitively, without any performance psychology professionals or the explicit knowledge of psychological performance enhancement interventions. The diversity of skill utilization represented by the lack of significant demographic differences across the sample supports the need for an individualized, person-centered approach to performance enhancement among musicians.

3.4.1. Psychometric properties of revised measures

The MPPQ maintained strong internal consistency when adapted to the musician sample. However, much of the content of the MPPQ is descriptive, with open-ended responses that cannot be validated, as they are more indicative of a qualitative approach to data collection (Kirk & Miller, 1985). The validity of open-ended questionnaires lies in the objectivity of a person's interpretation (Leung, 2015). Utilizing thematic analysis with an external reviewer can overcome biases associated with open-ended interpretation (Braun & Clark, 2006), and this mechanism was

employed in the present study. Furthermore, the dichotomous yes/no questions on the MPPQ do not fall under the interval scale of measurement and thus, do not meet the parametric estimates for an exploratory factor analysis (Streiner, Norma, & Cairney, 2015). However, applying this measure to a musician population in the future is promising, as it does capture various coping skills and strategies, as well as skill utilization, in a relatively brief questionnaire. Given the extent to which "other" items reflected domain specific skills (e.g., Feldenkrais Method, Chekov Technique), researchers may want to consider adding in music-specific performance elements to the existing list to fully capture utilization relative to other psychological skills and strategies. Additionally, it may be prudent in the future to address what skills listed on the survey musicians have not heard of, as those can be eliminated if necessary. Taking these suggestions into consideration may illuminate discrepancies in evaluation across performance domains.

Similarly, the TOPS-2M possesses strong internal consistency. The EFA in the present study demonstrated that the factors of the TOPS-2M measure loaded similarly in a music population in comparison to those loadings reported in a sport population (Thomas et al., 1999), with three underperforming question items out of sixty-four questions (e.g., "during practice, I monitor the details of each move to successfully execute skills; "when I need to, I can relax myself at a performance to get ready to perform"; "during a performance, I am unable to perform skills without consciously thinking"). However, in general, the survey measured what it was intended to measure within this respective population. Future validation of the TOPS-2M must consider the unique performance demands of musicians and relevant psychological skills and strategies that are domain-specific and currently not present on the TOPS-2M.

The "other" psychological skills and strategies listed in the MPPQ reflected many mindfulness and acceptance-based strategies (e.g., "body mapping", "inclusive awareness",

"slow practice", "breathing", "yoga"). When further developing a performance measure tailored to the needs of musicians, in addition to adjusting the underperforming question items, it may be worthwhile to consider mindfulness and acceptance based components as added factors on survey research to align with the skills and strategies musicians identified as utilizing in their practices and performances. Qualitative research examining the facets of psychological performance enhancement in a music domain may help researchers to develop evidence-based questions that further align with the performance demands inherent within a music population, that are not present on existing quantitative surveys for musicians.

3.4.2. Psychosocial responses to performance

The psychosocial responses of the MPPQ demonstrated the frequency of experiencing stress, performance anxiety, and bodily tension in a music population. These findings support previous literature suggesting that musicians are more suseptible to stress than non-musicians (Getz, Marks, & Roy, 2014), commonly experience performance anxiety (Nordin-Bates, 2012), and also experience bodily tension as a somatic response to anxiety (Steptoe, 1983) or musculoskeletal disorder from overuse (Gasenzer, Klumpp, Pieper, & Neugebauer, 2017). Ironically, musicians have cited performance anxiety as a major source of stress (Wills & Cooper, 1987), suggesting that the interrelatedness of the psychosocial aspects of performance cannot be overlooked. Tension in the body has also been cited as a response related to performance anxiety. Additionally, the "other" responses to performance that musicians felt were not represented on the survey (e.g., fear, shaky hands, sweaty) are actually considered to be somatic responses to anxiety (e.g., Kenny, 2011). Thus, there is evidence to suggest that performance anxiety occurrence is much higher than captured in the MPPQ. This assertion is due to the overlap of psychosocial symptoms interconnected with each other as well as the liklihood

that the "other" symptoms identified were related to performance anxiety, respectively. Practitioners looking to work with this population should continue to consider the role that performance anxiety plays in music performance (e.g., Osborne et al., 2014) and the various dimensions (e.g., environmental context, personality) that underpin the psychosocial and somatic responses experienced (e.g., Hays, 2002).

The least experienced psychosocial responses to performance identified in the present study; disordered eating, depression, and sleep disturbance, do not fall within the traditional training of cognitive behavioral therapy oriented performance psychology professionals (Portenga, Aoyagi, Balague, Cohen, & Harmison, 2011). Treatment to address these concerns are more in line with clinical and/or medical treatment (e.g., medical doctor, psychologist, psychiatrist; Portenga et al., 2011). The traditional psychological skills and strategies delivered by a performance enhancement professional will not adequately address these clinical concerns. Though these clinically-oriented responses to performance are relatively low (e.g., each averaging just above "never" experienced), performance psychology professionals are cautioned to be cognizant of these concerns that may arise, as they have been identified to some degree by a large sample of musicians. Performance psychology professionals should not operate out of their boundaries of competencies and should refer musicians to the appropriate professional trained to deal with these clinical concerns, should they arise.

3.4.3. Psychological skills and strategies

Furthermore, it is unsurprising that participants appear to be implementing psychological skills and strategies quite frequently as a means of enhancing their performance. However, results of the MPPQ demonstrated that the psychological skills and strategies that participants implement to perform optimally do not align with the types of adverse psychosocial responses to

performance they frequently identified. For example, participants indicated that the most common psychosocial responses to performance were “stress”, “body tension”, and “performance anxiety”, yet the most commonly employed psychological skills and strategies on the MPPQ, “goal-setting” and “executing quality practice”, do not fully address these concerns. Similarly, there was some overlap across surveys as the TOPS-2M results indicated that the most commonly employed strategy participants executed in practice was “goal-setting” as well. Previous research has demonstrated that musicians embrace the pursuit of performance excellence (Hays, 2017), but that their efforts may be misguided (Hatfield, 2016). While these strategies commonly employed by musicians do not address the common psychosocial responses to performance presented, the characteristics of musicians who cope well with the demands of performance are supported by the frequently utilized psychological skills and strategies. For example, participants identified “they are prepared” as the top characteristic of a musician who copes well with performance, and executing appropriate preparation is supported by the skills of “executing quality practice” as well as “goal-setting”, respectively.

The discrepancy between the psychological skills and strategies employed and the most common adverse psychosocial responses to performance musicians experience may be explained by the failure of the skills listed on the MPPQ to fully address the multidimensional aspects of these psychosocial responses, such as the influence of the performance environment. The PSPQ from which the MPPQ was adapted was developed from elements of the psychological skills training (PST) model of performance enhancement (Hardy, Jones, & Gould, 1996). The PST model is grounded in principles of cognitive behavioral therapy (Sappington & Longshore, 2015; Whelan, Mahoney, & Meyers, 1991) and is underpinned by the assumption that psychological, emotional, and physiological functioning are interconnected and can be controlled by the

individual (Moore, 2009). Despite being one of the most prominent models of performance enhancement in sport (e.g., Sappington & Longshore, 2015), the model has been criticized for focusing solely on performance behaviors rather than the performer as a person and their well-being as a whole (Gardner & Moore, 2007; Sappington & Longshore, 2015). These aspects are arguably more difficult to capture quantitatively, as they change based on the unique needs of the individual.

The psychosocial responses to music performance participants identified in the present sample are, in fact, multidimensional. Similar to performance anxiety, stress is a multidimensional construct with both physiological and cognitive components, and it is expressed in a variety of different ways across musicians (van Fenema, Gal, van de Griend, Jacobs, & Cohen, 2018). Bodily tension can be a psychosomatic occurrence (e.g., tensing as "body armor" in response to a perceived threat) in addition to a physical symptom of overuse (Lehmann, 1987, p. 145). The psychological skills and strategies quantitatively evaluated by the MPPQ may be limited in their ability to holistically capture the types of strategies participants actually implement to address performance anxiety, stress, and/or bodily tension, as treatment may be more complex or individualized. A qualitative examination of psychological skills and strategies employed in music, especially those that address the commonly experienced psychosocial responses to performance, may overcome the limitations to the cognitive-behavioral elements of the MPPQ. A qualitative investigation can further explore the various socioecological influences (e.g., the performance environment) associated with these performance detriments that may be previously unexplored.

In a similar vein, the TOPS-2 (Hardy et al., 2010), which has the distinction of deciphering skills used in practice as well as in performance, is one of the most widely used

performance measures in an athletic context (Weinberg & Gould, 2015). However, there is evidence to suggest that its future utility is warranted, especially if adapted to a musician population that is receptive to different performance models, such as models associated mindfulness and acceptance stated above (e.g., Gardner & Moore, 2012). Similar to the MPPQ discussed above, the psychological skills and strategies associated with the TOPS-2 also fall in line with the psychological skills training (PST) model of performance (Hardy et al., 1996). The PST model further argues that thoughts and emotions can be manipulated or "controlled" (e.g., "emotional control", "attentional control") (Hardy et al., 1996).

Gardner and Moore (2012) suggest a paradoxical effect of PST, whereas the act of controlling thoughts and emotions actually takes a great deal of mental energy and focus away from the performer as well as increases negative emotions and associated maladaptive cognitions. Conversely, mindfulness and acceptance based performance enhancement approaches, which aim to "promote a modified relationship with internal experiences . . . rather than seeking to change [them]" (Gardner & Moore, 2012, p. 309; Sappington & Longshore, 2015), are underpinned by a nonjudgmental awareness, where a performer can shift attention back to the task without attempting to "control" or "manipulate" their thoughts and feelings (e.g., Sappington & Longshore, 2015). In considering the results of the TOPS-2M and MPPQ together, over a third of the sample (33.42%, $N = 153$) of musicians indicated on the MPPQ that they use mindfulness practice 100% of the time, with many listing skills and strategies that align with the practice of mindfulness and acceptance, such as meditation, body mapping, the Alexander Technique, and yoga.

Previous research has suggested that musicians appraise their responses to performance, such as performance anxiety, as debilitative yet inherently necessary (Hays, 2002). Musicians

may want to work within their existing performance process, which is more indicative of a mindfulness and acceptance process, rather than attempt to manipulate, "fix", or control it, which are actions more indicative of PST (e.g., Gardner & Moore, 2012). While it may be irrational to assume that musicians execute a skill every single time they perform (i.e., "100% of the time"), its frequent use signifies that musicians are seeing mindfulness practice, and other high ranking performance strategies, as something to be utilized systematically rather than as a "quick fix" or one time "add on" to their routine. Taken together, the results suggest that musicians are receptive to performance enhancement models that represent differing paradigms than that of the sport-oriented PST model.

3.4.3.1. Group differences in psychological skills and strategies utilized. The general lack of significant group differences in psychological skill and strategy utilization in the TOPS-2M across demographic factors such as age, sex, and musician identity, suggests a diversity in how such skills and strategies are implemented. The few significant differences associated with musician age across the sample may be associated with natural maturation. For example, emotional control tends to improve with age regardless of intervention (Carstensen et al., 2011). In terms of sex differences, women tend to be more critical of themselves, which leads to a greater proclivity toward self-talk in comparison to men (Leadbeater, Kuperminc, Blatt, & Hertzog, 1999), and this may explain the significant differences associated with self-talk.

Furthermore, sex differences related to relaxation have been explained in previous literature by mechanistic differences in emotion regulation (McRae, Ochsner, Mauss, Gabrieli, & Gross, 2008). As such, women tend to benefit more from mindfulness and relaxation techniques, broadly (Upchurch & Johnson, 2019), suggesting why relaxation strategies were utilized more frequently among women. Performance psychology professionals looking to work in this domain

should consider these possible nuances in performance strategy utilization, although on the whole, group differences across demographic factors are negligible at best. The extensive variation in the types of skills and strategies musicians use to optimize practice and performance highlights the need for an individualized, person-centered approach to service delivery among performance psychology professionals.

3.4.4. Use of performance psychology professionals

Results of the MPPQ demonstrated that participants are implementing psychological skills and strategies without the knowledge of, or access to, a performance psychology professional. Some participants identified "instructors" and "other musicians" as professionals that they turn to for strategies to enhance their performance, yet the vast majority of the sample indicated that they do not work with anyone at all to improve performance or address performance concerns. In the present sample of musicians, there appears to be a community aspect associated with performance enhancement in which skills and strategies are not explicitly delivered by any particular entity. Therefore, the assertion that professionals from sport may be increasingly called to work with musicians, as suggested by Pecen et al. (2016), may be premature, at least among self-identified musicians in the United States.

While it may be important to examine the divergences across sport and music performance to inform evidence-based practice of performance enhancement modalities, especially in light of the structural changes identified by the American Psychological Association Division 47 (APA Div. 47; Portenga et al., 2011) and Association for Applied Sport Psychology (AASP; Aoyagi, Portenga, Poczwardowski, Cohen & Statler, 2012), it may be insightful to further examine exactly *who* teaches musicians these psychological skills and strategies. It is also unclear what type of training participants (e.g., music educators, instructors, other musicians)

may have in understanding and implementing psychological skills and strategies. This finding could help identify the discrepancies between the psychosocial responses experienced by participants and the skills and strategies they choose to implement to target such responses.

If called to work in a music domain, practitioners and researchers trained in sport are encouraged to consider the philosophical underpinnings of community-based research (see Ross et al., 2010) and are further cautioned to understand the implicit authority and possible power dynamics associated with funding for athletics and the arts, especially within the United States. For example, the National Endowment for the Arts (2004) indicated that nearly half of the income from American arts organizations is made from sales, with the majority being donated from private sectors, rather than the government. The United States government has limited involvement and minimal contribution to arts programming (e.g., the National Endowment for the Arts, 2004). In contrast, the United States government utilizes subsidies from American tax dollars to purchase sport stadiums worth billions of dollars (Isidore, 2015). One musician, in response to taking this survey, wrote: “I know that sports are absorbing the majority, by far, of American educational funding, as well as nearly the entire mindset of every aspect of American life, but please, let's try to keep music free of that.” Musicians may feel encroached upon rather than supported by performance psychology professionals trained in sport who are attempting to enter their respective community. This is complicated by professionals frequently utilizing sport as a template to inform continued performance research and applied interventions with musicians (Hays, 2002, 2012).

3.4.5. Relation to theory

The association of the thoughts, feelings, and behaviors related to psychological performance enhancement that were identified by participants represent traditional elements of

Cognitive Behavioral Therapy (CBT; Beck, 1976). For example, the behavioral coping mechanisms a musician employs (e.g., preparation) addresses musicians' thoughts (e.g., "I need to learn this song") and feelings (e.g., "I am nervous that I won't perform well") surrounding a given psychosocial response to performance. The theoretical alignment is unsurprising as the surveys employed were previously developed in accordance with CBT (Hardy et al., 1996). Notably, results of the current study illuminated some discrepancies in the interplay of thoughts, feelings, and behaviors, as the behaviors that musicians frequently implemented did not appropriately match their associated thoughts and feelings. Performance psychology professionals may be tasked with educating musicians on identifying the interaction of certain thoughts, feelings, and behaviors and may work with musicians to implement appropriate interventions for their concerns, respectively.

As mentioned previously, participants seemed to be receptive to other theoretical and applied paradigms that lie counter to CBT, such as mindfulness and acceptance based strategies (Longshore & Sappington, 2015). Gannon (2015) indicated, "cognitive behavioral therapy (CBT) and relaxation techniques that were borrowed from sport psychology over the last 50 years—have had mixed results when applied to musicians" (para 3). Kenny (2006) asserted that psychosocial aspects of performance that musicians' experience are multifaceted in nature and cannot be addressed in a linear manner (e.g., the psychological and biological sources require different treatments). CBT is criticized for taking a linear, or superficial approach to treatment (Dattilio, 2010) and thus, may be an inappropriate theoretical framework for this population, despite being a popular modality for other performance domains (Portenga et al., 2011). Other frameworks that consider the individual but address the interplay of various systems imposed on the individual (e.g., Bronfenbrenner, 1979) may be more meaningful to examine psychological

performance enhancement.

3.4.6. Limitations

This study was limited by a lack of existing, valid, performance psychology measures tailored specifically for musicians and thus, required the adaptation of performance measures used with other populations. Results could only be interpreted within the confines of the existing measures. The diversity of musicians recruited to participate in the study does not allow for specialty-type recommendations to be made for researchers and practitioners. The attrition from the first survey to the second survey was likely due to respondent fatigue (Hochheimer, Sabo, Krist, Day, Cyrus, & Woolf, 2016), although the researchers were afraid that counterbalancing the measures would prime the participants to use certain performance enhancement words with which they were previously unfamiliar.

3.4.7. Future research

Due to the limitations associated with the theoretical underpinning of existing performance surveys, as well as the nonexistence of music-specific performance measures, future research investigating musicians' lived experiences of psychological performance enhancement is necessary. Future research should further evaluate the various systems associated with the musician that impact performance (e.g., microsystems, community, policy), as this appears to be the next logical step to developing evidence-based measures as well as better understanding the role that performance practitioners may have within this new domain, if any. The current study reflects what strategies musicians implement and what responses to performance they experience, but now we must discover the "what" of psychological performance enhancement. A qualitative investigation, coupled with these descriptive surveys,

will inform a holistic conceptualization of psychological performance enhancement that is directly informed by the needs of musicians themselves.

Chapter IV

Musicians' personal experiences with psychological performance enhancement: An interpretative phenomenological analysis

Target Journal: Psychology of Music

4.1. Abstract

The psychological skills and strategies musicians employ to optimize performance have been identified as the least understood and most under-researched aspects of music performance (Clark & Williamon, 2011). Given that the individual voice of the musician is also characteristically underrepresented in music performance research (Allesch & Krakauer, 2006; Holmes & Holmes, 2013; Randles, 2012), the purpose of this study was to explore musicians' personal experiences with psychological performance enhancement. Utilizing a qualitative design, semi-structured interviews were conducted using Interpretative Phenomenological Analysis (Smith, Flowers, & Larkin, 2009). Twelve (N_{male} = 6, N_{female} = 6) self-identified musicians (M_{age} = 37 years, SD = 12.44) from the United States participated in the interviews, ranging from 53 to 128 minutes in duration. Results demonstrated that musicians employ many general and music-specific coping strategies to optimize performance, whilst also discussing various health and wellness behaviors, the influence that "others" play in the performance process (e.g., instructors, family), the influence of the external environment (e.g., acoustics, audience), the role of the music community (e.g., supportive behaviors, unsupportive behaviors), as well as the perceived access to and utilization of support systems. All participants interviewed were unaware of any professional support systems available for psychological performance enhancement. However, many considered seeking a performance psychology professional,

preferably one with a background in music performance, so long as an individualized person-centered approach was utilized. Higher order themes align with the McLeroy framework (McLeroy et al., 1988) and further support a systems-based approach to evaluating performance enhancement. Considerations for performance psychology practitioners looking to work in a music domain are discussed.

The psychological skills and strategies musicians employ to enhance performance have been identified as the least understood and most under-researched aspects of music performance (Clark & Williamon, 2011). Pecen and colleagues (2017) argue that achieving performance "success" in a music domain is not just a consequence of musical and technical proficiency, but also the presence of numerous psychosocial and environmental factors that impact performance (e.g., Subotnik, 2000, 2004; Subotnik, Jarvin, Thomas, & Lee, 2003, 2016; MacNamara, Holmes, & Collins, 2008, 2014; MacNamara & Collins, 2009; Nordin-Bates, 2012; Subotnik & Knotek, 2009). The role that psychological skills and strategies can play in adapting to the interaction of these various biopsychosocial systems associated with music performance has yet to be investigated. Thus, exploring the interplay of the environmental, psychosocial, and cultural elements of music performance, and the ways in which such elements are associated with psychological performance enhancement, may help researchers to develop "applied support programs" for musicians to optimize performance and well-being (Pecen et al., 2017, p. 2).

At present, applied support programs for musicians appear to be obsolete. Pecen, Collins, and MacNamara (2017) noted that musicians' psychological concerns are primarily addressed amongst peers and music teachers, rather than clinical or performance psychology professionals. These findings were echoed in previous literature (e.g., Williamon & Thompson, 2006), and can be explained by a lack of available music research (Pecen et al., 2017) and lack of accessible resources aimed to support the well-being of musicians (Perkins et al., 2017). Ford and colleagues (study 1) conducted an online self-report survey with 459 self-identified musicians. The results of the study (N = 459) revealed musicians' psychosocial responses to performance (e.g., stress, performance anxiety, bodily tension), the psychological skills and strategies that

musicians use during practice and performance (e.g., goal-setting, executing quality practice), as well as the various professionals specialized in psychological performance enhancement with whom musicians have worked to enhance performance (e.g., psychologists, performance psychology consultants). Ford and colleagues (study 1) noted that 14.14% of participants surveyed (N = 65) had worked with a counselor or mental health professional to address performance concerns, and 7.57% of participants had previously worked with a sport/performance psychology consultant (e.g., CMPC; Mental Skills Coach; N = 35). The lack of support service utilization across a large sample of musicians reflects a possible barrier associated with access to appropriate resources aimed to enhance a musician's performance. However, existing survey research is limited in its ability to explore how musicians make sense of the available support systems associated with psychological performance enhancement and thus, such research would be strengthened through qualitative inquiry.

