

EFFECTS OF MINDFULNESS-BASED STRESS REDUCTION ON FLOW STATE
AND SELF-COMPASSION DURING MUSIC PRACTICE

by

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A THESIS

Presented to the School of Music and Dance
and the Graduate School of the University of Oregon
in partial fulfillment of the requirements
for the degree of
Master of Music

September 2018

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Title: Effects of Mindfulness-Based Stress Reduction on Flow State and Self-Compassion During Music Practice

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Degree awarded September 2018

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THESIS ABSTRACT

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September 2018

Title: Effects of Mindfulness-Based Stress Reduction on Flow State and Self-Compassion During Music Practice

The purpose of this study is to determine the effect of Mindfulness-Based Stress Reduction (MBSR) on flow state and self-compassion in musicians while practicing. Specifically, the following research questions were addressed: (1) What effects, if any, will MBSR have on musicians' flow state and self-compassion during individual practice? and (2) What is the relationship between the constructs of flow and self-compassion?

A two-group pre-test/post-test experimental design was used to address these research questions. Participants ($N = 63$) included students enrolled in an ensemble at a large comprehensive university in the Pacific Northwest. Results from a repeated measure ANOVA found non-significant changes in flow and self-compassion. Additionally, analysis from a Pearson's Correlation found non-significant correlations between flow and self-compassion. Further implications from this study have the potential to aid music teachers with a better understanding of some methods and techniques to help students improve their focus and attention while playing music.

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Poster presented at the Oregon Music Educator's Conference, Eugene, Oregon.

Lavery-Thompson, T.S. (2018, May). *Effects of Mindfulness-Based Stress*

Reduction on Flow State and Self-Compassion During Music Practice.

Poster presented at the University of Oregon Graduate Student Research

Forum, Eugene, Oregon.

ACKNOWLEDGMENTS

I wish to express my sincere appreciation to my advisor and mentor Dr. Jason M. Silveira along with the remaining members of my committee Dr. Beth Wheeler and Dr. Eric Wiltshire for their support and guidance throughout this process. They have all helped me go beyond what I thought was possible and provided insights into life which I will carry with me for the rest of my life. I would also like to acknowledge my high school band director, Dave Green, and my undergraduate professor, Dr. Lloyd Roby, for their beliefs in me and my music endeavors from an early age. Over the last two years I have been fortunate enough to share a life with Brenda Garcia Millan who has encouraged me through the struggles and triumphs of life during my time in Eugene, as she has helped me become the person I am today. In addition, I would like to thank David Mason, Steve Pologe, and Luke Weiss who have all shown me the value of meditation and the importance of using my gifts to serve others. My best friend since high school, Brian Coombs along with his wife Lindsey McCarthy have both had an incredibly important impact in my life and I will be eternally grateful for the path they helped me discover. Mariah Hill was my first and closest friend at the University of Oregon and I will always be thankful for the positive influence she has in my life. Throughout the process of working on this thesis I had the pleasure of working alongside Kelsey Hollenbaugh, as we suffered and succeeded together, words cannot describe how thankful I am for her presence and friendship. Additionally, I would like to extend a deep and sincere thanks to all my friends and family, both those who are with us and those who are not, as they have supported me through thick and thin. Each one of you holds a special place in my heart. My grandmother, Marge Bower, taught me how to realize my

dreams and turn them into reality through her zest for life. I will always remember what she has taught me. With tears rolling down my cheeks, I would like to extend the deepest and most profound thanks my parents Scott Thompson and Robin Lavery along with my step-father, Dave Sheetz. Each one of them has sacrificed everything in their power to provide every opportunity in the world for me. Words will never describe how much I love them.

DEDICATION

I would like to dedicate my thesis to my grandmother JoAnne Ellen Thompson who was an educator and made the pursuit of higher education possible. I love you Nana.

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CHAPTER I

INTRODUCTION

In a variety of disciplines, a clear difference exists between those who are considered amateurs and those who are considered experts. For example, music is an activity that allows individuals to demonstrate their level of knowledge and skill in a way that can be evaluated by others. Music is a discipline that requires strong devotion to individual practice in order to acquire and develop appropriate musical skills. The acquisition of musical skills, or lack thereof, during individual practice has been observed as a predictor of performance quality in music (Duke, Simmons, & Cash, 2009).

Researchers have found that musicians who demonstrate self-regulated techniques in practice exhibit the ability to practice more efficiently (Mieder & Bugos, 2017). Self-regulation can be briefly described as a multifaceted phenomenon including, “self-monitoring, standard setting, evaluative judgment, self-appraisal, and affective self-reaction” (Bandura, 1991, p. 282). There has been an increased interest in the field of psychology that involves non-Western practices that fall within the domain of self-regulation (Walsh & Shapiro, 2006). One such example can be found in the Buddhist practices of mindfulness meditation, which incorporates the regulation of focus and attention, and is rooted in the foundation of transcendental meditation (Kabat-Zinn, 1990).

Mindfulness meditation practices have existed for centuries throughout many Eastern cultures and remain at the heart of many spiritual practices (Kabat-Zinn, 1990). One of the earliest forms of meditation that emerged in the world of Western psychology was Transcendental Meditation (TM), which utilizes silent meditation

practices that focus on mantras, distracting thoughts, and other uncomfortable emotions (Allen, Blashki, & Gullone, 2006). While connections between TM and mindfulness have been made in recent years (Tanner, Travis, Gaylord-King, Haaga, Grosswald, & Schneider, 2009), the influence of TM in the 1970s gave way to the emergence of mindfulness practices in Western psychology. Kabat-Zinn (2003) defined mindfulness as, “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (p. 145). The concept of mindfulness has been applied as a tactic to improve well-being in Western medicine. Mindfulness Based Stress Reduction (MBSR) programs first appeared in the United States in 1979 and were designed to study the effects of mindfulness on various aspects of human health (Kabat-Zinn, 2011). The use of MBSR programs has been shown to increase overall positive states of mind and decrease stress (Chang et al, 2004), to decrease anxiety (Goldin & Gross, 2010), to decrease depression (Teasdale, Segal, & Williams, 1994), and increase attention (Jha, Krompinger, & Baime, 2007). Studies such as the ones listed above have added to the body of research that support the positive use of MBSR for individuals with a wide range of psycho-physiological issues; however, it is important to consider some of the critiques within the field of MBSR research.

While research surrounding MBSR programs has shown positive impacts on a variety of health issues, this field of study is still in its infancy. Earlier studies may lack evidence based on rigorous scientific methods, and researchers have pushed for the development of more rigorous research designs (Bishop, 2002; Kabat-Zinn, 2003). Researchers conducted a meta-analysis in 2003 and found 63 empirical studies that used MBSR; however, most of these studies were eliminated due to insufficient information or

weak design, leaving only 20 studies deemed rigorous enough for inclusion (Grossman, Niemann, Schmidt, & Walach, 2004). Despite the large number of studies excluded from this meta-analysis, the results from the analysis supported the use of MBSR to help with clinical and non-clinical health problems (Grossman et al, 2004). This meta-analysis is valuable on multiple levels because it supports the positive use of MBSR and demonstrates a need for further empirical research with high levels of rigor and consistency. A more recent meta-analysis examining the effects of MBSR on healthy individuals also provides valuable information regarding the use of MBSR (Khoury, Sharma, Rush, & Fournier, 2015). Results showed that MBSR had large effects on stress, and moderate effects on anxiety, depression, distress, and quality of life. The information from both of these meta-analyses point towards positive effects of MBSR while also signaling a need for more research.

Another construct falling within the domain of self-regulation is Flow Theory or flow. Flow is a term used to describe optimal functioning and is an area of psychology that has seen a rise in interest beginning in the 1970s. Flow is defined as, “the subjective state in which people are so involved in an activity that nothing else seems to matter; the experience itself is so enjoyable that people will do it even at great costs, for the sheer sake of doing it” (Csikszentmihalyi, 1990 p. 4). To experience flow, one must be able to focus attention on a task or goal and be in a mental state that does not display anxiety or depression. The ability to focus attention on a task or goal does not simply happen; rather, a series of prior motivational needs must be met in order for this to happen. Mihaly Csikszentmihalyi began to investigate the activities that elicited happiness and enjoyment in people using Abraham H. Maslow’s hierarchy of needs as a foundational

element for flow (Csikszentmihalyi, 1990). Maslow categorized this hierarchy of needs listing five factors as being determinants of motivation: (1) physiological needs; (2) safety; (3) love; (4) esteem; and (5) self-actualization (Maslow, 1943). This hierarchy relies on the satisfaction of needs, beginning with physiological, in order to complete higher-level needs including safety, social, esteem, and ending with self-actualization.

Taking this hierarchy of needs into account, the study of optimal experiences and flow relates to self-actualization. The term self-actualization refers to self-fulfillment and the desire for people to become everything they are capable of becoming (Maslow, 1943). When the physiological, safety needs, love, and esteem needs have been met, motivation to complete higher-level goals such as self-actualization move into the foreground of thought. Applying this concept of self-actualization to Flow Theory, Csikszentmihalyi's framework for obtaining flow state also relies on the completion of low-levels needs. Flow occurs when balance is found between the task at hand and the ability to achieve the task, which is a result of a person's ability being well matched with the difficulty of the task (Csikszentmihalyi, 1978). Both flow and self-actualization are only possible when all basic demands in life have been met, and both represent a state of being that is an end, not a means.

Esteem and more specifically self-esteem are important constructs to understand when considering the requirements needed to achieve self-actualization and flow. The Merriam-Webster Dictionary Online (2018) defines esteem as, "the regard in which one is held; especially: high regard." According to Maslow (1943), people in society generally possess a need for a, "stable, firmly based, (usually) high evaluation of themselves, for respect, or self-esteem, and for the esteem of others" (p. 381). More

specifically, self-esteem is regarded as the measurement of personal attitudes or evaluations of the self which demonstrates the overall affective evaluation of one's own worth, value, or importance (Blascovich & Tomaka, 1991). The role of high self-esteem requires that one views themselves in a higher regard when compared to others. While high self-esteem has been categorized as a prerequisite for flow, one must not display judgments comparing the self with others or comparing the self against a set "standard" (Csikszentmihalyi, 1990). Essentially, self-esteem is needed to achieve flow, but it is not present once one is engaged in flow according to Csikszentmihalyi. Despite the claim that high self-esteem is needed for flow, scholars have begun to criticize self-esteem as a measurement of well-being which raises further questions about promoting high self-esteem to achieve flow.

In recent years, self-compassion – another Eastern-based concept – has surfaced within Western psychology to facilitate the perceived shortcoming of self-esteem. Despite the use of high self-esteem to relate to a positive well-being, there is evidence to argue that high self-esteem can be met with many negative side effects for individuals. Self-compassion avoids positive or negative self-judgments, narcissism, violence, and self-centeredness, which have been associated with self-esteem (Neff, 2003b). Addressing these concerns has led to a more recent understanding of how individuals view themselves in the world through the construct of self-compassion. Neff (2003b) defined the components of self-compassion thusly:

When faced with experiences of suffering or personal failure, self-compassion entails three main components: (a) self-kindness—extending kindness and understanding toward oneself in instances of pain or failure rather than harsh

judgment and self-criticism, (b) common humanity—seeing one’s experiences as part of the larger human experience rather than seeing them as separating and isolating, and (c) mindfulness—holding painful thoughts and feelings in balanced awareness rather than over-identifying with them. (p. 89)

Based on the theoretical components of self-compassion, Neff (2003b) also points out that raising self-compassion should be easier and more effective than self-esteem. Taking into account Neff’s argument against self-esteem and considering the use of self-compassion in its place, it seems likely that there are areas within psychology that can use self-compassion instead of self-esteem as a more effective way to measure well-being. It is possible that by promoting or raising one’s self-esteem to achieve flow, negative effects such as harsh judgement, self-criticism, isolation, and overidentification may become more problematic than beneficial. The aforementioned effects of promoting high self-esteem makes it worthwhile and provides reason to examine self-compassion and flow, allowing for a more thorough understanding of the possible relationship between the two. Incorporating self-compassion into flow has the potential to provide a more accurate way to measure well-being for those in flow and allow for a more beneficial way to help others achieve flow state.

While little research has been conducted with flow state and self-compassion, recent studies support a relationship between mindfulness treatments and self-compassion. Mindfulness is a key component to self-compassion, and studies examining self-compassion have used MBSR interventions showing positive correlations between MBSR meditations and self-compassion (Birnie, Speca, & Carlson, 2010). The use of MBSR in self-compassion illustrates the importance of mindfulness as a key component

of self-compassion. Mindfulness and MBSR practices have also supported positive results in regard to flow with recent studies supporting positive relationships between meditation and flow performance (Aherne, Moran, & Lonsdale, 2011; Diaz, 2011). While research supports these connections between mindfulness and flow, the definition of flow itself revolves around the importance of being in the present moment and highlights the importance of mindful awareness in flow. Given the role of mindful awareness in those who demonstrate higher degrees of both self-compassion and flow, it seems reasonable to infer a possible relationship between the two constructs. With the positive benefits associated with MBSR meditation, it seems plausible that it may lead to an increase of focus and attention, leading to increased self-compassion and flow for individuals in a variety of contexts, including music practice. This mindfulness meditation technique may have the potential to result in better self-regulation techniques for musicians.

While research has been conducted on mindfulness-based meditation, flow state, and self-compassion in isolation, there is a lack of research examining the relationship among them. Therefore, the purpose of this study will be to determine the effect of MBSR-based treatment on flow state and self-compassion in musicians during a practice session. Specifically, the following research questions will be addressed:

1. What effect, if any, will MBSR have on musicians' flow state during individual practice?
2. What effect, if any, will MBSR have on musicians' self-compassion during individual practice?
3. What is the relationship between the constructs of flow and self-compassion?

CHAPTER II

REVIEW OF LITERATURE

This chapter describes literature relevant to research conducted in the fields of social cognitive theory, self-regulation, mediation, mindfulness-based stress reduction, flow theory, and self-compassion. It is organized in nine sections: (1) social cognitive theory (2) self-regulation, (3) self-efficacy and self-regulation, (4) underregulation and misregulation, (5) meditation in general, (6) benefits and criticism of meditation and mindfulness-based stress reduction, (7) flow, (8) self-compassion, and (9) purpose statement.

Within certain activities there is often times a delineation between those who demonstrate extraordinary abilities and those who demonstrate below average abilities. Among those who are experts, it is presumed that high achievement is a result of the ability to effectively practice (Cleary & Zimmerman, 2001; Ericsson, Kramp, & Tesch-Römer, 1993; McGaghie, Issenberg, Cohen, Barsuk, & Wayne, 2011). While empirical research has shown to support the role of deliberate practice in the acquisition of skill (Ericsson, Kramp, & Tesch-Römer, 1993), it is apparent that further investigation is needed to understand more about deliberate practice and the motivators that separate those who have the capacity to practice deliberately as opposed to those who do not. Through the study of behavior, motivation, and psychological functioning, a better understanding of deliberate practice can be obtained and applied across a variety of disciplines.

Social Cognitive Theory

Human behavior and the mental processes that guide behavior continue to be at

the center of academic pursuit within Western psychology. The failure to address the integrated relationship between internal and external factors on behavior led to the development of the social cognitive theory (Bandura, 1986). A social cognitive theory (SCT) approach to behavior relies on the understanding that behavior, personal beliefs, and environmental factors relate within a process of triadic reciprocal determinism based on the “mutual action between causal factors” (Bandura, 1986, p. 23). To gain a more thorough understanding of this reciprocal triadic process, a brief review is needed.

Reciprocal causation between behavior and personal factors provides a logical starting point in discussing this triadic relationship. An understanding that thoughts, beliefs, and feelings influence behavior supports the interaction between behavior and personal factors (Bandura, 1989). Self-observation, self-judgment, and self-reaction have been identified as subsystems of behavior (Bandura, 1986, 1989). Bandura points to the importance of these subsystems within behavior because they provide ways for the self to reflect on actions, which in turn influences future personal beliefs and thoughts. Self-efficacy is the personal belief one has about their abilities and is a central construct in the relationship between behavioral, environmental, and personal factors (Bandura, 1977a, 1986, 1989; Zimmerman, 1989). Simply, if one holds certain beliefs about themselves they will exhibit dispositions to behave in a way that reflects those beliefs. Personal factors, such as physical characteristics, will also influence behavior because aspects of human physiology limit what one can or cannot demonstrate through behavior (Bandura, 1989). Looking at the subsystems of behavior (self-observation, self-judgment, and self-reaction) and the main component of personal factors (self-efficacy and physical characteristics), the relationship between behavior and personal factors can be better

understood.

