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LAURETTE RODDIN
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PERFORMANCE PSYCHOLOGY AND MUSICIAN WELLNESS: FOUNDATIONS FOR SUSTAINABLE PRACTICE HABITS

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BY THE COMMITTEE CONSISTING OF

Dr. Jonathan Nichol, chair

Dr. Melissa Baughman

Dr. Luz-Eugenia Fuenzalida

Dr. Valerie Watts

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Abstract

The purpose of this dissertation is to provide a model for musicians to build sustainable and effective practice habits through the understanding of educational psychology, wellness, and deliberate practice. This research stemmed from the idea of "how do I practice?" Practicing is more than execution of woodshedding and is a combination of psychological elements, wellness, and habit formation. I define "musicians" broadly as a category of lifelong learners who are continuing and aspiring to improve their performance skills, whether a student, professional, or hobbyist. I explore the origins of performance psychology and its relevance to music, writing for musicians of all skill levels. Examining concepts such as educational psychology, metacognition, and neuroplasticity shows that understanding how the brain functions can enhance musical growth. I examine how performance psychology can assist musicians in boosting confidence, managing anxiety, and overcoming perfectionism to improve their performance.

I focus on the influence of self-esteem on musicians' cognitive and emotional states in this document, which can lead to detrimental thought patterns and reduced motivation. Practicing present-moment awareness promotes mental health, decreases performance anxiety, and encourages a mindset grounded in positive self-reflection. These principles play a crucial role in developing effective practice routines, leading to successful performances and increased self-worth. Consistent and structured music practice enhances technical skills and elevates overall performance quality. By integrating concepts from psychology, wellness, and deliberate practice techniques, musicians can cultivate sustainable practice habits that improve focus, prevent burnout, and promote long-term growth.

Introduction

The study of music performance can be enriched through the perspective of psychology. Understanding how musicians learn, adapt, and maintain motivation over time demonstrates that consistency builds deliberate effort, self-regulation, and mental conditioning. By integrating insights from psychological frameworks, neuroscience, motivation, and wellness, this dissertation examines how musicians can develop sustainable, intentional, and effective practice habits.

Performance psychology is a discipline in sports, business, and music performance. It is a "subdivision of psychology that examines psychological factors influencing optimal human performance. Established principles of performance psychology are employed to assist professionals at the top of their game, produce superior results often under pressure of competition, role, or spectator expectation."[1] The origins of performance psychology date back to the 1800s in Europe, emerging from sports and exercise psychology. In 1830, European psychologist Carl Friedrich Koch published "Calisthenics from the Viewpoint of Dietetics and Psychology." This work examines the relationship between physical exercise, nutrition, and mental state and is considered one of the earliest publications in the field of sports psychology. Researchers such as Konrad Rieger and Angelo Mosso studied hypnosis, endurance, and mental fatigue.[2] Pierre de Coubertin, a French psychologist at the French Institute of Sports in the mid-twentieth century, promoted sports psychology as a field of science. The research advancements

[1] Laurence Gerard Maguire, "What Is Human Performance Psychology?," Human Performance, March 25, 2024, https://humanperformance.ie/what-is-human-performance-psychology/.

[2] Marc Lochbaum et al., "Sport Psychology and Performance Meta-Analyses: A Systematic Review of the Literature," *PLoS ONE* 17, no. 2 (February 16, 2022): 2. https://doi.org/10.1371/journal.pone.0263408.

led to the establishment of the European Sport Psychology Organization (FEPSAC) in the 1960s. Applied sports psychology gained prominence internationally, notably through its strategic use by the Soviet Union in the 1952 Olympics.[3] Sports psychology grew into a distinct field in the 20th century with the establishment of labs and organizations, and has since expanded globally through specialized journals and extensive literature on psychological aspects of sport performance, including topics such as goal setting, confidence, and anxiety in sports.

Performance psychology can be effectively applied to music because it addresses key factors such as musical self-efficacy, music performance anxiety, and the cognitive and motor skills essential for successful music performance. When applied to music, these principles can help musicians manage performance anxiety, sustain concentration under pressure, and enhance their artistic interpretation. There is a complex interplay of psychological and physiological factors in music performance, and musicians often feel a desire for perfectionism in their playing. However, many unpredictable and uncontrollable variables may affect their performance and create stress. Musicians must be able to focus and adjust to these variables. By applying cognitive and physical skills and de-emphasizing the value of a single performance, musicians are more fit to handle high-stress situations. I examine internal factors such as emotional regulation, self-efficacy, and motivation, as well as external factors such as performance environments, time constraints, and workload, that influence performance-based tasks and help guide musicians toward successful performances.

Performance psychology research is essential in music and significantly influences practice sessions and performances. Musicians who have had negative musical experiences can associate those feelings with their future musical endeavors. These experiences can lead to a

[3] Maguire, "What Is Human Performance Psychology?"

negative self-worth, low drive, and unrealistic expectations for the musician. Musicians can spiral into negative thought patterns, which hinder their behavior both in practice and performance. One notable manifestation of this is avoidance, which frequently presents itself in the form of procrastination. Emotional regulation is a key component of success for a musician. Growth and success depend on learning to manage challenging emotions and work through negative moods. Improved emotional regulation promotes self-awareness, builds emotional resilience, enhances decision-making, and fosters overall well-being. The US Centers for Disease Control and Prevention mentions, "by acknowledging and addressing difficult emotions, we can pave the way for personal growth, improved relationships, and better overall health and well-being."[4] Emotional resilience is critical for long-term success because it "helps you to be flexible in accepting reality and feel optimistic about the future, regardless of how challenging the situation is. Emotional resilience also involves a solid capacity to manage and regulate your emotions and take charge of your life."[5]

Managing a large and varied workload often creates challenges for musicians and can lead to feelings of being overwhelmed, similar to traits linked to procrastination. Questions such as "Where should I start?" and "How should I begin?" frequently arise, reflecting uncertainty about task prioritization. Their schedules often include teaching full private studios, pursuing research activities, traveling, and preparing presentations for professional conferences. Musicians may struggle to allocate sufficient time for effective practice. As a result, some tasks or priorities may be overlooked until deadlines are near. This constant balancing act can lead musicians to

[4] "Managing Difficult Emotions," Centers for Disease Control and Prevention, October 1, 2024, https://www.cdc.gov/emotional-well-being/managing-difficult-emotions/index.html.

[5] Cleo Haber, "The Role of Emotional Awareness in Personal Growth," North Star Therapy, August 26, 2024, https://www.northstartherapy.ca/blog/emotional-awareness-and-personal-growth.

experience heightened stress and associated negative emotions. Acceptance of this "appears to specifically attenuate the experience of negative emotions, the emotions most likely to be heightened during stressors."[6]

In addition to managing complex schedules, musicians must navigate external factors that influence their performance, including environmental conditions such as temperature, humidity, and lighting in the performance space. These variables can affect musicians' tuning accuracy, reed responsiveness, and physical comfort, which may interfere with their performance. Musicians must be able to adapt to unforeseen situations during live performances. Performers can better handle environmental inconsistencies by cultivating flexible mindsets and preparing for unexpected issues. Several strategies can be used to address these factors. Consistent use of these strategies can improve mental clarity and promote greater success for musicians.

[6] Brett Q. Ford et al., "The Psychological Health Benefits of Accepting Negative Emotions and Thoughts: Laboratory, Diary, and Longitudinal Evidence.," *Journal of Personality and Social Psychology* 115, no. 6 (July 13, 2017): 21, https://doi.org/10.1037/pspp0000157.

Chapter I: Psychology and Metacognition

Chapter I focuses on psychological principles. I draw on educational psychology to show how metacognition and self-reflection influence effective practice. Zimmerman's Self-Regulated Learning (SRL) cycle emphasizes forethought, performance, and reflection. Musicians who engage in this cycle plan intentionally, monitor themselves during practice, and reflect to adjust strategies. Sweller's Cognitive Load Theory (CLT) explains how we can minimize distractions and maximize working memory when learning new pieces. For example, breaking down a difficult passage into smaller units reduces cognitive load. Executive Function (EF) skills, such as planning, self-monitoring, and working memory, directly help in organizing rehearsals or memorizing scores. Neuroplasticity is the brain's ability to adapt. Research confirms that the brain's neuroplasticity is strengthened through targeted, repeated practice, especially when mistakes are recognized and corrected rather than ignored.

These theories give musicians clear methods to practice. Recording a run-through of a piece, reflecting, and journaling engage SRL. Structuring practice with chunking or scaffolding reduces mental overload. Creating routines focused on alertness and recovery helps maintain focus and improve retention. In performance, these psychological strategies support musicians in managing pressure, self-monitoring in real-time, and maintaining confidence on stage. Musicians excel when they combine cognitive science with reflective practice to become proactive, self-regulated learners.

Educational Psychology: The Learning Complex System

An understanding of educational psychology provides a foundation for enhancing both student learning and instructional effectiveness. Educational psychology provides tools to enhance learning, track progress, and understand the creative and motivational forces influencing the relationship between students and teachers. Educational psychologists study how people learn, absorb, and remember new information. Studying teaching methods, instructional processes, and different learning outcomes helps educational psychologists organize their research. Although most of this research focuses on early childhood, educational psychology has expanded to schools of all levels, adults with learning disabilities, community organizations, learning centers, and more.[7]

Dr. Karen Harris, American educational psychologist and special educator, discusses how educational psychologists have "become indispensable members of teams continuing work in translation and impact."[8] She believes that learning is a complex process that "relies on development across diverse learners in multiple areas." Good instruction requires an integration of the "evidence from various theories, perspectives, and lines of research." Dr. Harris believes that "educational psychologists have contributed, and continue to contribute, theoretical and empirical components to this complex systems approach." In addition, she states, "our field now plays a critical role in exploring individual learners as "complex systems" within larger complex systems."[9] These perspectives are directly connected to music education, where learning involves a dynamic interaction among cognition, emotion, and physical skill.

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[7] Touro University Worldwide, "What Does an Educational Psychologist Do?," Touro University Worldwide, February 23, 2024, https://www.tuw.edu/program-resources/educational-psychologist/.

[8] Karen R. Harris, "Educational Psychology: A Future Retrospective," *Journal of Educational Psychology* 110, no. 2 (Feb. 2018): 169. doi:10.1037/edu0000267.

Dr. Harris' perspective can be meaningfully applied to music education by encouraging teachers to take a more individualized approach to music teaching and learning. Her view of learners as "complex systems" within larger complex systems aligns with how music learning involves cognitive, emotional, technical, social, and physical skills. Educational psychology can help address music students who struggle with performance anxiety due to a lack of emotional regulation or self-efficacy. Dr. Harris' triangulation approach to instruction suggests that music teachers can better support their students' needs by incorporating areas such as cognitive load theory, motivation, and executive functioning theories into their teaching. Effective music instruction requires adapting to the individual needs of all students while considering broader educational factors. Integrating educational psychology into music teaching helps educators better understand how students learn and develop, allowing them to respond more effectively to each student's needs.

[9] Ibid., 170-1.

Differentiated Learning in Music Practice and Instruction: Learning and Motivation

Educational psychologists use theories of human development to understand how people learn and to shape effective teaching strategies. To determine how to make learning more effective, educational psychologists examine how people learn in various settings while studying the social, emotional, and cognitive processes involved in learning.[10] Because people process information differently, there are multiple learning styles, which refer to the idea that individuals have preferred ways of taking in, processing, and retaining information. There are four main types of learning styles: visual, auditory, reading/writing, and kinesthetic. Visual learners benefit from visual aids such as diagrams and charts. Auditory learners understand content best through listening aids, such as recordings, discussions, or lectures. Learners who benefit from reading/writing absorb information best through notetaking, text, and lists. Kinesthetic learners gain understanding through experience, such as hands-on activities, movement, and experiments. Although individuals may have a preferred learning style that best fits their needs, combining different approaches can strengthen understanding and retention.

By studying elements of educational psychology, musicians can apply learned tasks to the field of music. Musicians can benefit from engaging with different types of learning styles, which support understanding and skill development. Using them in combination can help musicians internalize concepts, problem-solve effectively, and ensure long-term understanding. Some core aspects of musical growth include actively listening, recording practice sessions, and working to internalize pitch, tone quality, and rhythm. Musical visualization techniques include reading notation, watching performances, and analyzing scores. Visual processing can also help with mental practice and memorization. Writing techniques, such as annotating scores and

[10] American Psychological Association, "Educational Psychology Promotes Teaching and Learning," American Psychological Association, 2014, https://www.apa.org/action/science/teaching-learning.

keeping a practice journal, can help track musical progress and clarify goals. Musical technique is physical and has a direct correlation to kinesthetic learning. Practicing musical technique through repetition helps build muscle memory. Awareness of posture, movement, and tension helps musicians play with both ease and expressive freedom. Techniques such as scaffolding and "chunking," isolating a few measures of music at a time, make complex sections in repertoire more manageable by breaking them into smaller, meaningful parts. Combining these different learning styles, auditory, visual, reading/writing, and kinesthetic, promotes a deeper engagement with learning.

Music teachers play a critical role in shaping and inspiring their students. Implementing motivation theories, such as a growth mindset, encourages musicians to view challenges as opportunities for improvement rather than signs of inadequacy. Psychologist Carol Dweck researched the concept of growth mindset, concluding that it offers an opportunity to reach higher levels of potential once individuals understand that failure is an integral part of the learning process.[11] With a growth mindset, mistakes are seen as opportunities for learning, and music is a lifelong journey that requires patience, persistence, and curiosity.

Music teachers should teach through multiple modalities because students process and internalize information differently. When learning a specific rhythmic passage, one student might best understand it kinesthetically by feeling it in their body. Another student might need to see a visual representation of the rhythm in standard notation, and another might need to hear it demonstrated by their teacher in an auditory way. Teaching students to incorporate multiple learning styles into their individualized practice builds metacognitive skills. Educational psychology's emphasis on individual learning needs further supports the idea that music

[11] Paola Savvidou, *Teaching the Whole Musician: A Guide to Wellness in the Applied Studio* (New York, Oxford University Press, 2021), 144-5.

instruction should be flexible and responsive, allowing students to engage with material in ways that suit them best. As students become aware of their most effective learning methods, they can practice more efficiently on their own. Integrating various types of learning styles supports differentiated instruction and helps musicians become more self-aware, expressive, and resourceful. This is a key part of developing musical independence and promoting long-term musicianship. Educational psychology also highlights the importance of timely, specific feedback from both teachers and self-assessment.

Cognitive Load Theory (CLT): Learning Something New

Australian educational psychologist John Sweller developed Cognitive Load Theory to explain how our brain's structure affects learning. CLT focuses on the limits of working memory and the role of long-term memory, especially when individuals are learning skills or knowledge that are not naturally acquired but are culturally significant,[12] such as music. CLT focuses on how our brains handle information when we are learning something new and is based on the idea that our working memory is limited. Sweller describes five principles that explain how our brains naturally process and store information:[13]

Principle	Function
Information store principle	Store information
Borrowing and reorganizing principle	Obtain information from others
Randomness as genesis principle	Generate novel information
Narrow limits of change principle	Restrict the random generation of novel information to protect the information store
Environmental organizing and linking principle	Use stored information to determine appropriate action within an environment

Table 1: Natural Information Processing Principles

Within Sweller's framework, working memory is "recognized as highly constrained and limited to processing about three to four new elements for only a short period, whereas long-term memory plays a central role in cognition by storing and guiding complex knowledge structures."

[12] John Sweller, "Chapter Two - Cognitive Load Theory," *The Psychology of Learning and Motivation* 55 (2011): 38. doi:10.1016/B978-0-12-387691-1.00002-8.

[13] Ibid., 43-4.

Working memory temporarily holds and processes new information, while long-term memory stores the mental frameworks, or schemas, that help individuals understand and apply it. When too much information floods the working memory, it cannot all be processed. Much of the information is lost, especially in high-pressure performance settings.

In music, a high cognitive load can interfere with expression, technique, and versatility. If a musician has not fully internalized and practiced the technical and expressive elements of a piece, the working memory can become overwhelmed during a public performance. Cognitive load can be heightened when the musician experiences music performance anxiety, which can lead to unnecessary mistakes. Effective and intentional practice strategies can turn skills such as technical fingerings, articulations, airstreams, and posture from conscious effort into automatic habits. The switch from conscious control to automated processes relieves cognitive demand while performing and allows the musician to focus on expressive and interpretive decisions in real time.

There are two main types of cognitive load in CLT: intrinsic and extraneous. Intrinsic cognitive load stems from the complexity of the material and how much prior knowledge the learner has. This type of cognitive load is determined by element interactivity and depends on how many elements can be understood at once. On the other hand, extraneous cognitive load is caused by poor instructional design and can be reduced. Teachers can reduce extraneous cognitive load by designing lessons that make information clearer and easier to process for the student.[14] CLT focuses on aligning teaching methods with the human brain's cognitive capacity to optimize learning outcomes.

[14] Ibid., 57.

Teachers can enhance learning by managing cognitive load through thoughtful instructional design and by applying insights from educational psychology. Teachers should break tasks into manageable steps, model strategies and performance, and incorporate techniques such as scaffolding (structured, step-by-step guidance), chunking (organizing material into smaller sections), and repetition (reinforcing learning through consistent practice) to manage intrinsic and extraneous cognitive load, rather than overwhelming the student with too much information. "Expertise reversal" highlights the importance of adjusting teaching strategies to match the individual learner's proficiency level.[15] If a student is struggling with executing a difficult rhythm in the altissimo register, teachers can help guide students through various practice strategies before playing the rhythm as written. Isolating the rhythm on a singular, comfortable pitch can help the student gain rhythmic independence. Then, playing the rhythm on the pitches down an octave can help the student reinforce the rhythm and gain auditory awareness of what it sounds like. Transitioning to the altissimo register by isolating each pitch out of rhythmic context helps reinforce the proper voicing. Once the student can accomplish these steps, practicing the rhythm as written with increasing tempos can help the student be more successful. Performing these steps before integrating the rhythm back into the context of the piece can prevent overload and support deeper learning. When musicians practice on their own, they act as their own teachers, managing both intrinsic and extraneous cognitive load by structuring, monitoring, and guiding their learning process.

Instruction must adapt as students gain experience. Teachers can guide students to develop metacognitive strategies to help them adjust and monitor their mental resources more

[15] Paul Main, "Cognitive Load Theory: A Teacher's Guide," Structural Learning, January 20, 2022, https://www.structural-learning.com/post/cognitive-load-theory-a-teachers-guide.

efficiently. Applying CLT principles in both practice and teaching helps musicians learn more efficiently, perform more effectively, and maintain their growth over the long term.

Executive Function (EF): Managing Focus and Flexibility

Executive function (EF) refers to a set of mental skills, including planning, working memory, attention, inhibition, self-monitoring, self-regulation, and task initiation, primarily managed by the brain's prefrontal cortex.[16] These cognitive skills support goal setting, problem-solving, and emotional regulation. Individual differences in EF affect how learners process and adapt to new information, which influences academic success.[17] Because people's EF skills differ, some musicians adapt quickly to new information while others require more structured guidance or a flexible approach. In music, this can mean the difference between a student who thrives with open-ended practice tasks and one who needs clear, step-by-step instruction. EF skills influence how musicians learn, practice, and perform. A strong working memory helps in memorizing complex passages, while effective inhibitory control and self-regulation assist musicians in staying focused and avoiding distractions during practice. For example, EF plays a key role when musicians progress from simple scale patterns to more complex ones that require increased planning, flexibility, and self-regulation. Practicing a one-octave major scale pattern in a familiar key requires basic attention and working memory, while performing multi-octave scales with varying rhythmic groupings engages more advanced EF skills such as sustained focus and inhibition. Recognizing these differences enables teachers to adapt their teaching strategies to each student's strengths, promoting more effective and individualized learning in the practice room and beyond.

[16] Sam Goldstein et al., "Introduction: A History of Executive Functioning as a Theoretical and Clinical Construct," in *Springer eBooks* (2013): 3. https://doi.org/10.1007/978-1-4614-8106-5_1.

[17] Cleveland Clinic Medical Professional, "Executive Function," Cleveland Clinic, May 5, 2025, https://my.clevelandclinic.org/health/articles/executive-function.

Educational psychology provides tools for enhancing learning, cultivating creativity, and understanding the motivation that shapes the student-teacher relationship. Music teachers should view their students as whole individuals and draw connections between music and other areas of learning.

Neuroplasticity: The Brain's Ability to Adapt and Learn

Neuroplasticity, also known as neural plasticity, is the brain's ability to reorganize and adapt its structure and functions in response to new experiences and learning. This flexibility is critical in music, where learning to play an instrument or improving a skill depends on repeated practice, focused attention, and feedback from teachers and colleagues. Neuroplasticity underlies all learning processes, allowing the brain to encode new information and retain memories.

There are two main types of neuroplasticity. Structural plasticity (e.g., synaptic plasticity and neurogenesis) refers to the brain's ability to form new connections between neurons and create new brain cells. Functional plasticity is when healthy brain regions adapt to compensate for damaged areas.[18] After trauma, like a stroke or injury, neuroplasticity helps undamaged parts of the brain control lost functions, which supports rehabilitation. Neuroplasticity enables people to adapt to new environments, challenges, and skills. Changes in brain plasticity are linked to conditions such as depression, anxiety, and PTSD. Positive neuroplastic changes can improve resilience and emotional regulation. Neuroplasticity also allows people to break bad habits and develop healthier behaviors through repeated practice and intention. In studies of long-term potentiation (LTP), a "consistent suppression of neural plasticity is observed after exposure to stress or adrenal glucocorticoids. In one of these studies, the suppression of LTP was observed after exposure to an uncontrollable stressor and correlated with behavioral performance in a learning and memory task."[19] Reducing stress is essential for maintaining the brain's ability to adapt and learn, as elevated stress levels can hinder neuroplasticity and weaken cognitive

[18] "Brain Plasticity: Our Ability to Bounce Back," Mental Health Hotline, March 5, 2025, https://mentalhealthhotline.org/brain-plasticity/.

[19] Ronald S. Duman, "Neural Plasticity: Consequences of Stress and Actions of Antidepressant Treatment," *Dialogues in Clinical Neuroscience* 6, no. 2 (June 30, 2004): 158. https://doi.org/10.31887/dcns.2004.6.2/rduman.

performance. For music teachers, creating a supportive learning environment is crucial, where mistakes are viewed as part of the learning process rather than failures. Including brief mindfulness or breathing exercises can help musicians reduce anxiety and concentrate their attention. Encouraging regular breaks and positive self-talk during practice sessions supports emotional regulation and enhances the brain's capacity to retain new information.

Musical training engages the motor, auditory, emotional, and cognitive systems, all of which are influenced by neuroplastic processes. The brain continually reorganizes itself in response to effort, mistakes, and repetition, whether a musician is a beginner learning basic concepts or a professional memorizing a complex piece. Musicians can support neuroplasticity through practice routines that enhance focus, reduce stress, and promote recovery between sessions. Understanding how the brain changes through music-making can inspire musicians to practice with greater purpose and build resilience, grit, creativity, and emotional depth.