Psychological performance enhancement interventions implemented with musicians to enhance performance should be individually tailored to the needs of the musician (Hays, 2009), so overlooking the voice of the musician is problematic in advancing research further. Holmes and Holmes (2013) argued that the nuances of music performance would be better explored phenomenologically, as it permits the exploration of meaning and allows researchers into the "inner world" of the musician. Thus, phenomenology is increasingly utilized to explore the experiences of music performance (e.g., Clark, Williamon, & Lisbon, 2007; Holmes & Holmes, 2013). At present, a holistic and contextually appropriate qualitative exploration of psychological performance enhancement that is informed by musicians themselves is needed so that researchers and practitioners can better understand the various mechanisms associated with psychological performance enhancement in a music domain and inform appropriate support systems for

musicians. While studies evaluating musicians' use of psychological skills seem to be increasing (e.g., Hays, 2014; Hays, 2017), the individual voice of the musician is characteristically underrepresented in music performance research (Allesch & Krakauer, 2006; Holmes & Holmes, 2013; Randles, 2012). Therefore, the purpose of this research was to explore musicians' personal experiences of psychological performance enhancement.

4.2. Method

4.2.1. Design

To align with the purpose of the study, a phenomenological approach was employed. Interpretative Phenomenological Analysis (IPA; Smith, Flowers, & Larkin, 2009) informed the study design, interview, and analysis. IPA aims to explore the lived experiences of participants, but at the same time, acknowledges the active role that the researcher plays in the interpretation of a participant's lived experience (Smith & Osborn, 2008). The interpretation process is referred to as a "double hermeneutic" (Smith & Osborn, 2008, p. 53). In essence, the participants are making sense of a phenomena, and the researcher is "trying to make sense of the participants trying to make sense of their world" (Smith & Osborn, 2008, p. 53). For IPA, there is no predetermined hypothesis, but rather, an in-depth exploration of a specific area of inquiry (Smith & Osborn, 2008).

4.2.2. Participants

Participants were those who had completed surveys from study 1 and expressed interest in participating in a follow-up interview. Twelve musicians (N_{male} = 6, N_{female} = 6) who were over the age of 18, lived in the United States, performed music for an audience, and self-identified as an instrumentalist, vocalist, and/or conductor, participated in the study. Musicians ranged in age (18-55 years), expertise (e.g., jazz/classical/touring musician/educator/songwriter;

instrumentalist/vocalist), and professional experience. To protect the identity of those interviewed, no additional details can be disclosed. Recruitment of participants was purposive to align with the homogenous inclusion criteria associated with IPA (Smith & Osborn, 2007), and was intended to represent a diverse set of self-identified musicians.

4.2.3. Procedure

Prior to the interviews, a pilot interview was conducted with a self-identified musician, and this interview lasted approximately 88 minutes in duration. After analyzing the pilot interview, minor changes to the order of questions and wording were made for clarification purposes. Participants from study 1 who expressed interest in being interviewed were contacted on a first-come, first-served basis to schedule a time to meet with the researcher face-to-face, or via technology that simulated face-to-face communication, such as Skype. Technology provided accessibility to a wider range of participants without compromising the intimacy, non-verbal cues, and rapport associated with qualitative interviews (Lo Iacono, Symonds, & Brown, 2016). At the beginning of the interview, participants signed a consent form providing permission to be audio recorded. Interviews ranged from 53 to 128 minutes in duration.

Throughout the interview, the researcher followed a semi-structured interview guide to elicit responses from the musicians, as is recommended for an IPA approach (Smith & Osborn, 2008). The interview guide aligned with the purpose of the present study, and involved the exploration of personal experiences with psychological performance enhancement (i.e., *What does "psychological performance enhancement" mean to you?*). The semi-structured interview guide provided a general set of questions, but it allowed the researcher to build rapport with the participant, adapt to the responses given, and probe the participant for more detail in a given response to allow participants to tell their experiences in rich detail (e.g., Smith & Osborn,

2008).

4.2.4. Analysis

The interview data were analyzed in accordance with IPA procedures (Smith & Osborn, 2008), and facilitated through qualitative software (QSR NVivo 12 Plus). The process of analysis for each interview was identical. As part of the IPA, each interview was transcribed verbatim. Each participant was given a pseudonym to ensure confidentiality. First, after reading through the transcript, a free textual analysis was conducted (Smith & Osborn, 2008). This analysis includes any initial thoughts and insights that emerged from reading through the data. From these initial notes, a second read through was conducted to work toward transforming the initial notes into emergent themes. The third step involved clustering the emergent themes together to establish connections among the themes. The clustered themes provided a master template by which the remaining interviews were compared. This process was done to establish theoretical saturation, or the presence of no new themes or ideas (Given, 2016). Data collection ceased after theoretical saturation was achieved.

4.2.5. Reflexivity

Given the double hermeneutic associated with IPA, the role of the researcher is important to the analysis. Reflexivity, or positionality, concerns the ways in which we question our attitudes and beliefs to make sense of the social world around us (Bolton, 2005). This awareness of the researcher's inner self impacts the lens by which information was interpreted and analyzed. Researchers are never totally neutral, and biases and personal experiences impacting the phenomena in question must be acknowledged (Clancy, 2013). In the present study, the researcher has experience performing as a musician. While these experiences can build rapport and provide an "insider's view" of the phenomena in question, her experiences as a musician

may be problematic, as they may culminate in bias, given the purpose of the present study. To overcome the concerns related to reflexivity, a reflexive diary was implemented (Clancy, 2013). A reflexive diary provided an opportunity for the researcher to bracket her thoughts and reactions to the data collection and data analysis process. The reflexive diary also provided an opportunity for the researcher to clear her mind and to "step back" from the data to better understand how her biases and performance experiences may cloud the interpretation of the data (Clancy, 2013). Excerpts from the reflexive diary were reviewed by an external researcher not affiliated with the study.

4.2.6. Trustworthiness

Reliability and validity in qualitative research hinge on the trustworthiness of the interpretation. A discussion regarding the reliability (e.g., consistency and replicability of data) and validity (e.g., appropriateness of measurement tools to attain the data) in qualitative research is often deemed counterintuitive because the interpretation of findings can only be evaluated based on the lived experiences provided by the participants in question (Leung, 2015). However, validity can be enhanced by triangulation, or the use of external reviewers to evaluate the themes compiled by the researcher (e.g., Leung, 2015) to decipher any gaps or to identify any inconsistencies in interpretation. An audit trail of the coding process also enhances the validity of the project (Leung, 2015). Both mechanisms were implemented in the present research. For reliability, a constant comparative methodology is recommended for consistency (Leung, 2015). This process is inherent within IPA research, as it involves comparison of interview data to an ongoing master code list (Smith & Osborn, 2008).

4.3. Findings

The musicians' personal experiences with psychological performance enhancement were influenced by a variety of factors. This section presents the emergent themes from the musicians' interviews. Overall, nine higher order themes emerged, some of which contained subthemes. Table 13 displays the sub themes in each of the subthemes.

Table 13

Master Table of Themes

Higher Order Themes - *Subthemes*	Level of the McLeroy Framework (McLeroy et al., 1988)
An individualized approach	Intrapersonal
"Responses show up in your voice [and] instrument" - *Psychosocial responses with positive valence* - *Psychosocial responses with negative valence*	Intrapersonal
Health and wellness behaviors - *"Cura personales"* - *"I'll play through it"*	Intrapersonal
General coping strategies	Intrapersonal
Musician-specific coping strategies	Intrapersonal
The influence of "others"	Interpersonal
The influence of the external environment	Organizational/Institutional
The role of the music community - *Unsupportive behaviors* - *Supportive behaviors*	Community
"There is no resource available for musicians"	Policy

4.3.1. "A lot of people do it in their own way" (Carl)

When discussing the aspects of psychological performance enhancement, participants discussed characteristics of themselves that they believed to influence the psychological aspects of music performance, including their own background and musician identity. Many participants

provided justifications or disclaimers to their individualized approach to music performance. Aaron stated, “I will say that, you know, the things I'm saying are, are things that I learned myself over time, so I don't know that they'll work for other people.” Evan stated: “Take what you need, find what works well together from those different practices, and kind of build your own system of what works.” Darlene added, “it's individualized ... I think it has to be. Like, what works for one person might not work for somebody else.” There was not a “one size fits all” approach to psychological performance enhancement, as participants tended to emphasize what worked best for their specific needs. Throughout the interviews, there was a sense that musicians believed their own lived experiences with psychological performance enhancement were not universal but instead, unique.

4.3.2. “It shows up in your voice [and] instrument” (Hope)

Participants also discussed a range of psychosocial responses to music performance that may elicit the use of a particular psychological skill or strategy. Answers included variations of: embarrassment, fear, frustration, joy, judgement, physical pain, performance anxiety, pressure, perfectionism, satisfaction/accomplishment, stress, and vulnerability in response to music performance. These responses can be classified into subthemes: psychosocial responses with positive valence and psychosocial responses with negative valence.

4.3.2.1. Psychosocial responses with positive valence. Fran discussed calling upon her joyful experiences performing as a mechanism to enhance her performance:

> And there's this like, I can't tell you... like there's like flooding sense of like, like joy, like I just feel like ‘Oh, I love everybody. I love the band! And I love all of you for coming.’ And so I think that that kind of ...I don't know when that started happening, but it's pretty awesome.

Kevin discussed music performance as the only activity that gave him satisfaction, “I could accomplish other things and other areas, but for some reason I didn't get the same sense of satisfaction and like, accomplishment.”

4.3.2.2. Psychosocial responses with negative valence. Two of the most commonly discussed psychosocial responses to performance that represent negative valence were perfectionism and performance anxiety. While often characterized as a personality trait (Nordin-Bates, 2012), perfectionism is also a behavioral response inherent within the domain of music. Carl described, “I think it's super hard because it's always ingrained in us that we have to be perfect as musicians.” According to Joe:

> I think sometimes you know, we get a little bit OCD where we lock ourselves in a practice room and are afraid to show something until it's perfect. And that's not reality, you know... we strive for perfection.

Performance anxiety was also shared by the participants. Beatrice stated, “Yeah, I definitely have suffered from performance anxiety. Probably forever.” Beatrice further noticed that her performance anxiety response differs depending on the type of performance; “it's definitely a stronger anxiety when I am playing solo than when I am with a band.” Fran, in describing the symptoms of her performance anxiety (which she referred to as “stage fright”), felt that her responses have changed with age:

> I used to have much more stage fright when I was younger, like I'd get up on stage and my mouth would be dry and my hands would be freezing and my knees would be shaking. And I would want to go to the bathroom… now …I'll be a little nervous before I get on stage. But then I get on stage and I'm like… ‘I know this.’

Participants generally discussed performance anxiety as something that was expected in a performance and normalized within the music culture.

4.3.3. Health and wellness behaviors

Many participants also spoke to the importance of executing health and wellness behaviors associated with: avoiding drugs and alcohol, avoiding getting sick, being in good physical shape, eating a proper diet, using medication(s) appropriately, sleeping, and implementing vocal rest. Two sub-themes associated with these health and wellness behaviors included "cura personales" (Aaron), or care for the individual, and "I'll play through it" (Evan), or the notion of playing through sickness despite being unwell. Regardless of performance domain or musician identity, participants indicated a noticeable shift in recent years toward care for the entire person, which includes paying greater attention to overall health and wellness. However, despite an increase in care, the industry often expects a musician to play, even if sick.

4.3.3.1. "Cura personales"/care for the individual (Aaron). Participants commented on a greater emphasis toward care for the individual, not just within the context of music. Added care for the individual positively influenced performance. Gloria noted:

> I remember I mentioned it [my concerns] like offhand to my private instructor at the time. And she like actually cared about it. So then … she would ask
> me like how I'm doing in that vein, like not just like, oh, how are you today? But like, how have you been doing?

Aaron noted that "there is a greater consciousness toward this ["cura personales"] now in the arts than when I was in school." As part of the care for the individual, musicians often commented on moderating or avoiding the use of drugs and alcohol in the music culture, and

how certain behaviors are detrimental to the individual yet still a "cultural norm" (Darlene) in the domain:

> Well, I mean, I think you know, certainly mood altering things and, and alcohol are not going to help you in the long run. I think that's the way…a lot of musicians that I know...that's their go to, you know, they are either drinking or they are, you know, doing drugs. And… unfortunately that's like, woven into the fabric of the myth of the music rock and roll life. (Fran)

4.3.3.2. "I'll play through it" (Evan). Participants often spoke about their attempts to avoid getting sick, as being healthy ensured a more optimal performance, despite often appraising sickness as "not too big a deal" (Evan). However, if musicians fell ill, they would often be relegated to play through it. Evan stated:

> Around performance time, like, everyone's super conscious about like, Oh, don't get me sick, like I have a performance coming up. And kind of keeping that in mind. I will say, musicians tend to be a little bit more 'laxed [*sic*] on that. It's kind of like, Yeah, whatever. I'll play through it.

Notably, many disclosed that they do not adequately address their health when physically ill, often as a result of maintaining performance commitments or needing to get paid. These responses were counter to the general focus on health and wellness. For example, Beatrice illuminated:

> I think we push through. Like, I was really sick, but I had a gig lined up and so I miraculously pulled it out… And like, was that the smartest thing? Maybe not, but it's what I did. So I think like, sometimes we ignore our health, because we have commitments.

Darlene added, “they [musicians] lose out on money and they lost [*sic*] out on... I think opportunities is the right word.” The industry itself seems to reinforce playing through sickness, as Aaron explains:

> Yeah, I can't remember the last time I called out of a show, even when I was sick, other than that time I had strep throat and that was because the doctor was like, you literally cannot go on. But otherwise, like, you know, again, there's no crying in baseball, we're expected to.... if you if you can physically do [*sic*], then you need to get up there and do it.

4.3.4. General coping strategies

Participants discussed implementing many different coping strategies (e.g., adjusting to setbacks, arousal regulation, acceptance, effort/work ethic, exuding confidence/body language, faking it, focus/eliminating distractions, goal-setting/managing expectations, having a back-up plan, humor, imagery, journaling/diary, listening to podcasts, meditation, positive affirmations, preparation/practice performing, reframing, self-talk, implementing relaxation techniques) to facilitate psychological performance enhancement. Because these coping strategies are similar to those found in other performance domains (e.g., athletics, military, tactical populations) (e.g., Hays & Brown, 2004), they are categorized as “general” coping skills. Of all skills discussed, the most commonly utilized skill enumerated among musicians was preparation/practice, specifically the types of practice behaviors musicians felt were necessary for performance success, such as practicing the way you are to perform. For example, Hope mentioned, “you gotta [*sic*] practice performing…commit to it, put everything into it.”

When discussing the strategies he regularly implements to overcome performance anxiety and nervousness, Kevin noted:

> I think the best thing you can do is to be adequately prepared. I think the biggest source of nervousness for people and apprehension is the fact that they're … trying to do something that's really beyond what they're able to do. And although they've worked really hard at it, it's really just beyond their reach in terms of their ability. So, and that is still inadequate preparation, because it's, it's still not ready for a performance…the only thing I can say about nervousness is preparation helps…you can't control what the audience is going to think… the only thing you have control over is the amount of preparation that goes into it beforehand.

Preparation sometimes differed according to the type of performance to be put on:

> There's definitely a little bit more emphasis on practice [in cabarets] because you don't have as much time and you've only got this one chance to get it right. Whereas like a musical, you know, you rehearse for a month and a half and then you perform for three months. So if you mess up that one thing at a show you go 'ah I'll get the next one' (Aaron).

Participants also frequently discussed imagery, self-talk, and relaxation techniques as mechanisms to enhance performance.

4.3.4.1. Imagery. Participants' process and understanding of implementing imagery varied and seemed to be related to visualizing various aspects of the performance process, though it was unclear exactly how and when these processes were implemented, even when prompted for elaboration. Hope stated:

> I do a lot of imagery working in terms of I see myself ... what would the perfect performance be? What would that entail? And then I like to do a lot of visualization with that. You know, walking out, walking out of the stage. Whether it's a concert, or if it's a

> dramatic work, you know, stage work, walking, making my entrance, and through each scene, what would the perfect performance be and, and visualize that and sort of set myself up to go through that… I sort of program my mind for that.

Though admitting she's "not the best at it [imagery]", Gloria noted that she creates images and characters associated with the piece she is playing:

> I always would try to think of it as like a king walking into a throne room and then it would have like an elegant section right after so I would always think it would be the queen coming after him, so it would be like trying to like put characters into that.. It's more than just, you know, the notes on the paper, like I mentioned, you can actually put in personality and different motifs into it.

4.3.4.2. Self-talk. Many participants articulated the dialogue they exchanged with themselves as a mechanism to enhance performance, and seemed very aware of their inner monologue. Carl noted, "I need to tell myself in my head that I know what I'm doing, and that I've done this before, and that I can do it again right now…And it's like self-talk... a lot of that in the moment."

Beatrice had a similar experience: "I guess like when I'm performing, I just tell myself like ....you're here. So you have to do this now." Fran stated: "Like a just [*sic*] a thing of like, you can do this, you can do this. I do sometimes, embarrassingly… talk to myself in the mirror in the bathroom beforehand." Responses from participants seemed to indicate that self-talk was used sporadically, rather than systematically, to enhance performance.

4.3.4.3 Relaxation techniques. Aspects of relaxation were deemed imperative for all participants as a mechanism to enhance performance, yet the process or rationale for implementing such strategies was inconsistent across all interviews. Some discussed the

importance of breathing and breath support relative to relaxation (Aaron, Fran). In general, relaxation strategies seemed to be utilized prior to getting on stage. Kevin explained:

> I will say that I guess I do just practice sitting up straight or standing up straight, putting my shoulders back, you know, relaxing everything. You know, just kinda [*sic*] make sure everything's like sort of sitting where it sits naturally. And then I do a few deep breaths to get ready, you know, that's about it. I mean, it's not really a big involved thing for me. But it helps.

Carl noted that he was taught physical relaxation, but its associated mental relaxation was unclear:

> I think in general, it's [relaxation techniques] taught a lot. If you're professionally trained, it's taught a lot ... like turning on your instrument, like how to actually play physically relaxed. And I think it's a lot of times [you're] just told, like, 'all right, you need to relax before this performance'…that's the extent of like learning how to actually mentally relax.

4.3.5. Musician-specific coping strategies

In addition to the general psychosocial skills and strategies discussed above, participants also discussed how they use musician-specific psychological performance enhancement strategies. Such identified skills were: building a thick skin/embracing rejection, completing a set-list/performance plan, drawing from emotions/establishing emotional connection, eliminating bad technical habits, finding the story arc/seeing how the piece fits within the context of the show, getting as much experience as you can performing in front of people, using "improv", listening to recordings, mastering the music fundamentals first, memorization, physically warming up voice and body, playing through mistakes, running through things multiple times,

getting a feel for the stage, and slowing down your practice and building back to tempo. The Alexander Technique, though not unique to musicians, is included in this theme, as it uniquely represents a strategy inherent in the performing artists broadly. Of these music-specific skills, physically warming up, implementing the Alexander Technique, and building a thick skin/embracing rejection were the most frequently discussed music-specific coping skills. Sample excerpts associated with these strategies are described below.

4.3.5.1. The Alexander Technique. Over half of the participants, specifically those who self-identified as being classically trained musicians, commented on the effectiveness of the Alexander Technique to enhance performance. Larry specifically credited the Alexander Technique as the predominant catalyst to enhancing his performance:

> One of the first big breakthroughs that I had with performance anxiety was…Alexander Technique…a lot of it involved performing and since I was a guitarist not a vocalist, like, I had to have like a chair, my guitar, my footstool, all of that stuff. So it was kind of a [*sic*] kind of an ordeal, but it was really, really useful. And what surprised me the most was how much of my performance anxiety was stemming from my [pause] ... like one leg like completely under the chair like going back on the under the chair. And once I corrected that and brought it back out and sort of level and parallel with my other leg, I was really surprised at how much more like not really even not [*sic*] confident, but … just how much better I could play.

4.3.5.2. Building a thick skin/embracing rejection. In a music domain, rejection appears to be experienced frequently among those interviewed. Thus, musicians are encouraged to normalize rejection and embrace rejection as part of the music process. Hope stated, "It is difficult to do this [music] professionally... 90% of what you deal with at least for a vocalist is

rejection." Rejection often stings due to how personal an artistic endeavor is, as Hope elaborated, "Singing... it's the most personal. Music is personal, but I think singing is the most personal because it truly is your voice." Joe discussed the personal aspect of rejection in composition:

> When you put a piece out there to be published and you get a 'no', you know, all of a sudden that's something you put your heart and soul into for how long you know, and to have that rejection. But you just see that as a part of the job.

Put simply, Aaron said, "you really do have to have thick skin....because not everyone's going to like what you're doing."

