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Cultivating Emotional Intelligence for Orchestra Auditions

A DOCUMENT APPROVED FOR THE

SCHOOL OF MUSIC

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Abstract

This mixed-methods action research study investigated the impact of an emotional intelligence (EI) training intervention on the performance anxiety and audition readiness of 102 middle and high school orchestra students. Participants were categorized into three groups: the primary intervention groups received training in breathing techniques, positive affirmations, and reflective practice, while a subset (Group 2) participated in an enhanced mock-audition protocol. Analysis of survey data, practice journals, and video reflections indicated that students actively engaged with the curriculum, specifically identifying breathing and affirmations as the most effective techniques for reducing performance anxiety and improving practice quality. Findings demonstrated that while the intervention benefited all participants, the Group 2 cohort achieved significantly higher mean scores in audition-specific confidence and readiness, highlighting the value of applying regulation skills in realistic, low-stakes practice contexts. Longitudinally, the study revealed a marked developmental shift toward "reflective sophistication," as evidenced by improved rubric scores in emotional awareness – increasing from a mean of 1.8 to 2.7 – and a consistent movement from reactive, "Yellow" or "Red" emotional states toward sustained performance resilience. These results suggest that integrating EI training into the music curriculum empowers students to separate their self-worth from musical outcomes, fostering a healthier and more focused approach to high-stakes performance.

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Introduction

Auditions push individuals outside their comfort zones, and many musicians struggle to cope with the pressure. Although musicians spend years refining their playing skills, much of what they learn about auditioning often comes from the school of hard knocks, where a reactionary approach is taken after a challenging audition experience.

In her seminal work *Feel the Fear and Do It Anyway*, Dr. Susan Jeffers writes that the inability to deal with fear is primarily an educational problem. This insight forms the foundation of this research. Is it possible to develop instructional methods that begin at the foundational stages of music education, equipping individuals with the mental and physical competencies necessary for safeguarding their self-esteem while auditioning with confidence?

This mixed-methods study addresses a critical gap in music education by investigating the effectiveness of a comprehensive emotional intelligence intervention for adolescent orchestra students (grades 7- 12). By integrating neuroscience-informed reflective practices, breathing techniques, and structured self-assessment, this research develops a proactive approach to reducing performance anxiety and enhancing musical resilience in high-pressure performance situations. This intervention is designed to be integrated within standard music education curricula, transforming how young musicians prepare for and experience performance-related stress. The anticipated outcomes and analytical approach are detailed in the methodology section.

Part 1: Theoretical Foundations

To establish a rigorous foundation for this action research study, the literature review is structured across two distinct tiers. Tier 1 comprises the study's primary theoretical anchors, grounded strictly in peer-reviewed scholarship across educational neuroscience, social-cognitive

psychology, and performance science. These foundational frameworks include Stephen Porges' Polyvagal Theory (autonomic nervous system regulation), Albert Bandura's Self-Efficacy Theory (perceived capability and agency), Carol Dweck's Mindset Theory (implicit beliefs about intelligence and talent), and Barry Zimmerman's Self-Regulated Learning model (cyclical forethought, performance, and self-regulation).

Tier 2 examines supplementary practitioner literature and performance trade resources, including work by Don Greene, Susan Jeffers, George Mumford, and Mastin Kipp. While these texts do not constitute empirical scientific frameworks, they represent widely utilized practitioner tools within the music and athletic domains. In this study, the literature is reviewed exclusively to document the pedagogical origin of specific classroom activities, mindfulness prompts, and student reading excerpts implemented during the six-phase intervention.

I. Neuroscientific Foundations of Performance Anxiety

A. The Autonomic Nervous System and Polyvagal Theory

The autonomic nervous system comprises three branches: the ventral vagal (social engagement), the sympathetic (fight-or-flight response), and the dorsal vagal (freeze response). It uses neuroreceptors that constantly scan the environment to sense safety or danger. Dr. Stephen Porges introduced the Polyvagal theory in 1994 to refer to these branches of the vagal nerve.