Neuroplasticity and Music: Designing the Practice Session

Dr. Andrew Huberman is a neuroscientist and professor in the Department of Neurobiology, and Psychiatry and Behavioral Sciences at Stanford University. His "Neuroplasticity Super Protocol" outlines nine science-backed strategies to enhance learning by leveraging the brain's ability to rewire itself. These behavioral tools are designed to optimize focus, motivation, and memory consolidation. In Dr. Huberman's **first key principle**, "get alert," he discusses how learning sessions should begin with heightened alertness. Engaging in breathing techniques such as taking twenty-five to thirty deep breaths followed by brief breath-holds can stimulate adrenaline release, which primes the brain for learning. The **second key principle**, "get focused," can engage attentional circuits and aid in concentration. Staring at a fixed point for thirty to sixty seconds before starting a task can enhance mental focus. Through the **third key principle** of generating repetitions of the material or skill learned, one can maintain alertness and reinforce learning. By "expecting and embracing errors," the **fourth key principle**, one can foster a growth mindset, accelerate learning through feedback, and build resilience by viewing mistakes as essential steps toward mastery. Since errors activate neural circuits that heighten attention, one can facilitate better performance in subsequent attempts. The **fifth key principle** focuses on inserting "micro-rest" intervals into learning. By introducing ten-second pauses randomly during learning sessions, the brain is allowed to replay and consolidate information rapidly, enhancing retention. Implementing "random intermittent rewards," **key principle six**, can help maintain motivation. Randomized positive reinforcement can effectively sustain engagement and drive. **Key principle seven**, "limit learning sessions to ninety minutes," emphasizes that beyond this duration, concentration waves. After learning, do a "non-sleep deep rest (NDSR)" protocol, **key principle eight**. Engaging in practices like yoga nidra, a guided

meditation technique, within an hour after learning can aid in consolidating new information. The **ninth and final key principle** involves getting a quality, sufficient deep sleep in the nights following learning sessions. Sleep is crucial for the brain to solidify and integrate new knowledge. By systematically applying these steps, alertness, focused attention, deliberate practice with repetitions, embracing errors, and incorporating rest, individuals can optimize their learning processes and harness the full potential of neuroplasticity.[20]

Dr. Huberman's "Neuroplasticity Super Protocol" offers several practical applications in the field of music, particularly in how musicians can enhance focus, efficacy, and memory. His **first principle**, "get alert," is relevant before practicing and performing. Breathwork can stimulate alertness, which can help students transition to a more engaged mental state. The **second principle**, "get focused," staring at a fixed point, can be a simple way to prepare for deep practice. "Repetition," the **third principle**, is a core component of music learning and reinforces the value of intentional repetition for learning musical passages. Encouraging students to "expect and embrace errors," the **fourth key principle**, supports a growth mindset in music, where mistakes are an opportunity for learning and developing. Progress is not always linear, and musicians should focus on their long-term growth rather than a single performance. The **fifth principle**, "inserting micro-rests," is critical in the practice room. These "micro-rests" during practice can allow the brain to consolidate small segments of newly learned material, which can help with retention and growth. Implementing "random intermittent rewards," **key principle six**, can boost motivation for musicians. These rewards can include playing a favorite piece after practicing the assigned repertoire, going for a short walk, or even getting a cookie from the local bakery. "Limiting learning sessions to ninety minutes," **key principle seven**, directly correlates

[20] Andrew Huberman, "Teach & Learn Better With a "Neuroplasticity Super Protocol,"" Huberman Lab, October 29, 2021, https://www.hubermanlab.com/newsletter/teach-and-learn-better-with-a-neuroplasticity-super-protocol.

to music practice due to cognitive fatigue, physical weakness, and decreased motivation. **Key principle eight**, "non-sleep deep rest (NDSR)" protocol, highlights how rest and preserving mental health play an important role in retaining new musical information. Engaging in practices such as Dr. Huberman's suggested yoga nidra allows both the body and mind to rest from a practice session. The **ninth principle**, getting a quality, sufficient deep sleep, helps with consolidating new knowledge learned in the practice room, such as a new movement or fingerings. Incorporating contemplative practices such as breathing exercises, journaling, or visualization into the practice room helps students strengthen their focus and attention to engage with the music deeply. These contemplative practices encourage awareness of the present moment, strengthen connections to core values, and support learning that nurtures intellectual wellness. Through such practices, students may also improve their emotional regulation.[21] Applying these neuroplasticity principles to music can help both students and teachers structure their practice more effectively, reduce frustrations in the practice room, and support musical development in an evidence-based way.

In Dr. Huberman's educational episode, "How to Focus to Change Your Brain," he explores the science of neuroplasticity and offers practical strategies to enhance learning and focus. While neuroplasticity is more pronounced in youth, adults can still facilitate significant brain changes through deliberate practices. Children's brains exhibit high plasticity, allowing them to learn rapidly from experiences. In contrast, adults' brains require intentional focus and specific conditions to rewire existing neural connections. College students fall within what developmental psychologist Jeffrey Arnett describes as "emerging adulthood," typically between

[21] Heather A. Wadlinger and Derek M. Isaacowitz, "Fixing Our Focus: Training Attention to Regulate Emotion," *Personality and Social Psychology Review* 15, no. 1 (2011): 75-102.

ages eighteen and twenty-five,[22] a period where the prefrontal cortex and executive functions are still maturing. This shift "necessitates active engagement in learning processes to induce change."[23] Dr. Huberman's distinction between children and adult brain plasticity emphasizes the need for intentional, focused engagement for adults. This translates to structuring music practice in ways that focus attention and repetition to rewire existing neural connections. Deliberate, slow technical practice of a newly learned concept can help with this. The three primary neurochemicals that play crucial roles in facilitating neuroplasticity are acetylcholine, dopamine, and norepinephrine. Acetylcholine enhances focus, which is essential during all musical activities. Dopamine reinforces learning through reward, which in turn strengthens progress and motivation by satisfying the completion of a difficult piece of repertoire. Norepinephrine increases alertness, which is critical during performance and learning new tasks.

To improve focus and learning, Dr. Huberman recommends a "visual focus" because mental focus is closely connected to visual attention. Focusing your gaze on a specific point can train your brain to stay attentive during tasks. Additionally, using ultradian cycles can boost productivity and learning. Working in focused sessions for about ninety minutes, aligned with the brain's natural ultradian rhythms, followed by breaks, can improve learning. Incorporating ultradian cycles into music practice helps prevent burnout and enhances retention. Conducting practice sessions according to the brain's natural focus cycles, with restorative breaks, can maximize efficiency in the practice room. Managing alertness through techniques such as controlled breathing, exposure to natural light, and "strategic caffeine consumption" can regulate

[22] Jeffrey Jensen Arnett, "Emerging Adulthood: A Theory of Development From the Late Teens Through the Twenties," *American Psychologist* 55, no. 5 (May 2000): 469.

[23] Andrew Huberman, "How to Focus to Change Your Brain," Huberman Lab, February 8, 2021, educational video, 33:30, https://www.youtube.com/watch?v=LG53Vxum0as.

alertness levels and prepare the brain for focused learning.[24] This is especially useful before practice sessions, rehearsals, performances, or lessons. Preparing the brain for optimal learning can lead to better results in musical settings. Dr. Huberman's strategies provide musicians with a research-based framework to practice and perform more effectively and intentionally.

[24] Ibid., 1:09:30.

Neuroplasticity Application in the Practice Room: Repetition of Fundamentals

Genuine progress and peak performance are achieved by understanding how the brain works and dedication to foundational practices. Actively practicing and performing music enhances neuroplasticity by engaging multiple brain areas simultaneously. Musical activity requires coordination among auditory, motor, emotional, visual, and cognitive systems. This encourages the brain to create and strengthen new neural connections. Neuroscience research has recently shown that different parts of the brain work together in a "series of functional hubs and networks," which "helps us understand how many functions of the brain are a result of neural activity within and across brain networks rather than being attributed to one specific area." For example, the hippocampus is a brain region involved in retrieving memories, and "many interactions take place between it and other parts of the brain from which elements of the memories and their associations are constructed."[25] This shows that multiple brain regions are engaged at the same time when performing music. When a musician performs a piece from memory, the hippocampus is involved in retrieving the sequence but also interacts with motor and auditory regions to execute the music. This interconnected activity highlights how music performance depends on coordination across the brain's networked organization.

In Brad Stulberg's article "Protocols and Peak Performance" from The Growth Equation, he highlights the lasting importance of mastering the basics of performance protocols. True peak performance comes from a "steadfast commitment to the fundamentals of one's craft." Consistency plays a vital role in achieving peak performance. Regularly "showing up and doing the work" is more effective than sporadically using optimization tools. It is also important to be aware of distractions. Focusing too much on performance-enhancing protocols can divert

[25] Juliet L. King and Anjan Chatterjee, "Art Therapy, Psychology, and Neuroscience: A Timely Convergence," in *Music and Mind: Harnessing the Arts for Health and Wellness*, ed. Renée Fleming (Viking, 2024), 410.

attention from the essential tasks that "genuinely drive improvement."[26] Repetition during musical practice helps reinforce motor skills, memory, and muscle memory. The challenges of performance, such as maintaining focus, regulating emotions, and reacting to changes in real time, require adaptability and mental flexibility.

Even when a musician takes a break from practicing or performing, these strengthened neural pathways remain intact. During rest, the brain consolidates these pathways into long-term memory, which helps maintain both technical skills and musical interpretation. As a result, when the musician returns, the memory and information resurface, allowing them to pick up almost seamlessly from where they left off.

In music, cultivating alertness and focus is crucial for making practice sessions effective and engaging the brain's capacity for neuroplasticity. Engaging in a focused routine to activate and prepare beforehand can prepare the brain and body for proper practicing. Music has a transformative power, as the nervous system interprets music and positively impacts brain functions. Activities such as splashing cold water on the face, drinking a cold glass of water, increasing exposure to bright light, spending time in morning sunlight, practicing deep breathing, and doing physical exercises can stimulate the sympathetic nervous system, enhance alertness, and prepare the brain for focused practice.[27] Once practice begins, employing a mental focus strategy that minimizes distractions and clarifies goals can optimize and sustain deep concentration. Practical steps include listing specific goals for the practice session, eliminating distractions, including phones and electronics, jotting down unrelated thoughts to free mental

[26] Brad Stulberg, "Protocols and Peak Performance," The Growth Equation, July 16, 2024, https://thegrowtheq.com/protocols-and-peak-performance/.

[27] Muriel T. Zaatar et al., "The Transformative Power of Music: Insights Into Neuroplasticity, Health, and Disease." *Brain Behavior & Immunity – Health 35* (February 2024), 2. https://doi.org/10.1016/j.bbih.2023.100716.

space, taking a brief movement break to refocus, concentrating on one goal at a time, and limiting practice sessions to manageable durations. These strategies aim to improve concentration, making practice more effective and efficient. They also help ensure that the brain is in the proper state to form and strengthen neural connections associated with musical skill. Without this level of mental preparedness, practice efforts may be less effective, as the neural pathways necessary for learning will not be fully engaged, and the brain will be less likely to absorb and retain what is practiced.

When musicians feel frustrated, they often become closed-minded and struggle to see the end goal. However, learning to face and manage frustration allows musicians to make progress in their learning. Correcting mistakes mindfully and immediately is crucial for improvement and for the neuroplastic changes that enable faster learning. During neuroplasticity, the brain can grow and reorganize. It reconfigures neural connections, allowing it to adapt and function differently than before. Neuroplasticity can occur when learning new skills, experiencing environmental changes, or adjusting to sensory or cognitive challenges.[28] When someone becomes frustrated while learning a task, the brain releases neurochemicals that boost alertness and focus, signaling that a change is needed. This is part of neuroplasticity and can vary from person to person.[29] Musicians should learn to recognize frustration and adopt strategies that work for them. Neuroscientist Andrew Huberman's article "Neuroplasticity Super-Protocol" highlights how emphasizing alertness, focus, repetition, and embracing errors improves teaching and

[28] Moheb Costandi, *Neuroplasticity* (The MIT Press, 2016), 3-4.

[29] Patrice Voss, et al., "Dynamic Brains and the Changing Rules of Neuroplasticity: Implications for Learning and Recovery," *Frontiers in Psychology* 8: 1.

learning. By understanding and accepting their learning process, students can progress more effectively.[30]

Neuroplasticity promotes resilience by helping the brain adapt to stress and trauma, leading to healthier responses and emotional regulation. Conditions like anxiety and depression can weaken resilience, but therapies that encourage neuroplasticity, such as cognitive-behavioral therapy and mindfulness, may support recovery. Engaging in physical activity, managing stress, stimulating the mind, maintaining proper nutrition, getting enough sleep, and building social connections are recommended to strengthen neural resilience.[31] These strategies work together to harness the brain's ability to change, offering a proactive path toward greater psychological resilience and well-being. Over time, musical practice and performance experiences reshape the brain and enhance its capacity to learn, adapt, and recover. Music is a powerful tool for boosting neuroplasticity.

[30] Huberman, "Teach & Learn Better With a "Neuroplasticity Super Protocol.""

[31] Mental Health Hotline, "Brain Plasticity: Our Ability to Bounce Back."

Metacognitive Approach: Applying Learning Approaches

Metacognitive development is defined as "the shifts in the learning approach and the metacognitive knowledge and skills used by a student." There are three types of metacognitive knowledge: declarative, procedural, and conditional. Each type shapes how learners think about, monitor, and adjust their learning. Declarative knowledge, known as surface or note learning, is considered the simplest and lowest level of knowledge and involves memorization of facts and data offered in the default settings of a learning environment.[32] Declarative knowledge includes knowledge of facts, tasks, and strategies, and is the "what" of learning. For example, a musician might know that mental practice helps with memorizing a piece or recognizing a tendency to rush in fast passages. Declarative knowledge is the foundation of metacognition because it involves an awareness of what strategies exist and what personal tendencies influence learning.

Procedural knowledge is a higher form of knowledge that focuses on how to carry out a task and is the ability to apply strategies automatically without having to think through each step.[33] In music, this might include knowing how to apply slow practice methods when tackling a difficult section or using an intonation exercise as soon as a tuning issue appears. Procedural knowledge in musicians requires them to be active and strategic learners, engaging consciously with the "how-to" of musical practice and performance, and refining their approach based on their knowledge and reflection.

Conditional knowledge is the highest level of knowledge and requires "understanding how, when, and [where] to use each strategy and cognitive skill."[34] Conditional knowledge

[32] Mark Abdelshiheed et al., "Bridging Declarative, Procedural, and Conditional Metacognitive Knowledge Gap Using Deep Reinforcement Learning," *arXiv (Cornell University)*, January 1, 2023: 1. doi:10.48550/arxiv.2304.11739.

[33] Ibid., 1-2.

requires experience and flexibility. A musician might choose to use visualization techniques before a performance to mentally rehearse a piece because they know it helps them build confidence and support memorization. Musicians might also realize that breaking a piece into smaller sections is helpful after they have developed a basic understanding of the piece.

Eleanora Concina, Postdoc research fellow at the University of Padova, Italy, researches music psychology, psychological dimensions of music performance, communication in music ensemble performance, and music teaching and learning.[35] In her article, *The Role of Metacognitive Skills in Music Learning and Performing: Theoretical Features and Educational Implications*, she discusses how metacognition is a key component of musical performance. "Metacognitive knowledge and skills are fundamental for musicians at all stages of their academic and professional career to allow them to structure, monitor, assess, and, if needed, revise practice sessions toward specific performance goals." Professional musicians show high levels of metacognitive competencies, learning strategies, and skills, which allow them to effectively self-regulate their learning.[36] Visual skills involve reading music and examining a score. Physical skills include manipulating airstreams and controlling precise finger movements. Cognitive skills include decoding patterns and identifying various key signature areas throughout a piece. Concina argues that metacognition should be addressed earlier in music learning to increase awareness and enhance the learning experience.

[34] Ibid., 2.

[35] "Eleonora Concina," Overview, Loop, accessed February 15, 2025, https://loop.frontiersin.org/people/277459/overview.

[36] Eleonora Concina, "The Role of Metacognitive Skills in Music Learning and Performing: Theoretical Features and Educational Implications," *Frontiers in Psychology* 10 (July 2019): 1. doi:10.3389/fpsyg.2019.01583.

Declarative, procedural, and conditional knowledge work together to support effective self-regulated learning. Developing this type of knowledge enables musicians to monitor their progress, adjust their practice strategies, and approach practice with greater insight and purpose.

Zimmerman's Model of Self-Regulated Learning (SLR): Controlling Progress

Barry J. Zimmerman was an American educational researcher at the City University of New York, where he held the title of Distinguished Professor of Educational Psychology. He has authored scholarly publications on learning and motivation and has made significant, lasting contributions to the field of educational psychology. Zimmerman's self-regulated learning (SRL) is a key conceptual framework for understanding the cognitive, motivational, and emotional aspects of learning. SRL involves the "learning and motivational processes behind the capability of an individual to actively participate in self-directing themselves mentally toward a goal or completing a task through metacognitive, motivational, and behavioral strategies."[37] SRL describes the combination of thinking, motivation, and behavior that enables learners to take control of their progress. Zimmerman's 2000 SRL model is organized into three phases: forethought, performance, and self-reflection. In the forethought phase, students analyze the task, set goals, and plan, motivated by factors that influence their learning strategies. During the performance phase, students execute the task, monitor their progress, and use self-control to stay focused and motivated. In the self-reflection phase, students evaluate their performance and attribute success or failure, which impacts how they approach future tasks.[38]

The forethought phase of Zimmerman's SRL model is essential for effective music practice and performance. During this phase, musicians analyze tasks by setting specific, achievable goals, such as mastering a difficult passage or improving tone quality. After establishing these goals, they should create strategic plans to achieve them. In planning,

[37] Barry J. Zimmerman. "Attaining Self-Regulation," in *Handbook of Self-Regulation* (2000), https://doi.org/10.1016/b978-012109890-2/50031-7, 13-39.

[38] Ernesto Panadero. "A Review of Self-Regulated Learning: Six Models and Four Directions for Research," *Frontiers in Psychology* 8 (April 28, 2017): 3. doi:10.3389/fpsyg.2017.00422.

considerations include selecting suitable practice techniques, deciding the length of the practice session, and prioritizing specific measures for focused attention. Motivation during the forethought phase is influenced by factors such as self-efficacy, outcome expectations, intrinsic interest, and goal orientation.[39] For example, musicians with high self-efficacy are more likely to set challenging yet attainable goals and adopt effective practice strategies, such as deliberate practice, which enhance learning outcomes. This preparatory phase provides a purposeful framework that guides future practice and performances.

In the performance phase of Zimmerman's SRL model, musicians execute their practice plans while employing self-control strategies to remain focused and engaged. These strategies include self-instruction, such as mentally practicing a complex passage, using imagery, visualizing successful technical execution, managing time effectively, following structured practice schedules, and creating an optimal physical environment for practicing. Self-observation plays a crucial role during this phase, involving continuous metacognitive monitoring and self-recording.[40] Musicians assess aspects such as intonation, rhythm, and technique in real time and make immediate adjustments as necessary. Recording practice sessions for review can also enhance this monitoring process. Overall, these strategies in the performance phase promote sustained concentration, support adaptive learning, and lead to more effective, goal-oriented music practice.

In the self-reflection phase of Zimmerman's SRL model, musicians critically evaluate the results of their practice through self-assessment and analysis. This involves determining whether

[39] Barry J. Zimmerman, Adam R. Moylan, John Dunlosky, Arthur C. Graesser, and Douglas J. Hacker, "Self-Regulation: Where Metacognition and Motivation Intersect," in *Handbook of Metacognition in Education*, 1st ed. (Routledge, 2009), doi:10.4324/9780203876428-23, 403-4.

[40] Ibid., 405-6.

specific goals were achieved and identifying factors that contribute to the success or failure of those goals. When musicians interpret setbacks as caused by controllable factors, such as the effectiveness of practice strategies, they are more likely to persist and make positive adjustments. In contrast, attributing poor outcomes to fixed traits, such as innate ability, can decrease motivation and increase the likelihood of disengagement.[41] Emotional responses, including satisfaction or frustration, also influence commitment and learning behavior. These evaluations directly affect the next forethought phase, guiding how goals are set, and which strategies are chosen to reach those goals. Self-reflection plays a vital role in the learning process, supporting ongoing growth in music practice and performance.

Self-regulation, a key aspect of metacognition, can be applied to music performance. Musicians set specific performance goals. To reach these goals, they must self-regulate their practice and learning processes. During individual lessons, teachers can help guide students toward their short-term and long-term goals. Some students might struggle to identify their goals, and teachers should be open to questioning and learning more about why these goals matter to the students. For example, if a student wants to perform a piece from memory in an upcoming recital and has never memorized anything before, the teacher can sit down with the student and develop a practice plan. By breaking the piece into smaller sections (measure, phrase, then larger sections, etc.) and setting deadlines for each memorized section, the student will likely have a higher success rate in memorization than if they try to learn the whole piece at once. Memorization is a complex task, and organizing practice sessions into smaller parts helps the student memorize more effectively.

[41] Ibid., 407-8.

In music teaching and learning, self-regulation involves certain psychological, social, and environmental factors that influence its growth. These include motivation, learning methods, time management, behavior, physical surroundings, metacognitive skills, strategy use, and social support.[42] As students develop their musical abilities, some display a more self-regulated approach to practicing, while others need help with effective practice strategies. Zimmerman highlights the importance of calibration, or the accuracy of self-efficacy and self-evaluation. Interventions that promote structured self-reflection, such as post-performance evaluations, can enhance both performance and metacognitive accuracy.[43]

In musical settings, tools like practice journals, teacher feedback, or recordings can aid more accurate self-monitoring. In applied lessons, teachers can guide students in creating both general and specific practice plans. When developing a general practice plan, it is necessary to determine the duration of each practice session and the number of sessions per day. For example, if a student practices for three one-hour blocks daily, the teacher and student should discuss how to organize the time (warm-ups, fundamentals, technical exercises, and repertoire). For a specific practice plan, students should set and define goals to achieve during that session, such as increasing tempo by twelve metronome clicks or learning up to measure seventy-two. Once students gain experience creating these plans independently, their practice sessions will become more effective. Teachers should introduce this concept during individual instruction to help optimize practice strategies and techniques. Meta-analyses further show that SRL interventions that incorporate metacognitive and motivational strategies, especially those involving feedback, "yield the greatest academic gains."[44] These findings emphasize the importance of aligning

[42] Eleonora Concina, "The Role of Metacognitive Skills in Music Learning and Performing," 6.

[43] Zimmerman, "Self-Regulation," 413-14.

strategic practice with accurate self-assessment tools to foster sustained and effective musical growth. For musicians, that feedback might come from a teacher's comments, a colleague's perspective, or from listening to their recordings.

In music practice and performance, Zimmerman's distinction between proactive and reactive learners provides valuable insight into different learning methods. Proactive musicians engage in deliberate planning before practice, set strategic goals such as improving articulation, and choose targeted approaches to reach those goals. In contrast, reactive musicians tend to depend mainly on post-performance evaluation without clear pre-practice planning. According to Zimmerman, proactive learners are more effective because their preparatory strategies enable more focused engagement and adaptable learning. Additionally, research suggests starting with process goals early in skill development and shifting to outcome goals as technical skills become more automatic. This approach has been shown to improve both performance results and motivation.[45] Structuring music practice this way helps musicians develop technical fluency while maintaining long-term motivation and artistic growth.

[44] Ibid., 415-420.

[45] Ibid., 410-413.

Teaching Metacognition in Individualized Instruction: The Applied Teacher's Role

Music education has drawn on the concept of metacognition as a high-order activity, examining how expert musicians plan, monitor, and regulate their behaviors to accomplish performance tasks. The metacognitive dimension encompasses all the abilities and information necessary for managing executive strategies in music performance: "It is fundamental for organizing musical practice, directing individual choices and efforts toward specific strategies, and promoting the effective management and monitoring of time and personal resources."[46] By adopting a metacognitive approach in music education, musicians can learn more efficiently by optimizing the time dedicated to practice and can improve all associated techniques and strategies.