4.3.5.3. Physically warming up. Many participants indicated that physically warming up was a common behavior that primed musicians for an optimal performance to occur. Carl noted, "If you need to do something physical to warm up, you know, whatever instrument or your voice or something like that, I think that's… that aspect is typically taught and is kind of universal." Fran added: "There are a lot of … motion exercising, you know, like stretching. You know, like, as a musician, I think it's such a physical thing that you know, doing some stretching beforehand is really, really helpful." These techniques were often executed physically to "get you out of your head." (Aaron)

4.3.6. The influence of "others" in the performance enhancement process

Musicians frequently commented on the role that significant individuals played in their performance enhancement process. The individuals most commonly discussed among participants were instructors, family, friends, accompanists, conductors, and backing bands.

4.3.6.1. Instructors. The role of the instructor provided the most polarizing responses among those interviewed. Participants credited instructors with either performance success or performance failure, with a few citing instructors as the most influential person in a musician's

social circle, positively or negatively (Kevin, Larry). Notably, all participants were instructors in some capacity themselves; either privately, through an educational institution, or through community outreach programming. One spoke to the long-term negative impact of an instructor who dismissed his performance anxiety (Larry), another addressed the detrimental impact of an instructor's inability to acknowledge diversity or teach with cultural competency (Aaron), and yet a few others spoke to the disadvantages students have when they do not receive individualized attention from instructors throughout their training (Evan, Irene). Conversely, Fran noted:

> I had super positive experiences with the people that I've worked with and the people that are my faculty, you know, colleagues, we all really want the students to succeed, we all really want to support them in whatever their art is.

Musicians indicated that psychological performance enhancement was associated with instructors that: push students toward their performance goals (Gloria, Irene), recognize that art is subjective (Aaron), manage their expectations of students to match respective competencies (Carl), are empathetic and understanding (Larry), teach different modalities - not just the ways in which they were taught (Aaron), give appropriate feedback/constructive criticism (Beatrice, Gloria) and arm students for success in the industry, including marketing/self-promotion/media training (Fran), as well as dealing with rejection (Fran, Hope).

4.3.6.2. Family. Family also played a significant role in psychological performance enhancement, particularly as parents often provided financial support for musicians, as well as tangible support by way of attending musicians' shows and concerts, and supporting their endeavors despite the societal "stigma" of studying and/or working as a professional musician (Joe, Larry). Irene adds:

> In …my culture, for example, they don't see an artist or musician …as an ideal career for the rest of your life… I am happy and lucky to have such a wonderful family who supported me for me to become one of the only musician [*sic*] in the family.

Kevin stated:

> I think parents are extremely important to be supportive in the beginning… if my parents were not supportive than I wouldn't have gotten where I am at…
>
> Parents have to be supportive of their children because they're the ones that are gonna [*sic*] have to be taking them to rehearsals, taking them to lessons, buying their instrument, buying the things they need to keep playing their instrument...

Beatrice added how unsupportive family members can be a hindrance to musicians, stating:

> So I think that's a huge way that family and friends can hinder is not making your music a priority. And not that you have to come to every show. Like a few shows, you know. I think that's a huge thing.

Participants also commented on having the support of their spouse or significant other. Joe mentioned:

> Music is just kind of a way of life, you know, and I told my wife that, you know, she knew that when we got married and stuff, and she knew me many years before that as well, you know, so she knew all the time commitment that it takes, you know, and it's odd hours and repetition of a particular piece over and over again and the ups and downs of performance and the self-criticism.

Fran chose to tour with her husband and suggested travelling with other family members as a way to maintain social support through the loneliness musicians often endure.

4.3.6.3. Friends. Participants often referred to their friends as also having a significant impact on psychological performance enhancement. Whether it was “having a friend sit in the practice room with you while you are practicing” (Evan), “co-writing… like 30 songs together” (Fran), seeing your friends in the audience when you are performing (Aaron, Beatrice), or working with other musicians who are also your friends (Irene), there was significant value placed on friendship. Conversely, friends who did not “have similar mindsets with music” were a hindrance, as Gloria articulates. Gloria discussed that friends that do not understand the time commitments associated with music practice can prevent musicians from succeeding; “nobody understood that I prioritize[d] practicing over hanging out.”

4.3.6.4. Conductor, accompanist, or backing band. Participants divulged the importance of establishing relationships with whom they need to perform, and in some cases, this was the conductor, accompanist, or backing band. Oftentimes, musicians were unable to work with or meet the accompanist, backing band, or conductor prior to a performance. This related to pre-performance stress, as it factored in an uncontrollable element to the performance process. Gloria enumerated, “I wanted it [the accompanist] to be like a good fit, but I was always worried that it wouldn't be because I didn't know them.” Fran discussed the uncertainty of backing bands in new locations knowing her songs; “so sometimes I've got like this wild card musicians who is with me, and I'm like, oh, God, please let him know the songs.” Conductors also played a significant role in how a piece was to be performed, as Hope describes:

> Sometimes you have a conductor...you rehearse stuff, I will tell you this. And you've gone through and everything is great, and you get to the performance and the conductor is like, conducting a different pattern... You know, if something happens, you may try to adjust, and it can be very disconcerting.

Musicians often do not have the “clout” (Hope) to confront the conductor about his/her actions. Instead, they are relegated to dealing with the nuances of the performance situation as it occurs.

4.3.7. The influence of the external environment

Participants elucidated elements of the external environment and the ways in which they adjusted to various outside occurrences to optimize performance. Items in the external environment that played a role in psychological performance enhancement included: the role of the audience, the acoustics, the air and environment impacting the instrument, the type of setting in which a piece is to be performed (e.g., matching the piece to the setting), as well as unpredictability in a specific setting (e.g., being unable to play your own instrument, unfamiliar sound system). The more commonly discussed aspects, the role of the audience and the acoustics, are described in more detail below.

4.3.7.1. The role of the audience. The audience played varying roles in the musician’s lived experienced of psychological performance enhancement. Carl reflected, “I think the biggest psychological factor for most is just who is watching you.” Kevin described the role the audience played in fostering energy:

> If there's not an audience… it's really tough for them to sustain the energy. But if the audience is into it and is cheering and all that stuff, you do get something from it I think, and even though we don't want to depend on it for a successful performance, it can make a successful performance even better.

Many participants experienced heightened nervousness in the presence of an audience, as Darlene describes “at least for me, my body’s response [is] so different as soon as there’s an audience.” Carl described being nervous playing a solo in front a professor, “I did have like

nervous reactions or, like the psychological aspect affected my performance … when I had to play by myself for a professor." Aaron described his normalization of nervousness, "the audience is nervous [too]… I think the audience you know, wants you to do well, so just go out there and do well." Hope cautioned musicians to not "be sucked into…trying to please the audience." Certain musicians further commented on experiencing differing psychological aspects of performance depending on the size of audience (Carl, Darlene) or the type of performance itself (jazz versus classical) (Irene).

4.3.7.2. The acoustics. Evan discussed the importance of practicing in the space in which you are to perform to adjust to differing acoustics, **"**the acoustics aren't going to be the same. So that's why teachers and professors give and have rehearsals in the concert hall." Gloria explained:

> I suppose, like being in a room with good acoustics is really nice because if it's a room that like really dampens your sound and doesn't project that well… then it is really nerve wracking because then like you really have to over exaggerate all [*sic*] everything that you've been working on before.

But conversely, "it's always really nice playing in a room like with really good acoustics, because it just makes you feel your best" (Gloria), or as Hope indicated, "I think it, [acoustics] … whether you are conscious of it or not, helps you relax and stay loose, and you probably are going to… take more risks… which is a good thing in terms of being more vulnerable."

4.3.8. The role of the music community

The music community itself played an impactful role in a participants' experiences of psychological performance enhancement. This theme can be grouped further into subthemes of "unsupportive behaviors" and "supportive behaviors".

4.4.8.1. Unsupportive behaviors. Characteristics associated with unsupportive behaviors were often associated with comparison, competition, and "backbiting" (Aaron). Aaron describes: "A lot of anxiety and performance anxiety that young performers have today come[s] from, you know, that mentality … of like, you know, I'm not this person in the program and so I must be terrible." Joe discussed how comparison breeds stress: "We get wrapped up in comparing ourselves to other people… I would say a lot of students don't want to be playing the same piece because they don't want to be compared to their colleagues." Carl associated comparison to attrition, "people … just give up because they're not as good as other people that they're playing with."

Competition also bred similar negative feelings, as Joe describes:

> I've heard horror stories of people going to, you know, very competitive things being sabotaged musically… the one who... comes in second place, it can be a struggle for them depending upon where they're at, you know, psychologically, emotionally, physically, you know.

Larry added:

> [In] like larger conservatories there is there's definitely this extremely toxic culture of competition and just like needing to be the best, like the top of the seat in the studio…there is definitely a general sense that like… I'll do anything to make that happen.

Across many participants, there was an overarching sense that competition was negative for the music community, favoring a subjective approach to music appreciation.

4.3.8.2. Supportive behaviors. All participants spoke to some amount of supportive behavior in the music community. For example, Hope indicated, "I think most [music] students

are supportive in terms of they want their peers to do well and they support each other." Darlene noted, "there are people who… not just promote each other but like, support each other or harmonize with each other, like really encourage and motivate each other." Other participants cited a willingness to practice together (Carl), an engagement in honest feedback from music colleagues (Joe), a shift toward implementing less "cutthroat" approaches to jazz performance/improvisation (Kevin), feeling as though you are giving back to others through artistic expression (Aaron), wanting to be a role model that kids look up to (Aaron), and a strong willingness to collaborate on music with others (Aaron, Darlene, Joe) as supportive music community behaviors that facilitated psychological performance enhancement. Many saw music performance as providing a broader sense of purpose for themselves and the surrounding community.

4.3.9. "There is no resources for musicians" (Fran)

Despite the fact that musicians are "starting to really be open about mental health" (Darlene), and often see music or songwriting itself as a form of therapy or healing (Aaron, Beatrice, Fran), when asked about resources to address music performance specifically, no participant interviewed could identify any resources related to performance psychology. Some struggled to identify where to look to find someone specialized in psychological performance enhancement, noting that there was no music-specific individual that they were aware of, or that the practice was just something for "famous people. People with money…" (Darlene). Joe noted:

> I would look at sports because I think there are more sports performance psychologists and sports psychologists, there are things specialist with [*sic*] in terms of music performance, but… I couldn't find someone in our in the area that was, you know, specifically kind of geared towards musicians.

Darlene noted, “I have no idea. Yeah. Because honestly before this interview, I don't know that I would have even had like a term to even start.” While participants were unfamiliar with performance psychology, they were also unsure of the extent to which musicians had access to health services for physical or mental wellness, broadly. Kevin commented, “Probably not many. Because they don't have... most working musicians probably don't have health insurance. So that's ... I think that's an issue.” Aaron said, “Yeah. I don't think that they can afford it honestly.” Hope added:

> I think that's a big question too, because a lot of musicians don't have good health care because if, you know, it depends on what kind of performer they are, if that's their main occupation, and they're just performing is [*sic*], you know, for like lower wages, and it's not like a full time job or something like that.

Given a lack of identified resources, participants were prompted to discuss how they learned to execute certain psychological skills and strategies. Answered ranged from “different teachers” (Joe), “college professors and my high school band director” (Carl), “private, like studio lesson professors … and then in a larger context of an ensemble, it's the director” (Evan), “I've kind of had to learn it on my own”/ “learned myself” (Fran, Gloria), “the School of Hard Knocks” (Beatrice), to “great articles…books” (Hope). All participants, regardless of level of expertise or identity, had never worked with any performance professional or applied practitioner to learn the general and music-specific skills and strategies associated with psychological performance enhancement.

4.3.9.1. Role of performance psychology in a music domain. Despite not being aware of music-specific resources related to performance psychology available, musicians articulated a demand for such services. For example, Fran stated:

> I wish that there were something in place that I could use psychologically, to help me be at the peak of my performance as a musician and I don't mean skill wise because it isn't about that. It's about the mental game. I think … that might be the key to everything.

Joe stated, "I think we've started to become honest with some of the myths that you know, that [*sic*] have existed for a long time." Darlene added:

> I've done a lot of things. I have a lot of experience. But no matter what, like there's always that self-esteem… I think like, I think low self-esteem is a really big thing that a lot of musicians probably need support in.

When discussing preference for types of performance enhancement services, participants articulated the need to differentiate between a therapist in a clinical setting and a performance psychology professional. In doing so, musicians seemed to prefer a performance psychology professional with a music background to address any performance concerns. Darlene expressed, "I love my therapist, but like, I don't know that she's gonna [*sic*] help that much with performance related stuff like she's not a performer." Gloria noted:

> From my experiences with like therapy and stuff, like they don't know as much about music ... they'll be like, oh, I played the trombone in high school or something back in the day, but they won't know a whole lot of anything else.

In further differentiating therapy from performance psychology services, Fran added, "I don't know that we all need to go to uncover our deep, dark truths and darknesses [*sic*] that happened in our youth to [enhance performance], you know, I really wish that there were like a, like a health care center … just for wellness."

When asked what type of credentials they would prefer a performance psychology

professional to have, Beatrice preferred a person with "psych [*sic*] credentials", Gloria desired "a PhD … [with] many years of music background". Hope required such person to be a "certified Alexander Technique instructor." Darlene articulated the value of a person-centered approach:

> And I think that would be one of the benefits of having somebody who does — who would specialize in …in kind of how to deal with this… would really be that it would be somebody who's working individually, I would assume, to come up with a plan ... to come up with like, 'okay, what do you when ____' or 'what do you do... what works for you in this situation?' How do we apply it to [*sic*] when you're performing?

In summary, findings revealed that participants discussed their personal experiences with psychological performance enhancement relative to utilizing an individualized approach to service delivery, identifying psychosocial responses to performance with positive and negative valence, executing various health and wellness behaviors, employing general and music-specific coping strategies, recognizing the influence of impactful "others", adjusting to the influence of the external environment, addressing the supportive and unsupportive behaviors within the music community, and acknowledging the lack of resources available to musicians broadly.

4.4. Discussion

The purpose of this research was to explore musicians' personal experiences with psychological performance enhancement. Results demonstrated that musicians employ many general and music-specific psychological skills and strategies to optimize performance, whilst also acknowledging performance concerns related to health and wellness, the role that "others" play in the performance process (e.g., instructors, family), the influence of the external environment (e.g., acoustics, equipment), the behaviors of the music community (e.g., supportive, unsupportive), and the perceived access to various support services.

While the role of IPA is to be data driven, rather than theory driven (Forrester, 2010), the emerging themes from the interviews reflected a clear socioecological conceptualization (McLeroy et al., 1988) to psychological performance enhancement. This finding is in support of previous literature indicating that the "intrapersonal, interpersonal, and wider environmental factors all matter and all interact" in a music performance (Nordin-Bates, 2012, p. 84). The McLeroy framework (McLeroy et al., 1988) delineates various interdependent evaluative intervention points at the policy, community, organizational, interpersonal, and intrapersonal levels of influence (see Table 14). With roots in public health, the McLeroy (1988) framework "has been recommended as a theoretical, methodological tool capable of supporting a consistent, holistic approach…[to] interventions" (Moore, de Silva-Sanigorski, & Moore, 2013, p. 1001). Given the purpose of the present research, coupled with the lack of applied support systems available to musicians (Pecen et al., 2017), the McLeroy (1988) framework is applicable to music performance conceptualization. Starting from the individual musician (intrapersonal level of influence) and working outward to policy, results support the McLeroy framework.

Table 14

The McLeroy Framework (adapted from McLeroy et al., 1988)

Level of influence	Approach
Intrapersonal	Individual characteristics (attitudes, beliefs, personality)
Interpersonal	Group influences (social networks, social support)
Organizational/ Institutional Factors	Domain-specific rules and regulations that may promote or threaten performance
Community	Shared identities, community relationships
Environmental/ Public Policy	Laws and governmental structures that impact performance at a macro level

4.4.1. Intrapersonal level of influence

The intrapersonal level of influence, or the role of the individual's thoughts, feelings, and behaviors (McLeroy et al., 1988) play in psychological performance enhancement, was associated with the following emergent themes: an individualized approach, "responses show up in your voice [and] instrument", health and wellness behaviors, general coping strategies, and musician-specific coping strategies.

Apparent throughout the interviews was the role of the individual musician in the performance process. Participants often articulated that their thoughts and feelings regarding psychological performance enhancement were solely their own and likely not expressed by anyone else. This individualized approach to psychological performance enhancement was underpinned by the inherent subjectivity associated with performance. Given the vulnerable and personal nature of music performance (Nordin-Bates, 2012), performance psychology professionals looking to work with musicians should probably focus on using a 1:1 consulting approach (as opposed to group sessions), where the individual needs of the musician can be met appropriately. A person-centered approach appropriately considers the value systems and overall wellness of the entire musician (e.g., Pierce, 2001), which is well suited for this population. Findings also showed that musicians were implementing various psychological skills and strategies independently (e.g., imagery, self-talk; Hays & Brown, 2004), but not necessarily in a correct way. Furthermore, participants indicating a need for support in areas related specifically to self-esteem, as indicated in "role of performance psychology" sub-theme, appears to be a common occurrence in a music domain (Nordin-Bates, 2012). Performing artists have been frequently cited to suffer from low levels of self-esteem and/or self-confidence (e.g., Nordin-Bates, 2012). Low levels of self-esteem and/or self-confidence among musicians is arguably due

to the vulnerability associated with performance and subjectivity associated with performance evaluation, in addition to musician perfectionism confounding the perception of success (e.g., Fortin, 2009; Hays & Brown, 2004, as cited in Nordin-Bates, 2012) as well as performance anxiety (Kenny, 2011). Concerns related to self-esteem in a music domain represent an excellent example of the interaction among levels of influence within the McLeroy framework, as it demonstrates the interplay of individual (perfectionism), environment (subjective evaluation), and cultural (vulnerability in expression) elements contributing to self-esteem. Performance psychology professionals looking to work with musicians must consider the domain-specific underpinnings of self-esteem, and may consider approaching music performance from a strengths-based perspective (Nordin-Bates, 2012).

While nuanced individual experiences of psychological performance enhancement were shared in the present study, results are in line with previous research indicating that musicians employ general psychological skills and strategies borrowed from other performance domains (e.g., the sport domain; Pecen et al., 2016), as well as domain-specific skills and strategies to meet their unique needs (Hays, 2017). Thus, it is prudent for the performance psychology professional to understand the divergences across domains when designing interventions for a musician population.

4.4.2. Interpersonal level of influence

The interpersonal level of influence, or the group influences (McLeroy et al., 1988) associated with performance enhancement, represented the emergent theme of the role of "others" in the performance process. Performance psychology professionals must evaluate the relationships musicians have with their instructors, mentors, family, friends, etc., as these individuals seem to play an impactful role in musicians' social support, access to music

resources, as well as influence musicians' perception of themselves, their progress toward performance goals, and their general self-efficacy (for social support recommendations, see Nogaj & Ossowski, 2015).

When it came to implementing psychological performance enhancement strategies, participants in the present study sought assistance from instructors or mentors, as is the history of music culture, rather than performance psychology professionals (e.g., Williamon & Thompson, 2006). This finding was similar to the findings of Williamon and Thompson (2006). Performance psychology professionals must evaluate the appropriate point of entry to introduce services, as musicians have traditionally received psychological performance enhancement advice and interventions from instructors or through their own trial-and-error. Sport and performance psychology consultant Ken Ravizza (as cited in Fifer, Henschen, Gould & Ravizza, 2008) reflected that performance psychology professionals often forget that the performers they work with "have performed quite well without our expertise for many years" (p. 362). Performance psychology support systems are merely an add-on to enhance an existing performance process and thus, professionals must understand their role in facilitating psychological performance enhancement (e.g., Halliwell, Orlick, Ravizza, & Rotella, 2003).

4.4.3. Organizational/Institutional factors

The organizational/institutional factors, or the domain-specific rules and regulations that may promote or threaten performance (McLeroy et al., 1988), is reflected in the emergent theme of "the influence of external environment". These factors may differ depending on the type of musician in question. For example, classical musicians are accustomed to structure, strict performance rules, and executing proper technique, whereas jazz-oriented and modern touring musicians are more apt to improvise (Butcher-Poffley, 2017). The present study interviewed

musicians of different performance backgrounds, representing a variety of organizational/institutional factors.

Participant responses directly aligned with existing music performance research. For example, musicians are tasked with navigating the presence of an audience during a performance (Williamon & Thompson, 2006), and rely heavily on memorization (Hays, 2017) and expressivity (Juslin, Karlsson, & Lindström, 2006) during a performance. Additionally, musicians must simultaneously master emotion regulation, emotional expression, and tactical execution (Juslin, Frisberg, Schoonderwaldt, & Karlsson, 2004). Musicians must also adapt to changing performance environments (e.g., stage location, acoustics) and frequently adjust to the roles, skills, and presence of other performers (Bishop, 2018). Musicians who perform occupationally, as was reflected in many of the interviews, have the added challenges of navigating financial insecurity, living and practicing completely alone, being subjected to constant public evaluation, and travelling inconsistently to meet performance demands (Kenny & Ackermann, 2012).