"The Polyvagal Theory provided us with a more sophisticated understanding of the biology of safety and danger, one based on the subtle interplay between the visceral experiences of our own bodies and the voices and faces of those around us. It explained why a kind face or a soothing tone of voice can dramatically alter the way we feel. It clarified why knowing that we are seen and heard by the important people in our lives can make us feel calm and safe, and why

being ignored or dismissed can precipitate rage reactions or mental collapse. It helped us understand why focused attunement with another person can shift us out of disorganized and fearful states." (Kipp, 2014, p. 80)

In Mastin Kipp's book, *Reclaim Your Nervous System*, the traffic light system is used to represent the three branches:

- **Green** -- Ventral-vagal state (Our optimal state.)
- **Yellow** -- Sympathetic state (An agitated state.)
- **Red** -- Dorsal-vagal state (Freeze response)

The ventral-vagal (Green) and dorsal-vagal (Red) branches of the parasympathetic nervous system regulate various physiological functions, including heart rate, breathing, voice, posture, and facial expressions. The ventral vagal system, the most recent addition to our nervous system, facilitates rapid and adaptive social responses, thereby contributing to our safety and social bonds. Notably, the prefrontal cortex is a part of the ventral branch. When both the ventral vagal system and prefrontal cortex function optimally, individuals experience enhanced cognitive and emotional well-being, characterized by relaxation and clarity. Conversely, when faced with stressors, the body shifts toward a sympathetic response, activating the dorsal vagal system. (Kipp, 2014, p. 60)

The sympathetic system (Yellow) runs along the spine. Stress triggers a sympathetic nervous response, leading to agitation and a desire to fight or flee. In this stage, hyperactivity appears as restlessness, aggression, sweating, quick reactions, rapid movements, and heightened reactivity. (Kipp, 2014, p. 79) Kipp also says, *"In America, we love the sympathetic response; most of us live in this state of constant yellow."* (Kipp, 2014, p. 61)

The dorsal vagal system (Red) is the oldest part of the nervous system and triggers the freeze response. This is where we shut down; the prefrontal cortex is offline, and the mind cannot operate. It is sometimes referred to as the reptilian brain.

Our mental state is shaped by the decisions we make in response to different situations. *"If you're living in the sympathetic (yellow) or dorsal (red) zones of your nervous system, you're not really making great decisions. You're just reacting to emotions. There is a time and place for that, but you can't create your best life if you're always in the sympathetic or dorsal-vagal states, because you only focus on defending what you have, at best."* (Kipp, 2014, p. 61) In *The Body Keeps the Score*, the author states, "Most of our conscious brain is dedicated to focusing on the outside world: getting along with others and making plans for the future. However, that does not help us manage ourselves. Neuroscience research shows that the only way we can change the way we feel is by becoming aware of our *inner* experience and learning to befriend what is going on inside ourselves." (Van der Kolk, 2019, p. 209)

In Angela Duckworth's book, *Grit*, University of Colorado Distinguished Professor and the Director of the Center for Neuroscience, Steve Maier elucidates the brain's capacity to manage stress in the following manner: "In essence, the brain possesses numerous regions that respond to aversive experiences, particularly the amygdala. Notably, there are numerous limbic areas that respond to stress. Subsequently, these limbic structures are regulated by higher-order brain areas, such as the prefrontal cortex. Consequently, if an appraisal, thought, belief, or any other relevant concept emerges that suggests, 'Wait a minute, I can take action,' or 'This situation is not as dire as it seems,' or any other similar sentiment, these inhibitory structures in the cortex are activated. They effectively communicate a message: 'Restrain your reaction! Avoid excessive activation. There is a solution we can pursue.'" (Duckworth, 2016, p. 189) Providing students with the tools

and understanding to manage their responses enhances their ability to step outside their comfort zones. Students need to grasp the details of preparing for an audition, which helps them make informed choices to manage their nervous system. While preparation is essential, it involves more than just musical knowledge.