A metacognitive approach has three main features: metacognitive knowledge, metacognitive evaluation and monitoring, and the ability to self-regulate cognitive processes. Teachers must apply their expertise to evaluate student knowledge. Although teachers incorporate various instructional strategies, such as method books and warm-up exercises, they must be flexible in revising, adapting, and modifying individualized curricula when faced with challenging situations. A growth mindset benefits both teachers and students. When teachers demonstrate curiosity and persistence, they encourage students to face challenges in the same way. Both students and teachers should strive for personal effort and engagement in learning tasks, which are essential for developing and improving skills. Educators play a key role in promoting this process. By using a problem-based learning approach that "encourages students to apply what they learn to other practical situations beyond the specific-learning activity,"[47] educators can motivate students to focus their learning and make meaningful impacts.

[46] Eleonora Concina, "The Role of Metacognitive Skills in Music Learning and Performing," 2.

At the collegiate level, applied lessons offer educators a chance to develop their teaching philosophies and incorporate key principles of educational psychology. Usually, in these lessons, students have a weekly one-on-one session with their primary professor, focusing on musical techniques, repertoire, and instrumental pedagogy. There is an expectation that students apply what they learn during the week to their practice and demonstrate progress in the next lesson. While each student has unique needs, there are ways for professors to enhance the learning experience and the overall progress of applied lessons to benefit everyone.

The structure of weekly one-on-one lessons fosters meaningful relationships between students and teachers. Strong connections between teachers and students can significantly influence a student's musical development and enhance their self-esteem and confidence. Music teachers are in a unique position to support their students' overall well-being because of this close relationship. Lessons focus on the individual student, whereas a large ensemble or classroom emphasizes group collaboration rather than personal growth and progress. Having one-on-one lessons allows the teacher to concentrate solely on each student's goals and progress, providing additional benefits for the student.

Teachers can offer models of metacognitive and strategic behaviors to help students develop self-regulated attitudes toward musical learning, since teachers play an influential role as models of musical practice.[48] Individualized lessons give teachers a chance to show examples of metacognitive learning behaviors and discuss when and how to use specific learning strategies. Through open-ended conversations, teachers can help students recognize their strengths and weaknesses in music learning, which can improve their practice routines on their own time. If

[47] Ibid., 3-4.

[48] Ibid., 10.

teachers and students can successfully identify weaknesses and work on practice strategies to improve them, students will have a more focused mindset during practice. When teachers act as mentors, they can build a positive relationship with their students. Students should feel comfortable approaching their teachers without hesitation or fear of judgment. Creating and maintaining a positive learning environment is vital for progress, and teachers should be encouraged to incorporate a metacognitive approach into their teaching through self-reflection. By tracking students' progress, teachers can find the best solutions for each student's specific needs.

Strategies to Strengthen Metacognition in Musicians

Incorporating metacognitive strategies into music practice helps musicians think critically about their work, approach it creatively, and build the independence necessary to grow. Reflective practice journals encourage students to assess their progress, evaluate the effectiveness of their practice techniques, and set goals for ongoing improvement. Guided self-assessments and questionnaires completed after practice sessions and performances assist students in identifying their strengths and areas for growth. Recording practice sessions and live performances supports objective analysis of technique, dynamics, and intonation. Critically listening to these recordings helps musicians stay aligned with their goals. Asking open-ended questions such as, “How do you want this phrase to communicate to the listener? What kind of mood are you aiming to convey here? How might a different articulation affect the message of this phrase?,” during lessons encourages students to explore expressive possibilities, fostering a more intentional and personal engagement with music.

Teachers can introduce metacognitive tasks in lessons to effectively support students' development of metacognitive skills. Recognizing the importance of metacognitive abilities in music learning is the first step in helping students identify key issues in their performance, find effective solutions, and set realistic learning goals. Teachers have an essential role in fostering a metacognitive attitude toward musical learning. During lessons, teachers need to ensure students understand the material being taught. Students must engage with the content and grasp the reasons behind its presentation.

Additionally, teachers should assess students’ level of metacognitive competence to inform targeted educational interventions. While students perform in lessons, teachers need to observe them carefully and critically, looking for emerging strategic elements. Teachers can

assist students in tracking practice habits by creating self-report questionnaires using tools like Google Forms or Notion to evaluate self-regulated learning behaviors and attitudes. These questionnaires enable students to assess their focus, emotional state, and strategic approaches to practice. These tools facilitate critical discussion and reflection on individual practice and offer valuable insights into students' learning behaviors, forming a basis for informed discussions during lessons.

Technology is becoming a vital part of self-regulated learning, providing new methods to set goals, monitor progress, and reflect on musical development. Digital platforms and applications such as Modacity and Tonara allow students to set specific, measurable goals, track their practice habits, and engage in structured reflection. This promotes greater intentionality and metacognitive awareness during practice. Additionally, students can record parts of their practice sessions using their phones, iPads, or computers. The use of video and audio logs encourages self-assessment and helps track progress over time. By integrating these technologies, teachers can better monitor student development, offer personalized instruction, and foster deeper engagement in the learning process.

In individualized instruction, teachers should assist students in emphasizing the importance of planning and organizing practice sessions. By highlighting the process, teachers motivate students to focus on the musical journey instead of just the final performance, which helps cultivate a mindset that values growth, consistency, and self-discovery over perfection. Selecting strategies and managing time resources can also improve students' metacognitive competence and will be beneficial.[49] Metacognitive competence can be assessed by observing how effectively students plan, monitor, and evaluate their practice sessions and musical

[49] Eleonora Concina, "The Role of Metacognitive Skills in Music Learning and Performing," 6.

development. A useful method is using a structured reflection questionnaire after practice, asking questions such as: “What was your goal for this session? What did you notice about your focus and effectiveness? What would you do differently next time?” Teachers can review these reflections to assess the student’s level of self-awareness and the techniques they apply. Growth in metacognitive skills becomes clear over time as teachers engage with students and encourage them to provide more specific and deliberate responses. Instead of saying “today’s practice focus was about dynamics,” students can learn to articulate their focus as “today’s practice was controlling my intonation in the lower register of the saxophone at different dynamic levels.” By fostering reflection and self-assessment, students begin to see the value of focused, goal-driven practice compared to unstructured repetition. This process helps students recognize which strategies work best and how their effort correlates with ongoing progress. Students develop a greater awareness of how their technical decisions influence their results. They need to understand what to practice and why the techniques and exercises are chosen to reach specific objectives. Promoting reflective activities, such as practice journaling, performance reflections, and recording critiques, can help students cultivate a focused and positive mindset.

By introducing different learning strategies and encouraging students to try them, teachers can help students organize more effective practice sessions. When doing this, the teacher must consider the students’ age. Adolescents are still developing cognitive and metacognitive skills across various academic areas. Adult learners may have already gained strategic and metacognitive skills, along with self-awareness of their strengths and weaknesses in the learning process. Adult learners often bring substantial personal, professional, and academic experience that influences how they approach musical problem-solving. Students at the college level can be quite diverse in age and ability. Teachers need to consider age, experience, and

individual learning needs. They should introduce multiple strategies to all students and discuss how each could benefit their specific musical practice.

Awareness of metacognition can aid in setting students up for success throughout their musical journey. Shifting mindsets from focusing on a single performance to a lifelong approach to music learning and achievement helps develop organizational skills and the ability to prioritize. As Concina mentioned, "students who have high metacognitive abilities are more effective in structuring their practice and achieving successful outcomes. If the metacognitive dimension is explicitly addressed in music classes, it can help students become aware of the role of strategic behavior in enhancing their learning process in music."[50] To accomplish this, teachers need to raise students' awareness of the importance of adopting a metacognitive approach in the music learning process. When students approach their learning more consciously, they become more engaged with the material and absorb new practices more effectively. Taking ownership of their learning enables students to understand the methods that work best for them. Teachers can encourage students to participate actively, document their learning journeys, and discuss the overall experience. The first step in students taking control of their learning is when a teacher helps unlock and transform students' mindsets into positive thoughts and affirmations.

Several additional factors increase pressure on individuals, including competition, the innate self, mental health challenges such as comparison and self-esteem issues, and the difficulty of returning to performance after a long break. Developing effective success strategies for musicians can help address performance issues and mental health stigmas.

[50] Ibid.

Chapter II: Wellness

Wellness plays a crucial role in musicians' lives, affecting their performance, resilience, and the sustainability of their careers over time. The demands of musicians' careers often create physical, mental, and emotional challenges. In Brad Stulberg and Steve Magness' book, *Peak Performance: Elevate Your Game, Avoid Burnout, and Thrive with the New Science of Success*, the authors discuss how relentless work can lead to exhaustion and pose significant health risks. Mental health issues, including anxiety, depression, and insomnia, are linked to burnout.[51] Musicians need to acknowledge these issues, examine personal habits, and prioritize wellness.

The Wellness Alliance defines wellness as an active process through which individuals become aware of and make choices toward a more successful life, emphasizing personal control over health and well-being.[52] There are eight main dimensions of wellness,[53] highlighted below in Table 2:

Wellness Dimension	Characteristics
Physical	Regular exercise and thoughtful nutrition to maintain energy and prevent injuries
Emotional/Mental	Recognizing and managing stressors such as performance anxiety, heavy workloads, and competitive pressures
Environmental	Influences physical comfort and performance results. Includes proper lighting, temperature control, and overall design of practice spaces

[51] Brad Stulberg and Steve Magness. *Peak Performance: Elevate Your Game, Avoid Burnout, and Thrive with the New Science of Success* (New York, Rodale, 2017), 19.

[52] "Wellness Defined – What is Wellness?" Wellness Alliance, 2025, https://www.wellnessalliance.org/resources-and-tools/wellness-defined.

[53] Savvidou, *Teaching the Whole Musician*, 6-10.

Financial	Ability to create a comfortable monetary budget and earn enough money to alleviate financial stress
Occupational	Satisfaction with work on a daily basis
Social	Happy with interpersonal relationships and feel a sense of belonging
Intellectual	Feels comfortable having mental beliefs challenged, and can learn and grow
Spiritual	Feels a connection with a higher-power, or deeply with themselves through music

Table 2: Dimensions of Wellness

Together, these elements support musicians in maintaining artistic growth, fulfilling academic demands, and preserving personal well-being.

The intense focus and precision required for music performance can impact both body and mind, especially under high-pressure situations. In music, "performers cannot simply allow the music to wash over them without thought, because live music making does not afford the performer the luxury of a second chance. This is the single greatest pressure the performer feels."[54] This highlights the vital importance of addressing both physical and psychological factors of musician wellness to sustain performance excellence and avoid long-term health issues. Taking care of their bodies with mindful stretching helps prevent injuries and enhances performance. Managing stress through mindfulness and maintaining a positive outlook can help support mental well-being. Musicians should engage in joyful activities outside of music and find a healthy balance between work and personal life. Prioritizing wellness helps musicians perform their best, stay healthy, and keep the inspiration that drives their art.

[54] David McGill. *Sound in Motion: A Performer's Guide to Greater Musical Expression* (Indiana: Indiana University Press, 2007): 11-12.

Stress vs. Burnout

Stress is a natural response to challenges that impacts both the mind and body. Distress, often referred to as “bad stress,” happens when pressures surpass coping resources, resulting in harmful physical or mental effects. Eustress, or "good stress,” can boost motivation, improve focus, and build resilience. While stress can sometimes provide motivation to resolve conflicts or tackle difficult tasks, excessive stress is harmful. In exercise science, a cycle of stress and recovery is called periodization. A stressful stimulus challenges the body, sometimes pushing it close to failure.[55] Similarly, musicians face many physical and mental stressors and need to learn how to cope with and manage these pressures. Understanding the balance between eustress and distress offers a framework for examining issues such as burnout, music performance anxiety, and the strategies musicians use to maintain long-term wellness.

Stress occurs when there is excessive physical and mental pressure, creating a perception that too much is required. People experiencing stress sometimes believe they will feel better and regain control once the pressure is alleviated. Burnout occurs when “there is not enough left,” leaving you feeling “empty and mentally exhausted, devoid of motivation, and beyond caring.”[56] A lack of control, unclear expectations, dysfunctional workplace dynamics, extremes of activity, lack of social support, and work-life imbalance lead to burnout. While people experiencing stress feel like they may be able to regain control, burnout often feels like there is no hope for improvement in their situation. “If excessive stress feels like you are drowning in responsibilities, burnout is a sense of being all dried up.”[57]

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[55] Stulberg and Magness, *Peak Performance*, 28.

[56] Connect Newsroom. “The Difference Between Burnout and Stress,” Cook Children’s Connect Newsroom, August 15, 2022. https://www.cookchildrensconnect.com/the-difference-between-burnout-and-stress/.

[57] Ibid.

When musicians hold themselves to high standards, they face intense pressure to perform well. Understanding the difference between stress and burnout can help musicians effectively make positive changes in practice routines, performances, and teaching, ensuring the longevity of their music-making careers. Table 3, compiled from resources by Cook Children's Connect Newsroom,[58] the American Society of Composers, Authors & Publishers (ASCAP),[59] and the UK Musicians' Union,[60] highlights the key differences between stress and burnout.

Stress	Burnout
Characterized by over-engagement	Characterized by disengagement
Emotions are over reactive	Emotions are blurred
Produces urgency and hyperactivity	Produces helplessness and hopelessness
Loss of energy	Loss of motivation, ideals, and hope
Leads to anxiety disorders	Leads to detachment and depression
Primary damage is physical	Primary damage is emotional
May kill you prematurely	May make life seem not worth living
Uncontrollable emotions	Suppressed emotions
Could end up to physical damage	Could end up to emotional damage

Table 3: Stress vs. Burnout: Key Differences

[58] Ibid.

[59] Tehrene Firman, "How to Avoid (and Bounce Back From) Burnout," ASCAP Wellness Program, April 16, 2024, https://www.ascap.com/help/wellness/burnout-avoidance-tips.

[60] Denise Devenish and Fiona Macbeth, "Burnout," The UK Musicians' Union, March 28, 2024, https://musiciansunion.org.uk/health-safety-wellbeing/mental-health-and-wellbeing/musicians-wellbeing-guidance-pack/burnout.

Many successful musicians manage demanding schedules, including rehearsals, performances, teaching, practicing, and administrative work, while staying productive. The issue with this mindset is that it "robs us of the experience of the present moment, exacerbates stress, and over time may lead to burnout."[61] When time is mainly seen as a resource for achieving external goals or completing tasks, chances for reflection, creative exploration, and rest are diminished. These are important techniques for managing stress. Over time, regular negative responses to stress, such as task avoidance, overworking, or self-criticism, can lead to burnout.

[61] Savvidou, *Teaching the Whole Musician*, 174.

Physiological and Psychological Impacts

Stress is an inherent part of the growth process, especially in high-achieving environments like music schools, but it can easily exceed healthy levels and cause long-term negative effects on students' physical and mental health. In Paola Savvidou's book, *Teaching the Whole Musician: A Guide to Wellness in the Applied Studio*, she notes that while some stress can motivate learning and personal growth, chronic or excessive stress needs regular monitoring and management through both internal strategies and external support systems. Teachers play a vital role in this, helping students identify their stress sources and encouraging habits or activities that foster resilience and recovery.[62] Additionally, when musicians face stressful situations, the first noticeable effect is on the breath: it becomes faster and shallower. "Accelerated breathing stimulates the sympathetic nervous system, which in turn promotes faster breathing, continuing the stress response cycle."[63] This cycle is especially harmful for musicians because it directly disrupts the physical and mental control needed for effective performance. For musicians, this can manifest as shallow breathing, weak breath support, trembling hands, poor posture, and reduced ability to concentrate.

The stress response can also impair memory and fine motor skills, both crucial in performance. In the article, "Stress and the Higher Education Student: A Critical Review of the Literature," David Robotham and Claire Julian point out that responses to stress vary among individuals and may involve emotional, cognitive, behavioral, and physiological components.[64] For musicians, an emotional reaction to stress might include fear and anxiety about an upcoming

[62] Savvidou, *Teaching the Whole Musician*, 13.

[63] Ibid., 141.

[64] David Robotham and Claire Julian, "Stress and the Higher Education Student: A Critical Review of the Literature," *Journal of Further and Higher Education* 30, no. 2 (2006): 112.

performance. A cognitive response involves how the musician evaluates the situation and may consist of negative self-talk, such as "I am not confident that I can play this correctly, and I am going to mess this section up. Everyone will notice if I make a mistake." A behavioral response could be avoiding practice or performance opportunities. For example, a student overwhelmed by an upcoming recital might procrastinate practicing, cancel lessons, or make excuses not to perform. This avoidance can offer short-term relief but often worsens anxiety over time, making future performances even more stressful.

Physiological responses may include increased heart rate, muscle tremors, or headaches. An elevated heart rate can interfere with breath control and timing, while muscle tremors hinder fine motor skills needed for instrumental accuracy. Headaches and physical tension can lower concentration and stamina. If persistent, these symptoms may decrease performance quality and diminish motivation and well-being over time. The overall impact of stress on the body, called allostatic load, can lead to poor postural habits, such as shoulders held high, chest tightness, and spinal stiffness. It also contributes to other negative physiological effects, like elevated heart rate, higher carbon dioxide levels, and chronic muscle tension.[65] For musicians, understanding allostatic load is crucial because the resulting physiological and postural changes can affect technical accuracy, breath support, and overall performance quality. Addressing these effects through strategies such as body awareness, regular physical activity, and stress-reduction techniques is vital for maintaining both physical health and long-term artistic performance.

Managing burnout can be a delicate balancing act. For example, social media has made it easier for musicians to celebrate small achievements, an important tool for mitigating burnout. However, the constant pressure to post new content can be stressful and lead to burnout. To

[65] Savvidou, *Teaching the Whole Musician*, 142.

prevent this useful tool from becoming overwhelming, musicians should stay organized by setting monthly goals and weekly tasks for their posts. Instead of trying to post everywhere, musicians should focus on social media platforms that match their voice, brand, skills, and target audience. Set achievable goals, then disconnect from social media once completed, and proceed to the next task. Maintaining a healthy work/life balance, disconnecting from social media, turning off notifications, and scheduling time to relax can help musicians avoid burnout and exhaustion.[66]

[66] Devenish and Macbeth, "Burnout."

Physical Wellness

Like athletes, musicians rely on physical conditioning and precision to perform at a high level. Musicians are "very much like athletes because they use their bodies intensively, expressing themselves and communicating through skilled and highly trained movement."[67] Musical performance is a physically demanding art form, and musicians should think like athletes when it comes to physical conditioning and self-care. Musicians must have a basic understanding of how their bodies work and learn how to properly prepare for practicing and performing. Through adequate physical preparation, musicians can prevent injuries and enhance performance.

Physical fitness is vital for musicians because it enhances endurance, posture, concentration, and stress management. The advantages of physical fitness for musicians directly relate to improved musical skill and well-being. Musicians who exercise regularly demonstrate better endurance, posture, flexibility, strength, and stress relief. Incorporating strength training into fitness routines is crucial because these exercises support muscles, correct imbalances, improve grip strength, and strengthen the core muscles. Better physical fitness helps meet the physical demands of performing an instrument in long rehearsals and performances, while also supporting overall psychological well-being.[68]

Structured breathing exercises such as deep breathing and extended breath control have been shown to significantly enhance musicians' ability to sustain musical phrases and maintain

[67] Jaume Rosset I. Llobet and George Odam, *The Musician's Body: A Maintenance Manual for Peak Performance* (New York, Ashgate Publishing, 2016), 1.

[68] Liliana S. Araújo et al., "Fit to Perform: A Profile of Higher Education Music Students' Physical Fitness," *Frontiers in Psychology* 11 (March 5, 2020): 3-15. https://doi.org/10.3389/fpsyg.2020.00298.

tone quality, especially for wind players.[69] Practicing breathing techniques is essential because it inhibits the release of the hormone cortisol, the stress hormone. This stimulates the parasympathetic nervous system by releasing relaxation hormones, norepinephrine, and oxytocin, prompting a better balance.[70] Besides reducing stress, this physiological shift improves oxygen efficiency and postural awareness, both key to musicians' physical wellness. Over time, integrating these techniques into daily routines can help sustain energy, prevent injuries, and foster long-term resilience during performances.

Maintaining physical health helps musicians meet the artistic demands of precision, endurance, and fine coordination throughout a lifetime of making music. Musicians should develop healthy habits through daily exercise. Regular activity supports proper posture, builds muscular strength, and helps prevent injuries caused by repetitive movements and prolonged static positions. Dr. Richard Norris, a physical medicine and rehabilitation specialist and founding member of the Performing Arts Medical Association (PAMA), recommends that musicians care for their bodies through a "comprehensive exercise program" to promote a healthy approach to music-making. The benefits of regular exercise include improved mental clarity, weight management, lower risks of cardiovascular disease and diabetes, reduced anxiety and depression, better sleep, and an overall sense of well-being.[71] Exercise helps musicians by alleviating symptoms of anxiety and depression, which can impair focus, motivation, and rest.[72]

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[69] Michael A. Alsop. "Breathing Instruction of Successful High School Marching Band Directors," (2018): 9. https://doi.org/10.18297/etd/2970.

[70] Elizabeth Larson, "Stress in the Lives of College Women: 'Lot' to Do and Not Much Time,'" *Journal of Adolescent Research* 21, no. 6 (November 2006): 579-606.

[71] US Department of Health and Human Services, Physical Activity Guidelines for Americans, 2nd ed. (Washington, DC: US Department of Health and Human Services, 2018), https://health.gov/paguidelines/second-edition/pdf/Physical_Activity_Guidelines_2nd_edition.pdf.

Better sleep, in turn, supports recovery and enhances cognitive function during practice and performances. Regular exercise also boosts circulation, energy levels, and stress management, all of which improve practice efficiency and performance quality. Creating a fitness routine tailored to each musician's needs can help them maintain their health, improve their technique, and build a sustainable and rewarding career in the arts.

[72] Shawn D. Youngstedt, "Effects of Exercise on Sleep," *Clinics in Sports Medicine* 24, no. 2 (April 2005): 355-65.

Posture and Ergonomics

A conscious understanding of anatomy and body awareness is crucial for musicians when practicing their instrument. Many musicians tend to "reach toward" their instrument rather than align it properly with their body for an optimal playing position. This small adjustment can lead to poor postures that can affect breathing, embouchure, finger placement, and technique.[73] Additionally, "every inch of forward deviation of the head adds about eleven pounds to the weight of the head, as is measured by strain on the muscles of the neck, shoulders, and back."[74] Savvidou notes that "the design of an instrument does not match its performers' anatomical measurements. The piano keys may be too wide for a small-handed pianist, the violin height too shallow for a violinist with a long neck, and a flute's keys too far apart for a young flutist. These mismatches between performer and instrument cause strain in the playing mechanism of the musician."[75] Over time, this strain can lead to inefficient technique, muscular tension, and a higher risk of overuse injuries. To support long-term physical health and avoid injury, it is crucial to consider ergonomic adjustments, personalized setups, and body awareness. Private instructors can assist students in developing awareness and overcoming these issues.

Maintaining good posture is crucial for the overall health and well-being of musicians. It is one of the most important factors in starting well with an instrument and is vital for maintaining optimal shoulder and back health. When the playing position is balanced and strong, musicians will "play better, focus more acutely, and have a lower risk of aches and pains related

[73] Jan Dommerholt, "Performing Arts Medicine: Instrumental Musicians, Part II – Examination," *Journal of Bodywork & Movement Therapies* 14 (2010): 65-72.

[74] Nancy Taylor, *Teaching Healthy Musicianship: The Music Educator's Guide to Injury Prevention and Wellness* (New York: Oxford University Press, 2016): 3.

[75] Savvidou, *Teaching the Whole Musician*, 89.

to their playing. Our posture says a lot about who we are and how we feel. Good posture portrays self-confidence and allows for optimal flexibility and strength."[76] Asymmetrical postures can lead to joint pain, muscle imbalance, or nerve entrapment. Beginning practice sessions with movement patterns and stretches can help strengthen muscles and open them up properly. Posture influences endurance and reduces the risk of injuries. Cultivating postural awareness and alignment is essential for musicians, helping prevent injuries and enabling expressive freedom.