Moving to another relationship in the triadic process, the interaction between behavior and environmental elements must be discussed. Physical and social structures both function as subsystems of one's environment within SCT (Bandura, 1989). Viewing the physical and social structures of our surroundings provide a better way to understand how behavior and environment interact. Bandura (1989) suggests that the specific relationship between behavior and the environment within the SCT is a two-way influence. To illustrate this, Bandura (1989) uses an example in which he claims that children who demonstrate aggressive behavior will evoke different reactions from their peers as opposed to those who are passive or unassertive. This difference in affective reaction from peers illustrates how differences in behavior can cause differences in social environments. Augmenting this connection Bandura (1989) states, "In the transactions of everyday life, behavior alters environmental conditions and is, in turn, altered by the very conditions it creates" (p. 4). Another example can be drawn from academic learning. If a student is aware that loud and crowded spaces will not promote productive study behaviors, that student may choose to structure their physical environment to avoid people and noises (Zimmerman, 1989). These examples illustrate how self-observation, self-judgement, and self-reaction to one's behavior can interact and influence the physical and social environments, while at the same time, these subsystems of the environment inform and influence the subsystems of behavior.

The last relationship in the SCT to be considered is the exchange between personal and environmental factors. Consideration of the social subsystem of the environment is important because of the influence it has over aspects of the self,

including human expectations and beliefs (Bandura, 1986). Self-efficacy and the overall beliefs one has about themselves can manifest through forethought and the ability to anticipate future consequences based on past events, which can, in time, alter physical and social environments (Bandura, 1986). Turning back to Bandura's (1989) example of an aggressive child who elicits different reactions from peers than those who are passive provides one way to illustrate this process. The aggressive child may observe the reactions of others within social environments in ways that ultimately reinforce aggressive personal beliefs or conversely, this child may alter their personal beliefs that reflect less aggression in the future. This point highlights how self-observation, self-judgment, and self-reaction can be based on socially influenced environmental feedback, which in turn influences personal beliefs. The use of physical modeling in learning is an example of how the physical environment can affect beliefs and thoughts (Schunk, Hanson & Cox, 1987; Zimmerman, 1989). In a study investigating the effects of peer modeling on the self-efficacy of children struggling with academic learning in mathematics, alterations in observed physical modeling influenced self-efficacy (Schunk, Hanson & Cox, 1987). Schunk, Hanson, and Cox (1987) compared the effects of peer models that demonstrated either gradual acquisition (coping) or a mastery approach to fractional skills. Results indicated that children who observed the gradual acquisition model had higher reports of self-efficacy, skill, and training performance as opposed to those who observed mastery models (Schunk, Hanson, & Cox, 1987). These results indicate that by altering the environment through physical modeling in ways that are more relatable to the observer, improvements in skill and personal beliefs can be made. The subsystems of personal beliefs and environmental factors help explain how a

reciprocal relationship exist between these two elements. These examples encompass Bandura's model of SCT which relies on reciprocal determinism describing the interdependency between behavior, personal beliefs, and the environment.

Self-Regulation

Bandura's (1986) description of SCT also addresses the role of self-regulation as an important aspect of human behavior. Self-regulatory systems "not only mediate the effects of most external influences, but provide the very basis for purposeful action" (Bandura, 1991, p. 248). An SCT approach to self-regulation recognizes that thoughts and behaviors are not just regulated by external influences, because self-reflective and self-reactive characteristics provide a way for humans to exert control of thoughts, feelings, motivations, and actions (Bandura, 1991). Given the multifaceted aspects of self-regulation, it is important to understand how the self-regulative mechanism functions within a particular field of study. To narrow the scope of this focus, Zimmerman (1989) addressed a social cognitive view of self-regulated academic learning. Zimmerman provided an understanding about how a self-regulated learner behaves based on the reciprocal triadic determinism between personal beliefs, behavior, and the environment outlined in SCT. Self-regulation can be examined in terms of learning and achievement. One who is able to initiate and direct their energy to gaining both knowledge and skill without the aid of a teacher or other societal agents is one who demonstrates self-regulated behaviors (Zimmerman, 1989). The ability to self-regulate during the learning process has also been used as a way to examine the determinants within people and their environment as a way to better understand why some people are more successful than others in different areas such as sports (Cleary & Zimmerman, 2001) and in music

(Miksza, 2012).

Self-regulation processes have been studied within a variety of contexts providing clues as to how control and communication function during these regulated mental events. As a way to exert control over thoughts, feelings, motivations, and actions people exhibit self-reflective and self-reactive characteristics (Bandura, 1991). Stemming from the self-reactive aspect of SCT, Bandura (1991) points to three sub functions that direct self-regulation through self-reaction: (1) monitoring one's behavior, (2) judgment of one's behavior in relation to internal and/or external standards, and (3) affective self-reaction. These three sub functions help outline the self-regulatory system and provide a framework that supports the beliefs one has about their ability to function on a given task or event (Bandura, 1991). The beliefs one has about themselves regarding their ability to complete a given task is a concept that can resonate with most people and has produced a line of research studying how one perceives their abilities – namely, self-efficacy.

Self-Efficacy and Self-Regulation

In the framework of self-regulation, the theoretical importance of self-efficacy being a predictor of performance as Bandura describes has been tested and applied within the field of psychology. In academic learning, self-efficacy has been positively related to performance (Multon, Brown, & Lent, 1991; Pintrich & De Groot, 1990; Zajacova, Lynch, & Espenshade, 2005). A meta-analysis on self-efficacy, performance, and persistence supplied evidence to support the predictive nature of self-efficacy for performance outcomes (Multon, Brown, & Lent, 1991). This evidence was based on analyses of 39 studies that included measures of self-efficacy and academic performance along with 18 sample studies used to examine self-efficacy and persistence. Specific

results point to a 14% variance in academic performance and a 12% difference in academic persistence; both based on self-efficacy beliefs (Multon, Brown, & Lent, 1991). Results from analyses such as Multon, Brown, and Lent (1991) support the theoretical importance of self-efficacy as described by Bandura (1977a, 1989) and additional research involving self-efficacy and academic learning provides a better understanding of this relationship.

For example, in middle school students, researchers have shown that self-efficacy is positively related to academic performance and self-regulation with regard to reports of metacognitive strategies and persistence during difficult or uninteresting tasks (Pintrich & De Groot, 1990). Pintrich and De Groot (1990) also provide support for a negative correlation between measures of test anxiety and self-efficacy. Comparing self-efficacy and stress as predictors of performance, self-efficacy was a better predictor of accumulation of college credit and higher GPA than stress in college-aged students (Zajacova, Lynch, & Espenshade, 2005). The emphasis of self-efficacy as opposed to stress as a predictor of academic success highlights a need for a positive self-image in order to become more successful. The broad nature of studies involving the evaluation of academic performance has promoted more discipline-specific research. Given the positive relationship between academic performance success and self-efficacy, music researchers have examined the relationship between self-efficacy and music performance. McPherson & McCormick (2006) used self-reports of personal beliefs from musicians aged nine to 19 to investigate the role of self-efficacy as predictors of performance. The Australian Music Examinations Board was used as their performance evaluation and students reported their personal beliefs on a survey prior to this performance. Results

from this study indicated that high self-efficacy beliefs were the best predictors of performance, which provides further evidence that self-efficacy and performance are indeed related.

The body of research involving the role of self-efficacy and performance has led scholars to identify deeper connections within the self-regulatory system. These claims are supported by a responsive interaction between those with higher reports of self-efficacy and self-regulated behaviors such as goal setting, self-monitoring, self-evaluation, and strategy use (Cervone, Mor, Orom, Shadel, & Scott, 2011; Zimmerman, 2000). In studies that have examined self-regulation and music practice, evidence further supports the positive relationship between self-efficacy beliefs and self-regulated practice habits (Miksza, 2012; Miksza, Prichard, & Sorbo, 2012; Nielsen, 2004). Research has provided a way to study how personal beliefs in ourselves may affect how we regulate our energy in order to accomplish a task; however, self-efficacy alone does not connect self-regulated behaviors to performance (McPherson & McCormick, 2006).

Self-regulation processes have been examined within a variety of contexts providing clues as to how control and communication function during regulated mental events. The theory supporting the reciprocal relationship between personal, environmental, and behavioral elements described by Bandura (1986) remains important because it continues to help researchers understand a wide range of human behavior. This theory has been especially beneficial when considering the behaviors displayed by musicians during individual practice. While studies have documented relationships between self-efficacy and self-regulation in terms of music practice, additional studies in music education show that improved self-regulation skills and practice habits are also

predictors of performance achievement (Mieder & Bugos, 2017). Further, instruction in self-regulation increased levels of music performance (Miksza, 2015). Miksza (2015) evaluated the instruction in self-regulation (concentration, goal setting, planning, rest/reflective activities) compared to instruction in practice strategies (slowing, repetition, whole-part-whole, chaining) in order to compare the effects of different types of instruction on performance. Results indicated that while both groups saw an increase in performance, the group who received self-regulation instruction made significantly greater gains in performance. This result supports the application of self-regulation in terms of increasing performance achievement.

Within the field of music, researchers have provided reasons to connect self-efficacy, self-regulation, and performance. In addressing the issues of quantity of practice time versus the quality of practice time, researchers have suggested that the quality of practice is more influential than the amount of time spent practicing regarding performance quality (Bonneville-Roussy & Bouffard, 2014; Duke, Ericsson, Kramp, & Tesch-Römer, 1993; Simmons & Cash, 2009). The evidence provided in both these studies supports the importance of utilizing self-regulated techniques during musical practice in the acquisition of improved performance skill. Taking into account the role of high self-efficacy as predictors of performance (McPherson & McCormick, 2006) and the role of self-regulation in practice as indicators of improved performance (Bonneville-Roussy & Bouffard, 2014; Duke, Simmons, & Cash, 2009), findings in the literature positively connect self-efficacy, self-regulation, and performance.

Underregulation and Misregulation

Self-regulation and the associations linked to positive performance outcomes

must be viewed as only one aspect within a larger process. When control over the self is lost or when control functions in a way that does not create a desired outcome, *underregulation* and *misregulation* are respectively described (Sayette & Griffin, 2011). Elaborating on loss of self-control, underregulation is understood as failing to self-monitor, resulting in a lack of clear, stable, and consistent standards (Baumeister & Heatherton, 1996). Misregulation, therefore, functions as a result of incorrect assumptions about the self and the world, which Baumeister and Heatherton (1996) attribute to two causes: (1) People experiencing misregulation are trying to control things that simply cannot be controlled by them, or (2) a priority is given to certain emotions while ignoring important and/or fundamental problems. Self-regulation failure is a way to understand what happens in individuals when behaviors or performances do not meet the desired or acceptable outcomes. A better understanding regarding the roles of self-regulation and self-regulation failure, especially in terms of performance outcomes, allows for the importance of the regulatory system to emerge.

The importance of the regulation process in human performance is evident within the research presented, however, it does not address the question of how someone can develop these self-regulation skills. One facet of self-regulation is self-control. Muraven and Baumeister (2000) found that self-control acts as a limited resource and that implementing self-control in one event may decrease self-control in another event. For example, coping with stress is one-way levels of self-control can be depleted. These depletions have been related to not being able to control one's diet or addictive habits such as smoking (Muraven & Baumeister, 2000). Findings from Muraven and Baumeister (2000) seem to support the negative effects of stress on self-efficacy found in

previous studies based on the regulation of attention (Pintrich & De Groot, 1990; Zajacova, Lynch, & Espenshade, 2005). Given that self-control is a limited resource and can be depleted, it seems plausible to adapt the position that self-control can also be strengthened (Muraven & Baumeister, 2000). Recently, researchers have studied the effects of meditation on ways to strengthen the regulation of attention and control. Meditative practices have been found to improve the regulation of attention and control of stress, which alludes to meditation as being a part of regulation (Tang et al., 2007). The empirical study of meditation practices in Western psychology continues to grow as a discipline; however, to better understand how meditation and self-regulation interact, further discussion into meditation is needed.

Meditation

Throughout history, meditative practices have been used in different cultures around the world in a variety of contexts, and in many cases, have been at the heart of spiritual practices (Kabat-Zinn, 1990). In recent years however, meditation has become a point of interest in Western society. To better understand meditation in terms of Western psychology, insight into the definition of meditation provides an understanding of how meditation functions with the self-regulatory mechanisms.

The empirical pursuit of meditation in Western psychology has required scholars to create an operational definition of meditation. Walsh and Shapiro (2006) provide the following definition:

The term meditation refers to a family of self-regulation practices that focus on training attention and awareness in order to bring mental processes under greater

voluntary control and thereby foster general mental well-being and development and/or specific capacities such as calm, clarity, and concentration. (p. 229)

Within this definition, the function of meditation is part of the self-regulation process. Understanding the definition is an important factor when looking at how meditation functions within self-regulation, which has been broken down into two categories: (1) focused attention (FA) and (2) open monitoring (OM) (Lutz, Slagter, Dunne, & Davidson, 2008; Walsh & Shapiro, 2006). Lutz et al. (2008) suggest that FA meditation relies on sustaining attention on a chosen object – such as the breath or mantra – which requires the meditator to continually monitor attention. Transcendental Meditation (TM) practices are based on a mantra or inner sound and is an example of FA meditation practice because its concentrative nature on a particular object (Walsh & Shapiro, 2006). The use of mindfulness meditation is an example used to describe OM because of an emphasis placed on insight and internal observation without any single external focus (Lutz et al, 2008; Walsh and Shapiro, 2006).

Regarding Walsh and Shapiro's (2006) definition of meditation, further discussion is needed to connect meditation practices and self-regulation, in order to understand how the two constructs interact. Three skills developed through FA meditation have been attributed to self-regulation: (1) monitoring distractions and intended focus, (2) disengagement from distracting objects, and (3) the ability to redirect focus (Lutz et al, 2008). Lutz et al. (2008) describe a central aim of OM meditation is to increase clear reflective awareness and monitoring of the mind. The descriptions of OM and FA provide evidence connecting meditation and self-regulation based on the sub functions of self-regulation, namely: monitoring, judgment and affective self-reaction

(Bandura, 1986; Bandura, 1991). Within a social cognitive view of self-regulation, the triadic reciprocal determinism provides an argument that by strengthening self-awareness and monitoring, other aspects of the reciprocal triadic model including personal beliefs, behavior and environment will be positively affected. Looking at the two classifications of meditation discussed (OM and FA) provides clarity as to how meditation and self-regulation relate. While FA and OM offer a broad view of the different types of meditation, focusing on OM practices will provide a more directed purpose for this study.

Mindfulness (mindfulness meditation), which originated from meditative practices, is an area of psychology that has gained considerable attention in recent decades. Mindfulness is a way to increase awareness and respond skillfully to mental processes that contribute to emotional distress and maladaptive behavior, and it has been defined as having two components. Bishop et al. (2004) described the following as components of mindfulness:

The first component involves the self-regulation of attention so that it is maintained on immediate experience, thereby allowing for increased recognition of mental events in the present moment. The second component involves adopting a particular orientation toward one's experiences in the present moment, an orientation that is characterized by curiosity, openness, and acceptance. (p. 232)

More recently meditation practices including Mindfulness-Based Stress Reduction (MBSR) have been met with positive results in Western medicine (Birnie, Speca, & Carlson, 2010; Carmody & Baer, 2007; Chang et al, 2004; Grossman, Niemann, Schmidt, & Walach, 2004). MBSR has been defined as a systematic training in mindfulness meditation as a self-regulation approach to stress reduction and emotion management

(Bishop, 2002). This meditation program is a scaffolding for the development and study of mindfulness techniques on humans, which began in the early 1980s at the University of Massachusetts and was designed as an eight-week outpatient program (Kabat-Zinn, 1990). Since the introduction of eight-week MBSR programs, there have been a number of studies that support the use of meditation to improve a variety of health issues including depression, anxiety, and well-being (Carmody & Baer, 2007; Goldin & Gross, 2010; Hofmann, Sawyer, Witt, & Oh, 2010; Shapiro, Oman, Thoresen, Plante, & Flinders, 2008; Shapiro, Schwartz, & Bonner 1998). In order to better understand the role of mindfulness meditation, a closer examination of research regarding the outcomes of these practices is necessary.