B. Neuroception and Threat Detection

Dr. Porges coined the word Neuroception to describe the capacity to evaluate relative danger and safety in one's environment." (Van der Kolk, 2019, p. 82) Our nervous system possesses an unconscious threat detection mechanism situated beneath the neck. This mechanism functions as a radar system, continuously monitoring the surrounding environment to identify potential threats. Notably, this process occurs without conscious awareness. As Kipp states, "Your body changes its state before you become aware." (Kipp, 2014, p. 65)

If you have ever entered a room and sensed something was "off," yet could not immediately identify the source, you were experiencing neuroception. Neuroception can provide early warnings that help us manage challenges; nevertheless, it can also transmit erroneous information, making it challenging for us to discern whether we are in a safe or hazardous environment. Individuals with post-traumatic stress disorder (PTSD) can perceive danger in secure settings. The dorsal vagal and sympathetic nervous systems are the initial responders, initiating the fight-or-flight response or, in extreme situations, the freeze response. The activation of the ventral vagal system and cerebral cortex, which are responsible for inducing a state of calm and reduced reactivity, necessitates a more protracted duration. (Kipp, 2014, p. 80)
This neurobiological sequence means that in audition situations, which are inherently novel and unpredictable, threat detection systems often dominate before higher-order cognitive processing can intervene. Understanding this sequence is crucial for developing interventions that can shift

the system toward ventral vagal engagement and prefrontal cortex activation. Breathing emerged as a particularly effective tool for facilitating sound decision-making by activating the parasympathetic branch of the nervous system and slowing the rapid threat cascade. Taking a moment to discern what is transpiring is essential for sound decision-making.

C. Stress Response Systems:

The Cumulative Load: Distress and Eustress

"The cumulative load --pressures of our work and home lives, the challenges we embrace in our growth, the trauma we carry -- is called our *allostatic load.*" (Kipp, 2014, p. 61)

The concept of allostatic load, articulated by Kipp, describes the cumulative physiological burden of stressors across domains such as work, home, growth, and trauma. Not all stress functions the same way; rather, stress can be classified into two distinct categories with opposite neurological consequences. Distress, represented unhealthy stress characterized by high threat perception and a sense of loss of control. Distress triggers dorsal vagal activation and the freeze response, undermining resilience. Eustress, by contrast, represents healthy, challenging stress that is manageable and rewarding. Eustress facilitates the development of stress tolerance and expands the capacity to function under pressure. It arises when we undertake a challenging task that is neither excessively difficult nor too easy, and we anticipate it will be rewarding.

Public performances and mock auditions induce eustress, the kind of manageable challenge that promotes growth rather than defensive shutdown. Robert Sapolsky's research on stress physiology reveals that unpredictability and a lack of control are potent stimuli for

amygdala activation and engagement of the sympathetic nervous system. (Sapolsky, 2017, p. 34) This finding underscores why clear structure and transparent expectations, elements that reduce unpredictability, are essential components of an effective audition preparation program. Maier and Duckworth's research on resilience demonstrated that youth who overcame significant adversity independently developed superior adult coping mechanisms. This "mastery alongside adversity" principle suggests that appropriately structured challenges, particularly those where students experience agency and success, build neurological capacity for future stress tolerance.

Eustress is valuable and necessary because it facilitates the development of tolerance. Public performances, such as playing in front of teachers and classmates and participating in mock auditions, can effectively induce eustress. Mock auditions offer students a holistic understanding of the audition process and provide opportunities to practice effective management of their nervous system.

Steve Maier elucidates the necessity of challenges in youth development and their subsequent advantages in adulthood. "We posit that there exists plasticity in that circuitry. If an individual experiences a significant and challenging adversity that they successfully overcome independently during their youth, they develop a distinct approach to managing adversity in the future. It is crucial that the adversity be substantial, as these brain regions require a specific wiring pattern, which cannot be achieved solely through minor inconveniences. Simply informing an individual that they can overcome adversity is insufficient. For the necessary rewiring to occur, the control circuitry must be activated simultaneously with the low-level inhibitory areas. This occurs when an individual experiences mastery alongside adversity." (Duckworth, 2016, p. 189)