[76] Taylor, *Teaching Healthy Musicianship*, 1-2.

Overtraining and Recovery

Stulberg and Magness note that athletes often overexert themselves, frequently ignoring necessary recovery time. This pattern can culminate in overtraining syndrome, a clinical condition that occurs when the central nervous system gets out of balance, causing a series of negative biological effects such as fatigue, illness, injury, and declining performance. It is the body's way of signaling "I'm done – absolutely no more," "a forced shutdown of sorts."[77] Musicians can experience this as well, as both musicians and athletes "place tremendous demands upon their bodies, practicing their skill for many hours and stressing themselves physically and psychologically in competition and in pursuit of excellence."[78] Because physical capacity and mental resilience are closely connected, prolonged physical strain can impair focus, confidence, and emotional stability.

Music performance anxiety and other psychological factors can lead to injuries and influence how discomfort is experienced. A competitive studio or school environment may increase physical tension during playing and cause students to practice for extended periods without adequate breaks. Injuries typically result from a combination of factors rather than a single cause, highlighting the importance of a comprehensive prevention plan. In music, injuries can arise from a combination of physical overuse, inefficient technique, and environmental stressors. Addressing multiple risk factors, such as physical, psychological, and environmental elements, effectively lowers injury risk. Since many injuries are preventable, educating students

[77] Stulberg and Magness, *Peak Performance*, 20.

[78] Barbara Paull and Christine Harrison, *The Athletic Musician: A Guide to Playing Without Pain* (Scarecrow Press, Inc., 1997), 8.

about their causes, types, and treatment options is essential for supporting their long-term health and careers in the arts.[79]

[79] Savvidou, *Teaching the Whole Musician*, 50-1.

Psychological Influences on Physical Health

While some believe athletic conditioning only builds muscle, neuroscience research shows that "physical training increases gray matter in the frontal lobes of the brain, enhancing working memory, attention, focus, and executive function, the processes that form basic cognition."[80] Often, when practicing, musicians become frustrated due to various factors, such as repeated mistakes and lack of progress. This frustration can lead to stress, feelings of being overwhelmed, and a sense of defeat, which may cause physical sensations of tension. This mental stress can result in feelings of discouragement and frustration, potentially triggering physical reactions such as unnecessary muscle tension that can interfere with technique and performance. If musicians do not assess their situation properly and take time to relax, this body tension could lead to injury. Without self-awareness, musicians might be unaware that they are reinforcing this tension that limits their performance. Strategies such as practicing in front of a mirror or reviewing video recordings can help musicians identify where they hold tension. When self-assessment is insufficient, seeking feedback from teachers and colleagues provides an external perspective that can uncover patterns the musician might miss. Developing this awareness reduces the risk of injury and promotes a healthier, more sustainable approach to practice.

Physical wellness is crucial for musicians because a deeper understanding of the body directly improves performance. Releasing unnecessary tension allows movement and breath to flow freely, enhancing both sound quality and creative expression. Developing body literacy, an informed awareness of anatomy, muscle function, and fatigue, helps musicians to practice efficiently, perform with greater control, and recognize early signs of strain and pain. This

[80] Sally Jenkins, *The Right Call: What Sports Teach Us About Work and Life* (New York: Gallery Books, 2023): 8.

knowledge guides daily practice routines, decreases the risk of injury, and forms the basis for a sustainable and rewarding musical career.

Mental Wellness

Just as physical health supports a musician's craft, mental wellness is equally crucial for long-term artistic growth. Like the body, the mind needs intentional training, rest, and care to perform at its best, especially when facing the mental demands of music-making. As Stulberg and Magness mention, "the manner in which great intellectual and creative performers continually grow their minds mirrors the manner in which great physical performers continually grow their bodies. Perhaps this is because our muscles and minds are more alike than we might think. Just as our muscles deplete and run out of energy, our minds do too."[81] Exceptional creative performers strengthen their minds in the same way athletes condition their bodies, as both need growth, recovery, and awareness of limitations. Musicians face self-esteem influences, such as the pressure to meet unrealistic expectations or constant comparison to others, which can overwhelm their minds and create unnecessary expectations. Techniques such as mindfulness meditation and deep breathing can help reduce anxiety, improve focus, and maintain mental clarity. Combining these practices with positive self-talk creates a more supportive internal environment for practice and performance.

In *The Inner Game of Music* by Barry Green with W. Timothy Gallwey, the authors discuss how mental interferences inhibit the full expression of human potential. They express this idea as the formula: $P = p - i$, which translates to how your *Performance* equals your *potential* (your innate ability) minus your *interference* (capacity to get in your own way).[82] This formula illustrates that reducing mental interference is as crucial as developing skill. Reducing mental interferences such as self-doubt, perfectionism, and music performance anxiety helps

[81] Stulberg and Magness, *Peak Performance*, 33.

[82] Barry Green and W. Timothy Gallwey. *The Inner Game of Music* (New York: Doubleday, 1986): 12.

musicians perform with more focus and authenticity. Over time, this shift cultivates deeper confidence, presence, and artistic freedom.

Emotional Regulation and Awareness

The *Healing Breath* project, developed by soprano Renée Fleming in partnership with Google Arts & Culture, is a digital wellness initiative that uses vocal and breathing exercises to promote physical and emotional well-being. Applying the expertise of professional singers, music therapists, and neuroscientists, the project offers short, guided sessions aimed at improving breath control, reducing stress, and enhancing mind–body awareness. The exercises are based on vocal pedagogy and therapeutic practices, making them accessible to a broad audience regardless of musical background. In addition to guided videos, *Healing Breath* integrates creative experiences such as listening exercises, yoga postures, and visual art pairings to support relaxation and cognitive focus. This project was a response to increased anxiety and respiratory challenges during the COVID-19 pandemic, highlighting the intersection of music, health, and digital engagement in fostering accessible, arts-based self-care.[83] This resource is beneficial for promoting musicians' wellness because it combines evidence-based techniques with creative, accessible tools tailored to the unique physical and emotional demands of music performance. Initiatives like *Healing Breath* remind us that caring for the mind is just as essential as caring for the body. Prioritizing mental wellness not only enhances artistic expression but also helps sustain long-term engagement with music in a healthy, balanced way.

For musicians, understanding and managing emotions is just as important to performance as technical skill. Observing, without judgment, how closely the "outcome of our acts matches our intention, a natural learning takes place."[84] It is crucial to cultivate non-judgmental, present-focused observation as the foundation of mental control, mainly when negative emotions and

[83] Google Arts & Culture, "Healing Breath," Google Arts & Culture, 2025, https://artsandculture.google.com/project/healing-breath.

[84] Green and Gallwey, *The Inner Game of Music*, 28.

thoughts arise. Such emotions are a natural part of everyday life, and responses to them can influence both immediate well-being and long-term development. When individuals accept their emotions and thoughts, it "has power to shape individuals' day-to-day lives, with possible cumulative effects for longer-term psychological outcomes."[85] Musicians need to maintain emotional balance to channel musical emotions into their performances. Engaging in hobbies outside of music, spending time with friends and family, going on walks, and enjoying activities that promote wellness and relaxation contribute to emotional well-being. Creating a supportive environment helps maintain emotional health.

Being a musician involves developing a variety of skills across different areas and disciplines. Musicians regularly work on repertoire from various style periods and genres. Each style period and genre requires the musician to understand and interpret distinct techniques and historical contexts. Musicians are constantly juggling diverse musical materials, each demanding critical thinking and continuous refinement of technique. Musicians often find their schedules packed with upcoming rehearsals and performances. Managing practice schedules and routines can be challenging when feeling overwhelmed and overworked, and judgment becomes clouded. "In moments of weakness, the purpose of the activity at hand is no longer clear."[86] With large workloads and many daily tasks to complete, burnout can occur if not properly managed. Setting boundaries, scheduling relaxation, and intentionally disconnecting from work are essential for maintaining a healthy balance between focused practice and creative inspiration. Musicians need space to refine their craft in the practice room and to connect with the world beyond the practice room. Artistic inspiration often begins outside the practice room.

[85] Ford et al., "The Psychological Health Benefits of Accepting Negative Emotions and Thoughts: Laboratory, Diary, and Longitudinal Evidence" 21.

[86] Francesco Cirillo, *The Pomodoro Technique* (United States: Crown Currency, 2018), 22-3.

Music performance is a common source of happiness for musicians. The process of bringing a musical idea to life results in a tangible experience that brings a strong sense of fulfillment and self-worth. Accomplishing creative goals, such as performing a difficult piece of repertoire or presenting a recital, is closely connected to increased happiness and well-being.[87] Experiencing a sense of accomplishment boosts self-esteem and provides lasting motivation and joy, as musicians see their hard work and passion transformed into a meaningful final product or performance.[88] The act of creating and sharing musical performances is a powerful source of happiness for musicians, driven by realizing their artistic vision and the positive emotions linked to achievement.

Musicians often encounter a paradox: the passion that drives their art can also lead to exhaustion. They are creative artists expected to perform regularly, share their art and talent with the world, and compose music. When musicians are constantly overwhelmed and struggling to keep their heads above water, how can they be inspired to create? Stulberg and Magness note how an artist's passion is both "a gift and a curse":

> The seemingly imprisoned 9-to-5 worker might envy the flexibility and freedom of an artist or writer, but it turns out flexibility and freedom are not the cure-alls to burnout that we imagine them to be. Nearly every artist has struggled with creative burnout at some point in their career. Burnout is common in artists because their passion serves as both a gift and a curse. A gift, because as Plato remarked in the 4th century BCE, passion is "the channel by which we receive the greatest blessings," fueling original, imaginative, and inspired work. But left unchecked, passion can drive artists to work themselves into the ground.[89]

[87] Martin E. P. Seligman, *Authentic Happiness: Using the New Positive Psychology to Realize Your Potential for Lasting Fulfillment* (The Free Press, 2002): 166.

[88] Alexandra Lamont, "Emotion, Engagement and Meaning in Strong Experiences of Music Performance," *Psychology of Music* 40, no. 5 (August 20, 2012): 583-4. https://doi.org/10.1177/0305735612448510.

[89] Stulberg and Magness, *Peak Performance*, 20.

Musical expression is connected to emotion and creativity. A lack of mental energy makes it difficult to experiment or push creative boundaries, which can make a musician's drive, passion, and creativity feel stagnant. Musicians need to actively manage stress and workload by setting boundaries, taking time to rest, and engaging in activities outside of music. These strategies help conserve mental energy, which is essential for maintaining artistic inspiration and preventing burnout.

Mental tension, though less visible than physical strain, can be just as harmful to a musician's performance and health. To avoid mistakes and accurately play a technical passage, many musicians prioritize forced practice rather than relaxed and efficient mechanics and phrasing. Providing space for errors and reflection can turn practice from mere repetition into meaningful growth. Several factors are beyond control during live performances, such as room temperature, physical effects, and bright lights. Building emotional awareness is essential for identifying and managing stress reactions. As Kenny explains, "Without a capacity to mentalize, emotions are experienced only as somatic sensations (e.g. pounding heart, sweating, dry mouth, trembling, etc.) or physical symptoms (e.g. headache, gastrointestinal complaints, muscle tension, etc.) and are never fully comprehensible to the person experiencing these states."[90] This emphasizes the importance of developing mentalization skills to process emotions and to prevent misinterpreting them as solely physical problems.

[90] Dianna Kenny, *The Psychology of Music Performance Anxiety* (Oxford University Press, 2011), 238.

Cognitive Bias and Self-Evaluation

When musicians form ingrained, unproductive physical or mental habits, they may repeatedly make the same mistakes. Distorted cognitive processes can influence this, and musicians inaccurately assess their performance, have clouded judgments, or fail to recognize more effective practice strategies. Cognitive bias refers to the tendency for people to make consistent and predictable errors in their thinking and perception. These errors happen because the brain relies on mental shortcuts to rapidly process vast amounts of information, often without full awareness. In music, these mental shortcuts help improve efficiency but can sometimes be misleading when used for the detailed work of refining practice. As a result, people can misinterpret facts and make errors in judgment, which can lead to irrational choices and misunderstandings.[91] Among the many cognitive biases that can influence musicians, several are particularly relevant to music practice, such as confirmation bias, familiarity bias, frequency bias, and the self-serving bias, as shown in Table 4.

Cognitive Bias	Definition
Confirmation Bias	The tendency to gather evidence that confirms preexisting expectations, typically by emphasizing or pursuing supporting evidence while dismissing or failing to seek contradictory evidence.[92]

[91] Stephen Eldridge, "Cognitive Bias," Encyclopedia Britannica, March 10, 2023, https://www.britannica.com/science/cognitive-bias.

[92] "Confirmation Bias," American Psychological Association Dictionary of Psychology, April 19, 2018, https://dictionary.apa.org/confirmation-bias.

Familiarity Bias	A result of the "mere-exposure effect," where individuals show an increased preference for a stimulus as a consequence of repeated exposures to that stimulus. This effect is most likely to occur when there is no preexisting negative attitude toward the stimulus object, and it tends to be strongest when the person is not consciously aware of the stimulus presentations.[93]
Frequency Bias (Availability Bias, or "Availability Heuristic")	A common strategy for making judgments about likelihood of occurrence in which the individual bases such judgments on the salience of the information held in their memory about the event: the more available and relevant information there is, the more likely the event is judged to be. Use of this strategy may lead to errors of judgment when information that is highly available in memory leads people to believe that those kinds of events are more probable than they actually are.[94]
Self-Serving Bias	The tendency to interpret events in a way that assigns credit for success to oneself but denies one's responsibility for failure, which is blamed on external factors. This bias is regarded as a form of self-deception designed to maintain high self-esteem.[95]

Table 4: Cognitive Biases in Music Practice

In music practice, confirmation bias can cause musicians to interpret information in a way that supports their existing beliefs about their performance while ignoring information that contradicts them. This includes overlooking errors, selectively recalling positive feedback, or resisting alternative practice techniques. Confirmation bias can hinder self-assessment and slow skill development by reinforcing inefficient habits. The familiarity bias, or the "mere-exposure effect," can lead musicians to prefer familiar material due to comfort from repeated exposure.

[93] "Mere-Exposure Effect," American Psychological Association Dictionary of Psychology, April 19, 2018, https://dictionary.apa.org/mere-exposure-effect.

[94] "Availability Heuristic," American Psychological Association Dictionary of Psychology, November 15, 2023, https://dictionary.apa.org/availability-heuristic.

[95] "Self-Serving Bias," American Psychological Association Dictionary of Psychology, April 19, 2018, https://dictionary.apa.org/self-serving-bias.

Some examples involve favoring familiar fingerings over more efficient ones in technical passages or defaulting to an original phrasing instead of adopting a more effective approach recommended by a teacher because they practiced it more. The frequency bias can cause musicians to overvalue recent or memorable issues. During a live performance, a performer might overly focus on a technical imperfection and attribute it to a broader weakness. This bias can distort self-assessment and practice focus by causing musicians to overlook important but less obvious aspects of their playing in the grand scheme. In music practice, the self-serving bias often appears when musicians attribute their successes to internal factors, such as natural abilities or effort, but blame failures on external factors such as lack of time, challenging repertoire, illegible sheet music, or a problem with their instrument. This can lead to an overly optimistic skill perception and resistance to constructive criticism. For example, a student might credit a successfully executed passage to their skill level, but attribute mistakes to distractions in live performance or illegible sheet music from the stage lights. This bias can hinder growth because it reduces accountability and limits honest self-evaluation.

Musicians can address these biases by incorporating metacognitive strategies that promote objective self-assessment and open-mindedness. Recording and reviewing practice sessions, seeking regular feedback from teachers and colleagues, taking ownership of mistakes, implementing routines, setting specific and measurable goals, and engaging in self-reflection are some examples of metacognitive strategies musicians can adopt to track and monitor their progress. By implementing these strategies, musicians can effectively correct mistakes and improve their overall wellness.

Feedback and Self-Reflection

Receiving feedback and criticism is crucial for the growth, artistic development, and success of musicians. To fully benefit from feedback, musicians need a clear mind and an understanding of how it contributes to their development. However, many musicians experience:

> Obsession, perfectionism, hypersensitivity, the need for control, and high expectations are common traits in great artists, and they are all linked to creative burnout. Add to this the pressure of making a living as an artist, harsh criticisms, social comparison, and the solitary nature of creative work, and it becomes easier to understand why so many artists suffer from burnout, or worse. Research shows that people who work in creative fields are especially susceptible to anxiety, depression, alcoholism, and suicide.[96]

Constructive criticism and feedback from mentors and colleagues help musicians identify strengths, weaknesses, and areas of improvement and refinement in their work. Feedback challenges musicians to step out of their comfort zones and try new approaches, leading to musical growth. The ability to respond to feedback professionally helps musicians stay focused and motivated to sustain a long career.

Musicians receive criticism from teachers in lessons and masterclasses, as well as casual comments from colleagues. Whether the focus is on technique or interpretation, feedback can be delivered in both formal and informal ways. While constructive criticism can inform improvement, it can also feel personal because musicians are emotionally invested in their craft. Musicians should separate their creative identity from the evaluative process to engage with criticism productively. Embracing critique as a natural part of growth helps musicians stay grounded and supports the idea that skill and artistry develop over time through reflection and adaptation.

[96] Stulberg and Magness, *Peak Performance*, 20.

Motivation and Purpose

A self-transcending purpose is a goal that allows a person to merge with the world around them. This often involves letting personal goals be influenced by a dedication to something greater. In music, a self-transcending purpose could include volunteering for an event, participating in educational outreach, or donating to a musical cause. To serve a self-transcending purpose, one must overcome one's ego. The "ego," sometimes referred to as "self," or "central governor," acts as a protective mechanism that prevents someone from reaching their true limits. When faced with significant challenges, one's ego is biologically programmed to shut down, telling one to turn in the other direction. By focusing on a self-transcending purpose beyond the self, musicians can "override your ego and break through your self-imposed limits."[97]

Musicians can achieve a sense of unity and connection through participating in ensembles with fellow musicians and the audience. The focus shifts from personal achievement to a collective musical experience. The active promotion of underrepresented voices, such as women-identifying saxophonists and composers, offers a compelling example of a self-transcending purpose in music. By advocating for greater visibility and inclusion, musicians shift their focus beyond personal achievement toward a broader cultural goal. This focus shift and purpose allow performers to critically examine the role of music in shaping equity and representation. Supporting this work through research, programming, and collaboration allows for a more profound sense of meaning, connection, and contribution beyond the individual.

For musicians, the motivation to practice goes beyond mastering their craft. It also involves enhancing personal fulfillment and wellness. The discipline and dedication needed to succeed in music can significantly impact mental and emotional health. This dedication to

[97] Ibid., 200.

musical practice not only sharpens musicians' skills but also acts as a powerful catalyst for overall wellness, offering mental stimulation, emotional release, and physical involvement in a way that supports both artistry and overall wellness. Many musicians find a greater purpose in their practice, recognizing that their art has the potential to inspire, heal, and connect people across diverse backgrounds, thus contributing to the emotional and cultural aspects of society.

Linking music to a purpose beyond the self encourages musicians to move towards more profound meaning, social engagement, and cultural contribution. Whether through ensemble work, advocacy, outreach, or reflection, musicians can refine their craft while strengthening their identity and purpose. This requires perseverance, humility, and ongoing self-awareness. Purpose-driven music-making not only deepens artistic skill but also strengthens a musician's role as an engaged, empathetic community member.

Identity, Representation, and Belonging

Identity perceptions have a broad impact on musicians and their performances. Musicians often connect with others who share similar backgrounds and experiences, forming mentorships and finding role models that reflect their journeys. However, there are many underrepresented groups in music. In the saxophone community, women-identifying saxophonists are a minority due to limited representation in the field, which often leaves them feeling discouraged and overwhelmed. Similar challenges affect musicians of BIPOC and gender identities, where underrepresentation can limit visibility, access, and support. It is essential to create an inclusive community to support and uplift the underrepresented. Highlighting and celebrating the work of underrepresented musicians can boost their self-worth and motivate these communities.

When musicians connect their work to a greater purpose, whether community building, cultural preservation, or advocacy, they create opportunities for personal growth and social connection. Playing in an ensemble fosters unity and belonging where musicians feel connected to their colleagues and, in turn, have powerful experiences. When musicians face frustrations and formidable challenges, the thought of quitting might surface. However, if musicians are committed to an ensemble and other musicians are relying on them, they are more likely to push onward through challenges.

Many musicians build camaraderie through their high school music department. Participating in a high school music program helps students develop discipline, focus, and perseverance through practice and performance. When students participate in ensemble rehearsals and concerts, these collaborative activities promote teamwork, communication, and a shared sense of responsibility. Each section of the ensemble has a specific role that helps create the overall sound and success of the group. Students learn that their contributions are essential,

as there is an expectation to be prepared, support one another, and hold themselves accountable. The entire ensemble depends on every member to function effectively. Music programs support emotional expression and personal growth, fostering a sense of community that allows students to contribute to something meaningful. Through involvement in a music program, students gain a creative outlet during a formative period of their lives.

Musicians find themselves "in the zone" or a flow state when immersed in the creative process. Musical experiences offer pathways to self-transcendence and personal growth. Music provides a way to process emotions, gain mental clarity, and experience healing and personal development. Music also shapes and expresses cultural identity by enabling individuals to connect with their heritage and community through shared musical genres and experiences. By engaging with music from diverse backgrounds, students can broaden their perspectives, share respect for different cultures, and deepen their understanding of how music develops personal expression and social practices.

A well-defined sense of purpose is grounded in a deep understanding of one's core values and guiding principles. To develop and leverage personal purpose and direction, musicians should select, customize, and prioritize their core values and write a purpose statement. During tough times and difficult practice sessions, musicians should refer to their purpose. Musicians can stay aligned with their goals by incorporating visual cues or personal mantras as reminders of their purpose, especially during challenging moments. Additionally, nightly reflection on personal purpose through expressive writing involves assessing how well one has aligned with their purpose and aiming for greater consistency over time.[98] Musicians should remind themselves of the "why" when facing difficulties. Using this as an opportunity to journal and

[98] Stulberg and Magness, *Peak Performance*, 201.

reflect can lead to improvement. Personal core values may change over time, which is normal, as it likely shows growth in musicianship, artistry, and intellect. Static purposes and values can be limiting and should evolve as musicians deepen their understanding of themselves, their goals, and their ambitions. Musicians can hold themselves accountable by tracking short-term and long-term core values. Ongoing reflection helps musicians improve their skills and achieve continuous growth and refinement in music-making.

Sources of Motivation: Internal and External

Whether in the practice room or in front of an audience, maintaining focus and energy often depends on finding ways to increase motivation. Musicians, like athletes, constantly navigate the balance between how demanding a task feels and the motivation needed to complete it.[99] To cultivate motivation, musicians can connect their craft to a broader sense of purpose. Creating positive change and contributing to the audience's emotions allows performing music to offer many rewards, such as sharing work publicly, emotionally connecting with others, and achieving personal milestones. By cultivating passion and creativity, musicians can view music-making as a personal journey focused on self-expression rather than external validation. Musicians can enhance personal motivation by setting clear and attainable goals, optimizing practice routines, and seeking inspiration beyond music in other activities.

Internal motivation can include maintaining a positive mindset. Musicians need to accept imperfection as part of their journey to success. By using positive self-talk and celebrating small wins, musicians can motivate themselves toward a bigger goal. Reflecting on how to give constructive criticism to a student can help musicians approach their self-assessment with a balance of honesty and encouragement in their feedback.