Benefits and Criticism of Meditation and Mindfulness-Based Stress Reduction

Due to the growing body of literature surrounding meditation and MBSR it is essential to consider the results in terms of human health and well-being. Studies addressing the effectiveness of MBSR provided reasons that supported positive associations with improved well-being while decreasing negative associations such as depression and anxiety (Carmody & Baer, 2007; Goldin & Gross, 2010; Hofmann, Sawyer, Witt, & Oh, 2010; Shapiro, Oman, Thoresen, Plante, & Flinders, 2008; Shapiro, Schwartz, & Bonner 1998). In all of the listed studies, the use of the standard eight-week intervention design outlined by Kabat-Zinn (1990) was used, and provided results supporting the positive effects of MBSR treatment. While quantitative results support the positive outcomes of MBSR (Carmody & Baer, 2007; Hofmann, Sawyer, Witt, & Oh, 2010; Shapiro, Schwartz, & Bonner 1998), Goldin and Gross (2010) provided support based on findings taken from behavioral and neurological measures. Pre- and post-MBSR

self-reported changes were recorded for the behavioral measures with results showing reductions in negative emotion when using breath-focused attention. Using MRI brain scans pre- and post-MBSR intervention (eight-weeks), Goldin and Gross (2010) describe, “robust MBSR-related changes associated with breath-focused attention regulation in visual attention-related parietal and occipital brain regions” (p. 88). While this study did not use a control group design, the relationship between heightened brain activity and mindfulness treatment point to the positive effects of MBSR interventions on brain functions.

Carmody and Baer (2007) raise questions regarding time spent meditating privately. They addressed the effectiveness of MSBR on measures of mindfulness, the relationship between at-home practice and mindfulness scores, and how levels of mindfulness interacted with private mindfulness practice and measures of psychological functioning. To address their questions, 174 participants who were already enrolled in an eight-week course at the University of Massachusetts Medical School MBSR program consented to taking pre- and post-test questionnaires addressing levels of mindfulness, at-home practice, psychological symptoms, medical symptoms, perceived stress, and psychological well-being. Participants for this study included adults with a wide range of health problems including illness-related stress, chronic pain, anxiety, and personal and employment-related stress. Results from this study showed significant increases in psychological well-being and significant reductions in perceived stress, medical symptoms and psychological symptoms. These results demonstrated a significant correlation between the amount of time spent practicing formal mediation at home and changes in mindfulness, several measures of symptoms, and well-being (Carmody &

Baer, 2007). Inferences from these results provide reasons to consider the element of time or duration for meditating an important consideration for the effectiveness of MBSR.

Studies with control group settings have proven to be essential in the understanding of how mindfulness cultivation compares with non-mindfulness training. Meta-analyses analyzing the effects of MBSR-interventions using control groups have supported the overall positive benefits of MBSR (Chiesa & Serretti, 2009; Grossman et al, 2004; de Vibe, Bjørndal, Fattah, Dyrdal, Halland, & Tanner-Smith, 2017). Grossman et al. (2004) performed a comprehensive meta-analysis of both published and unpublished health-related studies where MBSR interventions were used. In total, 20 studies (which included clinical and non-clinical participants) were used in their meta-analysis. Grossman's (2004) analysis supported the use of MBSR to aid people in both physical and mental well-being. Another meta-analysis specifically examined the effects of MBSR in healthy people, with results also supporting the use of MBSR to reduce levels of stress in healthy individuals (Chiesa & Serretti, 2009). Along with addressing stress, results from this study also indicated rumination, empathy, self-compassion, and state anxiety as being psychological changes related to MBSR. Evidence from Chiesa and Serretti's (2009) meta-analysis supports the use of MBSR for stress reduction; however, it is important to note that only 10 studies were used in this analysis.

The issue of a relatively low number of MBSR studies within empirical research and weak experimental design has raised additional concerns among scholars. In both the Grossman et al. (2004) and Chiesa and Serretti (2009) meta-analyses the major consideration cautioning against positive support for MBSR treatment is rooted in the small sample sizes. In both of these meta-analyses, many studies were excluded due to a

lack of control group and/or overall weak research designs. Based on the exclusions of numerous MBSR studies, the meta-analyses listed above support the use of more rigorous studies that implement control group settings along with MBSR interventions.

Additionally, Bishop (2002) cites weak design and lack of control groups as factors that discredit strong support for MBSR treatments.

Taking into account the limitations of weak designs and lack of control groups in studies investigating MBSR, it is important to consider research that has addressed some of these concerns. Researchers using control group designs have found that meditators performed significantly higher on measures of attention versus non-meditators (Moore & Malinowski, 2009), evidenced reduction in stress, depression, and anxiety (Shapiro, Oman, Thoresen, Plante, & Flinders, 2008; Shapiro, Schwartz, & Bonner, 1998) and demonstrated alterations in brain and immune function (Davidson et al., 2003).

Researchers using control group designs examining attention, well-being, stress, depression, and anxiety (Shapiro, Schwartz, & Bonner, 1998; Shapiro, Oman, Thoresen, Plante, & Flinders, 2008; Moore & Malinowski, 2009) have documented similar results as those researchers whose studies did not utilize control groups (Carmody & Baer, 2007; Goldin & Gross, 2010; Hofmann, Sawyer, Witt, & Oh, 2010). The emphasis of research design and control group comparisons places a heightened emphasis on methodology along with depicting a need to include similar control methods in future studies.

While the largest body of empirical literature on MBSR treatment programs focuses on the traditional eight-week treatment as designed by Kabat-Zinn (1990), recent evidence raises questions about the duration for treatment. A meta-analysis examining 101 MBSR studies provides evidence supporting the positive benefits of MBSR

treatment (de Vibe et al., 2017). Results from this analysis found that overall MBSR had small, but significant increase in mental and physical well-being as compared to control groups. This analysis provides valuable insight because of the larger number of studies and the significant changes between experimental and control groups. The de Vibe et al. (2017) analysis included studies that used MBSR interventions that varied in duration, while still representing the characteristics of MBSR programs including body-scan exercises, mental exercises focusing attention to one's breath, physical exercises focusing on bodily sensations, and practicing being fully aware during daily activities. The inclusion of shorter MBSR interventions is an important aspect of this meta-analysis because it provides evidence that may support the use of short mindfulness exercises that could be practical in a variety of settings, including the classroom.

Carmody and Baer (2009) support the effective use of MBSR over shorter treatment periods to improve aspects of psychological health. Addressing the question regarding effects of MBSR duration on psychological outcomes, Carmody and Baer (2009) analyzed 30 studies with weekly intervention lengths ranging from one hour to 2.5 hours. Results from this analysis provided no evidence that shorter versions of MBSR interventions were less effective than longer MBSR programs for reducing psychological distress. The results from Carmody and Baer (2009) provide evidence supporting the effectiveness of shorter durations of mindfulness interventions. Their results suggest that even brief mindfulness meditation practices can have positive benefits on mental states, which has the potential to provide more practical applications of MBSR as a treatment for those who cannot complete an eight-week program. However, Carmody and Baer (2007) found that practicing mindfulness exercises during an 8-week MBSR program was

significantly related to improvements in mindfulness and well-being. These two studies have sparked questions surrounding the duration of MBSR treatments and provide implications for future research.

Effects of short MBSR treatments have also been studied in the context of listening to music in regard to focus and attention. The use of a 15-minute MBSR audio guide was shown to increase attention during music listening from pre-test to post-test (Diaz, 2011). While results from this study indicated that a 15-minute MBSR treatment increased perceived focus and attention during music listening, these improvements were not significant when compared to the control group. Results from Diaz (2011) provide some support for shortened mindfulness interventions; however, the non-significant relationship between groups raises additional questions about the duration of treatment. It is also possible that results from Diaz (2011) indicate that MBSR may not actually be effective in enhancing focus and attention, regardless of duration of treatment. While studies support effective use of shorter MBSR treatments (Carmody & Baer, 2009; Diaz, 2011), Kabat-Zinn (2003) cites that to be truly mindful of the present moment is not the result of a brief encounter, but through sustained practice and dedication. Despite the potential effective use of shorter MBSR interventions (Carmody & Baer, 2009; Diaz, 2011), questions regarding the length of time for a mindfulness treatment has become a topic for debate. Future studies examining shorter MBSR treatments would help address this gap and possibly aid educators in developing strategies for implementing mindfulness into a classroom setting.

Flow State

Following the pursuit of happiness and questioning what experiences provoke

optimal enjoyment, Mihaly Csikszentmihalyi began to develop a way in which happiness and optimal experiences could be analyzed empirically. Flow Theory, or flow, is a psychological construct used by Csikszentmihalyi to describe the experiences in life that people found to elicit enjoyment and satisfaction (Csikszentmihalyi, 1990).

Csikszentmihalyi determined a series of prerequisites that lead individuals to these conditions for flow using the foundation of Maslow's (1943) hierarchy of needs (Csikszentmihalyi, 1990). Maslow's categorization of needs is listed in the following order: physiological needs, safety, social, esteem, and self-actualization (Maslow, 1943). The work presented by Maslow suggests that a hierarchy of needs dictates where humans direct their attention. When the physiological and safety needs for survival have been met, motivation to complete higher-level goals such as love, esteem, and self-actualization move into the foreground of thought by dictating where one's attention is directed. The hierarchical structure of motivation described by Maslow is a component of the basic understanding of entering flow state; until the low-level physiological and safety needs have been met, one will not be able to direct their attention to activities that elicit flow (Csikszentmihalyi, 1990). Once the elements depicted by Maslow (1943) have been met flow can be achieved; however, specific conditions and dimensions have been found to foster flow engagement following the satisfaction of Maslow's hierarchy of needs.

Conditions that elicit flow include situations where skills and challenges are in balance, clear goals are set, and immediate feedback about the progress is happening (Csikszentmihalyi, 1990). Csikszentmihalyi (1990) categorized nine dimensions commonly found in those who reported being in flow: (1) challenge-skill balance, (2)

merging of action and awareness, (3) clear goals, (4) unambiguous feedback, (5) concentration on the task at hand, (6) paradox of control, (7) loss of self-consciousness, (8) transformation of time, and (9) autotelic experience. The conditions for flow listed by Csikszentmihalyi provide a starting point for understanding the fundamental elements of this construct and how it is experienced by humans.

Researchers originally examined flow by studying optimal human experiences and self-actualization. Self-actualization is defined as a desire for people to become everything they are capable of becoming (Maslow, 1943) Examples can be found in research addressing specific activities and the inner feelings of people including rock climbers, surgeons, dancers, chess players, and basketball players (Csikszentmihalyi, 1975). Csikszentmihalyi (1975) determined that optimal experiences were the result of an intense concentration of attention on a narrow stimulus. This intense concentration emerges from a balance of challenge and skill in activities that are autotelic, meaning those which are self-purposed. Csikszentmihalyi (1975) found that autotelic activities reward participants with flow experiences – that is when challenges and skills are in balance. Studying autotelic activities, which have little or no extrinsic rewards (e.g., money or power), provides an ideal setting in which flow can be examined, as these activities are done simply for the sake of doing them. While Csikszentmihalyi used this investigation to help highlight the role of attention, concentration, and environment, these reports were only depicted by people in preselected activities that elicit flow and were labeled as autotelic.

Csikszentmihalyi developed the Experience Sampling Method (ESM) to measure how people feel in relation to what they are doing in everyday experiences. The purpose

of the ESM was to capture what people do and how they feel throughout the day. To accomplish this, electronic pagers were used to signal participants according to a randomized schedule set by the researcher. The signal from the pager served as a cue for the participants to complete the self-reported questionnaire that asked them to describe their experiences in that moment (Larson & Csikszentmihalyi, 2014). Using this method, the ESM measured the following variables: (a) frequency and patterns of daily activity, social interaction, and changes in location; (b) frequency, intensity, and patterning of psychological states; and (c) frequency and patterning of thought (Csikszentmihalyi & Larson, 2014). Implication of studies involving the ESM provided an empirical way to analyze human behavior and how the participants interacted with their environment.

The ESM provided a way to study flow in everyday human experiences. Much of human life and activity can be broken down into two categories; work and leisure. Based on findings from Csikszentmihalyi (1975) which focused on flow during autotelic and leisure activities, early research using the ESM supported a balance of skill and challenges to elicit flow. In a study examining adolescents daily life, results from the ESM found that active leisure events such as sports and games provided more flow experiences than passive leisure activities such as watching television (Csikszentmihalyi, 1977). This emphasis on sports and games for flow supports Csikszentmihalyi (1975) in part because they provide an environment where skills and challenges can operate in balance with one another.

Researchers have used the ESM to investigate work and leisure activities providing evidence supporting the concept that flow is a product of balancing challenges and skills (Csikszentmihalyi & Kubey, 1981; Csikszentmihalyi & LeFevre, 1989). In a

systematic study of television watching and other activities, Csikszentmihalyi and Kubey (1981) employed the ESM to examine the daily experiences of 104 working adults over the course of one week. Results from this study indicated that television watching elicited the lowest levels of challenge and skill. This finding is in contrast to other activities such as work activities (not including break, lunch, or socializing) and public leisure activities (including eating out, parties, sports, and games) which both reported the highest levels of challenge, skill, and concentration. Results from Csikszentmihalyi and Kubey (1981) provided evidence that support active participation, as opposed to passive, as a leading factor for flow and overall positive experiences.

Csikszentmihalyi and LeFevre (1989) used the ESM on a sample of 107 adult workers to study their daily self-reported work and leisure experiences. In this study, Csikszentmihalyi and LeFevre (1989) note that when a person interprets a situation as having high opportunity for both action and skills, the quality of experience was more likely to be positive. Additionally, these results indicated that flow conditions were more likely to happen at work than in leisure, even though participants reported saying that they “wish to be doing something else” (Csikszentmihalyi & LeFevre, 1989, p. 821). The results from Csikszentmihalyi and LeFevre (1989) support other claims (Csikszentmihalyi, 1977) that provide evidence that flow conditions occur when a person is active, as opposed to engaging in passive activities such as watching television. Despite a low presence of skill and challenge during these passive experiences, many people seem to be intrinsically motivated to seek out nonflow activities. This motivation for seeking non-flow activities can be attributed to the power of freedom in terms of the decisions and choices we make. Subsequent research addressing the freedom of

experience and intrinsic motivation found that, “When people see their actions as free, they are also intrinsically motivated to pursue them” (Csikszentmihalyi & Graef, 2014, p. 65). Data from Csikszentmihalyi and Graef (2014) help provide a better understanding as to why people spend so much leisure engaging in nonflow activities such as simply daydreaming or watching television (Csikszentmihalyi, 1977; Csikszentmihalyi & Kubey, 1981; Csikszentmihalyi & LeFevre, 1989). The power of freedom may also help explain why more flow-like conditions are experienced at work, but people do not perceive them as enjoyable because they are obligated to do it.

Leisure activities that elicit conditions for flow include sports and games (Csikszentmihalyi, 1977; Csikszentmihalyi & Kubey, 1981; Csikszentmihalyi & LeFevre, 1989). The importance of sports and games for flow has led researchers to examine this relationship. Through the ESM, foundations of flow outlined by Csikszentmihalyi (1977, 1990) have been applied and tested with daily human activities and experiences. Narrowing this focus to physical activities, researchers have tested how applicable the foundations of flow are in sports. Jackson (1996) interviewed 28 elite-level athletes asking them to describe their flow experiences using definitions provided by Csikszentmihalyi (1990). After coding the aforementioned interviews it was found that 97% of participant responses fit within the nine dimensions of flow outlined by Csikszentmihalyi (1990). The themes described by athletes in interviews by Jackson (1996) signal strong individual variances for each dimension for flow which suggests that the dimensions of flow interact with people in different ways. When looking at flow and ways to measure it in specific physical activities, two ways of viewing these experiences come to light. First, flow is a state that can be measured in relation to a specific event.