Due to these various environmental adjustments and inconsistencies in the performance demands required, performance psychology professionals looking to work with this population are encouraged to be flexibly available to musicians (Butcher-Poffley, 2017). This flexibility includes providing informal meeting times and leaving room for unforeseen circumstances (Butcher-Poffley, 2017). Given the various organizational/institutional factors frequently imposed on a musician, performance psychology professionals may come to find that their services are a low priority (Butcher-Poffley, 2017).

Despite these challenges, implementing exercises that give musicians a sense of control and structure in unfamiliar situations (e.g., a pre-performance routine) may be helpful to the

musician. Additionally, musicians may benefit from mock/role play scenarios in which they must practice adjusting to various circumstances that may arise. For example, Carl spoke about practicing different scenarios with his percussion students that may occur during a concert; "what are you going to do if you drop your stick…show me what you'd do", and these exercises may further be an entry point for appropriate imagery work when preparing for unfamiliarity (Clark et al., 2012). Some participants in the present study mentioned that a lot of the learning processes associated with adjusting to the organizational/institutional factors in performance comes from experience and getting as many opportunities as you can to perform on stage (Fran, Hope). Thus, maturation and simply getting repetitions up on stage may provide musicians opportunities to get comfortable with the process of adjusting to any unfamiliarity that may arise.

4.4.4. Community level of influence

The community level of influence, or the shared identities and community relationships (McLeroy et al., 1988) associated with psychological performance enhancement, is associated with the emergent theme of "the role of the community in performance enhancement". While music performance itself can serve as a "societal conduit" for overcoming barriers and fostering bonds within a community (Fritz, Jentschke, Gosselin, Sammler, & Peretz, 2009; as cited in Tapson, Daykin, & Walters, 2018, p. 290), participants in the present study spoke specifically to the behaviors of the music community itself imposed on each other to hinder or support psychological performance enhancement.

Competition, comparison, and "back-biting", each discussed in "unsupportive community behaviors", imposed many challenges to participants in the present study. Some spoke to the music community being "less cut-throat", "less rigid", and more supportive than it used to be (Kevin, Irene), and others actively imposed sanctions and activities to foster a supportive climate

(e.g., not assigning students an identical piece; Joe). There was an overarching consensus among participants that competition and comparison were not always necessary for growth and advancement within a music domain (Hope, Kevin, Fran), although sometimes competition and comparison are unavoidable (Kevin). Carl challenged himself and his students to always look ahead to the next opportunity, regardless of the performance outcome. Sometimes landing – or not landing – a job or a performance opportunity is due to luck or circumstances outside of a musicians' control (e.g., casting director is looking for something very specific). Musicians must be prepared to not take rejection personally, which is often difficult given how much individuality is injected into a performance. Performance psychology professionals working with musicians must understand the extent to which musicians' work is predicated on rejection. Musicians may benefit from cognitive restructuring (e.g., Beck, 1987) and the normalization of the rejection process (e.g., Skaggs, 2018) to build resilience across the performance career.

Despite these challenges, the musicians interviewed spoke to the positive behaviors other musicians engage in to support the music community. On the whole, participants wanted their friends and colleagues to succeed. Performance psychology professionals are encouraged to leverage the supportive relationships musicians have with other musicians, as building relationships with all stakeholders is the key to gaining entry with a new population (Fifer et al., 2008; Halliwell et al., 2003). Additionally, participants tended to rely on other musicians for recommendations, especially when it came to implementing psychological performance enhancement strategies. Exploring the interconnectedness within the music community as it relates to psychological performance enhancement may be helpful for those performance psychology professionals looking to work in a music domain.

4.4.5. Environmental/Public Policy level of influence

The environmental/ public policy level of influence, or laws and governmental structures that impact performance at a macro level (McLeroy et al., 1988), relates to the emergent theme associated with access and utilization of performance psychology services. Despite increased research acknowledging the use and effectiveness of performance psychology professionals within the domain of music (Hays, 2009; Hays, 2017), results from the present study indicate that participants, even at elite levels of performance, were unaware of any performance psychology specific services available to them.

A notable policy related finding from the interviews was the lack of access to any type of support services associated with well-being; performance psychology, basic healthcare, or otherwise. Lack of access seemed to relate to a disparity associated with obtaining health insurance as a non-union, freelance, and/or independent musician. Many participants indicated that professional musicians are often un- or under-insured and thus, do not seek any support services, or instead, pay for all services out of pocket. Prior to the implementation of the Affordable Care Act (ACA), a 2013 survey of musicians from the Artists Health Insurance Resource Center found that 43% of respondents were without health insurance, nearly double the national average of uninsured people in the United States at the time (Marinaro, 2016). However, contrary to licensed psychologists and clinicians, performance psychology professionals operate primarily out-of-pocket with a fee for services (e.g., Nideffer, 2017), and are not traditionally covered through health insurance mechanisms. Therefore, there is an even greater need for performance psychology professionals to demonstrate value (e.g., under-promise, over-deliver) to a population already suppressed of support systems associated with health and wellness. Such professionals, in gaining entry to services, must broadly consider the systemic barriers associated

with lack of access to resources. Populations financially strapped for support services may not see the value in paying for performance psychology services, especially if there is a perceived lack of return-on-investment.

4.4.6. Credentials, training, and future directions

Despite barriers to access, the participants in the present study generally welcomed performance psychology and felt that its addition would be positive for performers, as long as the performance psychology professional possessed the appropriate academic credentials and had previous experience performing as a musician. While suggested credentials varied among those interviewed, participants generally valued practitioners with a graduate-level education (e.g., PhD) as well as existing knowledge related to psychology and music performance, respectively. This poses a challenge for the domain of performance psychology, as most non-clinical performance psychology practitioners are trained in Kinesiology or Exercise Science departments, which focus primarily on athletic performance (Portenga et al., 2011). Education and training for individuals looking to work in domains outside of sport, especially within performing arts, is still considered novel territory (Pecen et al., 2016). If sport psychology continues to be classified as a subdomain of performance psychology (Portenga et al., 2011), it is imperative that those researchers and practitioners working in performance arenas outside of sport (e.g., performing arts, military, tactical populations) continue to evaluate the domain-specific "specialty knowledge" (Portenga et al., 2011, p. 14). Educational entities in the United States should also consider the credentials, performance background, and experience desired by musicians and provide pathways for prospective performance psychology professionals to meet these specific needs (i.e., provide consulting supervision in performing arts domains, require evidence of performing arts background, etc.). However, this current study exploring the

personal experiences of psychological performance enhancement among musicians is hopefully an impactful first step toward developing contextually appropriate, applied support systems for performance enhancement among musicians.

Chapter V: Discussion

Informed by the McLeroy framework (McLeroy et al., 1988), the purpose of this research was to conceptualize psychological performance enhancement (PPE) in a music domain. This purpose was achieved by way of two studies as part of a sequential explanatory mixed-methods design (Creswell & Plano Clark, 2011). Study 1 quantitatively identified (a) musicians' psychological responses to performance, (b) their use of psychological skills and strategies during practice and performance, and (c) professionals specialized in PPE with whom musicians have worked. Building upon the findings of study 1, study 2 (d) qualitatively explored musicians' lived experiences of PPE. This chapter will discuss the results from both studies as they relate to the research aims. The chapter will also highlight theoretical contributions of the research, and will discuss the implications of the findings for musicians, those who teach and train musicians, and performance psychology professionals. The limitations of the research and issues for further consideration will also be discussed, followed by an overall conclusion of the research.

5.1. Psychosocial responses to performance

The findings from study 1 and study 2 revealed that the participants reported a range of psychosocial responses to performance. The most frequently identified responses were stress, bodily tension, and performance anxiety. This not surprising, as musicians have been found to be more stress-prone in comparison to non-musicians (Getz et al., 2014), and bodily tension has been identified as being a "widespread systemic concern" for musicians (Lehrer, 1987, p. 143). It has also been suggested that stress and bodily tension are associated symptoms of performance anxiety (Kenny, 2011), and that bodily tension is a typical physiological response to performance anxiety or a consequence of overuse or injury (Kenny & Ackermann, 2012). Existing research

has also suggested that performance anxiety is the "primary threat to the psychological well-being of musicians" (Osborne et al., 2014, p. 2). Thus it is not surprising that performance anxiety is the most commonly investigated aspect of music performance (Kenny, 2011). The mixed methods design of this research afforded the exploration of the above further, as both studies 1 and 2 highlighted the significant role of performance anxiety in affecting the success of music performance. The interviews in study 2 also demonstrated how these psychosocial responses were interrelated, as stress and anxiety were often discussed in tandem (e.g., "I guess there's such a fine line between stress and anxiety", Kevin). The apparent interrelatedness of these psychosocial responses suggests that performance anxiety may be experienced more frequently than reported. These results are consistent with previous literature (Kenny, 2005, 2011; McGinnis & Milling, 2005), even when accounting for musician identity, age, years of experience, and previous exposure to a performance psychology professional.

5.2. Psychological skills and strategies

In both studies, participants also identified a variety of psychological skills and strategies to optimize their performance. The most commonly discussed skills and strategies included goal-setting, executing quality practices, and exuding self-confidence. What is worth noting is that the skills and strategies used most frequently were not the most appropriate to address participants' most identified psychosocial responses (i.e., stress, bodily tension, and performance anxiety). Some of the more effective strategies to alleviate the prominent responses would include cognitive behavioral therapy (CBT) (e.g., cognitive restructuring, attention control, behavioral rehearsal), relaxation strategies, and mental skills training (Clark & Agras, 1991; Kenny, 2011; Kendrick, Craig, Lawson, & Davidson, 1982; as cited in Osborne et al., 2014, p. 4).

In contrast, participants also listed a number of coping skills they deemed relevant for successful performance. The top three coping skills separating successful and unsuccessful performance were: preparation, confidence, and good health habits, all of which are congruent with the psychological skills and strategies frequently employed (i.e., goal-setting, executing quality practices, and exuding self-confidence). Study 2 elaborated these findings further, as the interviews indicated that the participants tended to discuss the technical processes associated with music performance rather than the psychological responses, skills, and strategies they employed. This is not unusual, as when interviewing elite musicians about their coping skills, Pecen and colleagues (2017) reported that musicians needed to be repeatedly primed to specifically discuss psychological aspects of performance due to their tendency to solely focus on the technical processes of performance.

The results also revealed that musicians appear to be implementing and executing psychological skills and strategies quite frequently (study 1), and may benefit from instruction on how to best implement them properly (study 2). This is promising, as these results may imply that this population could be apt to "buy-in" to performance psychology services aimed to help musicians reach their potential and facilitate an enhanced performance (Portenga et al., 2011). Support for the above has been found in previous literature, as musicians appear to be more open to the psychotherapeutic process than athletes (Hays, 2017; Linder, Brewer, Van Raalte, & de Lange, 1991), and utilize psychotherapy more than the general workforce (Vaag, Bjørngaard, & Bjerkeset, 2016). Whether the same holds true for psychological performance enhancement services requires further research.

5.3. Working with psychological performance enhancement professionals

Nordin-Bates (2012) indicated that many musicians seek assistance for psychological performance enhancement services, especially as they relate to performance anxiety. The results from this research (both study 1 and study 2) appear to suggest the opposite. In study 1, 96.58% (N = 443) of participants indicated that they did not work with a performance psychology professional or Certified Mental Performance Consultant, and all participants interviewed in study 2 did not know where to look to find these professionals due to lack of information or knowledge. Study 1 revealed that 82.76% (N = 380) had not worked with any professionals for the purpose of psychological performance enhancement. When coupled with the high levels of psychological skills and strategies employed, the results from this research suggests that musicians are applying psychological skills and strategies independently without the assistance of trained performance psychology professionals. Indeed, when asked what "other" professionals musicians have worked with to optimize psychological performance (studies 1 and 2), numerous participants listed other musicians and music educators as their source of psychological performance enhancement knowledge. These are in line with previous research (Williamon & Thompson, 2006), suggesting a musician-specific community aspect to sharing psychological performance enhancement related information.

5.4. Barriers to working with psychological performance enhancement professionals

The current research also identified several barriers to musician's access to psychological performance enhancement professionals. Previous research has identified misunderstandings in what performance psychology professionals do as one barrier for utilization (Hays, 2017). In her research with performing artists, Hays (2017) found that musicians often confuse psychotherapy services with psychological performance enhancement services, and incorrectly assume such services are a long term, potentially unaffordable, therapeutic process similar to psychotherapy.

This did not appear to be the case in study 2, as the participants were able to articulate the differences between a clinical professional and a performance psychology professional, respectively. However, since the sample size for study 2 was small, it is unclear if this knowledge is shared with the larger population of musicians.

Instead, cost was identified as the primary barrier to performance psychology services. As highlighted by the participants in study 2, use of performance psychology professionals was classified as something only rich and famous people use: "this is for famous people. People with money…" (Darlene). These findings are not surprising, as existing literature has identified cost as a barrier to sport and performance psychology services (Cremades & Tashman, 2014). It appears that sport and performance psychology services are utilized by those with the financial means to do so (Pain & Harwood, 2007; Martin, 2019), or by those at the collegiate and elite level where such costs are allocated externally by the stakeholders or tax-payers (Martin, 2019). The participants in study 2 indicated that they frequently operate and perform independently, and are therefore more likely to pay for services directly out of pocket. Indeed, some participants in study 2 inquired if psychological performance enhancement were covered by health insurance, and seemed surprised to learn that they were not (in the United States; Roberts, Faull, & Tod, 2016).

The above findings are somewhat problematic. Even if psychological performance enhancement services are deemed to be helpful for musicians, it is likely that cost will continue to be a barrier to access. Without affordable access, such services will continue to be accessible to musicians only with access to educational channels (e.g., in collegiate settings) or by those with the means to pay. Such discrepancy in access speaks to larger policy-related concerns associated with healthcare in the United States (Roberts et al., 2016). It also speaks to the extent

to which consumers believe that performance psychology professionals are worth the investment, especially considering the extent to which psychological skills and strategies are used independently, without any professional intervention (Martin, 2019).

5.5. Lived experiences of psychological performance enhancement

Expanding the quantitative findings from study 1, study 2 explored musicians' personal experiences with psychological performance enhancement. The results from the Interpretative Phenomenological Analysis (IPA; Smith et al., 2009) revealed that musicians employ many general and music-specific coping strategies to optimize performance, whilst also engaging in various health and wellness behaviors (e.g., sleep, avoiding drugs and alcohol) with a goal to improve performance. They also discussed how "others" (e.g., instructors, family), the external environment (e.g., acoustics, audience), and the wider music community (e.g., supportive behaviors, unsupportive behaviors) influenced their performance. All participants interviewed were unaware of how or why they might choose to seek professional help for psychological performance enhancement.

The results from the interviews (study 2) seemed to elaborate on the quantitative findings from study 1. Overall, participants reported a range of psychosocial responses as affecting their music performance, with performance anxiety and its related response(s) being most dominant. They also discussed how their use of psychological skills and strategies was intuitive and self-taught (or taught by other musicians, or educators/instructors), and at times, may be incongruent to the psychosocial responses experienced. The participants also considered using psychological performance enhancement professionals, but expressed preference to those who have a background in music performance and utilize an individualized, person-centered approach.

5.6. Theoretical contributions

Two decades ago, Hays (2002) recommended that sport and performance psychology professionals looking to work with performing arts must understand the systems by which a musician operates to perform optimally (e.g., the role of the audience, the role of the environment). Prior to this research, limited progress had been made (Hays, 2002; 2017) to further understand the nuances of psychological performance enhancement among musicians.

In addition to the findings discussed above, this research provides evidence to the various systems outlined in the McLeroy framework (McLeroy et al., 1988). As shown in Table 15, the results from both study 1 and study 2 provide evidence to each level of influence, demonstrating how intrapersonal, interpersonal, organizational/institutional, community, environmental/public policy factors are all interrelated. The results suggest that musicians' psychosocial responses and use of psychological skills and strategies to address these responses, should not be evaluated singularly (e.g., thoughts, feelings, behaviors), but rather, within the interplay of various systems imposed on the musician that impact their functioning in a performance context.

Table 15

Study 1 and Study 2 Results within the McLeroy Framework (adapted from McLeroy et al., 1988)

Level of Influence	Musician Examples from Each Study
Intrapersonal	Psychological skills (Study 1, Study 2) e.g., goal-setting, executing quality practice, automaticity Physical skills (Study 1, Study 2) e.g., posture, repetition, overuse Technical skills (Study 1, Study 2) e.g., slow practice, building the piece back to tempo, music style Coping skills (Study 1, Study 2)

	e.g., preparation, confidence, having good health habits
Interpersonal	Social support (Study 2) The role of other musicians (Study 1, Study 2) The role of the family (Study 2) The role of the instructor/educator (Study 1, Study 2)
Organizational/Institutional Factors	The presence of an audience (Study 2) The music learning environment (Study 2) The practice process (Study 2) Being subjected to constant public evaluation (Study 2) Inconsistent stage environments/acoustics/sound systems (Study 2)
Community	Supportive musician community behaviors (Study 2) e.g., attending shows, providing useful information Unsupportive musician community behaviors (Study 2) e.g., competition, comparison, "back-biting"
Environmental/Public Policy	Access to affordable healthcare (Study 2) Access and/or previous use of a performance psychology professional (Study 1, Study 2)

5.7. Recommendations for musicians

Based on the findings, there are a few recommendations for the musicians that can be made. The results demonstrate that musicians are actively seeking something impactful to enhance performance from a psychological perspective, but are unclear where to find such resources. In the United States, details of such services can be found from the Association for Applied Sport Psychology (AASP) and the American Psychological Association (APA) Division 47. Both organizations have accessible resources for performing artists looking to engage in psychological performance enhancement via consulting with a performance psychology professional.

It is also important to ensure that musicians understand the difference between performance enhancement and mental health services. It was encouraging to see that musicians interviewed in study 2 generally knew the difference between professionals who provide psychological performance enhancement (e.g., CMPC; Mental Skills Coach) and those who provide mental health services (e.g., licensed psychologist/counselor). Those musicians looking

for a hybrid of performance enhancement and clinical therapy should seek out licensed clinical psychologists or counselors that are proficient in elements of performance psychology and theories of performance excellence (Portenga et al., 2011). It must be noted, however, that currently there are no mechanisms for licensed psychologists to determine if they are proficient in elements of performance, performance enhancement, and theories of performance excellence (Portenga et al., 2011), apart from seeking certification as a CMPC. Similarly, a licensed clinical psychologist or counselor that happens to work with a musician is not necessarily a music performance psychologist (e.g., Aoyagi & Portenga, 2010), so musicians are advised to proceed with caution with mental health professionals when the goal of service is performance enhancement.

5.8. Recommendations for those who train and teach musicians

The results from study 1 and study 2 also indicated that musicians often seek advice or assistance from other professionals who train and teach musicians, instead of performance psychology professionals. As such, it may be prudent for music educators/instructors to receive educational training in the psychosocial responses to music performance as well as on the value of recommending performance psychology in certain cases. While they may not be fully qualified to deliver interventions aimed to enhance musician's psychological skills and strategies, they may be able to identify possible causes for concern in their students/musicians. Music educators/instructors are also encouraged to have a list of individuals on hand for possible performance enhancement and/or mental health referrals.

Those who train and teach musicians may also personally benefit from psychological performance enhancement. Through personal lived experience, they can take aspects of their learned experience and knowledge and pass it on to the musicians that they are working with, in

a quasi “teach the teachers” model (e.g., Gilbert, 2017). This practice becomes especially necessary when there is an insufficient number of performance psychology professionals that work specifically with musicians. The “teach the teachers” approach would also fit into the community aspect of learning that musicians tend to execute, as evidenced by the findings in this research.

5.9. Recommendations for performance psychology professionals

One of the more prevalent findings from this research was that when it comes to psychological performance enhancement, participants appeared to prefer an individualized, person-centered approach to service delivery that takes into account the different systems (McLeroy et al., 1988) affecting themselves and their music performance. This is not surprising, and represents the subjectivity of art and the performance process as a whole (e.g., Hays, 2017). Performance psychology professionals should consider such a person-centered approach when working within a music domain.

The results also emphasize the importance for performance psychology professionals to understand the music-specific coping skills associated with this population (for a review, see Pecen et al., 2016), as well as the significant role the environment and interpersonal relationships play in a musician’s conceptualization of psychological performance enhancement. Performance psychology professionals should avoid “cherry-picking” interventions borrowed from sport (Sinnamon, Moran, & O’Connell, 2012, p. 21). Musicians in study 2 also overwhelmingly preferred a performance psychology professional with a music performance background, so those without music performance experience may have difficulty building rapport and credibility with musicians. Performance psychology professionals working with musicians are encouraged to spend a great deal of time in the environment in which they choose to work, as well as engage

with impactful “others” that influence the music performance process, such as educators/instructors (Hays, 2002).

Lastly, performance psychology professionals that are looking to work with musicians are cautioned to consider the current challenges within the Association for Applied Sport Psychology (Portenga et al., 2011) and American Psychology Association Division 47 (Aoyagi et al., 2012) associated with CMPC supervision, marketing of services, graduate training, and applied opportunities within the field (see Martin, 2019). Performance psychology professionals should understand the barriers associated with providing services, such as access and affordability, as well as possible entry points for performance psychology professionals to work within a music domain.