II. Psychophysiological Connections

A. The Gut-Brain Axis

The brain and the gut establish a bilateral communication system, transmitting signals via the vagal nerve. The brain transmits signals from the emotions experienced daily to the gut, triggering a response. During periods of extreme stress, the digestive system ceases its functions, redirecting blood flow to other body parts in preparation for the stress response. It is advisable to opt for light and easily digestible meals before anticipated stressful situations. While the gut responds to brain signals, it also operates independently. The nervous system of the gut is known as the enteric nervous system (ENS). (Mayer, 2018, p 41)

The gastrointestinal tract, commonly referred to as the "second brain," plays a pivotal role in human physiology. The gastrointestinal tract possesses remarkable resilience and can effectively manage its functions without external interference from the brain. Conversely, the brain appears to rely heavily on crucial information derived from the gut. (Mayer, 2018, p. 56) Approximately 90% of the signals transmitted through the vagus nerve originate from the gastrointestinal tract. "While this information is vital to ensure proper functioning of the digestive track, the enteric nervous system has no ability to produce conscious sensations." (Mayer, 2018, p 57) Only 10% originate from the brain and travel to the gastrointestinal tract.

When emotions manifest physically in the gut, specialized cells, gut cells, enteric nervous system cells, and approximately 100 trillion microbes, are activated. Their responses and chemical interactions are influenced by the emotional states. The day's events encompass both positive and negative narratives, and these cells respond appropriately to stress and anxiety. Your brain prioritizes your overall health and well-being, monitoring cues from your gut and

integrating them with signals from other body parts and environmental information. It closely monitors the enteric nervous system and gut reactions, emotional states reflected in gut function, stomach and colon contractions during anger, and intestinal activity during depression. The brain observes its internal gut processes and likely receives information from the trillions of microbes in the gut, a significant aspect of gut-brain signaling. While the brain continuously monitors all gut sensory information, it delegates daily responsibilities to local agencies like the enteric nervous system, intervening only when an action is required or a situation poses a significant threat. (Mayer, 2018, p. 64)

We are aware of the impact of emotions on our physical bodies, including our gastrointestinal tract. Emotion-specific circuits within the limbic system (sympathetic nervous system) become activated when we experience anger, fear, pain, hunger, or thirst. These circuits adjust our bodies to respond optimally to internal and external changes. In the presence of a life-threatening situation, they swiftly reorganize messages to individual cells and organs, causing them to swiftly alter their behavior. Emotion-related brain circuits transmit signals to the stomach and intestine to eliminate contents that may drain energy, which explains why we may feel the need to use the restroom before a significant presentation. The cardiovascular system redirects oxygen-rich blood from the gut to the muscles, slowing digestion and preparing us for either fight or flight. These programs, referred to as emotional operating programs, activate within milliseconds, implementing coordinated behaviors that facilitate our survival, flourishing, and reproduction. (Mayer, 2018, pp. 44-45)

The gut also responds to internal stressors, including infections, injuries from accidents, medical procedures, sleep deprivation, and even natural biological functions. (Mayer, 2018, p. 47)

Obtaining adequate sleep is essential for achieving optimal performance.

The human brain possesses specialized signaling molecules, including well-known hormones, that play pivotal roles in diverse physiological processes. Endorphins function as natural analgesics and contribute to overall well-being, while dopamine stimulates desires and motivation. Oxytocin, often referred to as the "love hormone," promotes trust and attraction. The corticotropin-releasing factor (CRF) serves as the primary stress regulator within the body. In a normal state, the (CRF) regulates cortisol production by the adrenal glands. Cortisol maintains proper metabolism and immune system function. However, when stressed, the CRF-cortisol system undergoes a significant increase. The hypothalamus, the primary site of CRF production, becomes the initial responder. Chemical intermediaries initiate adrenal gland activation, elevating cortisol levels and preparing the body for heightened metabolic demands. CRF released from the hypothalamus also activates the amygdala, triggering anxiety or fear. This activation manifests physically as heart palpitations, perspiration, and an increased urge to urinate. As mentioned earlier, these digestive alterations may not be conducive to enjoying a meal, particularly during stressful periods. (Mayer, 2018, p. 47)