Second, flow can be measured as a trait that can be assessed based on the frequency of experiencing flow in specified activities. To examine the nine dimensions of flow during physical experiences, the Flow State Scale-2 (FSS-2) emerged as a way to measure how people perceive flow following targeted athletic events (Jackson & Marsh, 1996) while the Dispositional Flow Scale-2 (DFS-2) was designed to measure how frequently flow was experienced by individuals in a particular activity (Jackson & Eklund, 2002).

The FSS-2 and the DFS-2 are 36-item questionnaires that provide a quantitative evaluation of the nine dimensions for flow (1) challenge-skill balance, (2) action-awareness, (3) clear goals, (4) unambiguous feedback, (5) concentration, (6) sense of control, (7) loss of self-consciousness, (8) transformation of time, and (9) autotelic experience (Jackson, 1996; Jackson & Eklund, 2002). Both the FSS-2 and DFS-2 have been found to be a reliable and valid assessment for flow in physical activities (Jackson & Eklund, 2002). The FSS-2 has been used to measure individual differences in sports (William, 2001), relationships between flow and performance (Jackson, Thomas, Marsh, & Smethurst, 2001), and motivation in sports (Kowal & Fortier, 1999).

The FSS-2 has also been shown to be a reliable and valid instrument for measure flow following music performance because of its relationship to physical activity (Wrigley & Emmerson, 2011). To test the FSS-2 with music performance, Wrigley and Emmerson (2011) administered the FSS-2 to 236 university music students following their final performance exam. Results from this study indicated similar comparisons between music performance and live sports performance. Despite the similarities between flow in sports and in music, results from Wrigley and Emmerson (2011) found that the majority of students did not report being in flow during their performance examination.

Even though low levels of flow were reported, no significant differences were found to exist based on performance variables of sex, age, or instrument family. It was reported that 58% of the student responses indicated a lack of balance between skills/challenges and 58% of participants indicated lower autotelic experiences (Wrigley & Emmerson, 2011). Taking into account the lower levels of flow in this study, the authors suggested that low reports of flow may be due to an inability to become completely absorbed in their experience. This suggestion can partly be explained using evidence from Csikszentmihalyi and Graef (2014) who found that people are more likely to experience higher degrees of flow if they choose to partake in a given activity. Participants in Wrigley and Emmerson (2011) were engaging in a performance exam which was not perceived by the students as a choice. While Wrigley and Emmerson (2011) found lower rates of flow in their study, they did provide valid and reliable evidence that the FSS-2 can be used to understand how the different dimensions of flow function within music performance.

While the FSS-2 provides a way to look at flow in specific events for both athletics and music performance, the DFS-2 measures a person's disposition to engage in flow for a particular activity in general. In sports, the DFS-2 has shown to be an effective way to measure trait experiences in athletic activities (Jackson & Eklund, 2002). More recently, the DFS-2 has been found to be a reliable and valid way to measure dispositions to flow in music performance (Sinnamon, Moran, & O'Connell, 2012). The purpose of the Sinnamon, Moran, and O'Connell (2012) study was to examine trait flow experiences in two types of musicians – amateur and elite musicians. Amateurs ($n = 125$) in their study were students attending weekly lessons at a conservatory with ages ranging from

eight to 19, and at the time of this study these students were not aiming to be professionals. Elite musicians ($n = 80$) were chosen based on their enrollment as a full-time performance student, were studying music was in pursuit of a professional career, and ages ranged from 18 to 22. In this 2012 study, the authors found that the DFS-2 provided high internal consistency and external consistency indicating strong reliability and validity for use in music performance. In contrast to Wrigley and Emmerson (2011) who found the majority of students did not report high flow in a performance exam, results from Sinnamon, Moran, and O'Connell (2012) showed that flow was very common for both elite and amateur musicians. Sinnamon, Moran, and O'Connell (2012) reported that 95% of elite musicians and 87% of amateur musicians experienced flow frequently. Looking at Wrigley and Emmerson (2011) and Sinnamon, Moran, and O'Connell (2012) provides evidence to support the suggestion that while music students across different age and abilities report high flow during performance in general, specific high-pressure situations may not elicit flow. These two studies show that reports of flow in music performance can differ in terms of specific activities and as such, carries implications and provides reason to explore flow within specific musical activities.

Along with music performance, flow has also been studied in a variety of musical activities. To study flow in a variety of music and non-music activities, Diaz and Silveira (2012) examined self-reports of flow during a high school summer music camp.

Participants for this study included 87 high school students attending a two-week summer camp, and during this camp participants engaged in large ensemble opportunities, music theory, electives, private lessons, master classes, attending and performing concerts, and social activities. This study sought to investigate the activities in which students

experienced flow. To measure flow, a questionnaire was designed by the researchers asking participants to indicate if they had experienced flow and if so, in what activities did that happen. Based on the results, Diaz and Silveira (2012) found that all participants reported experiencing flow at least once and the top three activities for flow included large ensemble rehearsals, electives, and theory class. However, private lessons, individual practice, and sectionals were activities in which students found fewer opportunities to engage in flow. While Diaz and Silveira (2012) noted that individual practice was considered optional at camp – and low reports of flow may be reflective of that – the finding that students reported fewer instances of flow during individual practice warrants discussion. Along with differences in flow between specific music performance and music performances in general (Sinnamon, Moran, & O’Connell, 2012; Wrigley & Emmerson, 2011) Diaz and Silveira (2012) provided further evidence supporting the idea that engagement in flow depends on the person and the activity. The topic of individual practice is particularly important because deliberate practice has been associated with improvement in performance (Ericsson, Kramp, & Tesch-Römer, 1993). Based on the association between practice and performance, addressing questions regarding flow and individual practice can provide positive implications for musicians and music educators.

While few examples within the literature specifically investigate flow and individual music practice, studies examining flow and performance provide clues addressing the variance in flow experiences within music. Looking at high-pressure performance situations, such as a final exam, Wrigley and Emmerson (2011) describe situations where anxiety and/or judgment from others can influence one’s ability to enter into flow. Wrigley and Emmerson (2011) observed that low flow scores occurred most

often for the subscale *Loss of Consciousness* and *Merging of Action and Awareness* resulting in an inability to become “completely absorbed in the performance” (p. 302). It is possible that the inclusion of judgment and criticism from others, such as music professors, plays a factor in cultivated or hindering flow. Music performance anxiety (MPA) and flow has become an area of interest and studying this relationship has provided a better understanding of these two constructs. Using a sample of 202 professional classical musicians to study flow and MPA, it was found that there was a strong negative relationship between flow and MPA (Cohen & Bodner, 2018a). Results from Cohen and Bodner (2018a) suggest that improving and facilitating flow may be one way to reduce MPA, which alludes to the benefits of flow engagement for the well-being of individuals.

Self-esteem is one factor to consider when looking at performance anxiety, flow, and well-being. Self-esteem has been defined as the measurement of personal attitudes or evaluations of the self, which demonstrate the overall affective evaluation of one’s own worth, value, or importance (Blascovich & Tomeka, 1991). After physiological needs have been met and motivation moves away from simply trying to survive, one may have the physical energy to focus attention to higher-level needs. In doing so, however, judgment and self-evaluation manifest during the self-esteem phase outlined by Maslow. Self-esteem has been used as a way to study how one views themselves; however, issues such as narcissism, self-absorption, self-centeredness, and a lack of concern for others have become points of criticism when using measurements of self-esteem to evaluate psychological well-being (Neff, 2003b). Based on these criticisms, there has been a movement in clinical psychology to design a more accurate way to measure how one

views themselves and their role in the world – namely, self-compassion.

Self-Compassion

The aforementioned issues associated with self-esteem have sparked a growing interest in self-compassion. Researchers examining self-compassion have found that while self-esteem is in fact related to well-being, the pursuit of high self-esteem has raised concerns among scholars (Neff, 2011). In an extensive review of self-esteem, evidence supports the idea that high self-esteem comes from the result of doing well, as opposed to high self-esteem as being the *cause* of doing well (Baumeister, Campbell, Krueger, & Vohs, 2003). This finding becomes even more problematic based on other studies that found violence can be the result of a threatening ego and beliefs of high self-esteem (Baumeister, Smart, & Boden, 1996). These two studies highlight some of the disadvantages with self-esteem and are a part of Neff's (2003a, 2003b) argument for supporting self-compassion as a better way to measure and promote well-being.

Originating from Buddhist practices, self-compassion is an emerging field of study in Western psychology due to its potential contribution to our understanding of self-processes, mental health, and viewing the self as part of a larger human experience (Neff, 2003b). Evolving from compassion, self-compassion allows individuals to understand one's shortcomings and failures as a part of a larger human experience versus feelings of isolation. Providing less judgment and criticism of oneself allows a greater acceptance for others as Neff cites, "compassion literally means 'to suffer with'" (Neff & Dahm, 2015, p. 4). Neff (2003b) classifies self-compassion as having three main components:

- (1) Self-kindness—extending kindness and understanding to oneself as opposed to

harsh judgment and self-criticism; (2) Common humanity—seeing one’s experiences as part of the larger human experience rather than seeing them as separating and isolating; and (3) Mindfulness—holding one’s painful thoughts and feelings in balanced awareness rather than over-identifying with them. (p. 89)

Self-compassion provides a means to help understand, promote, and measure the well-being of humans in relation to how we experience the world.

To better understand self-compassion, it is necessary to examine self-kindness, common humanity, and mindfulness as integral aspects within self-compassion. The role of self-kindness in self-compassion is centered around being able to view the self as part of a larger human experience (Neff, 2003b). Self-kindness entails treating yourself with the same kindness you would extend to a friend, as studies have shown that people report being more kind to others than they are to themselves (Neff, 2003a). The aspect of being kind to yourself helps diminish harsh self-judgements to create a more supporting and understanding image of ourselves. Treating yourself the same as you treat others hints towards the second component of self-compassion, which is common humanity.

Similar to how we separate ourselves from others in terms of self-kindness, common humanity addresses the isolation and separation one feels especially in times of difficulty (Neff & Dahm, 2015). While we may see our mistakes or failures as being isolated to oneself, Neff and Dahm, (2015) highlight the fact that imperfections are in fact normal and is simply a part of being human. Neff and Dahm (2015) also point to isolation from the common humanity as a factor in why people think of mistakes and imperfections as being negative. While one must see these mistakes and imperfections as being part of a common humanity, one must be willing to identify negative thoughts with

openness and acceptance through mindfulness (Neff & Dahm, 2015).

Mindfulness, the third component of self-compassion, embraces a recognition of thoughts and reality in the present moment which can be characterized as curious, open, and accepting (Bishop et al., 2004; Neff & Dahm, 2015). Neff and Dahm (2015) discuss that the role of mindfulness in self-compassion aids in avoiding overidentification with thoughts and feelings because one is able to view thoughts and feelings as being separate from the actual self. While self-kindness, common humanity, and mindfulness are all discussed as three separate components, Neff (2003b) continues to support that these components overlap and support one another.

Recent research has provided evidence that supports self-compassion as a way in which people can reduce suffering while still being able to prosper psychologically. In a meta-analysis, MacBeth and Gumley (2012) found 14 studies that examined the relationship between self-compassion and psychopathology to determine the effects of self-compassion on mental health. It was found that greater reports of self-compassion were linked with lower cases of anxiety and depression (MacBeth & Gumley, 2012). Results from this meta-analysis further support the relationship between self-compassion and psychopathology, indicating that self-compassion may play a critical role in emotional well-being. A more recent meta-analysis (Zessin, Dickhäuser, & Garbade, 2015) provided further evidence supporting the relationship between self-compassion and well-being. Interestingly, Zessin, Dickhäuser, and Garbade (2015) found that self-esteem weakens the correlation between self-compassion and well-being. This finding indicates that self-evaluations and comparisons with others imposed by self-esteem alters levels of self-compassion and in turn effects levels of well-being. Results from these two meta-

analyses provide a general overview and support the theoretical concepts of self-compassion.

In addition to benefitting well-being, self-compassion has also been associated with higher academic achievement and intrinsic motivation. Neff, Hsieh, and Dejitterat (2005) found self-compassion was positively associated with mastery goals. The same study also revealed a positive relationship between self-compassion and intrinsic motivation.

Additionally, it was also found that self-compassion was negatively associated with performance goals. Neff, Hsieh, and Dejitterat (2005) state that students with performance goals “are motivated to defend or enhance their sense of self-worth” while those with mastery goals “are motivated by curiosity and the desire to develop skills, master tasks and understand new material” (p. 266). Additionally, Neff, Hsieh, and Dejitterat (2005) suggests that the negative association between self-compassion and performance goals represents individuals who “defend” against failure by trying to avoid it. This negative association highlights the importance of mindfulness because in the process of avoiding failure one is not recognizing or being mindful of one’s thoughts.

Regarding the aspect of mindfulness, studies have demonstrated the importance of mindfulness for promoting self-compassion. To test the connections between mindfulness and self-compassion, Birnie, Speca, and Carlson (2010) used an eight-week MBSR program to measure its effects on self-compassion. Findings from this study indicated a significant positive correlation between mindfulness and self-compassion. This supports the theoretical importance of mindfulness as an element in self-compassion (Neff, 2003b). Along with the correlations found between self-compassion and mindfulness, Birnie, Speca, and Carlson (2010) found that using MBSR as an intervention significantly

increased measures of self-compassion from pre-test to post-test. While these results indicated significant changes, this study did not employ a control group. However, regardless of the lack of control group, results from this study provide valuable information regarding how self-compassion and mindfulness interact.

Purpose

Within foundations of flow discussed by Csikszentmihalyi (1990), high self-esteem is considered a prerequisite to achieving flow per Maslow's hierarchy of needs; however, shortcomings of self-esteem found by Baumeister et al. (2003) and Baumeister, Smart, and Boden (1996) change how one can view self-esteem within the framework of Flow Theory. Using Maslow's hierarchy of needs, self-esteem, and mindfulness as psychological and philosophical foundations for both flow and self-compassion, an argument can be made that flow and self-compassion may be related, warranting further investigation. MBSR or similar mindfulness programs have been used in numerous areas within the fields of flow and self-compassion. With regard to flow, mindfulness treatments have been used to examine flow in a variety of activities including sports (Bernier, Thienot, Codron, & Fournier, 2009; Kaufman, Glass, & Arnkoff, 2009; Scott-Hamilton, Schutte, & Brown, 2016), occupational work situations (Reid, 2011), and music (Diaz, 2011). While evidence supports the use of MBSR to enhance levels of self-compassion (Birnie, Speca, & Carlson, 2010), there is a lack of research investigating MBSR and self-compassion in musicians, warranting further investigation.

While research has been conducted on mindfulness-based meditation, flow state, and self-compassion in isolation, a lack of research exists that examines the relationship between them. Therefore, the purpose of this study was to determine the effect of an

MBSR-based treatment on flow state and self-compassion in musicians during a practice session. Specifically, the following research questions were addressed:

1. What effect, if any, will MBSR have on musicians' flow state during individual practice?
2. What effect, if any, will MBSR have on musicians' self-compassion during individual practice?
3. What is the relationship between the constructs of flow and self-compassion?

CHAPTER III

METHOD

Pilot Study 1

A pilot study was implemented to test the procedures and stimulus audio guide prior to the full study. The audio stimulus and measurement tools were tested on a group of five participants who matched the inclusion criteria for this study, which required participants to be in college and enrolled in at least one performing ensemble. While the full study required two separate phases over two separate days, the procedures used in the first pilot only covered the protocols for the experimental group and was completed in one session. Because all the procedures required for the experimental group were needed in the control group, with the exception of the audio stimulus, only the procedures from the experimental group post-test procedures were used in this pilot for efficiency. The participants all completed the informed consent, listened to the audio stimulus, completed a 20-minute individual practice session, and responded to the questionnaires. The meditation treatment consisted of a 20-minute listening guide to raise awareness of mindfulness that was taken from the University of California, San Diego's Health Department's Center for Mindfulness website (<https://health.ucsd.edu/specialties/mindfulness/programs/mbsr/Documents/MP3/Allan-Goldstein-Short-Seated-Meditation-01-27-15.mp3>). A transcript of this recording can be found in Appendix A. Think aloud interviewing techniques during pilot testing procedures has been found to be complementary to designing procedures and survey instruments (Collins, 2003). During this pilot, participants were asked to include any suggestions for improvement or clarification on the written instructions or the dependent

measures. The following recommendations were made: (1) Initially, the coding for participant identification on each survey was supposed to be a 5-digit code created by each individual participant. It was suggested that the researcher assign each participant a randomly generated code to avoid any confusion; (2) The questionnaires used were taken directly from the originally published research article, however these copies were designed for publication and it was suggested that these documents be rewritten into a “user-friendly” word document.