5.10. Limitations

Each study is not without its limitations. While limitations were discussed within the confines of each manuscript, they are restated broadly here. Study 1 was limited by the types of inferences researchers could draw from the quantitative surveys used. Despite having adequate reliability with the musician population, the surveys were adapted from sport and do not necessarily represent the unique performance needs of musicians entirely. The surveys used were based on the psychological skills training (PST) model of performance (Hardy et al., 1996), which is grounded in elements of CBT by evaluating CBT skills and strategies, thus not capturing the person-centered, individualized approach effectively.

Since the participants in study 1 completed two surveys, it is possible that the completion of survey 1 primed them to use performance psychology oriented language. The attrition from survey 1 (MPPQ) to survey 2 (TOPS-2M) in study 1 also indicates possible research fatigue due to the length of the surveys, which could result in response inaccuracies associated with such

fatigue (e.g., Hochheimer et al., 2016). Lastly, it is important to recognize the possibility of standard survey and response biases associated with social desirability (Brenner & DeLamater, 2016).

The limitations of study 2 relate to the participant selection. Since all participants who took part in study 1 had the opportunity to express interest in discussing their experiences with a follow-up interview, it is likely that those participants that had either highly positive or highly negative experiences with psychological performance enhancement volunteered to take part. Thus, they may not represent the feelings of the "typical" musician (despite purposeful sampling). Equally, these experiences are unique to those being interviewed and cannot be generalized to an entire population (e.g., Forrester, 2010). While the sample in study 2 was kept intentionally broad due to a lack of existent literature, parceling out experiences based on specific musician identities (specific instrumentalists, types of training, etc.) could be helpful in the future.

5.11. Issues for further consideration

Currently no musician-specific, validated, measure for psychological performance enhancement exists. The surveys used in study 1 provide a good start, but when coupled with the findings from study 2, these measures need to be further developed and tested. For example, the psychological skills and strategies relative to musicians' practice experiences, working with other performers, adjusting to various elements of the stage, inconsistencies in travel, perceptions from the audience, and the demands imposed by important "others" (e.g., instructors, family) were not captured in the surveys used in study 1.

Additionally, the frequent use of mindfulness-based strategies identified on the MPPQ (adapted from Hemmings & Povey, 2002) during study 1 and during the interviews in study 2

(e.g., non-judgmental interpretation, acceptance of outcome, breath support, the Alexander Technique, playing through mistakes, adjusting to rather than controlling bodily responses) were not included in the TOPS-2M (adapted from Hardy et al., 2010) used in study 1. Future research should involve developing and validating a music-specific performance psychology measure that would capture the plethora of psychosocial skills and strategies used by musicians, and not just those that are CBT oriented.

Future research should also examine musicians' decision-making regarding the implementation of psychological skills and strategies into their practice and performance, and the role of performance psychology professionals in that process. This may not be as straightforward as in other domains such as sport, perhaps due to the community-based aspects of music performance, and the overall unpredictability and subjectivity of music performance. Future research focusing on the nuances of one specific type of musician (e.g., jazz singers) could also be beneficial in the development of identity-specific recommendations.

The research findings from this study also highlight the importance of adequate training for performance psychology professionals to better understand the systemic nuances of music performance. Currently the only certified performance psychology professionals in the United States are those certified through the Association for Applied Sport Psychology's (AASP) Certified Mental Performance Consultant (CMPC) credential. Although the certification credentials imply aptitude in mental performance consulting, all of the consulting training required is focused on working with athletes, and within a sport domain. To be adequately trained to provide services in other performance domains (e.g., music, circus, military, firefighting, police, to name a few), the governing bodies responsible for the certification should consider the inclusion of appropriate supervision in a range of performance domains. Thus far,

the attempts to this effect have been minimal, and the process appears to be a “fly by the seat of your pants” process when consulting in performance domains (see Butcher-Poffley, 2017). Such approach does numerous populations a disservice, especially when they are actively looking for help enhancing their performance.

Discussions related to (dis)similarities between sport and performance psychology seem to be over twenty years in the making (e.g., Martin, 2019; Portenga et al., 2011). One of the hot topics has been the discussion around branding the current field of sport psychology to a broader name of performance psychology, to better capture the populations with whom these professionals currently work. However, as the results from this research implies, the nuances of music may be very different to those in sport, and as such, direct transference of psychological skills and strategies from sport to music (or any other performance domain) might not be appropriate, and/or ethical.

These discussions should also continue to consider the roles that governing bodies play in ethically marketing psychological performance enhancement services to populations outside of sport. For example, is it purely the responsibility of the individual CMPC professional to market appropriate services to musicians? Or is it the responsibility of the governing organizations? Currently, both AASP (Aoyagi, Portenga, Poczwardowski, Cohen, & Statler, 2012) and APA Div. 47 (Portenga et al., 2011) continue to perceive sport psychology as a subdomain of performance psychology, indicating that other performance domains, such as music, could fall equally under that umbrella and thus, deserve appropriate attention.

5.12. Conclusion

Informed by the McLeroy framework (McLeroy et al., 1988), the purpose of this research was to conceptualize psychological performance enhancement (PPE) in a music domain. The

findings from this research adds to the existing body of literature by identifying musicians' psychosocial responses to performance, their current use of psychological skills and strategies in practice and performance, and their current practices of using performance psychology professionals with a goal to enhance psychological performance. The research also provided insights into musicians' lived experiences of psychological performance enhancement. Study 1 provided some preliminary details into the *why* and *how* of psychological performance enhancement in the music domain, and study 2 further elaborated on those findings by including the *what* of psychological performance enhancement. By providing an individual voice to various musicians, collectively the results also provided theoretical support for the McLeroy framework (McLeroy et al., 1988), in that music performance is indeed influenced by a number of different systemic structures. The research also made some recommendations for musicians, those who train and teach musicians, and performance psychology professionals, as well as highlighted some concerns related to musicians' access to psychological performance enhancement services. In addition to highlighting key limitations of the research, the recommendations for future research include: (a) validation of music-specific psychological performance enhancement measures; (b) further exploration of musicians' current psychological skills and strategy use; (c) a deeper understanding of different musician-types specific to psychological performance enhancement needs; and (d) finding solutions to the barriers for musicians to work with performance psychology professionals.

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Appendix A

IRB Approval #20.066

UNIVERSITY of WISCONSIN
UWMILWAUKEE

Melody Harries

IRB Institutional Review Board Administrator

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New Study - Notice of IRB Exempt Status

Date: October 16, 2019

To: Monna Arvinen-Barrow
Dept: Kinesiology
CC: Jessica Ford

IRB#: 20.066

Title: Conceptualizing psychological performance enhancement in a music domain

After review of your research protocol by the University of Wisconsin – Milwaukee Institutional Review Board, your protocol has been granted Exempt Status under Category 2 as governed by 45 CFR 46.104(d).

Your protocol has also been granted approval to waive documentation of informed consent as governed by 45 CFR 46.117 (c).

This protocol has been approved as exempt for three years and IRB approval will expire on October 15, 2022. Before the expiration date, you will receive an email explaining how to either keep the study open or close it. If the study is completed before the expiration date, you may notify the IRB by sending an email to irbinfo@uwm.edu with the study number and the status.

Any proposed changes to the protocol must be reviewed by the IRB before implementation, unless the change is specifically necessary to eliminate apparent immediate hazards to the subjects. The principal investigator is responsible for adhering to the policies and guidelines set forth by the UWM IRB, maintaining proper documentation of study records and promptly reporting to the IRB any adverse events which require reporting. The principal investigator is also responsible for ensuring that all study staff receive appropriate training in the ethical guidelines of conducting human subjects research.

As Principal Investigator, it is also your responsibility to adhere to UWM and UW System Policies, and any applicable state and federal laws governing activities which are independent of IRB review/approval (e.g., FERPA, Radiation Safety, UWM Data Security, UW System policy

on Prizes, Awards and Gifts, state gambling laws, etc.). When conducting research at institutions outside of UWM, be sure to obtain permission and/or approval as required by their policies.

Contact the IRB office if you have any further questions. Thank you for your cooperation, and best wishes for a successful project.

Respectfully,

Melody Harries

IRB Administrator

Appendix B

Study 1 Consent & Surveys

Conceptualizing Psychological Performance Enhancement in a Music Domain

Start of Block: Introduction

INTRODUCTION TO THE STUDY

Researcher: Jessica Ford, MS, ABD

I am inviting you to participate in a research study. Participation is completely voluntary. If you agree to participate, you can always change your mind and withdraw. There are no negative consequences, whatever you decide.

What is the purpose of this study?

The purpose of this study is to better understand psychological performance enhancement among musicians. To achieve its purpose, the study aims to identify: (1) musicians' psychological responses to performance; (2) what psychological skills and strategies musicians use during practice and performance; and (3) which professionals specialized in psychological performance enhancement musicians have worked with.

What will you do?

You will be asked to complete an online survey presenting series of questions about your music background, as well as the types of psychological skills and strategies that you may use during your music practices and performances.

Risks:

Online surveys pose minimal risk to you. Participation is voluntary. You can skip any questions you do not want to answer, or stop the survey entirely. There is a risk of online data being hacked or intercepted. This is a risk you experience any time you provide information online. I am using a secure system to collect this data, but I cannot completely eliminate this risk. There is a chance your data could be seen by someone who should not have access to it. I am minimizing this risk in the following ways: (1) All identifying information is removed and replaced with a study ID, (2) I will store all electronic data on a password protected, encrypted computer for 5 years, and (3) I will keep your identifying information separate from your research data.

Possible benefits:

There are no known direct benefits to you. Your participation may help researchers to better understand psychological performance enhancement.

Estimated number of participants: 461 participants.

How long will it take? The survey will take about 15-20 minutes to complete.

Costs: None.

Compensation: None.

Future research: Your data will not be used or shared for any future research studies.

Funding source: N/A

Confidentiality and data security:

I will not ask you to reveal your true identity. All information collected about you during the course of this study will be kept confidential to the extent permitted by law. I may decide to present what we find to others, or publish the results in scientific journals or at scientific conferences. No individual participant will ever be identified with his/her answers.

Where will data be stored?
Data from this study will be automatically saved on the servers for the online survey software (Qualtrics XM™) and on a password protected computer. Only I, the principal investigator, Jessica Ford from University of Wisconsin-Milwaukee, and my PhD advisor Dr. Monna Arvinen-Barrow, will have access to the data. However, the Institutional Review Board at UW-Milwaukee or appropriate federal agencies like the Office for Human Research Protections may review this study's records.

How long will it be kept? 5 years

Who can see your data?

I, and my PhD advisor Dr. Monna Arvinen-Barrow, will have access to de-identified data. This is so we can analyze the data and conduct the study. The Institutional Review Board (IRB) at UWM, the Office for Human Research Protections (OHRP), or other federal agencies may review the study's data. This is to ensure we're following laws and ethical guidelines. I may share my findings in publications or presentations. If I do, the results will be aggregate (grouped) data, with no individual results. If we quote you, we will use pseudonyms (fake names).

Follow-up interview:
At the end of the survey, you will be directed to a separate survey asking if you would be willing to participate in a follow-up interview related to the psychological skills and strategies that you may use during music practices and performances. If you are interested, please provide your contact information as prompted. This information will NOT be linked to your survey responses. By providing your contact information, you are

not automatically committing to participation and you can change your mind when contacted.

Contact information:

For questions about the research, complaints, or problems: Contact Jessica Ford at 414-229-3360/ FORDJL@uwm.edu.

For questions about your rights as a research participant, complaints, or problems: Contact the UWM IRB (Institutional Review Board; provides ethics oversight) at 414-229-3173 / irbinfo@uwm.edu.

Please print or save this screen if you want to be able to access the information later.
IRB #: 20.066
IRB Approval Date: 10/16/19

Agreement to Participate:

If you meet the eligibility criteria below and would like to participate in this study, click the button below to begin the survey. Remember, your participation is completely voluntary, and you're free to withdraw at any time.

By clicking "yes" and consenting to the study, you hereby confirm that:

(1) You are at least 18 years old.

(2) You identify as a musician (e.g., vocalist, instrumentalist, conductor).

- ○ YES, I consent to participating. (1)
- ○ NO, I do not consent to participating. (2)

Skip To: End of Survey If CONFIDENTIALITY We will not ask you to reveal your true identity. All information collected ab... = NO, I do not consent to participating.

Start of Block: Demographics

Please answer the following questions to the best of your ability. Feel free to not answer any of the questions that you do not feel comfortable with.

What is your age?

- ○ 18-21
- ○ 21-34
- ○ 35-44
- ○ 45-54
- ○ 55-64
- ○ 65+

To which gender identity do you most identify?

- ○ Female
- ○ Male
- ○ Transgender Female
- ○ Transgender Male
- ○ Gender Variant/Non-Conforming
- ○ Not Listed/Other _____
- ○ Prefer Not to Answer

Choose one or more races that you consider yourself to be:

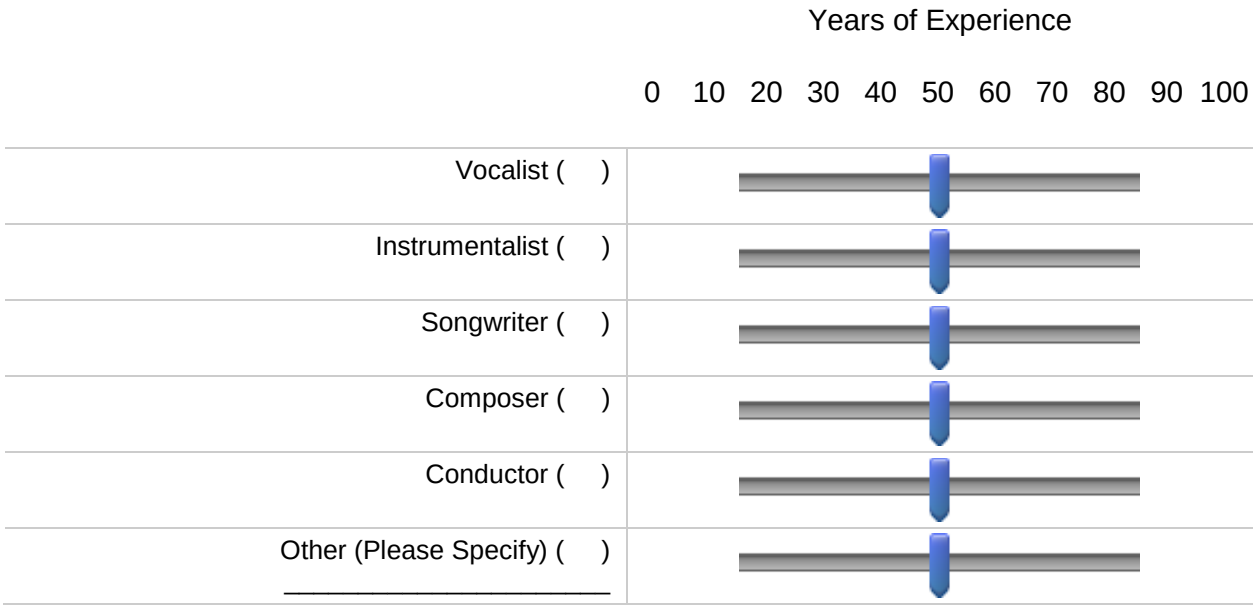
- [ ] African American
- [ ] Alaska Native
- [ ] American Indian
- [ ] Asian
- [ ] Black
- [ ] Hispanic
- [ ] Latinx
- [ ] Native Hawaiian or Pacific Islander
- [ ] White or Caucasian
- [ ] Other _____
- [ ] Prefer Not to Answer

The following question will ask you to select the types of music roles (example: vocalist, instrumentalist) that you identify with, and the years of experience that you have performing in each music role.

Using the space beside the listed music roles, please rank up to (3) three music roles that you identify with.

1 = Primary Identification
2 = Secondary Identification
3 = Tertiary Identification

Use the sliding scale to identify the years of experience that you have performing in each of the three (3) music roles that you identified.



Start of Block: MPPQ

Musician and Performance Psychology Questionnaire (MPPQ)

(adapted from the Physiotherapist and Sport Psychology Questionnaire; Hemmings & Povey, 2002)

The purpose of this survey is to better understand the psychological skills and the psychological strategies that musicians use to enhance their performance. Please answer the following questions to the best of your ability.

How often do you experience the following psychosocial responses to music performance?

	Never (1)	Rarely (2)	Occasionally (3)	Often (4)	Very Often (5)
Bodily Tension	○	○	○	○	○
Decreased Confidence	○	○	○	○	○
Decreased Motivation	○	○	○	○	○
Depression	○	○	○	○	○
Disordered Eating	○	○	○	○	○
Performance Anxiety	○	○	○	○	○
Problems with Attention/Concentration	○	○	○	○	○
Sleep Disturbance	○	○	○	○	○
Stress	○	○	○	○	○
Other (Please Specify): _____	○	○	○	○	○
Other (Please Specify): _____	○	○	○	○	○
Other (Please Specify): _____	○	○	○	○	○

Please identify the top four (4) behaviors/characteristics you believe to be present in musicians who cope successfully with performance related demands.

_____ (1)
_____ (2)
_____ (3)
_____ (4)

Please identify the top four (4) behaviors/characteristics you believe to be present in musicians who **DO NOT** cope successfully with performance related demands.

_____ (1)
_____ (2)
_____ (3)
_____ (4)

How often do you use the following psychological skills and strategies in your music practice and performances?

Note: These percentages are not intended to "add up" to a specified value. You may use more than one strategy at varying percentages of the time (e.g., multiple strategies may be used 100% of the time).

	Never Use	Use 25% of the time	Use 50% of the time	Use 75% of the time	Use 100% of the time
Alexander Technique (i.e., a technique to facilitate body awareness and eliminate unnecessary body movements)	○	○	○	○	○
Emotional Control (i.e., the ability to self-manage or regulate attitudes and feelings)	○	○	○	○	○
Goal-setting (i.e., the process of establishing long and short term goals)	○	○	○	○	○
Imagery/Visualization(i.e., vivid mental rehearsal; creation or re-creation of an experience generated from memorial information)	○	○	○	○	○
Mindfulness (i.e., the act of paying attention on purpose, non-judgmentally)	○	○	○	○	○
Motivation (i.e., one's drive and energy to perform)	○	○	○	○	○
Relaxation Technique (i.e., an activity or process that helps a person to relax or to reduce stress)	○	○	○	○	○
Self-Confidence (i.e., trust and belief in your own abilities)	○	○	○	○	○
Self-Regulation (i.e., controlling one's emotions, behavior, and thoughts to meet a certain goal)	○	○	○	○	○
Self-Talk (i.e., utilizing appropriate dialogue spoken to the self)	○	○	○	○	○
Social Support (i.e., having significant interpersonal connections with others)	○	○	○	○	○

Arousal Regulation (i.e., the ability to moderate psychological and physical activation, ranging from deep sleep to intense excitement)	○	○	○	○	○
Attentional Focus (i.e., attending to the correct performance cues)	○	○	○	○	○
Executing Quality Practice (i.e., replicating performance conditions, integrating feedback into practice)	○	○	○	○	○
Engaging in Realistic Performance Evaluations (i.e., seeking opportunities for constructive feedback)	○	○	○	○	○
Other (Please Specify)	○	○	○	○	○
Other (Please Specify)	○	○	○	○	○
Other (Please Specify)	○	○	○	○	○

Have you ever worked with a sport/performance psychology consultant (e.g., Certified Mental Performance Consultant; Mental Skills Coach) to help with psychological performance enhancement?

- ○ Yes
- ○ No

Have you ever worked with a counselor or mental health professional to help with psychological performance enhancement?

- ○ Yes
- ○ No

Have you worked with any other professional(s) to help with psychological performance enhancement? If yes, what professional(s)?

- ○ Yes _____
- ○ No

Do you currently have access to, or currently work with, a Certified Mental Performance Consultant (CMPC)?

- ○ Yes
- ○ No

Are there any further comments or additional information that you wish to supply?

_____

_____

_____

_____

_____

Start of Block: TOPS-2M

Test of Performance Strategies-2 for Musicians
(TOPS-2M)
(adapted from the Test of Performance Strategies-2; Hardy, Roberts, Thomas, & Murphy, 2010)

Each of the following items describes a specific situation that you may have encountered in either your music practices or in your music performances.

Practice(s) refer to the times you spend preparing for a performance.

Performance(s) refer to the shows that you perform for an audience.