External motivation can come from connecting with like-minded individuals and those who challenge our belief systems. By surrounding oneself with inspiring artists and attending live performances, musicians can find inspiration from these experiences to boost their self-worth and motivation. Additionally, networking with musicians and colleagues who share similar experiences can offer mutual support during difficult times. Recognizing that others face similar challenges can foster a sense of belonging and enhance motivation.

[99] Ibid, 200.

Musicians practice for hundreds of hours for a single performance, such as a recital, refining every detail before stepping in front of an audience. When a mistake occurs during a recital, it often dominates the performers' thoughts, causing them to focus on a small detail within the bigger picture. Musicians hold themselves to high standards, but there is no need to see a performance as terrible because of a few errors. This raises an important question: Should a recital be considered a culminating experience that measures success, or is the real value in the journey that leads there? Rebuilding a positive connection with music-making overall will bring greater happiness and help musicians express themselves more freely. Reframing one's mindset can help eliminate the self-doubt that often follows performance setbacks, creating room for risk-taking and more profound artistic involvement. By focusing on the overall experience of making music, musicians will feel more comfortable taking risks during live performances and engaging with the audience.

Both intrinsic and extrinsic motivations influence music performance. Students must develop their sense of intrinsic motivation. When students depend on their teachers to push them, they become overly reliant on the teacher and struggle to make real progress. Teachers play a vital role in nurturing this motivation, guiding students toward self-sustaining motivation that endures beyond formal instruction.

Music Performance Anxiety (MPA)

Performance anxiety is a challenge for musicians and can significantly affect careers and artistic growth. Fear of performance and impairment is a widespread issue, particularly among younger musicians who are developing confidence and facing challenges, especially during high-stakes scenarios like auditions and solo performances.[100] Music performance anxiety (MPA) is a common type of anxiety that affects musicians "of all skill levels and can shorten music careers if not properly treated." Research by Shaw, Juncos, and Winter discovered and estimated that "prevalence estimates for MPA in its more problematic form are approximately 15–25% for professional musicians and 20–35% for university musicians. Compared to professionals, university-aged musicians may experience a slightly higher prevalence of problematic MPA, because musicians under age 30 are known to be at increased risk for experiencing MPA, and university students often have less experience performing music at high levels."[101] Commonly reported symptoms include physical signs, such as dry mouth, sweating, rapid heart rate, and trembling, as well as cognitive issues such as difficulty concentrating. These symptoms closely resemble those seen in social phobia.[102] MPA causes physiological, behavioral, and cognitive symptoms. Savvidou states that "negative thoughts include fear of being evaluated negatively, fear of an imperfect performance, and poor self-image. Negative self-talk feeds these patterns, continuing the cycle of unhelpful thoughts. Physiological symptoms are similar to the symptoms experienced when the fight-flight-freeze response is activated. Some experienced symptoms

[100] Robert B. Wesner, Russell Noyes Jr., and Thomas L. Davis, "The Occurrence of Performance Anxiety Among Musicians," *Journal of Affective Disorders* 18, no. 3 (March 1, 1990): 178, 180. https://doi.org/10.1016/01650327(90)90034-6.

[101] Teresa A. Shaw, David G. Juncos, and Debbie Winter, "Piloting a New Model for Treating Music Performance Anxiety: Training a Singing Teacher to Use Acceptance and Commitment Coaching With a Student," *Frontiers in Psychology* 11 (May 28, 2020): 2. https://doi.org/10.3389/fpsyg.2020.00882.

[102] Wesner, Noyes Jr., and Davis, "The Occurrence of Performance Anxiety Among Musicians," 179.

include increased heart rate and blood flow, quick breathing, lightheadedness, and a feeling of having butterflies in the stomach."[103]

There are four symptom categories of MPA: cognitive symptoms, physiological arousal symptoms, behavioral avoidance and/or anxious behaviors, and distress and/or impairment related to having MPA.[104] According to Dianna T. Kenny, a music psychology researcher, in *The Psychology of Music Performance Anxiety*, six common causes of MPA among music students are inadequate preparation, self-imposed pressure, lack of self-confidence, playing repertoire that is too difficult for the student's skill level, and excessive physical arousal before or during a performance.[105] MPA symptoms can significantly impair and affect a live musical performance, leading to mistakes caused by physical and psychological symptoms. In such cases, musicians must learn how to cope during live performances. Developing strategies to identify and understand one's specific MPA triggers is crucial for accurate self-assessment and improvement.

[103] Savvidou, *Teaching the Whole Musician*, 155.

[104] Shaw, Juncos, and Winter, "Piloting a New Model for Treating Music Performance Anxiety," 2.

[105] Kenny, *The Psychology of Music Performance Anxiety*, 92.

Contributing Factors to MPA

Perfectionism and setting unrealistic performance expectations contribute to MPA. In response, some musicians over-practice due to anxiety about an upcoming performance or excessive self-criticism. Over-practicing results from fear, which "locks the mind and body and limits your spontaneity." Extended over-practice can also cause physical strain and fatigue, since sustained high-intensity focus involves both the mind and body. Musicians often wish they had more time to prepare for an upcoming performance or recital, even if it is just a few extra days. However, when the performance arrives, the challenge shifts, and "you have to abandon your idealism in order to express yourself freely."[106] Over-practicing is counterproductive, a result of anxiety, and interferes with natural creative intuition. A balanced practice routine that emphasizes quality over quantity helps build resilience, focus, and a healthier relationship with music performance.

For many music students, MPA is common and often intensified by a competitive culture. Along with demanding schedules, students may experience strong pressure from how they perceive their ranking within a talent hierarchy, which is often publicly displayed through studio rankings and performance results. This public exposure can increase anxiety and cause a constant feeling of inadequacy, especially when success is measured only by technical perfection or audition outcomes. In such environments, teachers need to stay aware of these stressors and actively work to create learning spaces that prioritize progress, well-being, and collaborative growth instead of constant comparison.[107] Prioritizing personal growth over constant external comparison can lower MPA and provide a foundation for more sustainable artistic development.

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[106] Madeline Bruser, *The Art of Practicing: A Guide to Making Music from the Heart* (New York: Three Rivers Press, 1997): 22.

[107] Savvidou, *Teaching the Whole Musician*, 13.

Managing MPA: Strategies and Interventions

Managing MPA begins with learning to navigate fear and uncertainty as part of performing, rather than trying to eliminate them. A useful cognitive technique is to reframe anxious thoughts by realistically evaluating their possible outcomes. Psychologists have discovered that a very effective way to handle worries is to ask oneself, "What's the worst that could happen, and what would the best possible outcome look like?" When the possible answers to these questions are explored, usually the "worst possible case" would not be so bad after all, and the "best case" would be "just fine."[108] This is a practical technique for reframing MPA. Maintaining perspective instead of avoiding it lowers the risk of performance paralysis and shifts focus to the act of making music. This mental reframing can give musicians perspective and ease the emotional intensity of performance fears. By calmly assessing potential outcomes, the mind becomes less reactive and more grounded in the present. Over time, this practice can build resilience and support a healthier relationship with risk, uncertainty, and artistic growth.

Research studies have shown that many musicians avoid seeking treatment from physicians or mental health clinicians to treat their MPA because of stigma, diagnosis, and association. Musicians often explore treatment and wellness options on their own, such as biofeedback, yoga, meditation, the Alexander Technique, and guided imagery with progressive muscle relaxation. However, there is an alternative model for MPA treatment. Teachers have "regular access to student musicians who need help due to being at higher risk for problematic MPA," and "students may even prefer to consult with their teachers instead of healthcare practitioners."[109] Students need to find a teacher who understands their learning styles, goals, and

[108] Green and Gallwey, *The Inner Game of Music*, 84.

[109] Shaw, Juncos, and Winter, "Piloting a New Model for Treating Music Performance Anxiety," 2.

challenges. When there is a disconnect between a teacher's approach and a student's needs, it can limit both progress and motivation. When students connect with a teacher who understands their needs, they often build a strong sense of trust and appreciation for the guidance that supports their musical growth and MPA. Working and speaking with a teacher provides a level of safety and comfort for the student to discuss their anxieties and thoughts around their personal MPA securely.

Although MPA can be viewed as harmful and an obstacle to success, it can also serve a functional and even motivating role when properly managed. MPA can improve focus and help channel energy into more expressive and controlled performance. Savvidou notes that:

> To the degree that MPA does not disrupt the performance, it has many advantages, such as heightening our senses, releasing stored energy, and maintaining stamina during long and demanding performances. The goal of treatment is not to eliminate MPA completely, but to harness it by straddling the balance between the activation of the sympathetic and parasympathetic nervous system. There are various methods for treating MPA, including behavioral, cognitive, cognitive-behavioral, pharmacological, and alternative therapies. The most effective method of managing MPA is through a combination of cognitive and behavioral techniques.[110]

Recognizing that MPA can be both a challenge and a resource allows musicians to reinterpret their symptoms as signs of engagement. Students can learn to view heightened senses as a sign of engagement and a desire to learn. This shift in perspective encourages musicians to perform with greater confidence, emotional control, and expressive power.

Cognitive behavioral therapy (CBT) is a type of psychological treatment that professionals use to help people recognize and change unhelpful thought and behavior patterns. It is a structured, goal-oriented form of psychotherapy based on the idea that our emotions, actions, and thoughts are closely connected. By challenging distorted thoughts and developing healthier coping strategies, individuals can improve their behavioral patterns, emotional well-

[110] Savvidou, *Teaching the Whole Musician*, 155-56.

being, and overall functioning. CBT is often used as a short-term treatment and emphasizes current issues in a person's life.[111]

Teachers can guide students through overcoming their MPA and improving performance through approaches such as acceptance and commitment therapy (ACT). Like cognitive behavioral therapy (CBT), ACT is a "behavioral therapy that uses exposure and other behavioral principles to evoke positive change." ACT differs from CBT because ACT "does not aim to control or eliminate unwanted thoughts or symptoms of emotional distress; rather, it promotes acceptance of them." Students must recognize and accept unwanted thoughts and symptoms related to music performance. Examples of anxieties and behavioral processes that manifest internally and externally include: "a lack of awareness and acceptance of present moment experiences; regular avoidance of unwanted internal experiences, such as thoughts, emotions, and sensations; being overly entangled with or fused with one's thinking; rigid attachment to a conceptualized version of oneself that is insensitive to the contextual influences on their behavior; lack of values or lack of values clarity; and an inability to build larger patterns of behavior through a commitment to actions consistent with one's values."[112] Musicians can overcome these thoughts and symptoms through active discussion, and teachers can effectively implement ACT once these thoughts and symptoms are identified.

[111] "What is Cognitive Behavioral Therapy?," American Psychological Association, accessed May 17, 2025, https://www.apa.org/ptsd-guideline/patients-and-families/cognitive-behavioral.

[112] Shaw, Juncos, and Winter, "Piloting a New Model for Treating Music Performance Anxiety," 3.

MPA Training and Resources for Educators

Teachers can be trained to recognize when students display overt behavioral avoidance or anxious behaviors, such as withdrawing from performance opportunities or avoiding challenging repertoire. Teachers who are particularly sensitive to psychological cues may also observe more subtle signs of avoidance and MPA symptoms, such as concentration lapses, negative self-talk, or physical signs such as rapid breathing or muscle tension. Music teachers who build supportive, trusting relationships with students are better equipped to help them overcome their challenges. When used by teachers, acceptance and commitment coaching (ACC) "may have the potential to overcome some hurdles that often prevent student musicians from seeking help, like the stigma associated with being in therapy and lack of time/access to services."[113] A strong teacher-student relationship is crucial for building confidence, motivation, and emotional resilience, while also supporting long-term artistic growth. Trust enhances confidence, and creating safe learning environments supports students in taking risks, making mistakes, and growing from them.

There are several opportunities for teachers to receive formal training in MPA and ACT to better support their students. The Royal College of Music offers a Master of Science (MSc) in Performance Science, which explores performance psychology, education, and research, with a focus on musicians' health and well-being.[114] Vanessa Cornett, author of *The Mindful Musician*, conducts a "Performance Anxiety Workshop for Educators," providing effective solutions for anxiety management in the classroom as well as mindfulness practices for performers.[115]

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[113] Ibid., 8-11.

[114] "Master of Science in Performance Science," Royal College of Music London, accessed June 2, 2025, https://www.rcm.ac.uk/courses/postgraduate/msc/.

[115] "Workshops, Masterclasses, Performance Coaching," Vanessa Cornett, accessed June 2, 2025, https://www.vanessacornett.com/workshops/.

The Voice Study Centre, a partner institution of the University of Essex, offers Masters of Arts programs, certification courses, and short courses on various pedagogical topics. The Voice Study Centre also provides an interactive online course titled "Empowering Teachers to Manage Music Performance Anxiety within Teaching Studios," aimed at understanding MPA, recognizing its symptoms, and applying evidence-based strategies in teaching. The course "aims to give music practitioners a solid understanding of performance anxiety and equip them with effective strategies to support musicians in their development."[116] Dr. David Juncos has led training sessions and webinars combining ACT principles with music performance anxiety management. His three-part course, "Acceptance and Commitment Training for Music Performance Anxiety," teaches educators how to identify and address MPA using ACT skills in a non-clinical coaching setting.[117]

The Association for Contextual Behavioral Science (ACBS) offers various ACT training workshops and events suitable for educators and non-clinicians. The ACBS maintains a list of Peer-Reviewed Trainers (PRTs) who provide ACT training.[118] The Beck Institute for Cognitive Behavior Therapy offers CBT training for professionals across multiple disciplines, focusing specifically on educators through their "CBT for Teachers Webinar," which is available both live and on-demand online.[119] The Association for Psychological Therapies (APT) provides an

[116] "Empowering Teachers to Manage Music Performance Anxiety within Teaching Studios: From Understanding to Strategy Development," Voice Study Centre, accessed June 2, 2025, https://voicestudycentre.com/short-courses/empowering-teachers-to-manage-music-performance-anxiety-within-teaching-studios-from-understanding-to-strategy-development-with-isabella-mazzarolo/.

[117] "Acceptance and Commitment Training for Music Performance Anxiety – 3 Part Course," Voice Study Centre, accessed June 2, 2025, https://voicestudycentre.com/short-courses/acceptance-and-commitment-training-for-music-performance-anxiety-3-part-course-with-dr-david-juncos/.

[118] "Training," Association for Contextual Behavioral Science, accessed June 2, 2025, https://contextualscience.org/training.

[119] "CBT for Teachers Webinar," Beck Institute for Cognitive Behavior Therapy, accessed June 2, 2025, https://learn.beckinstitute.org/s/product/cbt-for-teachers-webinar/01t6S00000Ap4LLQAZ.

accredited “ACT Essentials” course, offering certification and resources. This series of online modules is open to educators, individuals, and teams.[120]

Educators seeking to support students with MPA or to incorporate ACT principles have access to a variety of official training options, ranging from specialized workshops to accredited courses. These programs provide practical strategies, evidence-based techniques, and may offer formal recognition, such as continuing education credits or certification, which can enhance an educator’s professional practice. These training opportunities help educators respond more effectively to their students' psychological needs, supporting them in navigating MPA and succeeding in their musical journeys.

[120] “ACT Essentials (Acceptance & Commitment Therapy),” The Association for Psychological Therapies, accessed June 2, 2025, https://us.aptonlinetraining.com/store/3267642-act-essentials-acceptance-commitment-therapy.

Reframing MPA and Moving Forward

Many musicians navigate MPA, and its effects can influence career prospects and artistic confidence. Strategies such as mindfulness, breathing exercises, and reframing negative thoughts can help musicians manage MPA and perform with greater focus and expressive freedom. Developing both confidence and emotional awareness enables musicians to approach music-making with a stronger sense of purpose. Prioritizing mental and physical health promotes artistic growth, more consistent performances, and long-term career sustainability.

Procrastination

Procrastination is a common challenge for many musicians, especially when preparing for performances or approaching complex repertoire. Understanding its causes and effects on progress is vital for developing effective strategies to overcome it.

Katrin B. Klingsieck describes procrastination as "the voluntary delay of an intended and necessary and/or [personally] important activity, despite expecting potential negative consequences that outweigh the positive consequences of the delay."[121] Procrastination often stems from recognizing the importance of a task, rather than from disinterest, especially when it demands sustained mental effort. In music, this can translate to preparing a technically or emotionally demanding performance. Procrastination affects many people, especially university students. In Klingsieck's article, she notes that procrastination is a common phenomenon in daily life, and the prevalence rates of academic procrastination among university students are significantly higher. Procrastination harms well-being and success, leading to increased stress, lower confidence, and poor academic performance.[122]

While Klingsieck views procrastination as harmful to productivity, Karen Thickstun argues that some procrastination can be beneficial because it "allows a task to remain active in the back of one's mind, permitting new ideas to percolate." Thickstun explains how "Leonardo da Vinci worked on his Mona Lisa painting for 16 years off and on. During this time, he also worked in optics, which changed how he painted light. Interestingly, there are two different words for procrastination in ancient Egypt – one translates as 'laziness,' the other as 'waiting for

[121] Katrin B. Klingsieck, "Procrastination: When Good Things Don't Come to Those Who Wait," *European Psychologist, 18* no. 1 (2013): 25. https://doi.org/10.1027/1016-9040/a000138.

[122] Ibid., 24.

the right time.'"[123] Although opinions vary on whether some forms of procrastination can be beneficial, musicians can benefit from taking breaks to evaluate priorities, clarify upcoming steps, and find the most effective way to finish their work.

Regardless of personal views on procrastination, seven key aspects outline and characterize procrastination:

a. An overt or covert act is delayed.
b. The start or completion of this act is intended.
c. The act is necessary or of personal importance.
d. The delay is voluntary and not imposed on oneself by external matters.
e. The delay is unnecessary or irrational.
f. The delay is achieved despite being aware of its potential negative consequences.
g. The delay is accompanied by subjective discomfort or other negative consequences.[124]

These aspects can be applied to any task, especially for musicians in the practice room. Task avoidance is common among musicians when an important event, recital, or performance is approaching. Musicians might be working on a difficult piece of repertoire that is currently beyond their technical skill level. For example, if a musician is learning a piece of repertoire that incorporates a new technique, such as double-tonguing, the musician needs to practice, isolate, and integrate the desired skill into their practice routine, focusing on the "front" and "back" syllables of double-tonguing. While achieving the results of double-tonguing is the goal, musicians may be reluctant to spend hours practicing and hyper-focusing on small details. This can cause avoidance because this learning process might feel tedious, and progress may seem slow.

Thickstun recommends embracing divergent thinking instead of convergent thinking. Divergent thinking involves generating many ideas, such as brainstorming. In contrast,

[123] Karen Thickstun, "Re-Imagining the Creative Process," *The American Music Teacher* 72, no. 3 (2022): 12.

[124] Klingsieck, "Procrastination," 25.

convergent thinking involves choosing a single idea from multiple options, such as funneling.[125] Using a divergent thinking approach can expand interpretive and technical possibilities, enhancing the creative process and musical results.

[125] Thickstun, "Re-Imagining the Creative Process," 13.

Psychological Perspectives of Procrastination

Klingsieck categorizes procrastination into four perspectives: the differential psychology perspective, the motivational and volitional psychology perspective, the clinical psychology perspective, and the situational perspective. Table 5 summarizes each perspective, the theoretical frameworks used to reframe it, and examples of variables that research has associated with procrastination:[126]

	Differential Psychology Perspective	**Motivational and Volitional Psychology Perspective**	**Clinical Psychology Perspective**	**Situational Perspective**
Understanding procrastination as …	A trait	A motivational or/and volitional deficit	A clinically relevant phenomenon	Being evoked by certain situational features
Theories that have been referred to in order to explain procrastination	Big Five: Openness, Conscientiousness, Extraversion, Agreeableness, Neuroticism	Self-Determination Theory, Temporal Motivation Theory, Action Control Theory	Psychoanalysis, Cognitive Behaviorism, Neuropsychology	---
Examples of variables that have been associated with procrastination in studies	Conscientiousness, Neuroticism, Perfectionism	Intrinsic motivation, Goal orientation, Self-regulation, Time-management	Anxiety, depression, stress	Task difficulty, Task attractiveness, Task specificity

Table 5: Four Perspectives on Procrastination: Theories and Related Variables

These perspectives provide a useful framework for understanding how procrastination appears in musicians' daily practice and performance preparation. From a differential psychology perspective, procrastination is considered a personality trait. Increased procrastination is

[126] Klingsieck, "Procrastination," 28-9.

associated with "decreased conscientiousness and increased neuroticism, increased perfectionism, low self-esteem, decreased optimism, and different identity aspects (e.g., self-concept and self-presentation, e.g., ego identity)."[127]

From a motivational and volitional psychology perspective, the key idea is that "procrastination incorporates a failure in motivation or/and volition, leading to the intention-action gap."[128] Musicians need to self-assess and identify where their motivation might be lacking, such as fear of the preparation process or apprehension about performance outcomes. Procrastination is less likely to occur with a mastery approach goal orientation, an internal locus of control, and increased self-efficacy. Musicians should prioritize proper planning, organization, and focus on their practice routines to build healthy habits and achieve success.

The clinical psychology perspective examines the "conditions of and interventions for the clinically relevant extent of procrastination." Procrastination is linked to depression, test anxiety, stress, and stressors. In some cases, procrastination might serve as a form of revenge or rebellion against imposed expectations or perceived constraints. Studies indicate that cluster-C personality disorders are associated with procrastination, including obsessive-compulsive personality disorder, avoidant personality disorder, and dependent personality disorder.[129] Musicians need to be aware of the negative consequences of procrastination and understand why it affects them. Musicians might feel anxious about an upcoming event or recital and refuse to prepare for it due to "revenge" or "spite" of being told to participate in the first place.

[127] Ibid., 25-6.

[128] Ibid., 26-7.

[129] Ibid., 27.

The situational perspective highlights the importance of the environment and context. In this perspective, "procrastination is understood as a phenomenon that is evoked by certain situational features," which relate to "task characteristics, such as task difficulty and attractiveness, plausibility of the assignment, autonomy, and teachers' characteristics."[130] Procrastination can be triggered by performing these tasks or struggling with a specific task. Task avoidance is a common issue for musicians. Musicians often procrastinate due to various factors, including heavy workloads and numerous daily tasks, as well as their need to see progress from day to day. Their thoughts might include: "I do not want to practice this piece today. I am starting a new piece that is proving very challenging, and I am unsure where to begin. Maybe I will work on one of my other projects instead."

In Klingsieck's research on the Temporal Motivation Theory in the *European Psychologist*, "procrastination is more likely to occur if the outcome of an unpleasant activity offers rewards in the distant future."[131] In music, these "unpleasant activities" often take the form of repetitive technical exercises, slow, deliberate practice of difficult musical passages, recording and listening to one's playing to identify inconsistencies and weaknesses, coping with music performance anxiety, and journaling to track patterns in practice sessions through self-reflection. While all these musical activities are important, they often do not provide immediate gratification. Musicians tend to procrastinate because a task is difficult, even though it is necessary. Even if saxophonists know that isolating altissimo notes at soft dynamics is needed to gain control over voicing in the extreme registers, it is a difficult task to execute without regular practice. Similarly, saxophonists might feel the same about practicing overtones. When

[130] Klingsieck, "Procrastination," 27-8.

[131] Ibid., 27.

approaching overtone practice for the first few times, saxophonists may have a frustrating and confusing experience. At first, the concept requires a level of control and precision that might feel difficult to achieve. It is common to struggle with producing clear overtones or understanding how the overtone exercises translate to tone development. This can make the process slow and discouraging in the early stages. Perhaps musicians find themselves asking, "What will my teacher think?" when walking from the practice room to their scheduled lesson if they do not have the task entirely under control. Careful planning and thoughtful prioritization in each practice session can help musicians overcome these challenges more effectively to achieve the best results. Growth involves confronting the unpleasant aspects of music practice, especially when the long-term rewards are significant. To develop and be successful, it is essential to handle challenging emotions and negative moods.