The following were additional suggestions made by the researcher and advisor: (1) add a demographic section that includes instrument/voice, year in school, major, and gender; (2) advise participants that food and drinks are not allowed during the audio listening guide; (3) inform the participants that the listening guide is approximately 20-minutes, and the conclusion of the meditation will happen following the sound of three bell-chimes; and (4) include instructions that specifically inform participants to answer the questionnaire in response to the 20-minute practice session that they just completed. All of the listed suggestions and recommendations from the participants and researcher were implemented in the second pilot study.

Pilot Study 2

A second pilot study was conducted to provide data on the effect of the treatment on flow and self-compassion, and to evaluate the reliability and validity of the aforementioned scales in the context of music practice. The second pilot study replicated the procedures to be used in the full study and incorporated the suggestions made during the first pilot study. In the second pilot study, the target population was used (participants enrolled in a college performance ensemble). The sample ($N = 19$) consisted primarily of

music majors ($n = 17$); however, failure to complete the post-test immediately after the practice session resulted in the withdrawal of one post-test result. All the participants were instrumentalists consisting of the following: woodwind ($n = 2$), brass ($n = 12$), percussion ($n = 1$), string ($n = 2$), and piano ($n = 1$). This group was randomly split into either the experimental group or control group and each participant was randomly assigned a number to identify them anonymously.

To replicate the full study, a two-group pretest/posttest experimental-control group design was used in this second pilot study. For each participant, completion of the study occurred over two days and while some participants completed this in consecutive days, it was not a requirement. The second pilot study occurred over a two-week period, representing two phases. During phase one, participants completed the consent form and demographic information form. Following that, they were asked to engage in a 20-minute practice session where they were instructed to practice as if they were preparing for a concert/recital or upcoming lesson. The music material used in this study was generated by the participants and no specific instructions regarding how or what to practice were given for the purposes of ecological validity. During the second phase of data collection, participants in the experimental group underwent an MBSR guided listening exercise prior to their second practice session. The control group did not participate in the MBSR guided listening exercise. For the second phase, participants in the control group followed the same procedures as the first phase. Members of the control group were given the option to complete the MBSR listening guide following the completion of the post-test; however, this option was not utilized by any of the participants.

Revisions were made by the researcher based on the observations and experiences of the participants following the completion of the second pilot study. At the beginning of the second pilot study, the researcher was able to walk with each participant to the practice room and the researcher set a 20-minute alarm for each participant. This was feasible at the early stages of the second pilot study because there were smaller groups of participants during the pre-test phase. However, once the posttest began, members from both the control and experimental were completing this phase at the same time. This meant that the researcher was unable to time each practice session because the researcher needed to supervise the guided listening exercise. To accommodate for this, the researcher had the participants go to a practice room by themselves, keep their phone in airplane mode, set a timer for 20-minutes, and complete the surveys immediately after.

Along with this change in procedure, additional changes were made based on this pilot study. The following changes to the demographic form were made: (1) asking how often participants regularly meditated; (2) the demographic information will be completed after the pre-test questionnaires; and (3) based on the noise pollution from the university hallway and adjacent classrooms, a new room for the meditation exercise was used for the full study located in a more secluded and quieter part of the music building.

Design

To facilitate measuring the effects of MBSR on flow state and self-compassion, a pre- and post-test with a two-group (experimental and control) design was used. The pre- and post-test consisted of two separate 20-minute individual practice session that occurred over two days, which could be consecutive or non-consecutive. Each session was immediately followed by the completion of the two dependent measures.

The design of this study was implemented in light of critiques of studies using MBSR as an intervention (Bishop, 2002; Chiesa & Serretti, 2009; Grossman et al., 2004). Bishop (2002) discussed the high volume of studies that did not use validated measurements, did not use appropriate statistics, and studies that failed to control for concurrent treatments that may effect outcome variables. The issue of studies without control groups or pre-test/post-test designs was cited as being reasons for limited sample sizes in two meta-analyses studying the effects of MSBR. The use of a control group, pre-test, and post-test to measure changes in the two dependent variables, flow and self-compassion, provided a more thorough way of examining the effect of the MBSR intervention.

Measurements for flow and self-compassion were completed by participants after each practice session. Having participants respond to each survey during the same block of time provided an effective way to measure flow and self-compassion for that specific event (i.e., practice session). The instruments used to measure flow and self-compassion have both been shown to be valid and reliable ways to measure the two constructs, which addressed concerns within the literature (Bishop, 2002). Further discussion regarding these instruments can be found in the measurement sections below.

Participants

Prior to the start of the study, the researcher gained approval from the university's Institutional Review Board (see Appendix B). Given the decision to use a repeated measures ANOVA test, an *a priori* alpha level of .05, a chosen power level of .80, and a medium effect size of .25 (Cohen, 1988), the researcher conducted a power analysis using the statistical software *G*Power* (Faul, Erdfelder, Lang, & Buchner, 2007). This program

computed a minimum necessary sample size of 54 participants. Participants ($N = 63$) for the present study included a convenience sample of instrumental ($n = 60$) and choral ($n = 3$) university music students enrolled in instrumental and vocal ensembles at a large comprehensive university in the Pacific Northwest (see Table 3.1). Participants were each assigned a number to identify participants on all questionnaires, during data collection, and during analysis. Following this coding process, the list of participants was randomly assigned to either the experimental ($n = 31$) or control ($n = 32$) group using an online number randomizer. Table 3.1 represents the information collected on the demographic portion of the questionnaire (see Appendix F). All participant information was either stored in a locked university office or on a password-protected laptop owned by the researcher.

Table 3.1*Participant Demographics*

Gender						
Males		Females			Other	
30		28			2	
Year in School						
Fresh.	Soph.	Junior	Senior	Masters	Doctoral	Other
11	15	8	11	7	6	2
Instrument						
Woodwind	Brass	Percussion	String	Vocal	Piano	
21	17	2	9	3	8	
Major						
Music			Non-music			
43			17			
Prior Meditation Experience						
Self-reported score	1 (never)	2	3	4	5 (3 times per week or more)	
Frequency of response	42	8	4	4	5	

Measures**Flow State Scale-2 (FSS-2)**

To measure flow, the FSS-2 was administered to the participants during the pre- and post-test phases (see Appendix D). The FSS-2 is a 36-item questionnaire that

provides a quantitative evaluation of the nine dimensions for flow: (1) challenge-skill balance, (2) action-awareness, (3) clear goals, (4) unambiguous feedback, (5) concentration, (6) sense of control, (7) loss of self-consciousness, (8) transformation of time, and (9) autotelic experience (Jackson, 1996; Jackson & Eklund, 2002). Jackson and Marsh (1996) designed this questionnaire to measure self-reports of flow using a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). This instrument records flow as a state experience that reflects how one perceives flow following specified events. The FSS-2 has been demonstrated to be a reliable and valid assessment for flow in physical activities (Jackson & Eklund, 2002). The FSS-2 has been used to measure individual differences in sports (Russell, 2001), relationships between flow and performance (Jackson, Thomas, Marsh & Smethurst, 2001), and motivation in sports (Kowal & Fortier, 1999). Due to the relationship between physical activity and music performance, the FSS-2 has also been shown to be a reliable and valid instrument for measure flow following music performance (Wrigley & Emmerson, 2011).

Self-Compassion Scale (SCS)

The second dependent variable, self-compassion, was measured using the Self-Compassion Scale (SCS) which has been shown to be a valid and reliable measure of that construct (Neff, 2003a) (see Appendix E). Using the three components of self-compassion (Self-kindness, common humanity, and mindfulness), Neff (2003a) designed a 26-item questionnaire to measure self-reports of self-compassion using a 5-point Likert scale (1 = almost never; 5 = almost always). The design of the SCS addressed the positive and negative elements of self-compassion: (1) self-kindness versus (2) self-judgement, (3) common humanity versus (4) isolation, and (5) mindfulness versus (6) over-

identification. As a result, Neff (2003a) cited that this forms “six separate but correlated factors” (p. 234). In total, the 26-item SCS has been used as the primary instrument for measuring self-compassion. For example, in two meta-analyses of self-compassion, all studies included used the SCS to measure self-compassion (MacBeth & Gumley, 2012; Zessin, Dickhäuser, & Garbade, 2015). Taking into account the testing for reliability and validity (Neff, 2003a) along with evidence showing its use in the research literature (MacBeth & Gumley, 2012; Zessin, Dickhäuser, & Garbade, 2015), the use of the SCS in this study was consistent with precedent in this line of research.

Procedure

Participants were recruited by reading a standard recruitment script to intact music classes and ensemble rehearsals at the sample university (see Appendix G). A total of 93 individuals provided their contact information; however, only 63 students responded to emails and arrived at their scheduled time. Participants and the researcher then coordinated a time to meet for the pre-test. Once at the pre-test meeting location, the informed consent form was read to the participants by the researcher prior to beginning the pre-test. After the consent was read to them, participants could ask questions and decided whether or not to continue. The consent form informed the participants: (1) their participation was voluntary and they could withdraw at any time without repercussion, (2) the title and subject of the study, (3) the time commitment and procedure requirements, and (4) benefits and risks of participation (see Appendix C). All participants gave their consent to participate.

Following the completion of the consent process, the researcher provided a hard copy of the instructions that were also read aloud for participants (see Appendix H).

Afterwards, participants had the opportunity to ask questions for clarification. The questionnaires were stapled together in the following order FSS-2, SCS, and demographic information during the pre-test. This packet was folded in half to prevent participants from reading the questionnaire prior to completing their practice session. The researcher told each participant to keep the papers folded until the 20-minute practice session was over. One goal behind this study was to examine flow and self-compassion in a setting that replicated a regular practice session. Because of this, it was decided that participants could choose to practice whatever they wanted to as long as it simulated a “typical” practice session. All participants were responsible for timing their practice sessions using their phones. Participants were told to put their phone into airplane mode during the duration of the pre- and post-test practice session to minimize potential distractions. After reviewing the instructions and after questions were answered, all participants were sent to practice rooms to begin the pre-test. The researcher provided a practice room code to any participant who needed access. Pretest procedures for all participants included a 20-minute practice session followed by the completion of the Flow State Scale-2 (FSS-2), the Self-Compassion Scale (SCS), and the demographic information. This process was identical for both experimental and control groups.

Participants scheduled a time to meet with the researcher for the post-test which occurred on a separate day than the pre-test (consecutive or non-consecutive days). Members from the experimental group participated in a 20-minute guided MBSR session individually or in small groups prior to the post-test practice session. All MBSR interventions were completed in the same room with the researcher present. The instructions given to participants prior to the treatment can be found in Appendix I.

Along with the instructions given to participants, the researcher used a checklist prior to administering treatment to control for environmental factors (see Appendix J). Following the completion of the instructions and checklist, the researcher began the MBSR exercise.

The meditation treatment consisted of a 20-minute listening guide to raise awareness of mindfulness that was taken from the University of California, San Diego Health Department's Center for Mindfulness website (<https://health.ucsd.edu/specialties/mindfulness/programs/mbsr/Documents/MP3/Allan-Goldstein-Short-Seated-Meditation-01-27-15.mp3>). This MBSR was recommended by a professor at a major comprehensive university who is a leading scholar in the field of mindfulness. A transcript of this recording can be found in Appendix A. Following IRB protocol, the researcher's eyes remained open during the meditation to supervise the process. This MBSR guide was downloaded on the researcher's laptop and played through laptop speakers. Given the quiet nature of this activity, the use of laptop speakers (as opposed to larger speakers) adequately fulfilled this purpose.

At the end of the listening guide, participants opened their eyes and were given a few moments to gather their thoughts. The researcher then instructed participants that they would repeat the procedures from the pre-test: practice for 20-minutes and then complete two questionnaires. Post-test procedures for the control group were identical to the pre-test. To control for threats to internal validity (e.g., compensatory rivalry and resentful demoralization), the control group was told that a link to the meditation would be emailed to them following completion of the post-test questionnaires if they wanted to listen to it. Following the submission of the post-test, the researcher sent each participant a link to the meditation guide. The researcher told all participants that if they had any

questions or wanted to talk about the study, they would be able to do so following the completion of the post-test.

CHAPTER IV

RESULTS

The purpose of this study was to determine the effect of MBSR-based treatment on flow state and self-compassion in musicians during a practice session along with examining the relationship between flow and self-compassion. Specifically, the following research questions were addressed: (1) What effect, if any, will MBSR have on musicians' flow state during individual practice? (2) What effect, if any, will MBSR have on musicians' self-compassion during individual practice? (3) What is the relationship between the constructs of flow and self-compassion?

To determine if the two groups were equally matched at pre-test, FSS-2 responses were analyzed using an independent t-test, which indicated that there were no significant differences between the experimental and control groups on this measure at pre-test $t(58) = -.704, p > .05$. An independent t-test was also conducted to detect between group differences for the SCS at pre-test. Results from the t-test indicated that there were no significant differences between groups on this measure $t(58) = .164, p > .05$. To examine differences in prior meditation experience, the demographic questionnaire asked participants to indicate how often they meditated with 1 representing "never" and 5 meaning they meditated "three or more times per week." There was no significant difference between experimental and control groups on self-reported measures of prior meditation experience $t(57) = -1.14, p > .05$.

Raw data consisted of participants' Likert-type responses (from 1 = "strongly disagree" to 5 = "strongly agree") on the FSS-2 to address research question one. At the pre-test, results revealed mean FSS-2 scores of 3.54 ($SD = 0.38$) for the experimental

group and 3.61 ($SD = 0.39$) for the control group (see Table 4.1). At the post-test, results revealed mean FSS-2 scores of 3.85 ($SD = 0.59$) for the experimental group and 3.70 ($SD = 0.50$) for the control group (see Table 4.1).

Regarding research question two, raw data consisted of Likert-type scale responses (from 1 = "almost never" to 5 = "almost always") on the SCS. Results revealed that for the experimental group, the SCS yielded a mean of 2.91 ($SD = 0.61$) at the pre-test and 2.89 ($SD = 0.62$) for the control group at the pre-test (see Table 4.1). Post-test results from the SCS revealed that the experimental grouped had a mean of 3.04 ($SD = 0.64$) and the control group had a mean of 2.94 ($SD = 0.61$) (see Table 4.1).

Table 4.1
Means and Standard Deviations for Dependent Measures by Group

	Group	<i>M</i>	<i>SD</i>
Mean FSS-2 Pretest	Experimental	3.54	0.38
	Control	3.61	0.39
	Total	3.58	0.38
Mean FSS-2 Posttest	Experimental	3.85	0.59
	Control	3.70	0.50
	Total	3.77	0.54
Mean SCS Pretest	Experimental	2.91	0.61
	Control	2.89	0.62
	Total	2.90	0.61
Mean SCS Posttest	Experimental	3.04	0.64
	Control	2.94	0.61
	Total	2.99	0.62

A repeated-measures ANOVA with one between-group factor (experimental vs. control group) and one within group factor (pre- versus posttest) was conducted to analyze differences in FSS-2 and SCS scores by group from pretest to posttest. Data were examined to ensure that the assumptions of a repeated measures ANOVA were met for outliers, normality, and homogeneity of variance (Field, 2018). Assumptions for normality and homogeneity of variance were both met; however, an analysis of box plots revealed that outliers were present. Three participants were removed since they represented outliers in the data. This included removing two participants from the FSS-2 experimental group at pre-test (see Figure 4.1) and one participant from the FSS-2 control group at post-test (see Figure 4.2). All other groups had no outliers present (see Figure 4.3 & 4.4). Additionally, one participant in the experimental group completed the pre-test, but not the post-test which reduced the final number of participants in the analysis to 59. Included in subsequent analyses are participants from the experimental group ($n = 29$) and control group ($n = 30$).