Read each statement and select how frequently these situations apply to you on the following 1-5 scale:

Never (1) Rarely (2) Sometimes (3) Often (4) Always (5)

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
1. I set realistic but challenging goals for practice.	○	○	○	○	○
2. I say things to myself to help my practices.	○	○	○	○	○
3. During practice, I visualize successful past performances.	○	○	○	○	○
4. My attention wanders while I am practicing.	○	○	○	○	○
5. I practice using relaxation techniques.	○	○	○	○	○
6. During practice, I use relaxation techniques to improve my performance.	○	○	○	○	○
7. During a performance, I set specific result goals for myself.	○	○	○	○	○

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
8. In performances I use relaxation techniques to improve my performance.	○	○	○	○	○
9. My self-talk during a performance is negative.	○	○	○	○	○
10. During practice, I am able to perform skills without consciously thinking about it.	○	○	○	○	○
11. I trust my body to perform skills during a performance.	○	○	○	○	○
12. I rehearse my performance in my mind before I practice.	○	○	○	○	○
13. I can psych myself up to perform well in competitions when necessary.	○	○	○	○	○

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
14. During performance, I have thoughts of failure.	○	○	○	○	○
15. I use practice time to work on my relaxation techniques.	○	○	○	○	○
16. I manage my self-talk effectively during practice.	○	○	○	○	○
17. In a performance, I use relaxation as a coping strategy.	○	○	○	○	○
19. I am able to control distracting thoughts when I am practicing.	○	○	○	○	○
20. I get frustrated and emotionally upset when practice does not go well.	○	○	○	○	○

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
21. I have specific cue words or phrases that I say to myself to help my performance.	○	○	○	○	○
22. I evaluate whether I achieve my performance goals.	○	○	○	○	○
23. During practice, I perform automatically without having to consciously control each movement.	○	○	○	○	○
24. When I need to, I can relax myself at a performance to get ready to perform.	○	○	○	○	○
25. I have difficulty controlling my emotions if I make a mistake in competition.	○	○	○	○	○
26. I set very specific goals for a performance.	○	○	○	○	○

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
27. I relax myself at practice to get ready.	○	○	○	○	○
28. I psych myself up at performance to get ready to perform.	○	○	○	○	○
29. At practice, I can allow the whole skill or movement to happen naturally without concentrating on each part of the skill.	○	○	○	○	○
30. During performances, I perform on 'automatic pilot'.	○	○	○	○	○
31. I have difficulty with emotions at performances.	○	○	○	○	○
32. I keep my thoughts positive during a performance.	○	○	○	○	○

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
33. I say things to myself to help my performances.	○	○	○	○	○
34. At performances, I rehearse the feel of my performance in my imagination.	○	○	○	○	○
35. I can get my intensity level just right at practice.	○	○	○	○	○
36. I manage my self-talk effectively during performances.	○	○	○	○	○
37. I set goals to help me use practice time effectively.	○	○	○	○	○
38. I can get myself “up” if I feel flat during practice.	○	○	○	○	○

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
39. My performance suffers when something upsets me in practice.	○	○	○	○	○
40. I can psych myself up to perform well during practice.	○	○	○	○	○
41. During a performance, I am unable to perform skills without consciously thinking.	○	○	○	○	○
42. At practice, when I visualize my performance, I imagine what it will feel like.	○	○	○	○	○
43. During performances, if I am starting to “lose it”, I use a relaxation technique.	○	○	○	○	○
44. I can get myself up if I feel flat at a performance.	○	○	○	○	○

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
45. During practice, I focus my attention effectively.	○	○	○	○	○
46. I set personal performance goals.	○	○	○	○	○
47. I motivate myself to practice through positive self-talk.	○	○	○	○	○
48. During practice, I monitor the details of each move to successfully execute skills.	○	○	○	○	○
49. In practice, I have difficulty getting into an ideal performance state.	○	○	○	○	○
50. I have trouble maintaining my concentration during long practices.	○	○	○	○	○

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
51. I talk positively to myself to get the most out of practice.	○	○	○	○	○
52. I can increase my energy to just the right level for performances.	○	○	○	○	○
53. I have very specific goals for practice.	○	○	○	○	○
55. I imagine my performance routine before I do it live.	○	○	○	○	○
56. I imagine screwing up during a performance.	○	○	○	○	○
57. I talk positively to myself to get the most out of a performance.	○	○	○	○	○
58. I don't set goals for practices, I just go out and do it.	○	○	○	○	○

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
59. I rehearse my performance in my mind at performance.	○	○	○	○	○
60. I have trouble controlling my emotions when things are not going well at practice.	○	○	○	○	○
61. My emotions keep me from performing my best during practices.	○	○	○	○	○
62. My emotions keep me from performing my best during performances.	○	○	○	○	○

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
63. My emotions get out of control under the pressure of a performance.	○	○	○	○	○
64. At practice, when I visualize my performance, I imagine watching myself as if on a video replay.	○	○	○	○	○

Start of Block: Study 2 inquiry

To gain a deeper understanding of psychological performance enhancement in a music domain, an interview study exploring musicians' lived experiences of psychological performance enhancement will be conducted in the next few months. Would you would be willing be interviewed?

Musicians who express interest in being interviewed will schedule a time to meet with the researcher (Jessica Ford) either face-to-face, or via technology that simulates face-to-face communication, such as Skype. Interviews are proposed to be 60 to 90 minutes in duration due to the in-depth nature of the open-ended questions posed.

- ○ Yes, I would be interested in participating in the interview.
- ○ No, I would not.

Skip To: QID99 If To gain a deeper understanding of psychological performance enhancement in a music domain, an int... = Yes, I would be interested in participating in the interview.

Skip To: QID86 If To gain a deeper understanding of psychological performance enhancement in a music domain, an int... = No, I would not.

THANK YOU FOR PARTICIPATING IN THIS SURVEY!

For interview scheduling purposes, please provide your contact information (name, email address, phone number) below:

Name _____

Email address _____

Phone number _____

Appendix C

Study 2 Consent Form

Study title	Conceptualizing psychological performance enhancement in a music domain
Researcher	Jessica Ford, MS, ABD, Department of Kinesiology

I am inviting you to participate in a research study. Participation is completely voluntary. If you agree to participate now, you can always change your mind later. There are no negative consequences, whatever you decide.

Overview

Purpose: This study aims to explore musicians' lived experiences of psychological performance enhancement.

Procedures:
You will be asked a series of questions about your music background, as well as your views and experiences of psychological performance enhancement in your music practices and performances.

Time Commitment: 60-90 minutes

Primary risks: There are no known risks to participating.

Benefits: There are no known direct benefits to the participant. Your participation may help researchers to better understand psychological performance enhancement.

What is the purpose of this study? This study aims to explore musicians' lived experiences of psychological performance enhancement.

What will I do?

I will ask you a series of questions about your music background, as well as your views and experiences of psychological performance enhancement in your music practices and performances. The total interview time will be about 60-90 minutes.

Risks

Possible risks	How I'm minimizing these risks
Some questions may be personal or upsetting	You can skip any questions you do not want to answer.
Breach of confidentiality (your data being seen by someone who shouldn't have access to it)	• I will keep your identifying information separate from your research data, but I'll be able to link it to you by using a study ID. We will destroy this link after we finish collecting and analyzing the data.

	• I will store all electronic data on a password protected, encrypted computer.

There may be risks we do not know about yet. Throughout the study, we will tell you if we learn anything that might affect your decision to participate.

Other Study Information

Possible benefits	There are no known direct benefits to the participant. Your participation may help researchers to better understand psychological performance enhancement.
Estimated number of participants	2-25 participants
How long will it take?	60-90 minutes
Costs	There are no costs to participating.
Compensation	N/A
Future research	Your data will not be used or shared for any future research studies.
Recordings / Photographs	We will audio record you. The recordings will be used as data to analyze the ways in which musicians understand and use psychological performance enhancement. The recording is necessary to this research. If you do not want to be recorded, you should not be in this study.
Funding source	N/A

Confidentiality and Data Security

I will collect the following identifying information for the research: your name, age, email address, and the type of musician you identify as (vocalist, instrumentalist, etc.). This musician information and age will be used to analyze the data in an aggregate manner. Your name and email address will be used administratively to send the final interview transcript for participant verification. However, your interview responses will not be linked to your name. If I quote you, pseudonyms will be used.

Where will data be stored?	Data will be kept on a password protected computer in my office at UWM.
How long will it be kept?	5 years

Who can see my data?	**Why?**	**Type of data**
Other researchers	To conduct the study and analyze the data	Coded data (names removed and labeled with a study ID and pseudonym)
The IRB (Institutional Review Board) at UWM The Office for Human Research Protections (OHRP) or other federal agencies	To ensure we're following laws and ethical guidelines	Coded data (names removed and labeled with a study ID and pseudonym)

Anyone (public)	If we share our findings in publications or presentations	• Aggregate (grouped) data • De-identified (no names, birthdate, address, etc.) • If we quote you, we'll use a pseudonym (fake name)

Conflict of Interest: None

Contact information:

For questions about the research	Jessica Ford	732-687-1810 FORDJL@uwm.edu
For questions about your rights as a research participant	IRB (Institutional Review Board; provides ethics oversight)	414-229-3173 / irbinfo@uwm.edu
For complaints or problems	Jessica Ford	732-687-1810 FORDJL@uwm.edu
	IRB	414-229-3173 / irbinfo@uwm.edu

Signatures

If you have had all your questions answered and would like to participate in this study, sign on the lines below. Remember, your participation is completely voluntary, and you're free to withdraw from the study at any time.

_____

Name of Participant (print)

_____ _____

Signature of Participant Date

_____

Name of Researcher obtaining consent (print)

_____ _____

Signature of Researcher obtaining consent Date

Appendix D

Study 2 Interview Guide

Name:

Age:

Music role identification (up to 3):

Vocalist _____

Instrumentalist _____

Conductor _____

Other (please specify) _____

Interview date:

Start time:

Finish time:

Introduction: NOT RECORDED

My name is Jessica Ford and I am a PhD student at the University of Wisconsin-Milwaukee. In this study I am talking to musicians about their personal experiences using psychological skills and psychological strategies in their performances. The aim of this study is to explore more in depth the ways in which musicians use psychological performance enhancement. This will be done by asking you to explain in your own words what your experiences are using psychological performance enhancement in music.

In order to create a typed transcript and accurately capture what is being discussed, I will be recording this interview. Any information that you provide will be kept confidential. While selected quotes may be utilized to support various themes that arise, your personal information will not be revealed.

Participation in this interview is completely voluntary. You have the right to stop, withdraw, or refuse to answer a question at any point during the interview. There are no right or wrong answers. I am looking to gain insight into your own thoughts, opinions, and experiences. Feel free to deviate from the questions if you feel the need to provide additional insight. If you need clarification about any question in the interview, do not hesitate to ask.

Thank you again for your participation. Are there any questions at this stage?

Interview: Recording starts

History/Background

1. How did you get involved in music?
2. What are some of your most memorable moments performing?
3. In what ways have performing music impacted your life?
4. Walk me through your typical process of preparing for an upcoming performance.

[Intrapersonal questions]

1. In your opinion, what is the difference between a musician who copes well with psychological factors effecting performance and a musician who does not cope well?

    a. Prompts for detail and additional examples, if necessary

2. Thinking back to your many years as a musician, what psychological responses *(will provide a point of clarification, if necessary: stress, anger, performance anxiety)* to performance(s) have you personally experienced?
    a. In what ways (if any) do these psychological responses differ when you are practicing for a performance versus executing a live performance?
        i. Prompts for detail and additional examples, if necessary
3. What strategies or skills (if any) did/do you use to cope with those adverse psychological responses?
    a. Who taught you those strategies or skills?
    b. How do/did you decide which strategy or skill to use?
        i. Can you walk me through the process of implementing these strategies or techniques?
4. What does "psychological performance enhancement" mean to you?
    a. Prompts for detail and additional examples, if necessary
5. How does your psychological preparation differ from your physical preparation?
6. Can you provide some examples of psychological interventions utilized with musicians to enhance their performance?
    a. Prompts for detail and additional examples, if necessary
        i. Who delivers these interventions?
7. In your opinion, how common are psychological *interventions* employed in music?
8. What are your views on the effectiveness of using psychological *interventions* as a way to enhance your performance?

a. Prompts for imagery, goal-setting, the Alexander Technique, self-talk, relaxation, social support, mindfulness, interventions they have previously provided, etc.
    i. Any particular intervention you have not used/not heard of? Why?
    ii. Any particular intervention we did not previously discuss that you wish to elaborate on?
    iii. Qualifications of such person (to deliver interventions)

[Interpersonal questions]

1. In what ways do other musicians support one another in their psychological preparation?
2. In what ways do other musicians hinder/hurt one another in their psychological preparation?
3. In what ways do instructors/teachers support musicians in their psychological preparation?
4. In what ways do instructors/teachers hinder/hurt musicians in their psychological preparation?
5. In what ways do parents/family/significant others support musicians in their psychological preparation?
6. In what ways do parents/family/significant others hinder/hurt musicians in their psychological preparation?
7. In what ways do friends support musicians in their psychological preparation?
8. In what ways do friends hinder/hurt musicians in their psychological preparation?
9. In your opinion, what individuals are most influential to a musician's psychological performance enhancement?

[Organizational questions]

1. In what ways do external factors influence your performance and/or performance process?
    a. Prompts for : stage, venue, acoustics, audience
        i. How/why?
    b. In what ways might psychological performance enhancement help a musician to cope with these external factors?
2. How does existing performance rules/certain performance regulations impact psychological performance enhancement?

[Community questions]

1. Can you describe any cultural norms that musicians commonly adhere to in their performance preparation?
    a. Prompts for detail and additional examples, if necessary
2. In your opinion, how do musicians address any concerns related to their health/wellness?
3. In your opinion, how do musicians address any concerns related to their performance?
    a. Psychological concerns?
    b. Physical concerns?
    c. Tactical concerns?

[Policy questions]

1. In your opinion, what percentage of self-identified musicians in the US have access to a mental health professional?

2. In your opinion, what percentage of self-identified musicians in the US have access to a performance psychology consultant/mental skills coach?
3. What do you believe the difference between a mental health professional and a performance psychology consultant is?
4. If you wanted to seek assistance from a performance psychology consultant, where would you look to find one?

Before we complete the interview, I would like to ask you just a few more questions about the interview process.

1. Did you feel that you were able to tell your own experiences in a complete manner?
2. Do you think any important information was omitted?
3. Is there anything else that you would like to add?
4. Do you have any comments/suggestions about the interview itself?

Thank you for agreeing to participate in the interview!

Appendix E

Additional and Non-Significant Analyses

Table 16

Independent Samples t-test: Performance Strategies by Sex

Performance Strategies	Females		Males		*t*(df)	*p*	Cohen's *d*
	M	*SD*	*M*	*SD*			
Goal-Setting (Practice)	3.84	.75	3.78	.91	.665(339)	.507	.072
Goal-Setting (Performance)	3.67	.95	3.46	.94	2.132(350)	.034	.225
Automaticity (Practice)	3.65	.58	3.55	.66	1.461(343)	.145	.161
Automaticity (Performance)	3.71	.62	3.84	.64	-1.815(335)	.070	.199
Emotional Control (Practice)	3.23	.41	3.32	.38	-1.910(339)	.057	.206
Emotional Control (Performance)	2.95	.54	3.06	.57	-1.851(341)	.065	.200
Imagery (Practice)	3.10	.90	2.89	.89	2.256(341)	.025	.244
Imagery (Performance)	3.56	.99	3.26	1.04	2.732(339)	.007	.297
Activation (Practice)	3.53	.62	3.51	.59	.288(334)	.774	.032
Activation (Performance)	3.77	.75	3.62	.75	1.818(337)	.070	.197
Self-Talk (Practice)	3.40	.85	2.78	1.02	6.054(337)	.000*	.663
Self-Talk (Performance)	3.26	.91	2.66	.97	5.858(339)	.000*	.638
Relaxation (Practice)	2.79	.89	2.40	.94	3.944(356)	.000*	.419
Relaxation (Performance)	3.24	.79	2.86	.86	4.175(345)	.000*	.451
Negative Thinking (Performance)	3.79	.74	3.83	.79	-.444(340)	.657	.048
Attentional Control (Practice)	3.45	.69	3.50	.69	-.694(337)	.488	.077

Note. Modified from the Test of Performance Strategies-2 (Hardy, Roberts Thomas, & Murphy, 2010). Scores refer to the frequency of strategy use and range from 1 (*Never*) to 5 (*Always*). "Attentional Control" is only evaluated during practice. "Negative Thinking" is only evaluated during performance. *Significance was determined using a Benjamini-Hochberg (1995) 5% False Discovery Rate.

Table 17

Kruskal-Wallis H Test: Performance Strategy by Age

Performance Strategy	*N*	Mean Rank	df	χ^2	*p*	*Dunn's test*
Goal-Setting (Practice)			5	12.034	.034	-
18-21 years	10	107.45				
21-34 years	76	152.84				
35-44 years	55	175.54				
45-54 years	65	172.75				
55-64 years	102	193.73				
65+ years	39	180.62				
Goal-Setting (Performance)			5	13.133	.022	-
18-21 years	10	151.20				
21-34 years	77	156.93				
35-44 years	56	160.18				
45-54 years	68	179.51				
55-64 years	104	196.50				
65+ years	43	210.52				
Automaticity (Practice)			5	2.501	.776	-
18-21 years	10	179.65				
21-34 years	76	160.72				
35-44 years	55	175.25				
45-54 years	66	183.91				
55-64 years	103	179.45				
65+ years	41	183.05				
Automaticity (Performance)			5	26.452	.000*	55-64>18-21, 21-34, 35-44; 65+>18-21, 21-34, 35-44
18-21 years	10	95.55				
21-34 years	76	149.79				
35-44 years	54	147.41				
45-54 years	66	165.71				
55-64 years	101	202.51				
65+ years	40	201.08				

Emotional Control (Practice)			5	37.204	.000*	65+>18-21, 21-34, 35-44, 45-54; 55-64>18-21; 45-54>21-34
18-21 years	10	90.10				
21-34 years	76	140.36				
35-44 years	54	150.71				
45-54 years	66	172.82				
55-64 years	101	200.64				
65+ years	40	225.01				
Emotional Control (Performance)			5	18.460	.002*	65+, 55-64 > 21-34
18-21 years	10	114.30				
21-34 years	76	140.79				
35-44 years	54	180.45				
45-54 years	66	176.52				
55-64 years	101	194.07				
65+ years	40	196.55				
Imagery (Practice)			5	3.846	.572	-
18-21 years	10	147.55				
21-34 years	76	189.22				
35-44 years	55	161.11				
45-54 years	66	172.69				
55-64 years	101	179.51				
65+ years	49	166.57				
Imagery (Performance)			5	3.835	.573	-
18-21 years	10	128.85				
21-34 years	75	186.07				
35-44 years	55	163.73				
45-54 years	65	171.17				
55-64 years	102	176.67				
65+ years	40	174.58				
Activation (Practice)			5	31.684	.000*	65+>18-21, 21-24; 55-64>18-21, 21-34
18-21 years	10	72.45				
21-34 years	75	138.75				
35-44 years	54	168.38				
45-54 years	64	166.42				
55-64 years	100	194.09				
65+ years	39	214.62				

Activation (Performance)			5	8.135	.149	-
18-21 years	10	171.30				
21-34 years	76	163.36				
35-44 years	55	148.47				
45-54 years	64	170.58				
55-64 years	103	191.93				
65+ years	37	181.22				
Self-Talk (Practice)			5	4.620	.464	-
18-21 years	10	176.25				
21-34 years	76	153.36				
35-44 years	55	180.85				
45-54 years	65	174.65				
55-64 years	101	183.83				
65+ years	38	168.45				
Self-Talk (Performance)			5	3.620	.605	-
18-21 years	10	150.40				
21-34 years	76	169.26				
35-44 years	55	177.55				
45-54 years	65	177.96				
55-64 years	101	183.74				
65+ years	40	153.01				
Relaxation (Practice)			5	12.869	.025	-
18-21 years	11	88.18				
21-34 years	77	177.08				
35-44 years	57	204.59				
45-54 years	68	178.62				
55-64 years	108	189.77				
65+ years	42	170.42				
Relaxation (Performance)			5	5.107	.403	-
18-21 years	10	142.05				
21-34 years	76	174.24				
35-44 years	56	195.02				
45-54 years	68	176.97				
55-64 years	101	181.57				
65+ years	42	155.35				

Negative Thinking (Performance)			5	42.418	.000*	65+>18-21, 21-34,35-44, 45-54, 55-64; 55-64>18-21, 21-34
18-21 years	10	75.55				
21-34 years	76	139.30				
35-44 years	55	162.58				
45-54 years	66	161.33				
55-64 years	101	203.40				
65+ years	40	231.25				
Attentional Control (Practice)			5	42.835	.000*	55-64>18-21, 21-34, 35-44; 65+>18-21, 21-34, 35-44
18-21 years	10	88.25				
21-34 years	75	130.41				
35-44 years	55	159.88				
45-54 years	64	178.40				
55-64 years	100	190.84				
65+ years	41	237.23				

Note. *Significance was determined using a Benjamini-Hochberg (1995) 5% False Discovery Rate. Dunn's post hoc test (1964) was performed to determine which age groups were significantly different. χ^2 = chi square (Kruskal-Wallis H test statistic).