Emotional Triggers and Practice Avoidance

A crucial step in addressing procrastination is identifying personal triggers that cause avoidance and creating strategies to manage them. Challenging tasks can trigger feelings of anxiety, self-doubt, and frustration, which are emotional reactions that often lead to avoidance behaviors. Identifying the emotions and reasons behind procrastination can help musicians address it more effectively. Musicians might ask themselves: “Is this piece of repertoire too difficult for my current skill level? Am I overwhelmed by the limited time I have to prepare?” Throughout the creative process, asking open-ended and thought-provoking questions can encourage curiosity, exploration, and innovative thinking.

Thickstun encourages asking “open ("what if") questions instead of closed ("what is") questions. Ask "why" and then ask "why" again. Doubt the default or status quo. The future belongs to the curious. The ones who are not afraid to try it, explore it, poke at it, question it, and turn it inside out. Questions lead to thinking and discussion. Creating a positive environment for questions allows the process to be as valuable as the answer.”[132] Such questions can help musicians stay focused on the final goal while understanding how each step contributes to the outcome. Along the way, practicing self-compassion and recognizing personal accomplishments, such as learning a new section in the repertoire and increasing metronome markings for technical exercises, can reinforce motivation. Incorporating these strategies into practice routines can help musicians boost productivity and overcome creative stagnation.

Although procrastination is often seen as a time management problem, some research suggests that it is an emotional regulation issue.[133] Dr. Fuschia Sirois, professor of psychology at

[132] Thickstun, “Re-Imagining the Creative Process,” 13.

the University of Sheffield, discussed procrastination: "People engage in this irrational cycle of chronic procrastination because of an inability to manage negative moods around a task." When people keep procrastinating, it mainly impacts productivity and mental and physical health, including chronic stress, overall psychological distress, low life satisfaction, symptoms of depression and anxiety, unhealthy behaviors, chronic illness, and even hypertension and cardiovascular disease.[134] Music students often have very structured schedules that require discipline and strong organizational skills related to time management. According to Norris et al., it is "not so much the actual time that students have available to them, but the perception of control over that time that causes stress."[135] For musicians, the demands of practice schedules and performance standards can create a perceived lack of control, leading to avoidance as a coping mechanism.

[133] Charlotte Lieberman, "Why You Procrastinate (It Has Nothing to Do With Self-Control)," *The New York Times*, March 25, 2019, https://www.nytimes.com/2019/03/25/smarter-living/why-you-procrastinate-it-has-nothing-to-do-with-self-control.html.

[134] Ibid.

[135] Sarath A. Nonis et al., "Influence of Perceived Control over Time on College Students' Stress and Stress-Related Outcomes," *Research in Higher Education* 39, no. 5 (1998): 587-605. doi:10.1023/A:1018753706925.

Self-Doubt, Perfectionism, and Impostor Syndrome

Chronic procrastination can damage a musician's career, creative output, artistic growth, and performance opportunities. Musicians who delay practice due to procrastination may experience reduced skills and increased anxiety. The guilt and anxiety linked to procrastination can negatively affect a musician's mental well-being, potentially leading to burnout or decreased motivation.[136] Musicians might also develop impostor syndrome, where chronic procrastination can worsen feelings of self-doubt. Impostor syndrome involves "feeling like a fraud in one's profession and that one's accomplishments are attributed to sheer luck, or incredible amounts of effort." Musicians experiencing impostor syndrome may find themselves thinking, "I do not belong here," "Someone will eventually discover I am here because of a big mistake," and "I am never going to be as good as them." These negative thoughts reflect an "inability to internalize accomplishments, convincing the individual he is a phony, even though his achievements demonstrate otherwise."[137] Such thoughts can reduce confidence, hinder artistic development, and lead to inconsistent performance quality. Impostor syndrome is experienced by "high-achieving, successful individuals and is manifested by irrational fear that others will 'discover that they are a phony' and judge them to be undeserving of their success or position." Effects of impostor syndrome include frequent and intense feelings of anxiety, depression, insomnia, procrastination, and burnout.[138] As musicians improve their skills, their impostor tendencies tend to rise, since greater achievements often lead to sharper self-comparisons and higher

[136] Eric Jaffe, "Why Wait? The Science Behind Procrastination," Association for Psychological Science - APS, March 29, 2013, https://www.psychologicalscience.org/observer/why-wait-the-science-behind-procrastination.

[137] Savvidou, *Teaching the Whole Musician*, 158.

[138] Wendy L. Sims and Charlene Ryan, "Relationships Between Music Performance Anxiety and Impostor Phenomenon Responses of Graduate Music Performance Students," *Psychology of Music* 52, no. 4 (November 20, 2023): 403, https://doi.org/10.1177/03057356231209264.

expectations. Higher skill levels create great expectations and comparisons that can intensify self-doubt. The more they accomplish, the more they may focus on their limitations or areas of insecurity, especially in high-pressure, detail-oriented environments. Impostor syndrome is a "prevailing problem" that often leads to self-sabotaging behaviors among musicians as they become aware of their progress and inconsistencies in their playing.[139] Impostor syndrome has been linked to perfectionism and social anxiety. The desire to appear perfect to others heightens feelings of being a fraud, causing some to avoid social interactions out of fear of making mistakes and being exposed as a fraud.[140] This cycle can diminish a musician's confidence and willingness to perform, increasing anxiety and causing missed opportunities to showcase their artistry during performances.

In academic settings, many students experience impostor syndrome because of the pressure to succeed and the constant comparison to others. As students enter the academic environment, they often feel heightened emotions while trying to establish themselves. For those who experience impostor syndrome, fear of failure, and perfectionistic tendencies, they may either "work much harder than they need to or spend little time completing tasks because they perceive failure as inevitable. As such, impostor syndrome can become a barrier to academic success and can lead to higher stress and burnout."[141] These negative patterns can hinder the development of critical musical skills such as effective practice, creative exploration, and risk-taking. Musicians dealing with impostor syndrome may avoid ensemble auditions, improvisation opportunities, or seeking constructive feedback out of fear of being exposed as "inadequate" or

[139] Aliyah Ramatally, "Impostor Syndrome & Musicality," *DURMS 4* (Autumn 2021): 71. https://musicscience.net/wp-content/uploads/2021/10/ramatally.pdf.

[140] Megan E. Cowie et al., "Perfectionism and Academic Difficulties in Graduate Students: Testing Incremental Prediction and Gender Moderation," *Personality and Individual Differences* 123 (2018): 223-8.

[141] Savvidou, *Teaching the Whole Musician*, 159.

"not enough." This can reduce self-efficacy and contribute to a cycle of self-doubt, which hinders expressive ability, technical progress, and full musical engagement.

Self-doubt contributes to a musician's procrastination by creating mental and emotional barriers that hinder productivity and progress. Musicians may develop a fear of failure and judgment. They often doubt their abilities or fear that their work will not meet the expectations of teachers, audience members, or colleagues. Self-doubt can lead to avoidance behaviors, such as delaying performances to avoid criticism or rejection. It often manifests as perfectionism, where musicians believe their work must meet unrealistic standards. Many experience perfectionist tendencies due to the public nature of performance evaluations and comparisons with highly edited, "perfect" recordings. Striving for "note-perfect performances" often sets unrealistic standards, raising the chances of frustration and disappointment.[142] Musicians often set unrealistic standards for themselves since they are in constant competition with themselves. They aim to deliver stellar recitals after mastering a technically challenging piece of repertoire in the practice room. As a result, they may feel overwhelmed by their goals and doubt their ability to achieve their desired results. This often happens to younger musicians, who are often "starstruck" by hearing older colleagues and teachers perform extraordinary recitals. Younger musicians may not realize the steps needed to make steady progress in their field. Without understanding the necessary practice methods, musicians can experience a "paralysis" of inaction as they struggle to decide where to start or how to proceed. Pursuing unattainable perfection can harm students' mental health, especially when daily stressors combine with heightened, unrealistic expectations.

[142] Ibid., 144.

Chronic self-doubt can damage a musician's motivation, transforming creative work from a source of fulfillment into an obligation weighed down by pressure. This lack of enthusiasm can lead to procrastination because musicians might prioritize less emotionally demanding activities. Musicians often find themselves focusing on repetitive motions in the practice room. Without a clear goal or understanding the "why" of this "woodshedding" in the practice room, they can become unenthusiastic about this task and end up focusing on "easier" tasks. In some cases, procrastination serves as a defense mechanism against the discomfort of confronting self-doubt. By delaying tasks, musicians "temporarily" avoid confronting feelings of inadequacy or the possibility of failure, which relates to how their beliefs in their abilities and their capacity to regulate behavior shape their tendencies to delay actions towards their goals.[143] Without intervention, these patterns can solidify into long-term avoidance habits that hinder artistic and personal growth. Strategies such as cultivating self-compassion, reframing unproductive thought patterns, and organizing tasks into manageable, achievable steps can help musicians overcome procrastination and build confidence in their creative abilities.

[143] João Florêncio da Costa Júnior et al., "Anti-Procrastination Strategies, Techniques and Tools and Their Interrelation with Self-Regulation and Self-Efficacy," *Journal of Education and Learning* 13, no. 1 (2024): 87. https://doi.org/10.5539/jel.v13n1p72.

Strategies for Overcoming Procrastination

To reduce feelings of self-doubt and procrastination, musicians can learn to trust the creative process. Embracing uncertainty is a key step in developing creative resilience. Musicians can build a stronger trust in their process by accepting that outcomes may not always be immediately evident. Releasing the need for complete control, staying grounded in personal artistic values, and loosening ego-driven expectations can help musicians embrace ambiguity and trust the creative process, even when progress is not immediately apparent.[144] Embracing uncertainty as an essential part of making music fuels creativity, innovation, and expression, making musicians more receptive to inspiration. Musicians can strengthen trust in their creative process by embracing uncertainty and surrendering control, practicing self-compassion and intuition, learning from failure, establishing consistent creative habits, seeking feedback and collaboration, and stimulating inspiration. Allowing the music to lead can reconnect musicians with their authentic artistic voice and the emotions their work can evoke. This shift can be liberating and often leads to more genuine, inspired work.[145]

Musicians need to trust their inner voice and intuition, as creating involves taking risks. Showing self-compassion helps musicians stay open to new ideas. Encouraging musicians to explore different techniques and interpretative originality helps shape their creative expression.[146] Artistic growth involves seeing failure as an unavoidable and valuable part of the process. Although failure is often viewed negatively, reframing it as a valuable and essential part

[144] Isabelle Héroux, "Creative Processes in the Shaping of a Musical Interpretation: A Study of Nine Professional Musicians," *Frontiers in Psychology* 9 (May 8, 2018): 10. https://doi.org/10.3389/fpsyg.2018.00665.

[145] Ed Bell, *The Art of Songwriting: How to Create, Think and Live Like a Songwriter* (The Song Foundry, Inc., 2017): 8.

[146] Héroux, "Creative Processes in the Shaping of a Musical Interpretation," 14.

of creativity allows musicians to make more progress. Engaging with failure offers significant benefits, helping musicians refine their skills and discover what works for positive impact and change.[147] Finding inspiration can help musicians to refresh their perspective. Engaging with diverse artistic influences, whether through attending live performances, listening to different genres, or visiting art galleries, can refresh perspectives and sustain creativity over the long term.[148]

Musicians need to adjust their mindset to trust the creative process. Table 6 offers suggestions on how musicians can stay on track and trust their creative instincts[149] [150]:

Mindset Shift	Description
From control to curiosity	Let go of micromanaging and allow the music to evolve naturally
From fear of failure to learning	See mistakes as steps toward growth and discovery
From perfectionism to progress	Focus on small, consistent improvements rather than flawless results
From isolation to connection	Engage with others for support, feedback, and inspiration

Table 6: Cognitive Shifts Away from Procrastination

[147] Mark Thorley, "The Role of Failure in Developing Creativity in Professional Music Recording and Production," *Thinking Skills and Creativity* 30 (December 2018): 169-170. https://doi.org/10.1016/j.tsc.2018.05.002.

[148] "How to Boost Creativity and Cope with the Challenges That it Brings," Musicians' Union, March 25, 2022, https://musiciansunion.org.uk/events-career-development/career-development/career-guides/professional-and-creative-growth/how-to-boost-creativity-and-cope-with-the-challenges-that-it-brings.

[149] Ibid.

[150] Héroux, "Creative Processes in the Shaping of a Musical Interpretation."

Trusting the creative process involves embracing uncertainty, accepting failure as part of growth, and developing strong habits. With a mindset shift, musicians can learn to trust the process and access a more genuine and expressive approach to making music.

By addressing procrastination, musicians can enhance their productivity, creativity, and overall career progress. They can build confidence to overcome self-doubt through strategies such as regular practice, goal setting, embracing performance opportunities, and reframing negative thoughts. Confidence increases when musicians apply willpower to conquer challenges in practice and performance. Willpower, a mental resource, allows musicians to resist short-term comfort in pursuit of long-term artistic goals. Without it, short-term impulses prevail, and willpower becomes depleted. Focusing on the process and enjoying the journey of musical growth makes musicians more likely to stay engaged in their learning. Through consistent use of these strategies, musicians can develop lasting confidence, manage performance-related anxieties, and achieve success in their musical goals.

Wellness Takeaways

According to Stulberg and Magness, the key principles of underlying healthy, sustainable peak performance are:

- Stress + rest = growth
- The power of developing optimal routines and designing your day
- Purpose[151]

Musicians can customize these key performance principles to align with their personal artistic goals and work ethic. This adaptation should reflect each musician's approach to practice, performance, and the specific demands of their instrument. Music practice routines vary for each person, regardless of ability or level. Integrating these principles into a personalized practice plan can enhance both artistic growth and long-term sustainability.

Striving for musical excellence requires more than just technical mastery. It also relies on mental clarity, emotional balance, and authentic creative expression. Music performance often depends more on reducing internal mental criticism than on focusing solely on external technique. For musicians, practice and performance are deeply connected to personal fulfillment, wellness, and a sense of greater purpose. When musicians view their art as a form of self-expression, connection, and cultural contribution, they enhance their fulfillment and create a positive impact on the world around them. Maintaining a healthy mental state helps musicians handle challenges with resilience, build meaningful relationships, and support overall wellness. This holistic approach to musicianship ensures a fulfilling, sustainable, and meaningful musical journey. Musician wellness involves balancing physical, emotional, and mental health while nurturing a sense of purpose that influences both personal life and professional artistry.

[151] Stulberg and Magness, *Peak Performance*, 191.

Chapter III: Organization And Effective Practice Habits

For musicians, developing well-established habits reduces the mental effort required for decision-making. Over time, forming habits transforms them into automatic routines, which frees the mind for more expressive musical decisions. This shift enables musicians to concentrate on more complex tasks, such as interpretive or technical challenges, while ensuring steady progress and consistency over time. Consistent, focused practice strengthens musical proficiency and discipline for solving musical problems. Core elements of effective, sustainable musicianship include physical habits such as posture and breath control, mental rehearsal to refine musical interpretation, self-assessment to guide improvement, and clear goal setting to stay focused. Incorporating these habits into daily practice promotes artistic growth and helps musicians develop the self-awareness and adaptability needed to manage performance challenges and sustain progress over time. These foundational routines assist musicians in maintaining their physical and mental wellness and a sustainable connection with their craft.

The following methods were selected because they each address a crucial aspect of effective and sustainable musicianship. K. Anders Ericsson and Robert Pool's deliberate practice technique develops skill through focused effort. Angela Duckworth's grit maintains motivation over time. The Pomodoro Technique aids focus and balance. Together, these methods promote sustainable practice habits that enhance both performance and well-being.

Deliberate Practice

K. Anders Ericsson (1947-2020) was a Swedish psychologist and Professor of Psychology at Florida State University who researched cognitive psychology and how to gain expertise in any given field. Ericsson challenged the idea of natural talent and suggested that anyone can become an expert in their respective fields with the proper training and mindset. Ericsson focused on "deliberate practice," a highly structured form of training which "entails immediate feedback, clear goals and focus on technique."[152] Robert Pool is a scientific author who worked with Ericsson in writing the book *Peak: Secrets from the New Science of Expertise*. This book examines how experts have used the deliberate practice learning method to achieve superior performance in their respective fields.

The goal of deliberate practice "is not just to reach your potential, but to build it," and "to make things possible that were not possible before. This requires challenging homeostasis – getting out of your comfort zone – and forcing your brain or your body to adapt. But once you do this, learning is no longer just a way of fulfilling some genetic destiny; it becomes a way of taking control of your destiny and shaping your potential in ways that you choose."[153] As Ericsson explained, the purpose of deliberate practice is to enable achievements that once appeared impossible by consistently pushing one's limits. For musicians, this perspective emphasizes that artistry develops through intentional, effortful growth rather than just innate talent. Deliberate practice takes place outside one's comfort zone, is purposeful, involves improvement of mental representations, and builds on previously acquired skills.[154]

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[152] Steven Kurutz, "Anders Ericsson, Psychologist and 'Expert on Experts,' Dies at 72," *The New York Times*, July 1, 2020, https://www.nytimes.com/2020/07/01/science/anders-ericsson-dead.html.

[153] K. Anders Ericsson and Robert Pool, *Peak: Secrets from the New Science of Expertise* (New York, Houghton Mifflin Harcourt, 2016), 48.

Deliberate Practice Application for Musicians

Recognizing that musical ability can develop through sustained effort and intentional practice changes the way musicians approach their craft and makes them more likely to stay motivated and engaged. Acknowledging that the musical process is challenging yet rewarding encourages musicians to embrace deliberate practice as a long-term mindset. This empowers them to take ownership of their development and provides a valuable framework for building skills throughout their musical journey.

By applying Ericsson and Pool's key principles of deliberate practice, musicians can replace mindless repetition with focused work that targets the most important areas for their growth. Deliberate practice is crucial because it helps individuals achieve excellent performance in their fields by following key principles: setting specific and well-defined goals, maintaining focused and sustained attention, seeking frequent and immediate feedback, pushing beyond comfort zones, using a structured and systematic approach, developing mental representations, and monitoring and adjusting practice. This intentional, focused approach leads to meaningful improvement and expert performance.

Specific, Well-Defined Goals

Setting specific, well-defined goals helps musicians stay focused. Musicians should establish both short-term and long-term goals, such as improving technical skills, mastering a challenging piece, enhancing musicality, and preparing for a recital.

[154] K Anders Ericsson, "Deliberate Practice and the Acquisition and Maintenance of Expert Performance in Medicine and Related Domains," *Academic Medicine* 79, no. 10 (October 2004): S79. https://doi.org/10.1097/00001888-200410001-00022.

Short-term goals help musicians monitor their daily progress. Achieving smaller goals motivates larger, transformative changes by "leveraging tiny advantages into patterns that convince people that bigger achievements are within reach."[155] These seemingly minor successes accumulate and build confidence over time. For example, a specific, short-term, well-defined musical goal is targeted: "Today, I will practice measures 88-92 at metronome marking 104 beats per minute with even sixteenth notes, clean staccato articulations, and accurate intonation across all registers." Small goals in the practice room can also include keeping a consistent rhythm with a metronome over several repetitions, reducing body tension while playing a passage, or successfully playing a tricky section at a slower tempo without mistakes. Having a smaller, specific goal helps musicians focus their energy on what matters most, avoiding hours of unfocused playing. Over time, the accomplishment of these small goals can lead to achieving larger goals, such as improving tone overall or mastering all the technical aspects of a challenging piece. This cycle of goal setting and achievement fosters discipline, resilience, and a deeper investment in practicing.

Focused and Sustained Attention

Once concentration is established, it requires active protection from both internal and external distractions. Musicians should design their practice sessions to keep their brains engaged throughout. Eliminating distractions in the practice space helps establish and maintain focus and attention. Turning off electronic devices and avoiding social media are effective ways to stay focused. Setting a timer to structure practice can also be helpful. The Pomodoro Method, which is explained later, can assist in maintaining attention. In addition, it is important to avoid

[155] Charles Duhigg, *The Power of Habit: Why We Do What We Do in Life and Business* (New York: Penguin Random House, 2012): 112.

multitasking and concentrate on one specific task at a time. Create designated physical spaces for practice and surround yourself with objects that promote focus. Keeping necessary materials nearby, such as a pencil, notebook, metronome, or tuner, boosts productivity and concentration, helping practice flow smoothly and reducing interruptions. Consistently working in these personalized environments with the same materials can enhance productivity on a deep neurological level over time.[156]

Frequent and Immediate Feedback

Deliberate practice requires frequent and immediate feedback from a teacher who is an expert in their field. Music students enrolled in academic music programs have individualized instruction with a major professor. Teachers can help students develop their mental representations so that they can adequately monitor and correct their performance.[157] These mental representations enable musicians to anticipate musical outcomes and adjust their playing in real time. Since practice is often self-directed and immediate feedback from a teacher is not always available, musicians need to develop their own problem-solving and self-monitoring abilities. Ericsson and Pool developed the "three F's" technique: "Focus. Feedback. Fix it. Break down the skills into components that you can do repeatedly and analyze effectively, determine your weakness, and figure out ways to address them."[158] Breaking down complex musical tasks into smaller, repeatable parts allows musicians to identify challenges, evaluate their progress,

[156] Stulberg and Magness, *Peak Performance*, 197-8.

[157] Ericsson and Pool, *Peak*, 150.

[158] Ibid., 159.

and develop strategies for improvement. This method promotes greater independence and accuracy in practice, leading to more meaningful growth.

Recording practice sessions can provide immediate feedback for musicians to improve their skills. Reviewing recordings allows musicians to identify areas for improvement and track progress. Listening to audio recordings allows musicians to hear their playing objectively, often revealing mistakes and inconsistencies they might not notice in real-time. Sometimes, musicians' expectations of their desired sounds influence their perception of the sounds they produce. The identification of a musical problem is ninety percent of its solution.[159] In video recordings, musicians can see their performance presence and identify excessive tension in their bodies. Musicians can adjust future practice sessions based on these recordings. Recording practice sessions is a form of self-regulated learning that encourages self-awareness, precision, and growth.

Music technology applications can assist and improve practice sessions. Tuning applications, such as Tunable and Tonal Energy, give musicians a visual display of their pitch. Using these applications, along with recording themselves, allows musicians to receive immediate feedback in the practice room.

Consistently Pushing Past Comfort Zones

Deliberate practice requires musicians to be out of their comfort zones. Progress relies on pushing the limits of current ability. Some musical challenges can include working through technical difficulties, developing range, and increasing metronome markings on a difficult section. When working on a lyrical passage typically performed at a *mezzo-forte* dynamic, a

[159] McGill, *Sound in Motion*, 272.

musician can step out of their comfort zone and challenge themselves by implementing a wider dynamic range, from *pianissimo* and *forte* passages with precision and consistency. This process can reveal limitations in breath support and phrasing connections. Although uncomfortable at first, this focused work promotes greater expressive range and control.

When practicing, musicians tend to focus on familiar and comfortable sections. They also tend to start practicing at the beginning of the piece and move through it, measure by measure. When a difficult measure approaches, they spend time woodshedding that part to work out the technical and expressive issues. After fixing that measure, they continue through the piece, following this practice approach. To challenge this approach, musicians should "practice the hardest passages first." Practicing the hardest parts first means "identifying the most challenging few measures or sections of music and practice these passages first." The length of each practice segment should match the difficulty. For more complex passages, short, targeted practice on smaller sections is more effective than longer segments. Once these smaller sections have been mastered, they can be linked together to create longer sections, gradually building the piece from the inside out.[160] Musicians should identify these passages when learning a new piece, mark them in the music, and set practice goals. Practicing these difficult passages early in the learning process can help musicians enhance growth and provide enough time to develop proper skill and technique.