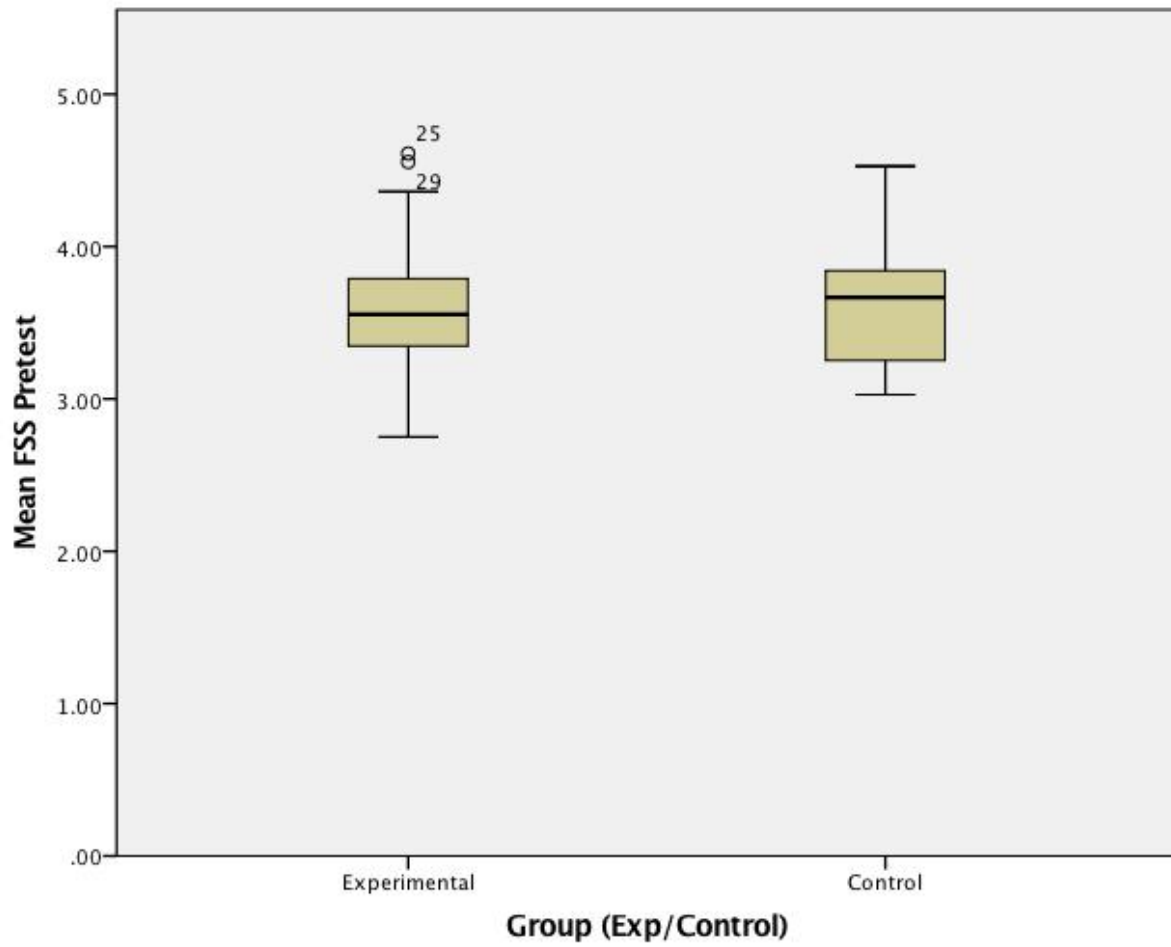


Figure 4.1

Boxplot of FSS-2 scores at pretest by group indicating two outliers in the experimental group.

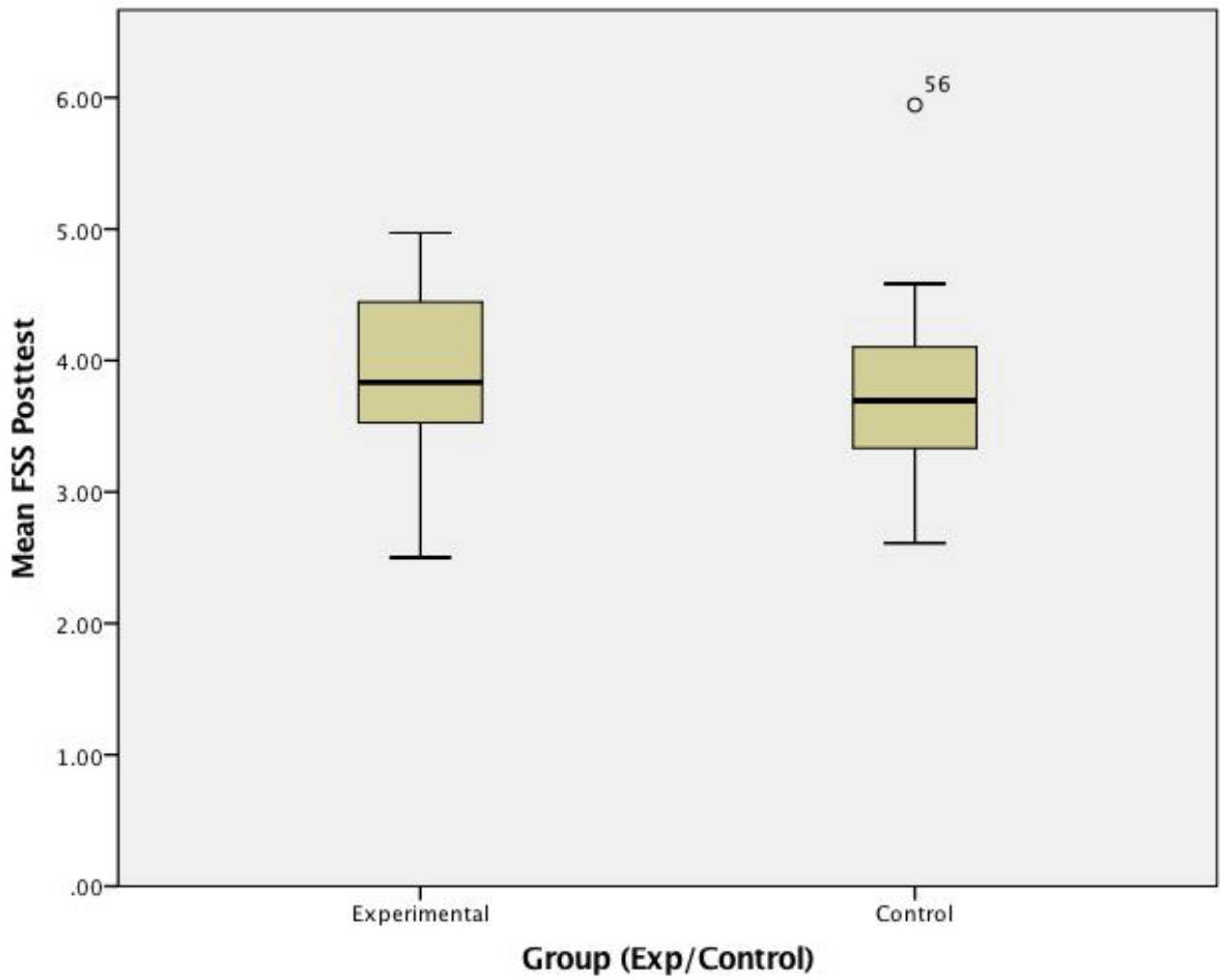


Figure 4.2

Boxplot of FSS-2 scores at posttest by group indicating one outlier in the control group.

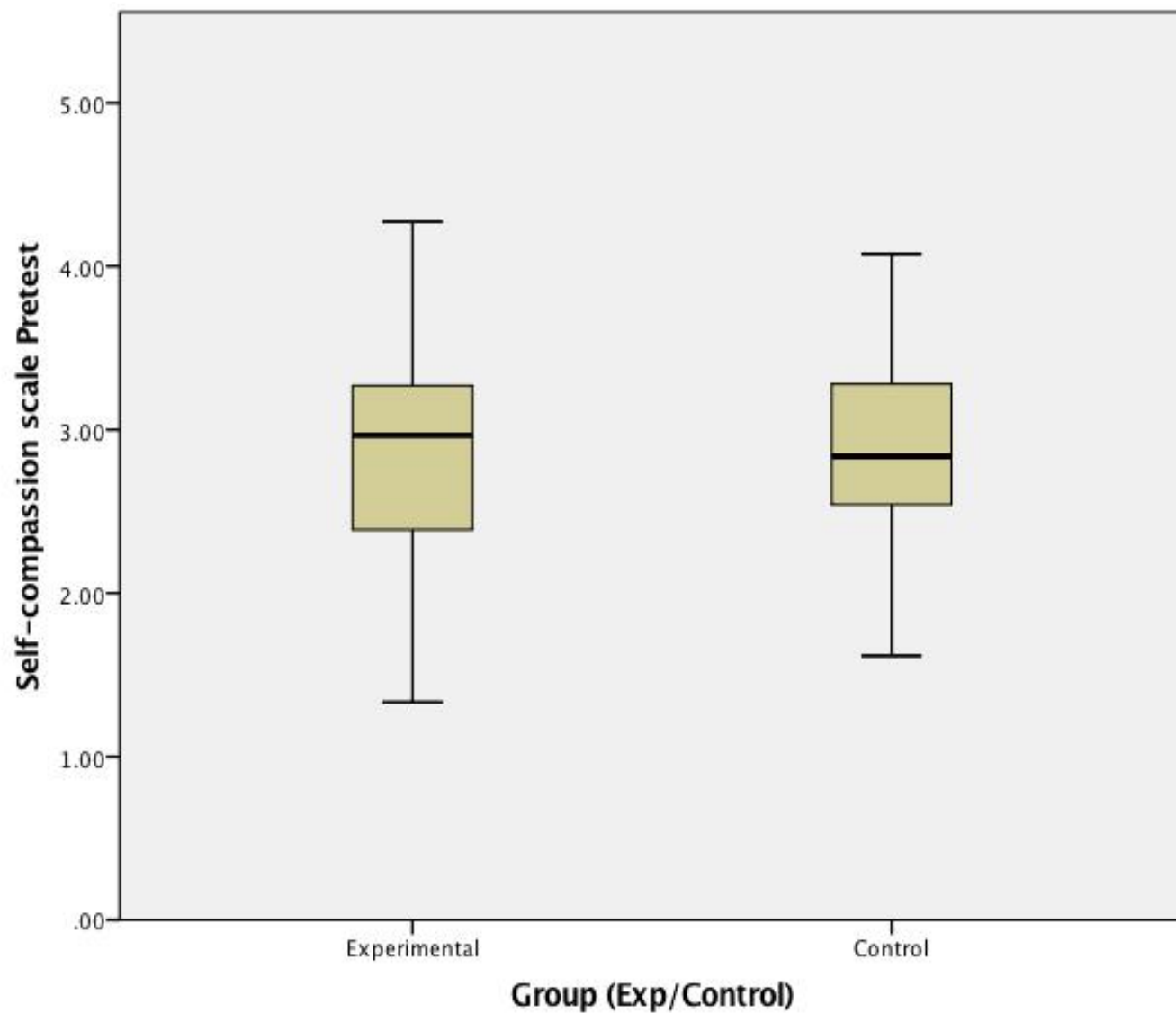


Figure 4.3

Boxplot of SCS scores at pretest by group.

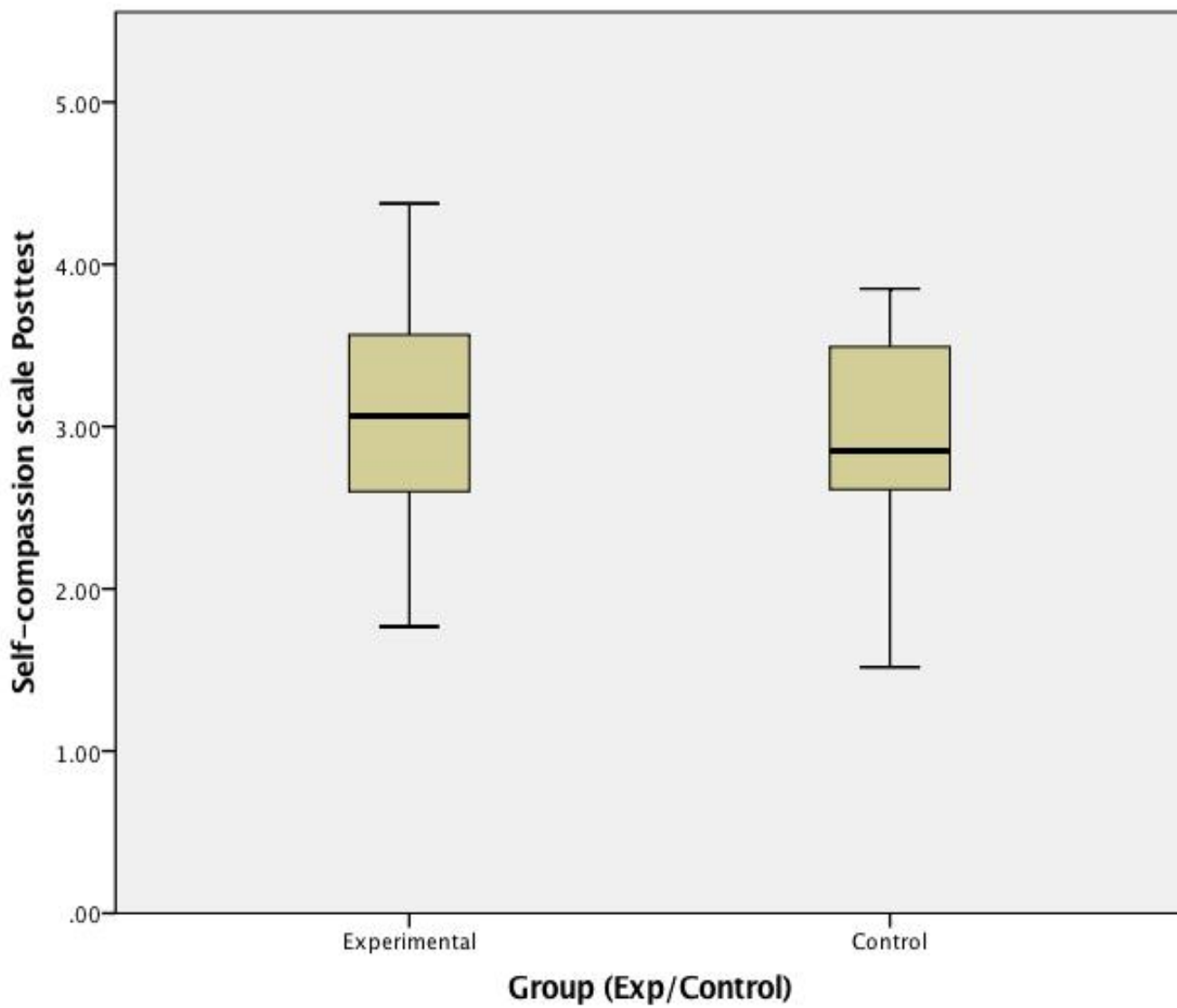


Figure 4.4

Boxplot of SCS scores at posttest by group.

The repeated-measures ANOVA revealed a significant difference in FSS-2 scores from pre-test to post-test $F(1, 57) = 66.63, p < .001, \eta_p^2 = .54$. While there was an overall significant change in reports of flow, there was no significant change in FSS-2 scores from pre-test to post-test on the basis of group assignment $F(1, 57) = .012, p = .914, \eta_p^2 < .001$ (see Figure 4.5). There was also a significant change in SCS scores from pre-test to post-test $F(1, 57) = 11.22, p < .01, \eta_p^2 = .16$. There was no significant change in SCS scores from pre-test to post-test on the basis of group assignment $F(1, 57) = 3.22, p = .078, \eta_p^2 = .05$ (see Figure 4.6).