Table 18

Descriptive Statistics: Vocalist

TOPS-2M item	*N*	*M(SD)*
Activation (Practice, Performance)		
1 = Vocalist	67,67	3.51(.57), 3.80(.72)
2	57,58	3.50(.55), 3.79(.74)
3	34,33	3.34(.60), 3.79(.79)
4	1,1	3.00, 2.75
Attentional Control (Practice)		
1 = Vocalist	68	3.46(.68)
2	58	3.40(.83)
3	32	3.45(.64)
4	1	4.25
Automaticity (Practice, Performance)		
1 = Vocalist	67,67	3.65(.54), 3.78(.58)
2	58,55	3.64(.63), 3.77(.61)
3	34,33	3.44(.67), 3.56(.68)
4	1,1	2.00, 2.80
Emotional Control (Practice, Performance)		
1 = Vocalist	67,67	3.27(.40), 2.96(.54)
2	55,57	3.20(.43), 3.10(.51)
3	34,34	3.36(.37), 2.82(.70)
4	1,1	2.75, 3.00
Goal-Setting (Practice, Performance)		
1 = Vocalist	66,68	3.59(.88), 3.55(.98)
2	57,58	3.66(.85), 3.61(.97)
3	33,35	3.75(.77), 3.42(.82)
4	1,1	3.50, 2.75
Imagery (Practice, Performance)		
1 = Vocalist	67,66	3.19(1.05), 3.64(1.11)
2	57,57	2.96(.86), 3.29(1.06)
3	34,34	2.89(.79), 3.56(.96)
4	1,1	1.75
Negative Thinking (Performance)		
1 = Vocalist	67	3.90(.81)
2	57	3.90(.64)
3	34	3.73(.91)
4	1	3.00
Relaxation (Practice, Performance)		
1 = Vocalist	68,67	2.75(1.07), 3.15(.93)
2	58,58	2.43(.80), 2.96(.88)
3	35,35	2.60(.86), 3.09(.82)
4	1,1	2.25, 1.75
Self-Talk (Practice, Performance)		
1 = Vocalist	67,67	3.24(.89), 3.08(.96)
2	57,56	3.11(.94), 3.07(.91)
3	34,33	2.90(1.10), 2.77(1.08)
4	1,1	2.00, 2.50

Note. 2, 3, and 4 represent combinations of secondary, tertiary, and quaternary musician identities, if reported (instrumentalist, conductor, something "other). "Attentional Control" is only evaluated during practice. "Negative Thinking" is only evaluated during performance.

Table 19

Analysis of Variance: Performance Strategies by Primary Musician Identification (Vocalist)

Predictor (TOPS-2M)	Sum of Squares	*df*	Mean Square	*F*	*p*	η^2
Goal-Setting (Practice)						
Between-Groups	.563	3	.188	.259	.855	.005
Within-Groups	110.657	153	.723			
Total	111.220	156				
Goal-Setting (Performance)						
Between-Groups	1.421	3	.474	.533	.660	.010
Within-Groups	140.400	158	.889			
Total	141.821	161				
Automaticity (Practice)						
Between-Groups	3.679	3	1.226	3.385	.020	.061
Within-Groups	56.523	156	.362			
Total	60.203	159				
Automaticity (Performance)						
Between-Groups	2.162	3	.721	1.929	.127	.037
Within-Groups	56.805	152	.374			
Total	58.967	155				
Emotional Control (Practice)						
Between-Groups	.393	3	.131	.797	.497	.015
Within-Groups	25.150	153	.164			
Total	25.543	156				
Emotional Control (Performance)						
Between-Groups	1.685	3	.562	1.751	.159	.033
Within-Groups	49.705	155	.321			
Total	51.390	159				

Imagery (Practice)						
Between-Groups	4.265	3	1.422	1.633	.184	.030
Within-Groups	134.965	155	.871			
Total	139.230	158				
Imagery (Performance)						
Between-Groups	6.983	3	2.328	2.071	.106	.039
Within-Groups	173.085	154	1.124			
Total	180.068	157				
Activation (Practice)						
Between-Groups	.563	3	.188	.573	.633	.011
Within-Groups	50.755	155	.327			
Total	51.318	158				
Activation (Performance)						
Between-Groups	2.322	3	.774	1.411	.242	.027
Within-Groups	85.039	155	.549			
Total	87.361	158				
Self-Talk (Practice)						
Between-Groups	3.717	3	1.239	1.352	.260	.026
Within-Groups	141.989	155	.916			
Total	145.706	158				
Self-Talk (Performance)						
Between-Groups	2.766	3	.922	.981	.404	.019
Within-Groups	143.852	153	.940			
Total	146.619	156				
Relaxation (Practice)						
Between-Groups	3.224	3	1.075	1.233	.300	.023
Within-Groups	137.720	158	.872			
Total	140.944	161				

Relaxation (Performance)						
Between-Groups	2.794	3	.931	1.179	.319	.022
Within-Groups	123.987	157	.790			
Total	126.781	160				
Negative Thinking (Performance)						
Between-Groups	1.501	3	.500	.826	.482	.016
Within-Groups	93.922	155	.606			
Total	95.423	158				
Attentional Control (Practice)						
Between-Groups	.768	3	.256	.478	.698	.009
Within-Groups	82.915	155	.535			
Total	83.682	158				

Note. Significance was determined using a Benjamini-Hochberg (1995) 5% False Discovery Rate.

Table 20

Descriptive Statistics: Instrumentalist

TOPS-2M item	*N*	*M(SD)*
Activation (Practice, Performance)		
1 = Instrumentalist	198,198	3.50(.62), 3.65(.74)
2	57,58	3.43(.61), 3.69(.78)
3	30,30	3.49(.52), 3.85(.69)
4	2,2	3.50(.71), 2.88(.88)
Attentional Control (Practice)		
1 = Instrumentalist	197	3.44(.68)
2	59	3.47(.80)
3	30	3.32(.74)
4	2	3.63(.18)
Automaticity (Practice, Performance)		
1 = Instrumentalist	203,198	3.65(.60), 3.75(.63)
2	58,58	3.43(.66), 3.81(.62)
3	30,29	3.40(.62), 3.73(.64)
4	2,2	3.37(.53), 3.30(.71)
Emotional Control (Practice, Performance)		
1 = Instrumentalist	201,202	3.28(.41), 3.00(.55)
2	57,58	3.28(.41), 2.97(.61)
3	30,30	3.13(.38), 2.99(.62)
4	2,2	3.00(.00), 2.89(.18)
Goal-Setting (Practice, Performance)		
1 = Instrumentalist	201,208	3.90(.81), 3.58(.92)
2	58,59	3.51(.87), 3.31(.98)
3	30,30	3.68(.84), 3.74(.91)
4	2,2	4.25(.71), 4.12(.18)
Imagery (Practice, Performance)		
1 = Instrumentalist	202,201	2.99(.84), 3.37(.96)
2	58,58	2.99(1.03), 3.42(1.13)
3	30,30	3.00(.82), 3.50(.94)
4	2,2	2.88(.18), 3.50(1.06)
Negative Thinking (Performance)		
1 = Instrumentalist	202	3.76(.74)
2	57	3.74(.86)
3	30	3.76(.73)
4	2	4.00(.00)
Relaxation (Practice, Performance)		
1 = Instrumentalist	212,205	2.59(.92), 3.09(.79)
2	60,58	2.41(.97), 2.94(.84)
3	29,30	2.49(.87), 3.10(1.01)
4	2,2	3.00(.71), 3.12(.88)
Self-Talk (Practice, Performance)		
1 = Instrumentalist	197,201	3.07(1.01), 2.95(.96)
2	58,58	2.94(1.00), 2.84(.98)
3	30,29	3.19(.68), 3.12(.85)
4	2,2	3.00(.71), 3.25(.00)

Note. 2, 3, and 4 represent combinations of secondary, tertiary, and quaternary musician identities, if reported (vocalist, conductor, something "other"). "Attentional Control" is only evaluated during practice. "Negative Thinking" is only evaluated during performance.

Table 21

Analysis of Variance: Performance Strategies by Primary Musician Identification (Instrumentalist)

Predictor (TOPS-2M)	Sum of Squares	*df*	Mean Square	*F*	*p*	η^2
Goal-Setting (Practice)						
Between-Groups	7.688	3	2.556	3.788	.011	.038
Within-Groups	193.647	287	.675			
Total	201.315	290				
Goal-Setting (Performance)						
Between-Groups	5.544	3	1.848	2.143	.095	.021
Within-Groups	254.378	295	.862			
Total	259.922	298				
Automaticity (Practice)						
Between-Groups	3.348	3	1.116	2.931	.034	.030
Within-Groups	110.049	289	.381			
Total	113.397	292				
Automaticity (Performance)						
Between-Groups	.639	3	.213	.537	.658	.006
Within-Groups	112.266	283	.397			
Total	112.904	286				
Emotional Control (Practice)						
Between-Groups	.744	3	.248	1.491	.217	.015
Within-Groups	47.561	286	.166			
Total	48.305	289				

Emotional Control (Performance)						
Between-Groups	.081	3	.027	.083	.969	.001
Within-Groups	93.898	288	.326			
Total	93.979	291				
Imagery (Practice)						
Between-Groups	.030	3	.010	.013	.998	.000
Within-Groups	222.832	288	.774			
Total	222.861	291				
Imagery (Performance)						
Between-Groups	.553	3	.184	.187	.905	.002
Within-Groups	283.028	288	.986			
Total	283.582	291				
Activation (Practice)						
Between-Groups	.199	3	.066	.177	.912	.002
Within-Groups	105.714	283	.374			
Total	105.913	286				
Activation (Performance)						
Between-Groups	2.430	3	.810	1.451	.228	.015
Within-Groups	158.590	284	.558			
Total	161.020	287				
Self-Talk (Practice)						
Between-Groups	1.425	3	.475	.494	.687	.005
Within-Groups	272.202	283	.962			
Total	273.627	286				
Self-Talk (Performance)						
Between-Groups	1.774	3	.591	.651	.583	.007
Within-Groups	259.736	286	.908			
Total	261.511	289				

Relaxation (Practice)						
Between-Groups	2.034	3	.678	.788	.502	.008
Within-Groups	257.386	299	.861			
Total	259.420	302				
Relaxation (Performance)						
Between-Groups	1.080	3	.360	.525	.665	.005
Within-Groups	199.478	291	.685			
Total	200.558	294				
Negative Thinking (Performance)						
Between-Groups	.131	3	.044	.075	.973	.001
Within-Groups	167.361	287	.583			
Total	167.492	290				
Attentional Control (Practice)						
Between-Groups	.558	3	.186	.366	.778	.004
Within-Groups	144.284	284	.508			
Total	144.842	287				

Note. Significance was determined using a Benjamini-Hochberg (1995) 5% False Discovery Rate.

Table 22

Descriptive Statistics: Conductor

TOPS-2M item	*N*	*M(SD)*
Activation (Practice, Performance)		
1 = Conductor	41,44	3.59(.51), 3.80(.67)
2	73,73	3.47(.56), 3.71(.75)
3	38,39	3.47(.56), 3.56(.79)
4	1,1	3.25, 4.25
Attentional Control (Practice)		
1 = Conductor	43	3.42(.69)
2	72	3.48(.62)
3	39	3.47(.81)
4	1	4.00
Automaticity (Practice, Performance)		
1 = Conductor	44,42	3.45(.71), 3.91(.62)
2	74,73	3.54(.65), 3.80(.63)
3	39,38	3.53(.58), 3.64(.72)
4	1,1	4.00, 3.80
Emotional Control (Practice, Performance)		
1 = Conductor	43,44	3.27(.36), 3.05(.55)
2	74,74	3.28(.37), 3.05(.55)
3	38,39	3.23(.46), 2.88(.59)
4	1,1	3.50, 3.25
Goal-Setting (Practice, Performance)		
1 = Conductor	44,45	3.72(.82), 3.63(.97)
2	73,77	3.91(.76), 3.61(.84)
3	39,39	3.72(.86), 3.55(1.10)
4	1,1	3.00, 3.75
Imagery (Practice, Performance)		
1 = Conductor	44,41	2.76(.83), 3.07(1.01)
2	74,73	3.10(.82), 3.55(.92)
3	39,39	2.98(1.00), 3.30(1.11)
4	1,1	3.50, 3.50
Negative Thinking (Performance)		
1 = Conductor	43	3.89(.67)
2	74	3.91(.72)
3	39	3.63(.88)
4	1	4.75
Relaxation (Practice, Performance)		
1 = Conductor	46,44	2.40(.85), 2.75(.78)
2	77,74	2.71(1.00), 3.11(.88)
3	40,39	2.61(.96), 3.10(.72)
4	1,1	3.25, 4.75
Self-Talk (Practice, Performance)		
1 = Conductor	44,43	2.88(.92), 2.70(.87)
2	74,73	3.08(.97), 2.91(1.01)
3	38,39	3.09(.94), 2.93(.80)
4	1,1	3.50

Note. 2, 3, and 4 represent combinations of secondary, tertiary, and quaternary musician identities, if reported (vocalist, instrumentalist, something "other"). "Attentional Control" is only evaluated during practice. "Negative Thinking" is only evaluated during performance.

Table 23

Analysis of Variance: Performance Strategies by Primary Musician Identification (Conductor)

Predictor (TOPS-2M)	Sum of Squares	*df*	Mean Square	*F*	*p*	η^2
Goal-Setting (Practice)						
Between-Groups	2.080	3	.693	1.082	.358	.021
Within-Groups	98.029	153	.641			
Total	100.109	156				
Goal-Setting (Performance)						
Between-Groups	.168	3	.056	.063	.979	.001
Within-Groups	141.151	158	.893			
Total	141.319	161				
Automaticity (Practice)						
Between-Groups	.461	3	.154	.363	.780	.007
Within-Groups	65.178	154	.423			
Total	65.640	157				
Automaticity (Performance)						
Between-Groups	1.484	3	.495	1.170	.323	.023
Within-Groups	63.424	150	.423			
Total	64.907	153				
Emotional Control (Practice)						
Between-Groups	.126	3	.042	.275	.843	.005
Within-Groups	23.137	151	.153			
Total	23.264	154				

Emotional Control (Performance)						
Between-Groups	.927	3	.309	1.059	.368	.020
Within-Groups	44.626	153	.292			
Total	45.553	156				
Imagery (Practice)						
Between-Groups	3.573	3	1.191	1.570	.199	.030
Within-Groups	116.849	154	.759			
Total	120.422	157				
Imagery (Performance)						
Between-Groups	6.542	3	2.181	2.200	.090	.041
Within-Groups	152.629	154	.991			
Total	159.171	157				
Activation (Practice)						
Between-Groups	.442	3	.147	.491	.689	.010
Within-Groups	44.745	149	.300			
Total	45.187	152				
Activation (Performance)						
Between-Groups	1.548	3	.516	.947	.420	.018
Within-Groups	83.382	153	.545			
Total	84.930	156				
Self-talk (Practice)						
Between-Groups	1.587	3	.529	.584	.629	.011
Within-Groups	138.486	153	.905			
Total	140.02	156				
Self-talk (Performance)						
Between-Groups	3.356	3	1.119	1.315	.272	.025
Within-Groups	129.322	152	.851			
Total	132.677	155				
Relaxation (Practice)						
Between-Groups	3.544	3	1.181	1.309	.274	.024
Within-Groups	144.421	160				
Total	147.965	163				

Relaxation (Performance)						
Between-Groups	7.080	3	2.360	3.556	.016	.064
Within-Groups	102.864	155	.664			
Total	109.943	158				
Negative Thinking (Performance)						
Between-Groups	2.921	3	.974	1.723	.165	.033
Within-Groups	86.472	153	.565			
Total	89.394	156				
Attentional Control (Practice)						
Between-Groups	.382	3	.127	.266	.850	.005
Within-Groups	72.332	151	.479			
Total	72.714	154				

Note. *Significance was determined using a Benjamini-Hochberg (1995) 5% False Discovery Rate.

Table 24

Descriptive Statistics: "Other"

TOPS-2M item	*N*	*M(SD)*
Activation (Practice, Performance)		
1 = "Other"	39,40	3.39(.60), 3.61(.92)
2	45,45	3.64(.70), 3.64(.79)
3	20,20	3.39(.70), 3.64(.88)
4	2,2	4.00(.35), 4.50(.71)
Attentional Control (Practice)		
1 = "Other"	40	3.57(.77)
2	44	3.55(.63)
3	20	3.40(.71)
4	2	3.75(.71)
Automaticity (Practice, Performance)		
1 = "Other"	40,39	3.44(.77), 3.77(.74)
2	45,45	3.61(.59), 3.78(.64)
3	20,20	3.55(.49), 3.73(.50)
4	2,2	4.25(.35), 3.80(.57)
Emotional Control (Practice, Performance)		
1 = "Other"	39,39	3.27(.42), 3.00(.70)
2	45,44	3.27(.35), 2.97(.44)
3	20,20	3.23(.41), 3.15(.49)
4	2,2	2.63(.18), 3.13(.18)
Goal-Setting (Practice, Performance)		
1 = "Other"	39,40	3.73(.89), 3.37(1.00)
2	45,45	3.86(.78), 3.54(1.08)
3	20,20	3.95(.85), 3.64(.68)
4	2,3	4.50(.71), 4.42(.63)
Imagery (Practice, Performance)		
1 = "Other"	39,39	2.87(1.03), 3.52(1.21)
2	45,45	3.16(.96), 3.55(1.04)
3	20,20	3.09(.82), 3.51(.85)
4	2,2	3.75(1.06), 3.88(.88)
Negative Thinking (Performance)		
1 = "Other"	39	3.81(.96)
2	45	3.90(.65)
3	20	4.08(.78)
4	2	2.88(.18)
Relaxation (Practice, Performance)		
1 = "Other"	41,40	2.41(.82), 3.08(.95)
2	47,47	2.88(1.03), 3.24(.78)
3	19,19	2.82(1.32), 3.20(.99)
4	3,3	3.500(.90), 4.17(.72)
Self-talk (Practice, Performance)		
1 = "Other"	40,39	2.96(1.12), 2.94(1.18)
2	45,47	3.21(1.04), 3.08(.91)
3	20,19	3.04(.96), 2.96(1.18)
4	2,3	3.75(.35), 4.00(.71)

Note. 2, 3, and 4 represent combinations of secondary, tertiary, and quaternary musician identities, if reported (vocalist, instrumentalist, conductor). "Attentional Control" is only evaluated during practice. "Negative Thinking" is only evaluated during performance.

Table 25

Analysis of Variance: Performance Strategies by Primary Musician Identification ("Other")

Predictor	Sum of Squares	*df*	Mean Square	*F*	*p*	η^2
Goal-setting (Practice)						
Between-Groups	1.589	3	.530	.759	.520	.021
Within-Groups	71.184	102	.698			
Total	72.774	105				
Goal-setting (Performance)						
Between-Groups	3.617	3	1.206	1.250	.295	.034
Within-Groups	102.222	106	.964			
Total	105.839	109				
Automaticity (Practice)						
Between-Groups	1.653	3	.551	1.320	.272	.037
Within-Groups	42.988	103	.417			
Total	44.641	106				
Automaticity (Performance)						
Between-Groups	.037	3	.012	.029	.993	.001
Within-Groups	43.654	102	.428			
Total	43.691	105				
Emotional Control (Practice)						
Between-Groups	.830	3	.277	1.846	.144	.051
Within-Groups	15.295	102	.150			
Total	16.125	105				

Emotional Control (Performance)						
Between-Groups	.502	3	.167	.535	.660	.015
Within-Groups	31.602	101	.313			
Total	32.104	104				
Imagery (Practice)						
Between-Groups	2.802	3	.934	1.012	.391	.029
Within-Groups	94.163	102	.923			
Total	96.965	105				
Imagery (Performance)						
Between-Groups	.260	3	.087	.075	.973	.002
Within-Groups	117.464	102	1.152			
Total	117.724	105				
Activation (Practice)						
Between-Groups	2.146	3	.715	1.636	.186	.046
Within-Groups	44.595	102	.437			
Total	46.741	105				
Activation (Performance)						
Between-Groups	1.523	3	.508	.689	.561	.020
Within-Groups	75.856	103	.736			
Total	77.380	106				
Self-Talk (Practice)						
Between-Groups	2.243	3	.748	.673	.571	.019
Within-Groups	114.431	103	1.111			
Total	116.674	106				
Self-Talk (Performance)						
Between-Groups	2.413	3	.804	.704	.552	.020
Within-Groups	116.602	102	1.143			
Total	119.015	105				

Relaxation (Practice)						
Between-Groups	7.132	3	2.377	2.335	.078	.062
Within-Groups	107.934	106	1.018			
Total	115.05	109				
Relaxation (Performance)						
Between-Groups	3.440	3	1.147	1.477	.225	.040
Within-Groups	81.532	105	.776			
Total	84.972	108				
Negative Thinking (Performance)						
Between-Groups	3.002	3	1.001	1.558	.204	.044
Within-Groups	65.526	102	.642			
Total	68.529	105				
Attentional Control (Practice)						
Between-Groups	.514	3	.171	.348	.791	.010
Within-Groups	50.246	102	.493			
Total	50.759	105				

Note. *Significance was determined using a Benjamini-Hochberg (1995) 5% False Discovery Rate.