[160] Jennifer Mishra and Barbara Fast, *iPractice: Technology in the 21st Century Music Practice Room* (Oxford University Press, 2019): 18.

Structured and Systematic Approach

To succeed in a practice session, musicians should decide when they will practice each day and for how long. If they can practice in three-hour blocks, they should assign each segment to focus on a specific skill. During a practice session, musicians should allocate time to activities such as warm-ups, technical exercises, etude work, repertoire practice, sight-reading, and musical interpretation. Structuring practice time into smaller "chunks" creates structure and prevents the inefficiency of aimlessly shifting between tasks. For example, if a musician is working on a four-measure technical section, they can divide it into smaller two-beat parts. Practicing each part slowly, with attention to finger accuracy and rhythm, helps identify problem areas. Repeating the segment, combining sections, practicing at a slow tempo, and gradually increasing the tempo can aid progress. This technique improves musical practice efficiency and provides a structured approach.

Musicians can apply deliberate practice to fix mistakes and build muscle memory. Implementing short, focused repetitions, about one to two minutes per technique, with brief breaks, helps sustain concentration. Musicians can track challenges, their causes, and potential solutions to support sustainable progress. When practicing repertoire, it is important to break down complex passages, practice slowly, and gradually increase speed with a metronome while maintaining accuracy. Musicians should be honest with themselves and aim to develop their musical ears to detect mistakes. Understanding the musical structure and expression, not just technique, will help musicians grasp the work in its entirety.

When designing and structuring practice sessions, musicians should plan their day accordingly. Being deliberate about scheduling practice sessions must match energy levels. By identifying individual chronotypes, whether someone is a "morning or night person," musicians

can schedule practice at times that best suit their needs. Assign specific times that align with their peak focus for accomplishing the most important work. For example, practicing late at night immediately after a four-hour ensemble rehearsal will not produce effective results due to fatigue from the rehearsal. Instead, using that time for recovery to generate creative ideas that can be acted upon during the next practice session, with high energy and focus, will help reset the mind. Aligning with your chronotype enhances performance while maintaining a healthy balance between stress and rest.[161]

Mental Representations

Outside the practice room, musicians can incorporate visualization and mental practice strategies. They can audiate and mentally rehearse the sound, phrasing, fingerings, breathing, and articulations they want to produce without the instrument in hand. Asking specific guiding questions, such as about phrasing, articulation, or tone color, helps develop vivid internal models that improve precision and expressiveness, also known as mental representations. These techniques shift focus from physical actions to internalizing the sound and visualizing the motions needed to execute their ideas. Musicians can use this strategy when preparing for a performance. Visualizing every aspect, from warming up backstage to walking on stage, maintaining stage presence, and performing, can help musicians better understand their role and prepare effectively. Visualization and mental practice are also valuable for learning new pieces, as they have a neurological basis for improving performance, even though they do not involve physical practice. The brain processes these imagined movements in a similar way to actual physical movements.[162]

[161] Stulberg and Magness, *Peak Performance*, 197-8.

Developing musicians may become frustrated with plateauing progress, especially when listening to peers and professionals. However, "the main thing that sets experts apart from the rest of us is that their years of practice have changed the neural circuitry in their brains to produce highly specialized mental representations, which in turn make possible the incredible memory, pattern recognition, problem solving, and other sorts of advanced abilities needed to excel in their particular specialties."[163] Professionals have developed mental frameworks that assist them in quickly recognizing patterns in notation and technique, predicting harmonic progressions, and addressing interpretive challenges more effectively.

Dedicated practice and effort over time create these mental representations. For developing musicians, it emphasizes that excellence in music is not just about natural talent. Instead, it is cultivated through consistent, intentional practice that causes clear cognitive and neurological changes. As Jenkins observes about athletes, "Elite performers are highly methodical in their processes, precisely because they deal in fluid situations. Consistent champions don't just drift through the circumstances of their day, everything they do is deliberate."[164] Musicians who practice mental representations create a mindset that manages the unpredictability of live performances while maintaining technical control, emotional expression, and artistic clarity.

[162] Mishra and Fast, *iPractice*, 23.

[163] Stulberg and Magness, *Peak Performance*, 63.

[164] Jenkins, *The Right Call*, 7.

Monitoring and Modifying

Using a daily practice journal can help musicians organize their ideas and provide written support for their practicing. In preparation for their practice session, musicians can set up their journal beforehand and organize sections by warm-ups, scales, technical exercises, etudes, repertoire, and sight-reading. For each journal section, they can note their practice goals, what occurred during practice, and how to structure their next practice session. By tracking details such as metronome markings, articulations, and tuning habits, musicians can reflect on how to improve from one session to the next. As Ericsson and Pool mention, "It does no good to do the same thing over and over again mindlessly; the purpose of the repetition is to figure out where your weaknesses are and focus on getting better in those areas, trying different methods to improve until you find something that works."[165] If musicians continue to make mistakes, they can adjust their practice strategies accordingly. By recording daily goals, challenges, and observations, musicians engage in metacognitive thinking, where they evaluate what works, what does not, and why. This process supports problem-solving and contributes to long-term growth through self-reflection. Over time, journal entries reveal recurring patterns in both success and struggle, providing valuable insights for targeted feedback.

[165] Ericsson and Pool, *Peak*, 158.

Deliberate Practice Takeaways

In an article by the Harvard Business Review, Ericsson discusses key aspects of deliberate practice: "Deliberate practice involves two kinds of learning: improving the skills you already have and extending the reach and range of your skills."[166] The basic principles found in deliberate practice are "breaking learning down into a series of well-specified skills, designing exercises to teach each of those skills in the correct order, and using feedback to monitor progress."[167] For musicians, stepping outside their comfort zone and applying the key principles of deliberate practice can promote sustainable artistic growth and increased confidence, leading to more engaging performances.

[166] K. Anders Ericsson, Michael J. Prietula, and Edward T. Cokley, "The Making of an Expert," *Harvard Business Review* (July-August 2007), Michael J. Prietula, and Edward T. Cokley.

[167] Ericsson and Pool, *Peak*, 224.

Grit

Angela Duckworth (b. 1970) is an American psychologist and researcher specializing in grit and self-control. In her book, *Grit: The Power of Passion and Perseverance*, Duckworth challenges the notion that talent is the main factor in success and advocates for the power of sustained effort. She has found that the "secret to outstanding achievement" is a "special blend of passion and persistence she calls 'grit.'" She examines the careers and life paths of various individuals throughout history to understand how they achieved success. Duckworth has found that "grit, a combination of passion and perseverance for a singularly important goal, is the hallmark of high achievers in every domain. She's also found scientific evidence that grit can grow."[168]

According to Duckworth, grit is reflected in five characteristics: courage, conscientiousness, perseverance, resilience, and passion. Understanding how these characteristics function in daily life can help people identify ways to enhance their ability to persist. As Duckworth mentions in her book, "Our potential is one thing. What we do with it is quite another."[169]

Research shows that grit plays a key role in predicting success across disciplines. In several studies by Angela Duckworth, Christopher Peterson, Michael D. Matthews, and Dennis R. Kelly, grit consistently predicted success outcomes. Grit reflects aspects of perseverance and passion across various fields. When related to conscientiousness, grit emphasizes long-term stamina and consistent interests over time, distinguishing it from other personality traits. As mentioned in the study, "grit entails working strenuously toward challenges, maintaining effort

[168] "Angela Duckworth," Angela Duckworth, accessed February 1, 2025, https://angeladuckworth.com/.

[169] Angela Duckworth, *Grit: The Power of Passion and Perseverance* (United States: Scribner, 2016), 14.

and interest over years despite failure, adversity, and plateaus in progress."[170] Grit offers a strong framework for understanding how people persist and succeed in pursuing meaningful, long-term goals.

As Duckworth explains, innate talent alone is not enough, and "without effort, your talent is nothing more than your unmet potential."[171] Innate ability alone does not guarantee success. Consistent effort develops skills and transforms them into measurable results, whether through a successful performance or by executing a challenging passage. "Effort factors into the calculation twice, not once. Effort builds skill. At the very same time, effort makes skill *productive*."[172] Duckworth presents a compelling formula in her novel, *Grit*: talent × effort = skill, and skill × effort = achievement. This formula highlights the central role effort plays in transforming potential into meaningful results.

[170] Angela L. Duckworth et al., "Grit: Perseverance and Passion for Long-term Goals.," *Journal of Personality and Social Psychology* 92, no. 6 (January 1, 2007): 1087-8, https://doi.org/10.1037/0022-3514.92.6.1087.

[171] Duckworth, *Grit*, 51.

[172] Ibid., 42.

How Musicians Develop Grit

Grit is a combination of passion and perseverance toward long-term goals. Musicians can develop grit through consistent effort, disciplined practice, creative risk-taking, and dedication over time. The five characteristics Duckworth associates with grit, courage, conscientiousness, perseverance, resilience, and passion each uniquely shape a musician's artistic and personal development.

Courage in music occurs when musicians take creative risks, perform under pressure, or face challenging feedback. Musical courage is still performing after a public mistake, auditioning again after rejection, or approaching a new piece of repertoire that once seemed too difficult. Grit is essential for musicians because building musical artistry requires long-term commitment, deliberate practice, and emotional resilience. Musical progress over time depends on endurance and continuous effort and should be seen as a marathon, not a sprint.

Musical conscientiousness involves setting clear goals, practicing intentionally, and staying consistent. Musicians develop this by organizing structured practice sessions, honing their skills through discipline, and honoring their commitments. Daily scale practice strengthens technical fluency, while repeated practice of difficult passages improves musical memory and accuracy. Musicians must learn to critically listen to their playing to adjust tone, dynamics, and phrasing in real time.

Perseverance is what keeps musicians moving forward during plateaus or slow progress. Musical accomplishments often require repeating difficult passages to master their phrasing, refining technique over months and years, and staying committed through daily practice. Becoming a well-rounded musician requires persistent effort through countless hours of practice, often without clear progress. Musical development is not always linear, and progress tends to

have peaks and valleys with setbacks. By consistently showing up, practicing daily, and maintaining passion and commitment even when progress stalls, musicians build grit that fuels resilience and consistency, empowering performances. At times, musicians may experience periods where their progress stalls and motivation decreases. "The achievement of difficult goals entails not only talent but also the sustained and focused application of talent over time."[173] Musicians must remind themselves to consistently show up and prioritize practice techniques to help reach their goals.

Resilience helps musicians recover from setbacks such as an injury, rejection, or poor performances. Resilient musicians reflect on these experiences, learn from them, adapt, and return to their practice with greater understanding and strength. Resilience involves guiding one's self-talk to encourage, rather than hinder, personal goals.[174] Grit enables musicians to push through periods of stagnant progress without giving up.

Passion drives long-term dedication to music, creating a strong connection that makes hard work meaningful. Passion provides musical work with its purpose and supports musicians in maintaining commitment through difficult moments and challenges. According to Duckworth, passion is a key component of grit and is made up of four elements: interest, practice, purpose, and hope.[175] Passion starts with a strong interest in music that ignites curiosity and enjoyment. As time progresses, this interest is maintained and sharpened through deliberate and concentrated practice. As musicians realize that their performances can positively impact others and foster community, their sense of purpose deepens. During tough times, hope motivates musicians to

[173] Duckworth et al., "Grit: Perseverance and Passion for Long-Term Goals," 1087.

[174] Duckworth, *Grit*, 193.

[175] Ibid., 91.

stay passionate and overcome challenges such as setbacks, rejections, and creative blocks. This enduring enthusiasm helps musicians remain connected to their original inspiration and encourages persistence, even as their style or approach evolves. This sense of purpose and belief in future growth helps musicians remain resilient.

These characteristics help musicians stay focused on growth, even when progress is slow or the future is uncertain. Each musician's path toward self-discovery and grit is shaped by their unique experiences, values, and ambitions. Every journey is based on the same core habits, disciplined effort, reflective practice, and a sustainable commitment to progress. Musicians should reflect on their journey, discovering where their passion originates and how to nurture it. Grit is built through the continuous pursuit of music with passion, discipline, and persistence.

Grit: Inspiration, Musicality, and Creative Development

Grit often fuels the spark of inspiration, but perseverance sustains progress after inspiration begins. Grit's sustained passion and perseverance can help musicians overcome setbacks, and the breakthroughs that come from persistent effort can be energizing, sparking motivation and inspiration. The consistent effort driven by grit often leads to meaningful breakthroughs that renew a sense of inspiration.

Musicians who persevere through breakthroughs, plateaus, and rejection can serve as powerful sources of inspiration for others. A form of perseverance is "the daily discipline of trying to do things better than yesterday,"[176] a resilient mindset that keeps progress alive even during stagnant times. Being rejected by academic programs, festivals, ensembles, or conferences is a typical aspect of a musician's career path. Deciding to keep going despite rejection inspires others to persist as well. Reading and hearing stories about other musicians who have persevered through failure, self-doubt, and injury can provide inspiration, reassurance, guidance, and mental frameworks for staying resilient and managing emotions.

Diverse experiences and influences can shape creative inspiration. Inspiration can come from many sources, such as listening to great performers, attending concerts, attending conferences and workshops, or participating in other non-musical hobbies that refresh creative thinking. The most lasting form of inspiration is connected to meaning. When music links to something greater than the notes themselves, it becomes a form of expressive intent. This can lead musicians into a state of flow during music practice and performance. Flow involves excitement, creativity, and complete engagement, and happens when musicians are involved in

[176] Ibid., 91.

an optimal experience. During a state of flow, it is as if nothing else matters or exists.[177] Musicians in a flow state are not consciously aware of their actions. Instead, they are completely immersed, experiencing enjoyment and increased creativity.

Musicality develops through consistent reflection, refinement, emotional engagement, active listening, imitation, and intentional experimentation. Technical skills serve as the foundation, enabling musicians to deliberately shape sound by exploring different tonal colors, dynamics, and timing to convey emotion and meaning from the score to the audience. During the creative process, musicians often consider what messages they want to communicate and what feelings they want their audience to experience. These questions shift the focus from accuracy to artistic expression. Musicality is developed through deliberate practice and thoughtful involvement, shaping how musicians interpret and respond to sound. While inspiration gives a sense of purpose and direction, grit and perseverance contribute to consistent effort and stamina. Musicality arises when dedication and creativity merge through years of meaningful, reflective, and inspired practice.

Musical expression is often seen as a balance between instinct and intellect. While emotional intensity is crucial in performance, thoughtful interpretation can give that emotion shape and direction. Marcel Tabuteau, a French-American oboist who was a central figure in the development of American wind playing, captured this idea when he said, "I have always been in favor to play as I think. Of course, the ideal combination would be to play with thinking and intelligent feeling." In his concept of music making, "even the emotional act of feeling is tempered with intelligence."[178] This approach encourages musicians to develop both their

[177] Donald A. Hodges, *Music in the Human Experience: An Introduction to Music Psychology* (Routledge, 2020), 262.

[178] McGill, *Sound in Motion*, 17.

emotional insight and their analytical skills to achieve meaningful expression in musical performance. By cultivating this dual awareness, musicians deepen their expressive range and strengthen their creative judgment. Creative development becomes a process of refining one's ability to feel deeply while also thinking clearly and making intentional, expressive choices.

Musicians promote creative development and problem-solving through ongoing exploration, reflection, and adaptation. These abilities are part of their daily routine of practice, performance, and interpretation. Creative development often starts with exploration that requires mental effort. Musicians can experiment with new techniques, sounds, and stylistic approaches during practice and performance. This approach to creativity encourages a more deliberate way of solving musical problems. Musical problem solving involves recognizing interpretive and technical challenges, experimenting with possible solutions, and refining these methods through practice and feedback. As Savvidou mentions, "An indispensable component of music students' training is teaching them how to nurture their creativity. One aspect of creative thinking within music involves considering multiple solutions to problems and engaging with various answers before deciding on the best one. This is a process that students go through on a daily basis in the practice room."[179] Teachers, mentors, and peers assist students in developing problem-solving skills. This ongoing process mirrors larger cognitive models of problem-solving and enhances metacognitive awareness. Reflection and feedback are crucial for fostering creativity and problem-solving abilities. Musicians, whether through journaling, recording practice sessions, or collaboration with mentors and peers, learn to evaluate their work, make well-informed adjustments, and continuously improve their techniques.

[179] Savvidou, *Teaching the Whole Musician*, 176.

Creative development can also be encouraged through musical improvisation and composition. Both approaches involve creating, organizing, and refining musical ideas. Improvisation challenges musicians to make spontaneous decisions while balancing both formal constraints and expressive freedom. It improves cognitive flexibility and decision-making skills. Creative thinking is enhanced through interdisciplinary connections. As musicians draw inspiration from personal experiences and external sources, this multidisciplinary approach helps them see musical problems from different angles and deepen their expressive intentions. Musicians strengthen their ability to foster creative growth and solve problems through reflective, imaginative, and adaptable engagement with their art. By releasing strict performance expectations and embracing uncertainty, musicians enable themselves to take creative risks and pursue expressive freedom.

Duckworth's concept of grit emphasizes that success depends more on persistent effort and passion than on innate talent. "To be gritty is to fall down seven times and rise eight."[180] Musicians build resilience through consistent practice, where repeated setbacks lead to real progress. They must manage nerves, criticism, and self-doubt. Through grit, musicians develop the emotional resilience to consistently perform and improve their craft, despite the burden of self-doubt, criticism, or additional pressures to succeed. It fuels the patience, discipline, and consistency needed to turn daily effort into long-term mastery, even when progress feels slow or invisible.

[180] Duckworth, *Grit*, 275.

The Pomodoro Technique

Developed by Francesco Cirillo, the Pomodoro Technique is a time management method that uses a kitchen timer to break work into twenty-five-minute intervals, separated by short breaks. The name of this technique comes from the first timer he used in the study, which was shaped like a tomato, translated to pomodoro in Italian. The Pomodoro Technique is "a revolutionary way to regain control of your time,"[181] highlighting its potential to help individuals manage focus and energy. Designed as a tool for improving productivity, the Pomodoro Technique offers several benefits, including:

- Alleviate anxiety linked to *becoming*
- Enhance focus and concentration by cutting down on interruptions
- Increase awareness of one's decisions
- Boost motivation and keep it constant
- Bolster the determination to achieve your goals
- Refine the estimation process in both qualitative and quantitative terms
- Improve your work or study process
- Strengthen your determination to keep on applying oneself in the face of complex situations[182]

The Pomodoro Technique promotes effective time management, mindful pacing, prevents mental and physical fatigue, and encourages sustained concentration.

[181] "Time Management Method," last modified February 6, 2025, https://www.pomodorotechnique.com/.

[182] Cirillo, *The Pomodoro Technique*, 23.

Application in Music Practice

Integrating the Pomodoro Technique in the practice room allows musicians to work in focused intervals with brief breaks, which keeps practice sessions engaging and prevents physical and mental fatigue. By dividing practice sessions into smaller, more manageable segments, musicians can maintain their focus while making consistent progress over time. By alternating periods of focused effort with intentional rest, musicians can maintain higher quality practice, avoid burnout, and approach each session with a fresh mind. This balanced structure supports sustainability in long-term musical growth.

Tools and Structure

The Pomodoro Technique has five stages: planning, tracking, recording, processing, and visualizing. To use the technique effectively, you need a Pomodoro kitchen timer, a "To Do Today Sheet," an "Activity Inventory Sheet," and a "Records Sheet." This method can also be adapted for music, with musicians including it in a practice journal or a practice binder with individual pages. These pages can be titled: "To Practice Today Sheet," "Practice Inventory Sheet," and "Practice Records Sheet." Such practice pages help musicians organize their goals by dividing practice into clear, manageable tasks. This approach makes each practice session more focused and productive. The traditional Pomodoro interval is thirty minutes: twenty-five minutes of work followed by a five-minute break.

The Six Main Objectives of the Pomodoro Technique Applied to Music Practice

Objective I: Find Out How Much Effort an Activity Requires

The Pomodoro Method is divided into six main objectives. The first objective, "Find Out How Much Effort an Activity Requires," emphasizes starting the first Pomodoro or task at hand. To do this, the timer must be set for twenty-five minutes. The person using this technique should always be able to see the timer. It is recommended to use a true Pomodoro timer or a kitchen timer. Musicians in practice rooms should try to use a physical timer that is not on their phone or electronic device. Using a physical timer helps you stay focused on the task without feeling the need to check your phone or get distracted. Seeing the timer physically provides a visual cue for how much time remains, helping to minimize distractions from electronic devices. A Pomodoro is defined by twenty-five minutes of focused work that cannot be interrupted. "If a Pomodoro is definitively interrupted by someone or something, that Pomodoro should be considered void, as if it had never been set; then you should make a fresh start with a new Pomodoro."[183] This acts as an incentive and motivation for musicians to stay fully engaged during each work segment, knowing a short break follows.

After the timer rings, individuals are asked to mark an "X" next to the activity they have been working on and take a quick break. This three to five-minute break allows individuals to temporarily "disconnect" from their work, "allows the mind to assimilate what has been learned in the last twenty-five minutes," and "provides them the chance to do something good for their health, such as walking around the room or having a drink of water."[184] For musicians, this short break allows the embouchure to rest and reset before the next session. Taking this break is

[183] Ibid., 31.

[184] Ibid., 31-3.

crucial for preventing embouchure fatigue and tense muscles. Musicians should use this time to stretch and recharge. Cirillo notes that it is not advisable to engage in activities that require significant mental effort during this quick break. Engaging in substantial activities "would block the constructive mental integration that you need in order to feel alert and ready for the start of the next Pomodoro."[185]

Longer Breaks for Sustained Focus

For every four Pomodoros completed, the method recommends taking a longer break, anywhere from fifteen to thirty minutes. Cirillo states that "the important thing is not to do anything complex, otherwise your mind will not be able to recognize and integrate what you have learned, and as a result, you will not be able to give the next Pomodoro your best effort."[186] For musicians in the practice room, this rule is crucial for achieving success. Often, when a musician is in a practice room, they are confined to a small area for long periods. During this downtime, musicians should take a quick walk, practice mindfulness exercises, or do some stretches and body check-ins. This helps the musician start the next practice session with a clear mind and leaves them feeling refreshed afterward.

Part of the Pomodoro Technique involves users recording, taking notes, and tracking their tasks. Recording offers an effective tool for those applying this technique "in terms of self-observation and decision-making aimed at process improvement."[187] By logging goals, tasks, and results in a practice journal, musicians can monitor their habits and methods. Reassessing

[185] Ibid., 32-3.

[186] Ibid., 33.

[187] Ibid., 38.

personal goals allows musicians to evaluate the effectiveness of their practice routines. Musicians can hold themselves accountable for improvement by referring to their detailed notes throughout this process. Reviewing recordings helps musicians identify specific areas to improve, address weaknesses, and monitor their progress over time.

Objective II: Cut Down on Interruptions

Cirillo's second objective is to "Cut Down on Interruptions." Effective strategies are essential to minimize interruptions during task completion. People are frequently faced with internal distractions or interruptions, which "generally disguise our fear of not being able to finish what we have been working on the way we want and when we want."[188] Musicians often face internal struggles, such as feelings of worthlessness, comparing themselves to others, and recognizing that immediate results are not always apparent. Musicians process a substantial amount of cognitive and sensory information, which can act as interruptions and may hinder their performance. The Pomodoro Technique suggests making these internal interruptions visible by marking an apostrophe (') on the record for the task each time an interruption occurs. This visual creates accountability for completing the task, which intensifies their determination to finish it.[189]

External interruptions occur when something outside of your control happens. The temperature of a performance space, the intensity of the lights, the quality of the music stand, and the acoustics of the room are some examples of external interruptions that musicians encounter. The technique notes that the mechanism for dealing with external interruptions is the

[188] Ibid., 40.