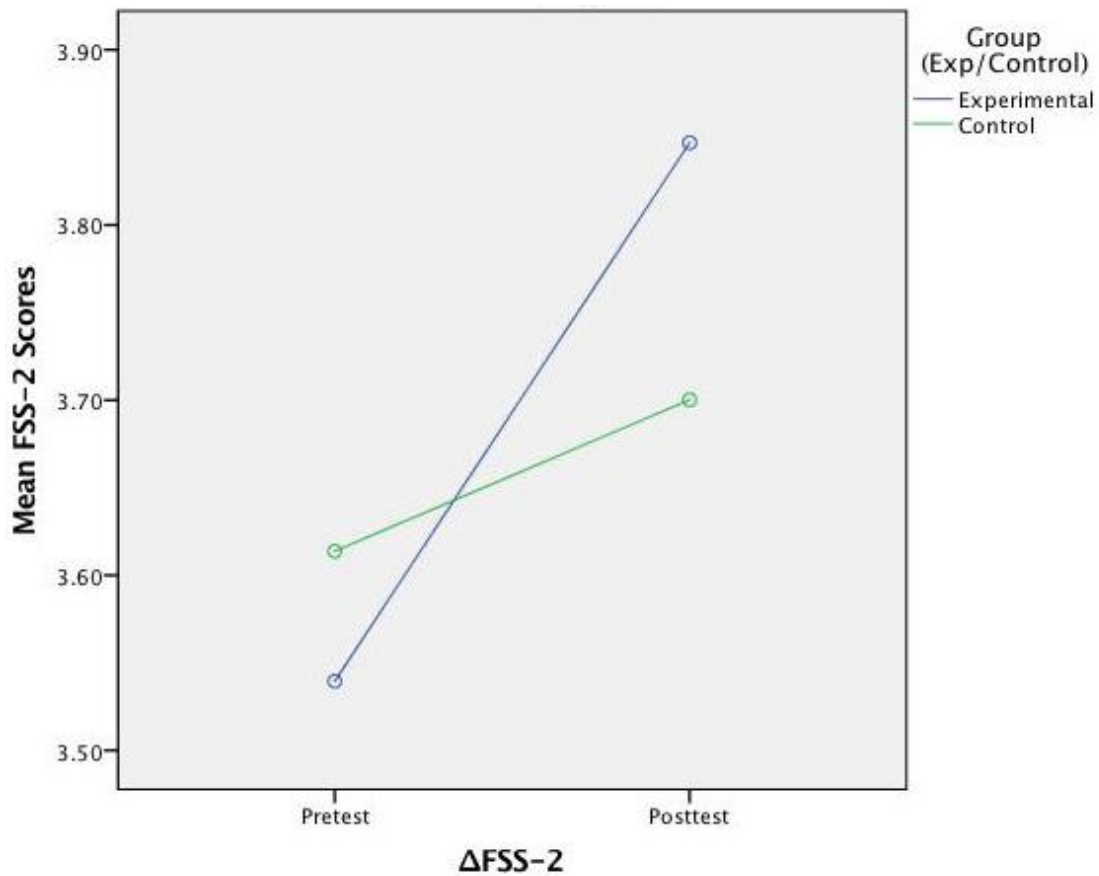


Figure 4.5

Change in mean scores of FSS-2 from pre-test to post-test by group.

To address the third research question examining the relationship between flow and self-compassion, Pearson's correlation coefficient was calculated. Results from the Pearson's correlation coefficient analysis showed a non-significant relationship between flow and self-compassion at both pre-test ($r = .08, p > .01$) and post-test ($r = .09, p > .01$) (see Table 4.3). While there was no significant correlation between flow and self-compassion, there were significant positive correlations between measures of flow from pre-test to posttest ($r = .37, p < .01; r^2 = .14$) (see Table 4.3). Additionally, there were also significant positive correlations in self-compassion from pre-test to post-test ($r = .86, p < .01; r^2 = .74$) (see Table 4.3).

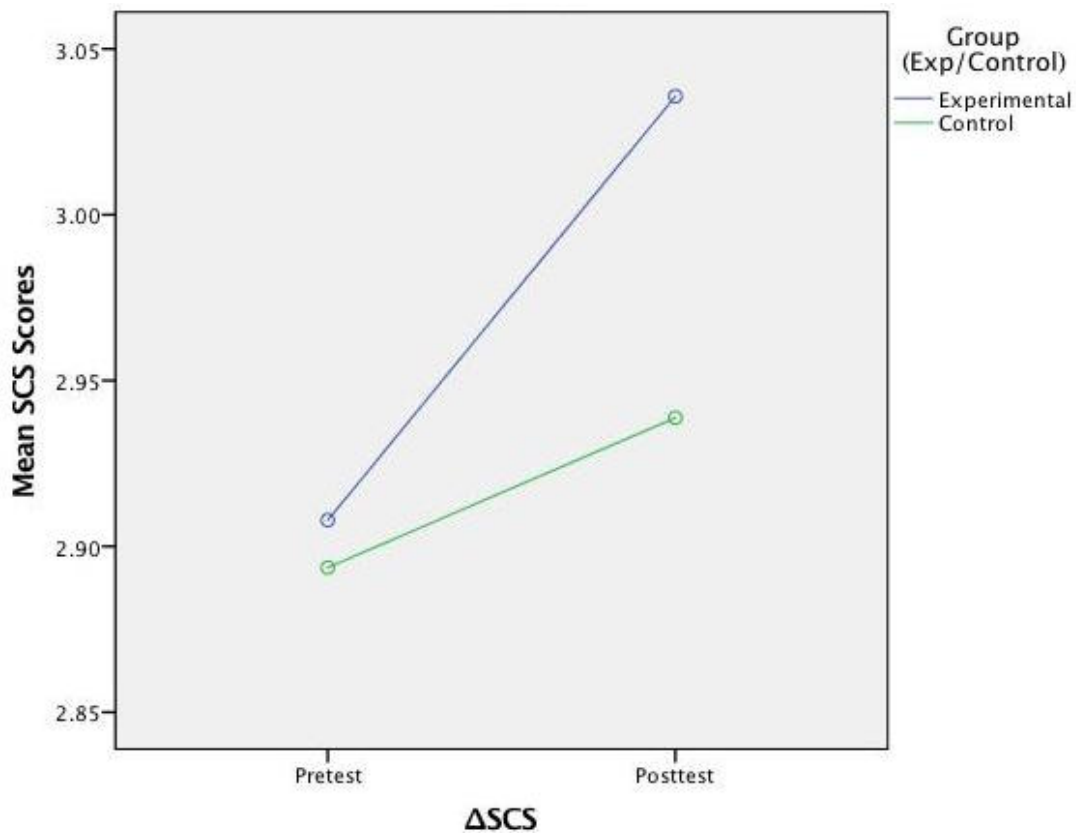


Figure 4.6

Change in mean scores of SCS from pre-test to post-test by group.

Table 4.2
Pearson Product-Moment Correlation Coefficients

	Mean FSS-2 Pretest	Mean FSS-2 Posttest	Mean SCS Pretest	Mean SCS Posttest
Mean FSS-2 Pretest	1			
Mean FSS-2 Posttest	0.37 ^a	1		
Mean SCS Pretest	0.08	0.11	1	
Mean SCS Posttest	-0.05	0.09	0.86 ^a	1

a = Correlation is significant at the 0.01 level (two-tailed)

CHAPTER V

DISCUSSION

The purpose of this study was to determine the effect of MBSR-based treatment on flow state and self-compassion in musicians during a practice session along with examining the relationship between flow and self-compassion. Specifically, the following research questions were addressed: (1) What effect, if any, will MBSR have on musicians' flow state during individual practice? (2) What effect, if any, will MBSR have on musicians' self-compassion during individual practice? and (3) What is the relationship between the constructs of flow and self-compassion?

Addressing the first research question examining the effects of MBSR on flow state revealed several interesting findings. When looking at changes in overall reports of flow from pre-test to post-test, it was found that there was a significant increase in FSS-2 scores. However, when looking at the effect of MBSR on flow by group assignment, there was no significant change. Within the parameters of this study, MBSR did not significantly affect scores on the FSS-2 on the basis of group assignment. Looking at changes in the FSS-2 indicated that both groups reported increased levels of flow from pre- to post-test. Significant increases in FSS-2 regardless of group indicates that other variables besides the MBSR treatment may have increased perception of flow in the control group. For example, the participants in the control group may have simply become more aware of the elements of flow by completing the questionnaire, thus exposing them to the dispositions of flow-like behavior. This threat to internal validity has been referred to as repeated testing and may have been a confound within the design of this study (Campbell & Stanley, 1963). As a result, this could have caused members of

the control group to score higher during the post-test. Despite the possibility of repeated testing effecting the control group, the lack of significant findings may also provide evidence to suggest that MBSR does not impact measures of flow.

To exert control over thoughts, feelings, motivations, and actions people exhibit self-reflective and self-reactive characteristics (Bandura, 1991). Stemming from the self-reactive aspect of the SCT, Bandura (1991) points to three sub functions that direct self-regulation through self-reaction: (1) monitoring one's behavior, (2) judgment of one's behavior in relation to internal and/or external standards, and (3) affective self-reaction. Taking this into account, it seems plausible that increases in the control group may have been the result of the three sub functions of reaction listed above in conjunction with forethought. In terms of practical application, this finding may indicate that simply bringing awareness to this construct may be enough to foster conditions that elicit flow which presents an area of interest for future research. This finding also illustrates some of the concerns expressed by scholars when studying the effects of mindfulness, which cautioned against studies without a control group (Bishop, 2002). In the present study the significant overall changes in flow with the non-significant effect by group illustrates the importance of employing a control group setting.

The analysis examining the effects of MBSR on flow between groups provides additional information that may benefit an understanding of mindfulness. In the repeated-measure ANOVA it was found that there were no significant differences in FSS-2 based on experimental or control group settings. One reason for the lack of significant effect on flow may be attributed to the duration of MBSR treatment. The use of a 20-minute MBSR exercise may not have been long enough to significantly influence or create the

conditions for increasing flow during musical practice. Additionally, the frequency of treatments may have been a factor influencing the effect of MBSR on flow. It is possible that one 20-minute treatment may not be enough to effectively develop changes in the regulation process that promote flow. While Carmody and Baer (2009) provided evidence that supported claims that shorter durations of MBSR treatment may still be effective in eliciting change, results from the current study indicate further research is needed. It is possible that in the design of this study the time interval between dependent measures may have been a confound. Future research may benefit from a research design controlling for the time interval between dependent measures to account for this limitation. Looking at mindfulness as part of the self-regulatory system it is important to keep in mind the relationship and exchange of information between environmental factors, personal factors, and behaviors (Bandura, 1991). Bandura (1991) emphasized that the transfer of information between these factors is not always equal and that changes occur over time. Future research could benefit from exploring a variety of durations and frequency of MBSR treatments.

Regarding the second research question, several interesting findings emerged. Similar to research question one, significant increases in SCS were reported from pre-test to post-test; however, there was no significant interaction by group. The absence of a significant interaction in the current study is inconsistent with other studies that found MBSR to significantly effect reports of self-compassion (Birnie, Speca, & Carlson, 2010). However, Birnie, Speca, and Carlson (2010) employed a traditional 8-week MBSR program as part of their treatment which provides further evidence to support the idea that a longer treatment time may be needed to evidence change.

Results from this analysis show that while the control group received no treatment, participants in this group still saw an increase on the SCS. Like the results from research question one, it appears that an increase in self-compassion within the control group could be attributed to participants being exposed to the SCS and questions about the dimensions of self-compassion during the pre-test. One possible explanation for how the questions on the SCS may improve levels of self-compassion can be found in the triadic reciprocal relationship between behavior, personal beliefs, and the environment. Within the framework of self-regulation, it is plausible that control group participants' self-reaction and self-observation to the questions on the SCS pre-test may have influenced their response during the post-test. Campbell and Stanley (1963) describe this as a reactive or interaction effect in which a pre-test may increase or decrease participants sensitivity to experimental conditions. While the lack of significant changes between groups on the SCS may be attributed to a larger increase of scores in the control group, it seems equally possible that the length of time and/or the frequency of treatment may also be a factor. Similar non-significant findings for both questions one and two may also suggest that MBSR has no effect on reports for both flow and self-compassion; however, future research is still needed to examine the relationships between MBSR, flow, and self-compassion to provide more evidence for this supposition. Considering the similarity in findings for questions one and two, perhaps future research needs to address the length of MBSR treatment and how often participants are engaged in the treatment. Implications for future research include conducting treatment periods that extend over a longer period of time (i.e., multiple days of treatment). Additionally, future research may examine the effects of shorter MBSR treatments that extend over a multi-day time frame.

Research question three, which investigated the relationship between the constructs of flow and self-compassion, provided some valuable information into this underexplored relationship. Pearson's correlation coefficient determined no significant correlation between flow and self-compassion. Despite results indicating no significant correlation between the two constructs, this provides preliminary findings examining how flow and self-compassion interact (or do not interact), as very little literature existed addressing this relationship. The lack of significance found in this relationship could mean that these constructs bear no relation to one another; however, more research is needed to support this claim. This study employed the FSS-2 which is designed to measure flow state in a specific event (state experience) as opposed to the Dispositional Flow State Scale-2 (DFS-2) which measures overall dispositions (trait experience) towards flow. Further investigation into the relationship between flow and self-compassion may benefit from using the DFS-2 and SCS rather than the FSS-2 and SCS to better understand trait as opposed to state perceptions of flow. Conversely, it may be beneficial to alter the wording of the SCS to get a more accurate report of state perceptions in the context of a specified event or activity. However, alterations in the wording would require additional tests for reliability and validity. Future research investigating correlations between flow and self-compassion in music may also benefit from research designs studying these constructs in relation to different contexts such as rehearsals, performances, and private lessons. Along with studying differences in settings, it may also be valuable to study correlations between flow and self-compassion in a variety of ages or skill levels.

Limitations

There were several limitations that may have influenced the results of the study and provide areas of interest for future studies. A primary limitation to this study was feasibility and time. Ideally, this study would have employed a Solomon Four Group Design. However, this was not possible in the present study due to the size of the convenience sample available to the researcher. An additional design that may benefit similar studies is a double-blind research design. It is also possible that some participants may have been uncomfortable sitting in a room for an extended period of time with the researcher and other participants. In this study the researcher was required to remain in the room per IRB protocol and as such, future research may employ the use of a two-way mirror. The use of two-way mirror could possibly allow the participants to feel more comfortable while still ensuring their safety. Another approach to helping participants maintain a level of comfort would be to allow them to use their own electronic device with headphones to listen to a guided meditation in a setting that is comfortable for them.

While studies support effective use of short MBSR treatments (Carmody & Baer, 2009; Diaz, 2011), Kabat-Zinn (2003) cites that to be truly mindful of the present moment is not the result of a brief encounter, but the through sustained practice and dedication. This study had one intervention and only two measurement points, which may have influenced the results. It is possible that by only having one MBSR intervention and two measuring points participants did not have enough time to internalize aspects of mindfulness in a way that influenced flow and self-compassion. Despite the potential effective use of shorter MBSR interventions (Carmody & Baer, 2009; Diaz, 2011), this study provides evidence questioning the length of time needed for a mindfulness

treatment to influence change for flow and self-compassion. Future research exploring MBSR, flow, and self-compassion may benefit from multiple measuring points across time, and more frequent and/or longer interventions.

Another limitation of this study can be found in the measuring instruments themselves. In the current study the use of the FSS-2 was used to measure flow; however, to gain a better understanding of how flow and self-compassion interact it may be helpful to study these from a trait as opposed to a state perspective. Measures of trait perceptions refer to overall dispositions towards constructs while state perceptions measure constructs in relation to a specific event or activity. This difference between trait and state perception may have been a limiting factor in the analyses of correlation between the FSS-2 and the SCS. It is possible that the wording on the SCS caused confusion for the participants, despite instructions to answer in response to the specified 20-minute practice session at pre- and post-test. For example, question one from the SCS reads as follows, “I’m disapproving and judgmental about my own flaws and inadequacies.” The wording of this question implies trait perceptions rather than state perceptions and alteration to the wording may benefit future research. Examples of these alterations may include the following, “I was disapproving and judgmental about my own flaws and inadequacies during the practice session.” These alterations on the SCS may be beneficial in studying self-compassion during specific events and may provide a better way to study the possible correlation with the FSS-2. However, further testing for validity and reliability would be needed if alterations were made on the SCS. Alternatively, future research investigating correlations between flow and self-compassion may employ a comparison of trait experiences rather than state experiences. To accommodate for this, the use of the

DFS-2 and SCS as opposed to the FSS-2 and the SCS may provide a more accurate way to measure this correlation.