Curriculum Vitae
Jessica L. Ford, MS

Formal Education

University of Wisconsin-Milwaukee (May 2020 – anticipated)
Milwaukee, WI
Doctor of Philosophy, Kinesiology (ABD)
Major Specialization: Sport Psychology and Performance Excellence
Cognate: Community Counseling
Advisor: Monna Arvinen-Barrow, PhD, CPsychol, AFBPsS, UPV Sert.
Doctoral Dissertation: *Conceptualizing psychological performance enhancement in a music domain*.

Ithaca College (2015)
Ithaca, NY
Master of Science, Exercise and Sport Sciences
Concentration: Sport Psychology
Master's Thesis: *'Pouring everything that you are': Musician experiences of optimal performances.*

The Catholic University of America (2013)
Washington, DC
Bachelor of Arts, Psychology
Senior Thesis: *Mindfulness, flow, and body image in Division I cross-country runners.*

Professional Experience

- Assistant Professor of Kinesiology (tenure-track), McDaniel College (to begin Fall 2020)

- Graduate Student Sport Psychology Consultant, Laboratory for Sport Psychology and Performance Excellence, University of Wisconsin-Milwaukee
  Supervisor: Barbara Meyer, PhD (CMPC)
  Practicum: Spring 2017
  Mentored Fieldwork: Summer 2017, Fall 2017, Spring 2018
    - Duties: Provide supervised performance consulting to community clients (athletes, musicians). Accumulate supervised hours for Association for Applied Sport Psychology CMPC consulting certification. Selected topics include: self-regulation, motivation, anxiety/stress management, leadership/team building, and imagery.

- Campus and Community Engagement Director, Student Association, University of Wisconsin-Milwaukee, June 2017 – June 2018 (1 term)
    - Duties: Promoted campus involvement in Student Association sponsored events, executed UWM volunteer initiatives, built partnerships with community constituents, and facilitated student retention efforts.

- Mental Conditioning Coach: Exercise and Sport Sciences Graduate Program, Ithaca College, Supervisor: Justine Vosloo, PhD (CMPC)

Practicum: Spring 2014
Internship: Fall 2014, Spring 2015

- Duties: Provided supervised team and individual consulting to collegiate and youth athletes. Developed presentations on various topics such as zones of optimal arousal, anxiety/stress management, leadership/team building, and imagery. Accumulated supervised hours for Association for Applied Sport Psychology CMPC consulting certification.

Professional Certifications

- Certified Mental Performance Consultant (*CMPC*) through the Association for Applied Sport Psychology, application to be submitted August 2020

Funded Assistantships

1. Chancellor's Graduate Student Award (tuition remission), Department of Kinesiology (University of Wisconsin-Milwaukee, 2017 – 2018, 2018 – 2019)
2. College of Health Sciences/Kinesiology Teaching Assistantship (tuition remission and monthly stipend) (University of Wisconsin-Milwaukee, 2015 – 2016, 2016 – 2017)
3. School of Health Sciences and Human Performance Graduate Assistantship (tuition remission and monthly stipend) (Ithaca College, 2013 – 2014)

Honors and Awards

1. Graduate Student Excellence Fellowship Award, $1500 (University of Wisconsin-Milwaukee – October 2017)
2. Excellence in Graduate Study Award (Ithaca College – May 2015)
3. Phi Kappa Phi National Distinction (Ithaca College – March 2015)
4. The Alpha Eta Society (National Honor Society for the Allied Health Professions – February 2015)
5. Outstanding Achievement in Psychology (Catholic University Honors Convocation – May 2013)
6. Phi Beta Kappa National Distinction (Catholic University – May 2013)
7. Pi Gamma Mu (International Honor Society in Social Sciences – May 2013)
8. Psi Chi (International Honor Society in Psychology – January 2012)
9. Office of Public Affairs: CUA Success Story (October 2012)
10. Landmark Conference Academic Honor Roll (Spring 2011)
11. Phi Eta Sigma (National Freshman Honor Society – October 2010)
12. Dean's List with Distinction (Catholic University)
13. University Honors Program (Catholic University)

Travel and Research Grants

1. **Ford, J.** (2019, December). Conceptualizing psychological performance enhancement in a music domain: An Interpretative Phenomenological Analysis. College of Health Sciences (CHS) Graduate Student Research Grant Award Program. Not funded.
2. **Ford, J.,** Marciniak, R., & Wahl, C. (2019, November). University of Wisconsin-Milwaukee Student Appropriations Committee (SAC) Travel Grant, The American College of Sports Medicine 67th Annual Conference. $1340 funded.
3. **Ford, J.,** Ildefonso, K., Wahl, C. & Nai, M. (2019, March). University of Wisconsin-Milwaukee Student Appropriations Committee (SAC) Travel Grant, Association for Applied Sport Psychology 34th Annual Conference. $2696 funded.
4. **Ford, J.** (2017, October). Graduate Student Travel Award. University of Wisconsin-Milwaukee Graduate School. $400 funded.
5. Hauff, C., **Ford, J.,** Ildefonso, K., & Nai, M. (2016, October). University of Wisconsin-Milwaukee Kinesiology Graduate Association Annual Conference Grant, Association for Applied Sport Psychology 31st Annual Conference. $1940 funded.
6. **Ford, J**. (2015, October). Graduate Student Travel Award. University of Wisconsin-Milwaukee Graduate School. $450 funded.

Teaching Experience

1. **Teaching Fellow:** College of Health Sciences, University of Wisconsin-Milwaukee
    a. CHS 100: New Freshman Seminar in Health Professions (Fall 2018, Fall 2019)
2. **Co-instructor (Guided Teaching Practicum):** Department of Kinesiology, University of Wisconsin-Milwaukee
    a. KIN 350: Psychological Aspects of Sport and Exercise (Spring 2018)
3. **Adjunct Instructor:** Department of Kinesiology, University of Wisconsin-Milwaukee
    a. KIN 350: Psychological Aspects of Sport and Exercise (Fall 2017)
4. **Teaching Assistant (Grader/Reader):** Department of Kinesiology, University of Wisconsin-Milwaukee, August 2014 – May 2017
    a. KIN 351: Sociological Aspects of Health and Human Movement (Fall 2015, Spring 2016), Professor Hauff (née Pecinovsky)
    b. KIN 400: Ethics and Values in the Health and Fitness Professions (online) (Fall 2015, Spring 2016), Professor Gnacinski
    c. KIN 351: Sociological Aspects of Health and Human Movement (Fall 2016, Spring 2017), Dr. Greenleaf
        i. Assisted in re-design of course structure and content for the Spring 2017 section
    d. KIN 270: Statistics in the Health Professions: Theory and Practice (Fall 2016), Dr. Cashin
    e. KIN 270: Statistics in the Health Professions: Theory and Practice (Spring 2017), Professor Gnacinski
5. **Teaching Assistant (Grader/Reader)**: Department of Exercise and Sport Sciences, Ithaca College, August 2013 – July 2014
    a. EXS 375: Research Methods (Fall 2013 and Spring 2014) – Dr. Kaye
        i. Supervised undergraduate students' preparation of posters from conceptualization to presentation for Ithaca College's Whalen Symposium
    b. EXS 202: Sport and Exercise Psychology (Fall 2013) – Dr. Kaye
        i. Guest lectures: Flow, Goal-setting
    c. EXS 202: Sport and Exercise Psychology, online (Summer 2014) – Dr. Vosloo

6. **Guest lecturer**: Department of Kinesiology, Department of Educational Psychology, University of Wisconsin-Milwaukee (Spring 2016, Spring 2017, Fall 2017, Fall 2018, Spring 2019, Fall 2019)
    a. KIN 351 topic: Physical Activity and Health Promotion among Diverse Populations
    b. KIN 200 topic: Introduction to Sport and Performance Psychology
    c. KIN 350 topic: Leadership
    d. KIN 350 topic: The Role of Music in Sport and Exercise
    e. KIN 350 topic: Aggression and Violence in Sport
    f. ED PSYCH 101 topic (Freshmen athletes, reoccurring): Introduction to Sport Psychology

Research Experience

1. **Research Assistant:** PLAYWORKS Project (Oglesby-Synder Grant for Equity and Cultural Diversity, Association for Applied Sport Psychology)
   October 2016 – June 2017
   Supervisor/PI: William Massey, PhD
    a. Duties: Administered FitBits to elementary school children before and after school. Conducted and scored cognitive assessments (Flanker, DCCS) for participating students.
2. **Research Assistant:** Department of Kinesiology – Integrative Health Care and Performance Unit, University of Wisconsin- Milwaukee, August 2015 – August 2016
   Supervisors: Monna Arvinen-Barrow, PhD; Jennifer Earl-Boehm, PhD
    a. Duties: Conducted physical and psychological assessments on incoming UWM Division I athletes as part of an inter-professional performance enhancement program aimed to increase athlete quality of life and decrease injury risk ("Panther PEP" program). Completed individualized profile packets for the athletes tailored to his/her assessment results and observed individual meetings with the athletes and support staff to discuss such results. Conducted and transcribed exit interviews with selected participants.
3. **Research Assistant:** Exercise and Sport Sciences (ESS) Department, Ithaca College,
   August 2014 – May 2015
   Supervisors: Justine Vosloo, PhD; Miranda Kaye, PhD
    a. Duties: Qualitatively coded coaches' experiences of wellness coaching with NVivo software using a Consensual Qualitative Research (CQR) framework. Piloted and edited various surveys for the department. Attended AASP (2015) and presented first-authored research.
4. **Research Assistant:** Exercise and Sport Sciences (ESS) Department, Ithaca College,
   August 2013 – May 2014
   Supervisor: Miranda Kaye, PhD
    a. Duties: Categorized and entered data for a campus wide employee wellness program. Assisted in the development of the literature review and measures section of a NCAA Innovation in Research and Practice grant proposal which assessed athlete transitions to college from a self-determination theory perspective. Collected and entered data from ESS Research Methods undergraduate students on motivations for conducting research. Revised and edited ESS undergraduate students' poster presentations for Ithaca College's Whalen Symposium. Attended AASP (2013) and NASP (2014) conferences and presented first-authored research.
5. **Research Volunteer Consultant:** Ithaca Youth Bureau (IYB), May 2014 – August 2014
   Ithaca Youth Bureau, Ithaca, NY
    a. Duties: Developed a sport psychology teaching module for IYB's youth coach training program. Module addressed parent involvement, motivation, giving feedback, reinforcement, and special coaching considerations related to player's age group.

6. **Research Assistant:** Anxiety, Mindfulness, and Psychotherapy Integration Lab, The Catholic University of America, January 2010 – May 2013
   Supervisors: Carol Glass, PhD; Keith Kaufman, PhD
   a. Duties: Assisted in design and data collection for a sport psychology study examining the effectiveness of Mindful Sport Performance Enhancement (MSPE) for Division I long distance runners. Distributed questionnaire packets to participants. Conducted comprehensive literature searches. Entered and analyzed data using SPSS. Attended AASP conference (2012) and presented first-authored research. Coded qualitative data, including participants' motivations for running.
7. **Research Assistant:** 19th Annual Consortium of Psychoanalytic Research Conference, February 5th, 2012, George Washington University
   Supervisors: Sheila Hafter Gray, M.D.; Timothy Pineau, PhD
   a. Duties: Assisted in SPSS data entry of clinician ratings of psychoanalytical treatment outcomes in patients. Participants were clinicians who attended the CPRinc Research Conference. Categorized the treatments according to DSM IV-TR classification.

Peer-Reviewed Publications

1. **Ford, J.,** Ildefonso, K., Jones, M., & Arvinen-Barrow, M. (2017). Sport-related anxiety: Current insights*. Open Access Journal of Sports Medicine, 8,* 205-212. doi: 10.2147/OAJSM.S125845
2. **Ford, J.,** & Arvinen-Barrow, M. (2019). Exploring the use of psychological skills training interventions in a music domain: A systematic review. *Medical Problems of Performing Artists*, *34*(4), 222-229. doi: 10.21091/mppa.2019.4033
3. **Ford, J.,** Vosloo, J., & Arvinen-Barrow, M. (2020). 'Pouring everything that you are': Musicians' experiences of optimal performance. *British Journal of Music Education.* Advance online publication. doi: 10.1017/S0265051720000078

Peer-Reviewed Publications in Progress

1. Arvinen-Barrow, M., **Ford, J.,** Ildefonso, K., & Earl-Boehm, J. (in progress). "They give you all the tools to success…gave me the keys to the car and I drove with it." Division I collegiate men's basketball players' experiences of an interprofessional performance enhancement program.
2. **Ford, J.,** Arvinen-Barrow, M., & Ildefonso, K. (preparing for final submission). The relationship between grit and mental toughness: Exploring the constructs in sport. *Journal of Sport and Exercise Psychology.*
3. **Ford, J.** & Arvinen-Barrow, M. (preparing for final submission). An ecological systems theory perspective on music performance: A conceptual framework. *MUSICÆ SCIENTIÆ.*
4. **Ford, J.,** Masters, S., Vosloo, J., Kaye, M., & Harenberg, S. (preparing for final submission). High school coaches' attitudes of sport psychology consultants and the barriers to implementation of sport psychology services. *International Journal of Sports Science and Coaching.*
5. **Ford, J. L.,** Pineau, T. R., Glass, C. R., & Kaufman, K. A. (in progress). Mindfulness, flow, and body image in Division I cross-country runners.
6. Vosloo, J., Sforzo, G.A., Way, W., Yaple, S., & **Ford, J**. (in progress). Coaching for enhanced wellness and motivation: A qualitative evaluation.

Book Chapters

1. **Ford, J.,** Johnson, R., Clement, D., & Arvinen-Barrow, M. (2019). *Reactions to rehabilitation: Brandon Jackson, a freshman music performance major.* In: M. Arvinen-Barrow & D. Clement, D. (Eds.).

Psychology of sport and performance injury: A case-based interprofessional approach. Abington, UK: Routledge.

Oral Presentations at Academic and Professional Meetings

1. **Ford, J.,** Vosloo, J., Kaye, M., & Arvinen-Barrow, M. (2016, October). *'Pouring everything that you are': Musician experiences of optimal performances.* Association for Applied Sport Psychology, Phoenix, AZ.
2. **Ford, J.,** Emmer, G., Earl-Boehm, J., & Arvinen-Barrow, M. (2016, February). *Conceptualizing grit: A preliminary investigation with collegiate student- athletes.* The AASP Regional Conference and 26th Midwest Sport and Exercise Psychology Symposium.
3. **Ford, J.,** Gnacinski, S., Earl-Boehm, J., & Arvinen-Barrow, M. (2015, December). *Grit and mental toughness: Are the terms interchangeable in a sport context?* College of Health Sciences (CHS) Fall 2015 Research Symposium, Milwaukee, WI.
4. **Ford, J.,** Masters, S., Kaye, M., & Vosloo, J. (2015, October). *High school coaches' perceptions of sport psychology: Barriers and future directions.* Association for Applied Sport Psychology, Indianapolis, IN

National/International Poster Presentations

1. **Ford, J.,** Beauchemin, R., Halama, B., Ildefonso, K., Zike, D. & Arvinen-Barrow, M. (2019, October). *Exploring the use of performance strategies in Division 1 athletes.* Association for Applied Sport Psychology, Portland, OR.
2. Stellino, M., **Ford, J.,** Gorgas, J., Koon, L., & Massey, W. (2018, October). *Examination of a recess and peer-leadership intervention on executive function and physical activity in elementary school students: A randomized controlled trial.* Association for Applied Sport Psychology, Toronto, CA.
3. **Ford, J.** (2018, October). *Teaching sport and exercise psychology for the first time: Reflections and lessons learned*. Association for Applied Sport Psychology, Toronto, CA.
4. Jones, M., **Ford, J.,** & Arvinen-Barrow, M. (2017, October). *The influence of the Big Five and history of previous injury on perceived susceptibility of sport injury*. Association for Applied Sport Psychology, Orlando, FL.
5. **Ford, J.,** Earl-Boehm, J., & Arvinen-Barrow, M. (2017, October). *The relationship between grit and life stressors in collegiate student-athletes: A preliminary investigation*. Association for Applied Sport Psychology, Orlando, FL.
6. Vosloo, J., Way, W., Quartiroli, A., **Ford, J.,** Yaple, S., Masters, S., McConnell, P., & Sforzo, G. (2016, June). *Qualitative analysis of health coaches' experiences during a workplace wellness intervention*. American College of Sports Medicine, Boston, MA.
7. **Ford, J. L.,** Pineau, T. R., Glass, C. R., Kaufman, K. A., Tenuta, C. K., & Suermann, A. E. (2013, October). *Gender as a moderator of flow and mindfulness*. Association for Applied Sport Psychology, New Orleans, LA.
8. **Ford, J. L.,** Pineau, T. R., Kaufman, K. A., Glass, C. R., Tenuta, C. K., & Suermann, A. E. (2012, October). *The loss of self-consciousness dimension of flow: Its relation to mindfulness and body image.* Association for Applied Sport Psychology, Atlanta, Georgia.
9. Pineau, T. R., Glass, C. R., Kaufman, K. A., **Ford, J. L.,** Tenuta, C. K., & Suermann, A. E. (2012, October). *Running performance and disordered eating: Implications for the use of mindfulness interventions with athletes*. Association for Applied Sport Psychology, Atlanta, Georgia.

10. Tenuta, C. K., Pineau, T. R., Glass, C. R., Kaufman, K. A., **Ford, J. L.,** & Suermann, A. E. (2012, October). *What do mindful athletes do? Mindfulness, practice, and performance in Division I cross-country runners*. Association for Applied Sport Psychology, Atlanta, Georgia.

Local and Regional Poster Presentations

1. **Ford, J.,** Beauchemin, R., Halama, B., Ildefonso, K., Zike, D. & Arvinen-Barrow, M. (2019, March). *Exploring the use of performance strategies in Division 1 athletes.* The Midwest Regional Association for Applied Sport Psychology Conference, Mankato, MN.
2. **Ford, J.,** Earl-Boehm, J., & Arvinen-Barrow, M. (2016, May). *The relationship between grit and life stressors in collegiate student-athletes: A preliminary investigation*. The University of Wisconsin-Milwaukee College of Health Sciences (CHS) Spring 2016 Research Symposium.
3. **Ford, J.,** Gnacinski, S., Earl-Boehm, J., & Arvinen-Barrow, M. (2015, December). *Grit and mental toughness: Are the terms interchangeable in a sport context?* The University of Wisconsin-Milwaukee College of Health Sciences (CHS) Fall 2015 Research Symposium.
4. **Ford, J.,** Masters, S., Kaye, M., & Vosloo, J. (2014, March). *High school coaches' perceptions of sport psychology and the use of sport psychology consultants.* The Northeast Atlantic Sport Psychology (NASP) Regional Conference, Philadelphia, PA.

University Service and Other Experience

1. Founded the Laboratory for Sport Psychology and Performance Excellence Graduate Student Organization (2019): UWM
    a. Wrote and received travel and operations funding grants on behalf of the organization (2019)
2. Completed the *Dissertation Boot Camp* and *Statistics Boot Camp* programs offered to PhD students (Summer 2019): UWM
3. The University of Queensland's 3MT® (Three Minute Thesis) Competition Finalist (April 2019): UWM
4. Association for Applied Sport Psychology's 34th Annual National Conference - Abstract Reviewer (February 2019)
5. Completed the *Strategies to Convey Instructor Caring and Belief in Student Success* workshop (September 2018): UWM
6. United Way volunteer for Milwaukee Public Schools (e.g., Homework Diner tutor, chaperone for community engagement events)
7. Search and Screen Committee, Head Coach for Men's Basketball (June 2017): UWM
8. Retention Steering Committee (Fall 2017 – Spring 2018): UWM
9. *Make A Difference Day*, Team Volunteer Coordinator (November 2017): UWM
10. Co-managed content for the Laboratory for Sport Psychology and Performance Excellence webpage (June 2016 – August 2019): UWM
11. "Panther Pause" Campus-Wide Study Break Volunteer (December 14th, 2016): UWM
12. Undergraduate Research Symposium Judge (2017, 2019): UWM
13. Assistant Basketball Coach (Summer 2011): 6th and 7th Grade Girls Mid-Monmouth Travel League
14. Psychology Department Admissions Open House (October 2011, January 2012): CUA
15. Orientation & Orientation Extended Advisor (March 2010 – October 2012): CUA
16. Psychology Peer Mentor (Spring 2010 – 2013): CUA
17. Psychology Peer Mentor, Program Coordinator (August 2011 – May 2013): CUA
18. *Back on My Feet* Volunteer, Morning Runner (January 2012 – May 2012): Washington, DC
19. *Habitat for Humanity* Volunteer, CUA Chapter (March 2012 – May 2013): Manistique, MI

20. Office Intern (January 2013 – May 2013): *Hydrocephalus Association* (nation's largest non-profit advocacy group for the neurological condition of hydrocephalus)
21. National Alliance on Mental Illness (NAMI) Member (2011 – 2013): CUA
22. Psi Chi Vice President (2012 – 2013): CUA
23. Emerging Leaders Program Mentor (2011): CUA
24. Varsity Women's Basketball (2009 – 2011): CUA

Professional Organizations

Student Member (2012 – present), *Association for Applied Sport Psychology (AASP)*