[189] Ibid., 40-2.

same as for internal ones: "invert the dependency on interruptions, and make the interruptions depend on us."[190] This shift in mindset helps musicians regain control during practice, enhancing focus and minimizing the disruptive impact of unexpected distractions.

Objective III: Estimate the Effort for Activities

In Objective III, "Estimate the Effort for Activities," once individuals have completed the first two objectives and begun to master the technique, they can start working on quantitative estimates. Cirillo mentions that "the long-term objective here is to successfully predict the effort that an activity requires."[191] At the start of each practice session, musicians should estimate how long each activity in the "inventory" will take. Each activity should be assigned a Pomodoro, which is a twenty-five minute work session. After assigning a Pomodoro to each activity, you can begin to plan how to break down each session. For example, in a warm-up activity, a Pomodoro might include mouthpiece exercises, long tones, and overtones. By deciding how much time to allocate to each warm-up activity within the Pomodoro, musicians will stay more organized and achieve better results.

Objective IV: Make the Pomodoro More Effective

Objective IV, "Make the Pomodoro More Effective," explains that as individuals apply this technique more frequently without interruptions (Objective II) and begin to master estimating (Objective III), they can improve the technique even further. "The enhanced awareness of time" that is achieved by successfully using the Pomodoro will "enable you to

[190] Ibid., 49-50.

[191] Ibid., 56-7.

physiologically sense the intervals in each session."[192] With diligent and deliberate practice, musicians begin to develop a routine and naturally understand how much time should be dedicated to each task. When working on a long piece of classical repertoire, musicians can divide the piece into specific measured sections. To enhance this approach, musicians can focus on one section while applying a particular technique. For example, if someone wants to improve their upper-register vibrato in a section of a piece, they can plan to include vibrato exercises in their warm-up that target the upper register. By preparing outside of the practice room, musicians can make their practice sessions more effective.

Objective V: Set Up a Timetable

Cirillo's Objective V, "Set Up a Timetable," involves the most effective use of schedules. In essence, "timetables set up a limit, and can therefore motivate us to do our best to complete the tasks within a set period of time." Musicians can establish achievable practice goals, both short-term and long-term. They must identify their goals and whether they need to be completed by a specific time or date. If a musician is preparing for a recital on a specific date, they must consider the tasks and techniques that need to be mastered in the practice room to be as well-prepared as possible for the recital. According to Cirillo, "timetables delineate the separation between work and free time," and "measure the results of the day."[193] Timetables can effectively track results, and asking specific questions can help guide the practice process, such as: "Did I accomplish the goals I intended in today's practice session? If not, how can I adapt future

[192] Ibid., 68-9.

[193] Ibid.

practice sessions to achieve them?" Musicians should check in with themselves, hold themselves accountable, and create effective timetables that lead to optimal results.

Objective VI: Define Your Own Personal Improvement Objective

The sixth and final Objective, "Define Your Own Personal Improvement Objective," helps boost motivation. By combining all the Pomodoro Objectives, musicians can customize each practice session to their personal goals. Musicians can work at a sustainable pace by "consciously managing breaks and the complexity of context." They will "come to know his or her sustainable pace or physiological rhythm" from the use of the Pomodoro Technique.[194] After practice and implementation, musicians will find a groove in their practice sessions using the technique. They will learn how to structure their twenty-five minute sessions and determine the optimal time allocation for each task to improve. This technique is most effective when combined with a clear sense of purpose, reminding musicians why their work is important to their long-term artistic goals and sustainability.

[194] Ibid., 143.

Pomodoro Benefits for Musicians

For musicians, using the Pomodoro Technique can increase focus, improve time management skills, and reduce procrastination. Structured breaks help the mind consolidate newly practiced material and give the body time to recover from the physical effort of playing an instrument. This balance between concentrated effort and rest promotes skill retention and musical growth. The structure of the Pomodoro Technique promotes discipline and encourages consistent practice while lowering the risk of mental fatigue. The scheduled breaks set clear times for rest and recovery, which can boost motivation and support steady progress over time. The Pomodoro Technique enhances concentration, productivity, and efficiency by helping musicians focus on and complete tasks effectively.

Examples of practice session formats adapted to the Pomodoro Technique are provided in Appendices A-D.

Sustainable Practice Techniques

By incorporating key psychological principles and emphasizing overall wellness, musicians can develop more effective and sustainable practice sessions. This approach helps musicians stay motivated, manage stress, and maintain their overall health. Applying this approach in the practice room establishes routines that enhance skills and support both mental and physical well-being. Although each musician's practice style is unique, the following strategies provide a framework for organizing and strengthening their routines to promote sustainability. A comprehensive practice strategy supports long-term growth and helps prevent burnout.

Physical Preparation: Warm-Up and Recovery

To prepare for important activities or performances, it is crucial to develop warm-up routines that align with the intended mental and physical state, involving a consistent sequence of activities. Before practicing warm-ups on the instrument, musicians should start with five minutes of light aerobic activity, such as brisk walking or stair climbing, which warms up the muscles. Next, dynamic stretching focuses on the muscles involved in playing and helps preserve mobility and range of motion. It is important to avoid deep static stretching before warming up, as stretching cold muscles can lead to strain or injury.[195] Beginning with light physical movements and stretches, followed by fundamental techniques, such as long tones and scales, helps prepare both the body and mind for focused practice. During the warm-up portion of practice, musicians should focus on quality rather than quantity. Warm-ups should be intentional and musical from the very first note. Even in the simplest long tones or scales, musical

[195] Savvidou, *Teaching the Whole Musician*, 100-1.

progressions should connect smoothly from one note to the next, reflecting the fluidity expected in performance. A warm-up is the first opportunity each day to set the same tone quality that musicians aim to deliver in performances.

Behaviors, Routines, and Mistakes

To condition oneself to perform well, it is important to connect key behaviors to regular routines, aligning practice habits with performance routines. When mistakes happen in practice, they need to be acknowledged, analyzed, and addressed with focused repetition until the desired performance is achieved. By practicing how they perform, musicians set themselves up for successful performances. Consistency is crucial, so musicians should aim to practice at the same time or in the same environment whenever possible. This approach helps establish a strong connection between routine and behavior, leading to improved performance over time.

Performing Under Pressure and Performance Simulation Practice

Performing under pressure is a significant challenge for musicians, especially in high-stakes situations such as solo performances, auditions, and competitions. Musicians must stay organized and diligent with their practice routines to succeed. Jenkins notes, "These are the elements of a good process for anyone who wants to choose and act well in the face of extraordinary pressures: conditioning, practice, discipline, candor, culture, failure, intention. These elements form a strong chain of causality. They are fundamentals."[196] For musicians, developing these fundamentals not only improves performance under pressure but also builds long-term resilience and artistic integrity.

[196] Jenkins, *The Right Call*, 7.

Focusing on performance simulation can help reduce errors during musical performances. This approach involves simulating real performance conditions to enhance confidence and resilience. Creating a consistent pre-performance routine can help musicians center themselves both mentally and physically. Practicing playing or running through repertoire without stopping or interruptions can simulate real performance situations. In simulated performances, musicians should continue to play through mistakes, just as they would in a live performance, allowing recovery to become second nature. Prioritizing musical expression and enjoyment rather than perfect technique can strengthen the musician's connection to the music. Musicians should look for clear opportunities to receive feedback after playing, as it is essential for learning and development. They should also be encouraged to think independently about how to handle and process mistakes, as well as what steps to take to improve.[197] Recording and assessing performances also offer valuable feedback. By incorporating these strategies into practice routines, musicians can better prepare for the mental and physical demands of live performances, reducing the chances of errors on stage.

Avoiding Common Pitfalls in Practice

Incorporating effective practice habits into regular sessions is ideal for musical growth, but several common pitfalls can limit their effectiveness. A frequent problem is focusing too much on the time spent practicing rather than on the quality of practice. Repetitive, extended practice sessions without clear goals can lead to inefficient habits and increased physical strain. Musicians should not worry about how many hours they practice each day and should avoid comparing themselves to others. If someone says they practiced for five hours, the more

[197] Silke Kruse-Weber and Richard Pamcutt, "Error Management for Musicians: An Interdisciplinary Conceptual Framework," *Frontiers in Psychology* 5 (July 25, 2014): 10. doi:10.3389/fpsyg.2014.00777.

revealing questions are: Was the practice session effective and engaging? What was accomplished during the session? Focusing on quality instead of quantity is more beneficial. Another common mistake is that musicians often prefer familiar or comfortable pieces to avoid practicing difficult sections. Instead of tackling challenging parts that need attention, they practice familiar material to feel more comfortable. While this can strengthen existing skills, it does not help musicians improve in areas that need growth.

Balancing Effort and Recovery

Some musicians become hyper-focused on difficult musical material without proper support or necessary adjustments in their practice routines. This can lead to decreased motivation, frustration, and lower performance quality. A lack of structure and reflection during practice sessions worsens these issues, making it more difficult to track progress or alter practice strategies. Practice routines should include time for both physical and mental recovery, which are crucial for sustainable growth. Without adequate time to recover, the body and mind cannot effectively consolidate learning or build the resilience needed for long-term progress. Achieving sustainable growth in music involves balancing effort with recovery, similar to athletic training.

Alternating practice sessions between heavy and light workload days can help musicians manage their workload and stay engaged while reducing the risk of fatigue, burnout, or injury. Musicians should set aside time in their schedules to plan their practice sessions. During this time, they should decide if the session will be more demanding or lighter. A varied practice routine benefits both physical and mental recovery while ensuring consistent engagement with the instrument. This method draws on the idea of periodization from athletic training. More challenging sessions may include performance simulations, learning new repertoire, or technical

exercises. Lighter sessions may concentrate on slow practice, mental visualization, tone development, or score analysis. Overall, implementing a diverse practice routine helps musicians optimize their focus, prevent burnout, and protect their physical health.

Incorporating recovery and promoting physical health into practice design is essential for both physical and mental success, as well as cognitive processing. Adequate rest supports healing and helps prevent overuse injuries. Musicians spend a significant amount of time with their instruments daily, including individual practice and ensemble rehearsals. Important preventive measures include taking breaks during practice, scheduling rest days, engaging in physical conditioning, developing body awareness, and stretching. Periods of mental rest, relaxation, and sufficient sleep are crucial for fine motor learning. Recovery should be regarded as an integral part of the learning process rather than a disruption to practice and performance.

Summary: Building a Sustainable Practice System

Creating a sustainable music practice system is essential for long-term growth, motivation, overall wellness, and psychological health. Organization and effective practice habits, such as setting clear goals, journaling, using recording tools, and perseverance, help musicians track progress and stay focused, which maintains motivation. How musicians practice is just as important as the conditions and mental strategies they use, such as focused attention, a goal-oriented mindset, and minimizing distractions. A consistent routine in a dedicated, comfortable space supports skill development, mental clarity, and emotional stability. When practice systems are carefully designed and implemented, they foster a healthier relationship with music, making success both achievable and sustainable.

Being surrounded by the right people is essential because their energy and attitudes can influence performance and motivation. Musicians should cultivate a supportive network that promotes positivity, motivation, and drive. Talking about positive practice habits and routines is healthy and can uplift others. Consistency remains crucial to success, as there is no substitute for showing up regularly and refining one's craft. Starting a practice session by simply opening the case and picking up the instrument can trigger a positive mindset, since action often fuels motivation. By following a structured practice plan, musicians can improve their efficiency, focus, and overall musical growth.

Building Sustainable Excellence

"Practicing is a chance to be with the music you love. You can bring your best to it, or you can cheat yourself of the opportunity to discover the depths of the music and of your own gifts."[198] Practicing is not just focusing on technical woodshedding, but is an opportunity for personal connection, artistic growth, and self-discovery. When musicians practice mindfully and intentionally, engaging their physical and emotional selves, they enhance their musicianship, expression, and connection with music.

Effective music practice and performance rely on how musicians prepare, persist, focus, and persevere. Concepts such as Ericsson and Pool's deliberate practice, Duckworth's grit, and the Pomodoro Technique provide musicians with practical ways to enhance their practice habits. Deliberate practice ensures that time is intentionally dedicated to specific areas for improvement. Grit helps musicians stay committed and resilient through setbacks and long-term challenges. The Pomodoro Technique encourages focus and organization to prevent burnout. Used together, these strategies promote more effective learning, increased confidence, and support long-term growth. By developing these habits, musicians can establish a sustainable practice routine and enjoy a more rewarding, resilient musical journey.

Effective and sustainable practice helps musicians shift the focus from perfection to pursuing excellence. "Pursuing excellence is attainable for any student. According to research, excellence is achieved through the following: effective concentration during practice, setting specific goals, self-evaluation, designing effective practice strategies, and keeping in mind the bigger picture."[199] Excellence is the result of consistent, intentional effort, which directly aligns

[198] Bruser, *The Art of Practicing*, 30.

[199] Roger Chaffin and Anthony F. Lemieux, "General Perspectives on Achieving Musical Excellence," in *Musical Excellence*, ed. Aaron Williamon (New York: Oxford University Press, 2004): 19-40.

with the goals of deliberate practice. Rather than simply repeating tasks, deliberate practice targets specific weaknesses and builds skills over time. In this way, excellence is not about innate talent or perfection, but rather about a structured approach to growth and mastery. Excellence focuses on cultivating self-reliance in the learning process. The ability to accept mistakes is a productive way to adapt to situations that might otherwise be seen as failures.[200] When musicians realize they can pursue excellence and make positive changes, consistent progress follows. As the central thesis in Duhigg's book, "This is the real power of habit: the insight that your habits are what you choose them to be. Once that choice occurs – and becomes automatic – it's not only real, it starts to seem inevitable."[201] By developing these habits, musicians create opportunities for intentional, meaningful growth during practice sessions and performances.

[200] Savvidou, *Teaching the Whole Musician*, 144-5.

[201] Duhigg, *The Power of Habit*, 273.

Conclusion

Sustainable practice is about maintaining the mental, emotional, and physical resources needed to support long-term artistic growth. Musicians face unique challenges that exceed instrumental skill and must learn to navigate perfectionism, music performance anxiety, motivation lapses, and physical strain. Without support for the whole person, musicians can experience burnout.

This dissertation has demonstrated that sustainable musicianship requires more than just physical execution. Chapter I established the psychological foundation and explored how self-regulated learning, growth mindset, and metacognitive awareness form the core of effective practice. Chapter II examined wellness from multiple perspectives, showing how a musician's health directly influences their ability to learn, perform, and succeed. Chapter III applied these insights by presenting strategies such as deliberate practice, grit, and time management techniques that help musicians build intentional practice habits.

Together, these components form a connected model. Psychological insight offers clarity, motivation, and self-awareness. Wellness ensures the body and mind can maintain effort over time. Deliberate practice provides structure and purpose. When musicians approach these elements together, they build a framework that supports creativity, growth, and sustainability. Table 7 provides a synthesis of how these elements work together.

Domain	Focus Area	Contribution to Sustainability
Performance Psychology	Cognitive Load Theory, Self-Regulated Learning, Neuroplasticity, Metacognition	Supports emotional resilience, focused attention, and long-term persistence
Wellness	Physical and Mental Health, Emotional Regulation, Motivation	Prevents burnout, promotes recovery, ensures readiness for consistent and meaningful practice
Practice Application	Goal-setting, Feedback, Refinement, Repetition	Builds efficient learning habits and promotes technical growth without wasted effort

Table 7: Foundations for Sustainable Practice

This holistic approach is designed for all musicians seeking to maintain a rewarding and meaningful connection with their craft. Consistent practice is the key to developing skills and leading a fulfilling musical life.

Musicians need to be willing to take risks, embrace failure, and step outside their comfort zones. "If you never push yourself beyond your comfort zone, you will never improve."[202] Progress rarely follows a straight path and is shaped by milestones, setbacks, and the many variables that influence growth. Recognizing this is crucial for long-term development. Inconsistent practice, poor planning, and neglecting physical and mental wellness can result in frustration, fatigue, burnout, or injury. Long-term sustainable success results from structured, intentional, and consistent practice. The ability to constructively handle difficult emotions and setbacks is important. These challenges help build resilience and lay the foundation for healthy, sustainable growth.

[202] Ericsson and Pool, *Peak*, 18.

Music-making should stay grounded in both enjoyment and purpose. Progress can be challenging, but the discomfort is part of the journey. Setting attainable goals, practicing self-compassion, and keeping balance are essential for staying motivated. Strong, supportive relationships with teachers and colleagues build confidence and create a productive, motivating learning environment. When musicians maintain a clear mindset and stay grounded in their purpose, they can focus their energy on meaningful growth.

Through studying psychology, metacognition, and neuroplasticity, musicians develop a better understanding of how the brain and mind function. They can apply these insights to their habits and goals. By incorporating wellness studies and effective practice habits, musicians can have long, healthy careers. The principles discussed in Chapter I, self-regulated learning, growth mindset, and metacognitive awareness, continue to be fundamental to sustainable practice. These ideas create the mental framework that helps musicians approach challenges with curiosity, adaptability, and persistence. When integrated with the wellness strategies from Chapter II and practice methods from Chapter III, they form a comprehensive model where psychological skills, health, and structured effort support and strengthen one another. This integration ensures that musicians can sustain growth throughout their careers.

Pursuing musicianship is an ongoing practice that requires both balance and resilience. Sustainable practice is a process musicians can develop throughout their musical journeys. By integrating insights from performance psychology, wellness, and organized practice techniques, musicians can develop careers characterized by excellence and personal fulfillment. This holistic approach enables musicians to face the inevitable challenges of their profession while maintaining a strong connection to the music they create.

Recommendations for Further Research

I provide a framework for understanding how deliberate practice and motivation affect musicians' psychological well-being throughout this dissertation. This research can be further expanded to explore other factors affecting the practical aspects of musicians' psychological health.

Further research could investigate how established methods and outcomes from sport and performance psychology relate to the field of music performance. Exploring sources such as the International Society of Sport Psychology and articles published in the Sport, Exercise, and Performance Psychology journal by the American Psychological Association could reveal well-established athletic training principles that could be adapted for music performance. These cross-disciplinary research studies might identify shared psychological challenges between athletes and musicians, offering practical training strategies to help performers manage pressure, stay focused, and maintain motivation over time.

Long-term research studies are needed to assess how mindfulness interventions influence music performance, stress management, and motivation. These studies could take place throughout a student's academic journey within their program. Future research may explore how consistent wellness practices influence long-term psychological resilience across different levels of musical skill. Researching wellness approaches such as the Alexander Technique, yoga, and meditation may offer valuable insights into how they can enhance performance and overall well-being.

I examine common challenges faced by musicians throughout this dissertation. Developing instrument-specific practice guides that integrate principles of educational psychology and musician wellness can provide practical strategies tailored to the physical

demands of each instrument. A supplementary teacher's guide based on this research could offer useful tools for integrating metacognitive awareness, wellness, and motivation-enhancing feedback into lesson planning and instruction. Together, these resources could promote a more personalized and supportive approach to music education.

Future studies could also explore strategies for applying this research in various educational and performance settings, such as college studios, high school ensembles, public school music classrooms, and community performance groups. Adapting this research to each setting's specific needs and resources can help ensure its sustainability, accessibility, and long-term benefits.

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Appendices

Appendix A: Standard Pomodoro Practice

<table>
<tr><td colspan="2"><u>Standard Pomodoro Practice</u>

Best For: Focused, time-efficient practice with clear goals</td></tr>
<tr><td colspan="2">Structure:
25 minutes of focused practice
5-minute break
Repeat four times, then take a longer 15-30 minute break</td></tr>
<tr><td>Pomodoro 1</td><td>Warm-ups, tone development</td></tr>
<tr><td>Pomodoro 2</td><td>Technical exercises
Scales, arpeggios, overtones</td></tr>
<tr><td>Pomodoro 3</td><td>New repertoire
Slow, deliberate practice
Problem identification and solving</td></tr>
<tr><td>Pomodoro 4</td><td>Review known repertoire of run-through of repertoire</td></tr>
<tr><td colspan="2">Benefits of this Method: Maintain focus, prevents over-practicing, encourages intentional rest</td></tr>
</table>

Appendix B: Targeted Problem-Solving Pomodoro Practice

<table>
<tr><td colspan="2"><u>Targeted Problem-Solving Pomodoro Practice</u>

Best For: Breaking down difficult passages or specific technical problems</td></tr>
<tr><td colspan="2">Structure:
Choose one specific problem to focus on per Pomodoro
25 minutes of focused practice following this routine: Isolate, experiment, and refine
5-minute break: Reflect or record yourself for feedback
Repeat four times, then take a longer 15-30 minute break</td></tr>
<tr><td>Pomodoro 1</td><td>Difficult rhythmic passage in measures 16-20 of repertoire</td></tr>
<tr><td>Pomodoro 2</td><td>Technical accuracy in the exposition of the movement</td></tr>
<tr><td>Pomodoro 3</td><td>Breath control in the upper register during the lyrical section of the repertoire (mm. 38-42)</td></tr>
<tr><td>Pomodoro 4</td><td>Low register articulation in the accelerando passages</td></tr>
<tr><td colspan="2">Benefits of this Method: Promotes deep work on small, manageable goals</td></tr>
</table>

Appendix C: Performance Preparation & Simulation Pomodoro Practice

<table>
<tr><td colspan="2"><u>Performance Preparation & Simulation Pomodoro Practice</u>

Best For: Building performance stamina and focus under pressure while preparing for an upcoming performance</td></tr>
<tr><td colspan="2">Structure:
25 minutes of focused practice as an uninterrupted run-through
5-minute break for feedback and reflection
Repeat four times, then take a longer 15-30 minute break</td></tr>
<tr><td>Pomodoro 1</td><td>Perform entire movement or piece of repertoire</td></tr>
<tr><td>Pomodoro 2</td><td>Review the audio or video recording of the run-through
Take notes of positives and areas for improvement</td></tr>
<tr><td>Pomodoro 3</td><td>Address the top few problem areas from the performance
Aim for 1-3 areas for improvement</td></tr>
<tr><td>Pomodoro 4</td><td>Run-through the entire movement or piece of repertoire again, rehearsing the improved and reflected version</td></tr>
<tr><td colspan="2">Benefits of this Method: Helps prepare for an upcoming performance and develops effective self-assessment skills</td></tr>
</table>

Appendix D: Mental Pomodoro Practice

<table>
<tr><td colspan="2"><u>Mental Pomodoro Practice</u>

Best For: Recovery, deep learning, and enhancing phrasing skills</td></tr>
<tr><td colspan="2">Structure:
25 minutes of focused practice
5-minute break
Repeat four times, then take a longer 15-30 minute break
Use some Pomodoros for non-physical practice and combine with physical practice where appropriate</td></tr>
<tr><td>Pomodoro 1</td><td>Mentally rehearse a difficult passage
Follow along with the score
How would this transfer to my instrument?
Awareness of tension</td></tr>
<tr><td>Pomodoro 2</td><td>Score analysis and phrasing decisions
What dynamic would be best to support the phrasing of this section?
How can I portray this passage to the audience?</td></tr>
<tr><td>Pomodoro 3</td><td>Listen to recordings and watch performance videos with a critical ear
How does the performer present themselves to the audience? Are they holding tension in their body? How are they holding their instrument?
How does the performer approach the cadenza in this movement? Are they adding dynamics or any tempo changes?</td></tr>
</table>

Pomodoro 4	Physical run-through of the studied repertoire while incorporating insights from the first three Pomodoros
Benefits of this Method: Useful on lighter practice days, as a supplemental activity, and enhancement of non-physical practice skills (score study, listening, and visualization)	