Conclusion

The results from this study simply do not provide enough evidence to draw any strong conclusions and the lack of significant findings in this study provide more questions than answers. Several limitations within the design of this study may have contributed to the lack of significant results; however, it is equally plausible that MBSR has no effect on flow and self-compassion. While it remains possible that no relationship exists, additional research is still needed to support this claim. Future research addressing the aforementioned limitations may uncover questions about what relationships, if any, exist between MBSR, flow, and self-compassion. Despite the mystery and scientific debates surrounding meditation practices, intellectual intrigue for the unknown can fuel a better understanding about how we can use this construct to benefit the human condition.

APPENDIX A

TRANSCRIPT OF MBSR GUIDE

Preparing now to move into a 20-minute sitting meditation by taking a seat either on a cushion or a chair. Maintaining a dignified posture with an upright spine and allowing for the body to settle in, to sink down. Letting go of all the doing, all the busyness, all that it took to get here and fully arriving just as you are.

Three individual bell chimes over 30 seconds (non-verbal sound)

Arriving, just as you are. Bringing your attention to the next in breath followed by the next out breath.

Letting go. Breathing in. Breathing out.

Noticing breathing, dropping down into stillness.

There may be a sense of the body being supported or the touch where it makes contact with the chair or the cushion. Letting go of any effort and being here in this sitting posture just as you are. Settling into stillness.

The breath is a vehicle for bringing attention to this body and how it is in each moment.

As you breathe in this body becomes known. Breath by breath as you breathe out this body becomes known.

Settling. Dropping down. Being still. Breathing.

Anchoring attention in the next in breath at the abdomen and the next out breath from the abdomen. Letting go of breathing in any particular way. Simply bringing awareness of breathing to the body at the abdomen.

The abdomen being moved by the breath. This body can breathe with the breath. Sitting grounded in stillness. Moving and breathing grounded in stillness.

Expanding the awareness of this living, breathing, still, sitting body to its entirety. To a body being breath by each in breath and each out breath.

In seeing about letting the meditation actually begin now. Breathing in, knowing breathing in. Breathing out, knowing breathing out. Is all the guidance needed.

Breathing in. Breathing out.

Just this. Knowing breathing in, knowing breathing out.

Three individual bell chimes over 30 seconds (non-verbal sound)

APPENDIX B

INSTITUTIONAL REVIEW BOARD APPROVAL



UNIVERSITY OF OREGON

DATE: December 06, 2017 **IRB Protocol Number: 10192017.019**

TO: Trevor Lavery-Thompson, Principal Investigator
Department of School of Music (Non-Submitting)

RE: Protocol entitled, "Effects of meditation on flow state and self-compassion during music practice"

Notice of IRB Review and Approval
Expedited Review as per Title 45 CFR Part 46 # 7

The project identified above has been reviewed and approved by the Committee for Protection of Human Subjects (CPHS), the University of Oregon Institutional Review Board (IRB). This research has been determined to be no greater than minimal risk and qualifies for expedited review procedures.

The IRB has approved the research to be conducted as described in the attached materials. As a reminder, it is your responsibility to submit any proposed changes for IRB review and approval prior to implementation.

Approval period: December 06, 2017 - December 05, 2018

If you anticipate the research will continue beyond the IRB approval period, you must submit a request for continuing review approximately 60 days prior to the expiration date. **Without continued approval, the protocol will expire on December 05, 2018 and human subject research activities must cease.** A closure report must be submitted once human subject research activities are complete. Failure to maintain current approval or properly close the protocol constitutes non-compliance.

You are responsible for adhering to the *Investigator Agreement* submitted with the initial application for IRB review. The responsibilities of the agreement are reiterated at the end of this letter below. You are responsible for conduct of the research and must maintain oversight of all research personnel to ensure compliance with the IRB approved protocol.

The University of Oregon and Research Compliance Services appreciate your commitment to the ethical and responsible conduct of research with human subjects.

Sincerely,

A handwritten signature in black ink that reads "Kalindi Allen".

Kalindi Allen
Research Compliance Administrator

CC: Jason Silveira

COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS • RESEARCH COMPLIANCE SERVICES

677 E. 12th Ave., Suite 500, 5237 University of Oregon, Eugene OR 97401-5237

T 541-346-2510 F 541-346-5138 <http://rcs.uoregon.edu>

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APPENDIX C

INFORMED CONSENT

University of Oregon Consent Form

University of Oregon Department of Music Education
Informed Consent for Participation as a Subject in *Effects of Mindfulness-Based Stress Reduction on Flow State and Self-compassion during Music Practice*
Investigator: Trevor Scott Lavery-Thompson
Type of consent: Adult Consent

You are being asked to be in a research study examining perceived mental states during individual music practice. You were selected based on your musical involvement in the School of Music and Dance. Please read this form and ask any questions that you may have before agreeing to be in the study.

The purpose of this study is to examine perceived mental states in musicians while practicing individually. Participants in this study are from the University of Oregon and will not exceed 80 individuals. There are no reasonable foreseeable (or expected) risks.

If you agree to be in this study, you would be asked you to do the following things:

1. Participate in two separate individual phases over the course of two days. Phase one will require no more than 40 minutes. Some individuals will be required to participate in a guided listening exercise on the second day, which will be done in small groups, with the lights off, and eyes will be closed requiring no more than 60 minutes. While this is a requirement for some, all other participants will have the option to complete the same guided listening exercise following the completion of the second survey requiring 60 minutes or less; however, if members from this group choose to not listen to the guide, the second phase can be complete in 30 minutes.
2. During each phase you will be required to practice on your instrument or voice and complete a survey following each phase.

While this study is not designed to specifically benefit participants, subjects may become familiar with a technique that could benefit their practicing habits. The results of this study also have the potential to positively impact musicians who are interested in improving their practice habits/techniques.

Participants will not receive any compensation for their involvement in this study. There is no cost to you to participate in this research study.

It is possible that members of this group may experience discomfort while sitting in a darkened room with your eyes closed during the listening guide and to ensure everyone's safety, the researcher will remain in the room to supervise this activity. Focus should remain on the instructions given during the listening guide and unless an emergency arises, please remain engaged in the activity. Although unlikely it is possible that demographic information you provide could lead to identifying you as a participant in this study. The records of this study will be kept private and any identifiable information will be stored in a locked file accessible only by the Principal Investigator and faculty advisor. In any sort of report that may be published, it will not include any information that will make it possible to identify a participant. Data will be analyzed in aggregate and stored on the Principal Investigator's password-protected laptop. Access to the records will be limited to the researcher; however, please note that regulatory agencies, the Institutional Review Board, and internal University of Oregon auditors may review the research records.

Your participation is voluntary. If you choose not to participate, it will not affect your current or future relations with the University of Oregon. You are free to withdraw at any time, for whatever reason. There is no penalty or loss of benefits for not taking part or for stopping your participation. The subject of this study will not jeopardize grades nor will risk the loss of present or future faculty or university relationships. You will be provided with any significant new findings that develop during the course of the research that may make you decide that you want to stop participating.

The investigator may withdraw you from the study at any time for the following reasons: (1) withdrawal is in your best interests (e.g., side effects or distress have resulted) or (2) you have failed to comply with the study requirements.

The researcher conducting this study is Trevor Scott Lavery-Thompson. For questions or more information concerning this research you may contact him at any time by email tlavery6@uoregon.edu or by phone 530-913-4491. If you believe you may have suffered a research related injury, contact Mr. Lavery-Thompson using this contact information listed above.

If you have any questions about your rights as a research subject, you may contact: Research Compliance Services, University of Oregon at (541) 346-2510 or ResearchCompliance@uoregon.edu. You will be given a copy of this form to keep for your records and future reference.

I have read (or have had read to me) the contents of this consent form and have been encouraged to ask questions. I have received answers to my questions. I give my consent to participate in this study. I have received (or will receive) a copy of this form.

Signatures/Dates

Study Participant (Print Name)

Participant or Legal Representative Signature

Date

APPENDIX D

FLOW STATE SCALE-2 (FSS-2)

Please answer the following questions in relation to your experience in the event you have just completed. These questions relate to the thoughts and feelings you may have experienced during the event. There are no right or wrong answers. Think about how you felt during the event and answer the questions using the rating scale below. Circle the number that best matches your experience from the options to the right of each question. Rating Scale:

ID:

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

01. I was challenged, but I believed my skills would allow me to meet the challenge.	1	2	3	4	5
02. I made the correct movements without thinking about trying to do so.	1	2	3	4	5
03. I knew clearly what I wanted to do.	1	2	3	4	5
04. It was really clear to me that I was doing well.	1	2	3	4	5
05. My attention was focused entirely on what I was doing.	1	2	3	4	5
06. I felt in total control of what I was doing.	1	2	3	4	5
07. I was not concerned with what others may have been thinking of me.	1	2	3	4	5
08. Time seemed to alter (either slowed down or speed up).	1	2	3	4	5
09. I really enjoyed the experience.	1	2	3	4	5
10. My abilities matched the high challenge of the situation.	1	2	3	4	5
11. Things just seemed to be happening automatically.	1	2	3	4	5
12. I had a strong sense of what I wanted to do.	1	2	3	4	5
13. I was aware of how well I was performing.	1	2	3	4	5
14. It was no effort to keep my mind on what was happening.	1	2	3	4	5
15. I felt like I could control what I was doing.	1	2	3	4	5
16. I was not worried about my performance during the event.	1	2	3	4	5
17. The way time passed seemed to be different than normal.	1	2	3	4	5
18. I loved the feeling of that performance and I want to capture it again.	1	2	3	4	5
19. I felt I was competent enough to meet the high demands of the situation.	1	2	3	4	5
20. I performed automatically.	1	2	3	4	5
21. I knew what I wanted to achieve.	1	2	3	4	5
22. I had a good idea while I was performing about how well I was doing.	1	2	3	4	5
23. I had total concentration.	1	2	3	4	5
24. I had a feeling of total control.	1	2	3	4	5
25. I was not concerned with how I was presenting myself.	1	2	3	4	5
26. It felt like time stopped while I was performing.	1	2	3	4	5
27. The experience left me feeling great.	1	2	3	4	5
28. The challenge and my skills were at an equally high level.	1	2	3	4	5
29. I did things spontaneously and automatically without having to think.	1	2	3	4	5
30. My goals were clearly defined.	1	2	3	4	5
31. I could tell by the way I was performing how well I was doing.	1	2	3	4	5
32. I was completely focused on the task at hand.	1	2	3	4	5
33. I felt in total control of my body.	1	2	3	4	5
34. I was not worried about what others may have been thinking.	1	2	3	4	5
35. At times, it almost seemed like things were happening in slow motion.	1	2	3	4	5
36. I found the experience extremely rewarding.	1	2	3	4	5

APPENDIX E

SELF-COMPASSION SCALE (SCS)

Please read each statement carefully before answering. To the right of each item, indicate how often you behave in the stated manner, using the following scale:

ID:

Almost Never				Almost always
1	2	3	4	5

01. I'm disapproving and judgmental about my own flaws and inadequacies.	1	2	3	4	5
02. When I'm feeling down I tend to obsess and fixate on everything that's wrong.	1	2	3	4	5
03. When things are going badly for me, I see the difficulties as part of life that everyone goes through.	1	2	3	4	5
04. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.	1	2	3	4	5
05. I try to be loving towards myself when I'm feeling emotional pain.	1	2	3	4	5
06. When I fail at something important to me I become consumed by the feeling of inadequacy.	1	2	3	4	5
07. When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.	1	2	3	4	5
08. When times are really difficult, I tend to be tough on myself.	1	2	3	4	5
09. When something upsets me I try to keep my emotions in balance.	1	2	3	4	5
10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.	1	2	3	4	5
11. I'm intolerant and impatient towards those aspects of my personality I don't like.	1	2	3	4	5
12. When I'm going through a very hard time, I give myself the caring and tenderness I need.	1	2	3	4	5
13. When I'm feeling down, I tend to feel like most people are probably happier than me.	1	2	3	4	5
14. When something painful happens I try to take a balanced view of the situations.	1	2	3	4	5
15. I try to see my failing as part of the human condition.	1	2	3	4	5
16. When I see aspects of myself that I don't like, I get down on myself.	1	2	3	4	5
17. When I fail at something important to me I try to keep things in perspective.	1	2	3	4	5
18. When I'm really struggling, I tend to feel like other people must be having an easier time of it.	1	2	3	4	5
19. I'm kind to myself when I'm experiencing suffering.	1	2	3	4	5
20. When something upsets me I get carried away with my feelings.	1	2	3	4	5
21. I can be a bit cold-hearted towards myself when I'm experiencing suffering.	1	2	3	4	5
22. When I'm feeling down I try to approach my feelings with curiosity and openness.	1	2	3	4	5
23. I'm tolerant of my own flaws and inadequacies.	1	2	3	4	5
24. When something painful happens I tend to blow the incident out of proportion.	1	2	3	4	5
25. When I fail at something that's important to me, I tend to feel alone in my failure.	1	2	3	4	5
26. I try to be understanding and patient towards those aspects of my personality I don't like.	1	2	3	4	5

APPENDIX F
DEMOGRAPHIC FORM

ID:

Demographic Questionnaire

Year in school (Circle):

- Freshman
- Sophomore
- Junior
- Senior
- Master
- Doctoral
- Other (specify):

Instrument/voice using for this study:

Major:

Gender:

How often to you meditate?

Circle:
1 2 3 4 5

(1=almost never----- 5= Frequently-more than three days a week)

APPENDIX G

RECRUITMENT SCRIPT

My name is Trevor Lavery-Thompson and I am a student from the Music Education Department at the University of Oregon. I am inviting you to participate in my research study about flow state and self-compassion. You're eligible to be in this study because you are a music student at the collegiate level and are enrolled in a music ensemble. If you decide to participate in this study, you will be asked to participate in two individual phases over the course of two days. Each session will require you to practice your instrument or voice along with completing a survey after each practice session.

Participants will be asked to complete a listening exercise prior to the second practice session that will consist of listening to an audio recording. Phase one will require no more than 40 minutes and the second phase can be complete in less than 60 minutes. There is a form being passed around the room for those interested in participating. Please provide your full name and email address under a preferred time slot. Remember, this is completely voluntary. You can choose to be in the study or not. If you are interested, please provide your name, phone number, and email on the sign-up sheet that is being passed around the room.

APPENDIX H

PARTICIPANT INSTRUCTIONS

1. Locate an empty practice room either by yourself or with the researcher.
2. Set phone into airplane mode.
3. Get your instrument and material ready for practice. You may practice whatever music you want and the goal is to replicate normal practice.
4. When you are ready, set an alarm for 20 minutes and begin to practice. Do not leave the room unless it is an emergency.
5. After the 20-minute alarm has gone off, stop practicing and complete both surveys **IMMEDIATELY AFTER THE PRACTICE SESSION.**
6. Complete the two surveys in response to your 20-minute practice session.
7. When you are finished, please place the completed survey in the collection envelope outside of office #123 (next to vending machines).
8. Once you have turned in the surveys, your participation will be complete for this phase.

APPENDIX I

VERBAL INSTRUCTIONS FOR TREATMENT

1. Turn all phones or other devices into airplane mode.
2. Unless an emergency arises, remain sitting with eyes closed and follow instructions given in the recording.
3. The lights will be off.
4. Three chimes will start and end meditation.
5. I will be in the room as a supervisor.
6. When you hear a male voice get in a comfortable position, close your eyes, and follow the instructions in the guide.

APPENDIX J

ENVIRONMENTAL CONTROL CHECKLIST

1. Hang “Do Not Disturb Sign” outside the door.
2. Turn off lights.
3. Airplane mode on phone and Wi-Fi off on laptop.
4. Volume set at 65% on laptop.
5. Silence all objects in the room that can make noise (e.g., clocks, phones, computers)
6. Review instructions with participants.

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