The dietary choices we make significantly influence our emotional well-being. "Today we know about the complexity of gut sensations and the crucial role the vagus nerve plays in transmitting these signals to the brain regions like the hypothalamus and limbic brain regions, which in turn influence a wide range of vital functions such as pain, appetite, mood, and even cognitive function." (Mayer, 2018, p. 67)

The Navy and Marine Corps Public Health Center has released a PDF document detailing the types of foods that influence our mood. **See Appendix A: Nutritional Factors Affecting Mood and Performance.**

To optimize gut diversity and enhance its resilience, in addition to consuming moderate portions of lean meats, particularly fish and poultry, it is essential to increase the intake of food items that contain probiotics and prebiotics. Fermented foods contain both. Probiotics are beneficial microorganisms that can confer health benefits, while prebiotics are substances that promote the growth of beneficial bacteria. **See Appendix B: List of Fermented Foods** for a detailed compilation curated by the Nutritional Therapy Association. These foods contribute to the preservation of a healthy gut microbiome.

The gut microbiome, comprising a diverse community of bacteria, fungi, and viruses, is unique to each individual. "The emerging ecological view of gut microbial health contrasts with claims promoted by the food supplement industry and by the media that a healthy microbiome is composed of defined populations of specific microbes. In fact, only 10 percent of gut microbial species are shared between individuals. In other words, you and a friend might both have a healthy microbiome, but you might have vastly different communities of gut microbes. Put another way, there are several stable healthy states of the gut microbiota." (Mayer, 2018, p. 270)

Beyond the physical manifestations of the digestive system, emotionally triggered gut reactions extend to a spectrum of sensations that traverse the gut-brain axis. These sensations can either modulate or generate gut feelings, which are subsequently stored as emotional memories of specific experiences. You may have heard someone say, "My stomach churns every time I recall that memory." In recent years, our understanding of the pivotal role played by gut

microbes in this intricate interplay between gut reactions and sensations has gained significant traction. (Mayer, 2018, p. 89)

A robust microbiome enhances our resilience in managing stress and anxiety. "Likewise, when stress or high anxiety causes the brain's emotional operating programs to create dramatic plots that play out in our guts, it alters gut contractions, rates of transit from the stomach to the larger intestine, and blood flow. This can dramatically alter the living conditions of microbes in the small and large intestines and is probably one of the reasons the composition of our gut microbes is altered during stress. In contrast, when you feel depressed, and everything in your gut slows down, microbes sense these changes and activate genes that help them adapt to those shifting conditions." (Mayer, 2018, p. 101)

For musicians navigating high-pressure performance situations, the gut microbiome represents a powerful biological ally in emotional regulation. This symbiotic relationship mirrors the interconnected systems found throughout nature. Just as interconnected natural systems support life and growth, the gut microbiome is literally created and sustained by our daily choices, environmental exposures, and emotional states. "Throughout adult life, both what we eat and how we feel exert a profound influence on chemical conversations our gut microbes have with other key players in our intestine, including immune cells, hormone- and serotonin-containing cells, sensory nerve endings, and more. These gut-based causes send signals back to the brain, influencing our desire to eat, our stress sensitivity, how we feel, and how we make our gut decisions. Meanwhile, our emotions, and their associated gut reactions, exert a profound influence on the complex dialogue in our gut, and this exerts a significant influence on what type of messages the gut sends back to the brain." (Mayer, 2018, p. 272)

Understanding this bidirectional influence empowers musicians to actively cultivate their gut health as an emotional resilience strategy.

B. Breathing and Vagal Tone

The vagus nerve connects the brain to vital organs throughout the body and possesses a remarkable property: it can be trained and strengthened through controlled breathing practices. Van der Kolk articulated the functional relationship between the sympathetic and parasympathetic branches: "The sympathetic acts as the body's accelerator, and the parasympathetic serves as its brake." (Van der Kolk, 2019, p. 79) This metaphor clarified that intentional breathing practices, particularly those targeting parasympathetic activation, function as a regulatory mechanism. Deep breathing exercises, particularly those that focus on the parasympathetic brake (stopping the SNS response and initiating the PNS), and exploring rib cage expansion can aid in tolerating discomfort and promoting a state of calmness. (Van der Kolk, 2019, pp. 209-211) By training the vagus nerve through consistent breathing practice, musicians develop the capacity to shift their nervous systems from threat-detection dominance toward a state of regulated readiness for optimal audition performance.

Through consistent practice, students can develop proficiency in these techniques. To prepare, allocate two minutes at the beginning of each class or lesson to practice breathing exercises, ensuring readiness for their practical application.

III. Social and Environmental Factors

A. Mirror Neurons and Co-Regulation

Our mirror neurons record our internal experiences, prompting our bodies to make internal adjustments in response to our observations. "When we receive a reassuring message from another person, such as 'You're safe with me,' we experience a state of relaxation. In

fortunate relationships, we also feel nourished, supported, and restored as we engage in eye contact and facial expressions with our partners." (Van der Kolk, 2019, p. 80)

"Being able to feel safe with other people is probably the single most important aspect of mental health; safe connections are fundamental to meaningful and satisfying lives. (Van der Kolk, 2019, p. 81)

Ensuring the safety and well-being of students during auditions is a straightforward process. The most crucial aspect is demonstrating physical presence and providing unwavering support. Mirror neurons do not require verbal communication; rather, it is the simple act of being there for them that registers a profound impact. Research on mirror neurons reveals that empathetic presence does not require verbal communication to be effective. These specialized brain cells fire both when an individual performs an action and when they observe another person performing the same action, creating a neural foundation for emotional resonance and social understanding. Being aware of this neurological mechanism helps the researcher maintain silence before performances, allowing students the mental space to concentrate on the task they are about to undertake. Through this quiet presence, mirror neuron activation enables students to perceive supportive emotional states without the cognitive load of processing verbal instruction. In this way, the researcher can maintain a presence of quiet support that leverages the brain's inherent capacity for non-verbal emotional attunement during high-stress moments. "Dogs and horses and even dolphins offer less complicated companionship while providing the necessary sense of safety. Dogs and horses, in particular, are now extensively used to treat some groups of trauma patients." (Van der Kolk, 2019, p. 82) Displaying an image of a pet on the music can be an effective strategy for the auditioner to experience the positive effects of mirror neurons.

"When you are in the presence of someone who triggers an unconscious ventral response in you, that's known as co-regulation." (Kipp, 2014, p. 66)

If you have ever been around someone who leaves you feeling worse or uneasy, and getting away helps restore your inner calm, that person may be a co-dysregulator. Co-dysregulation refers to the unconscious transmission of signals of danger between individuals. While we may not be aware of sending these signals, our neuroception responds to them. Our systems interact with each other under our subconscious control. Consequently, ventral states are challenging to attain without co-regulation. As Dr. Porges aptly states, "Co-regulation is a fundamental biological imperative." (Kipp, 2014, p. 70)

"Ideally, we should always have one person in the ventral state so we can create spaces of psychological safety and co-regulation. If everyone is in a sympathetic or dorsal state, it will just lead to consistent feedback loops of hidden stress." (Kipp, 2014, p. 70)

When someone makes you laugh, you are most likely in the presence of a co-regulator. Laughter, often called the most effective remedy, offers tangible benefits beyond temporary happiness. When you laugh, you increase oxygen intake, stimulating your heart, lungs, and muscles. Laughter also activates the vagus nerve, releasing endorphins, your body's mood-enhancing chemicals. (Kipp, 2014, p. 177) The deliberate cultivation of a warm, connected classroom environment helps to leverage these neurobiological principles to support student resilience. Identifying a supportive network of individuals can be beneficial in the preparation and execution of auditions.

B. Social Safety and Learning

A safe social environment is vital for maintaining prefrontal cortex function -- the region responsible for executive decision-making, delayed gratification, and choosing complex actions that yield long-term benefits. However, threatening or unpredictable social environments activate the amygdala's threat-detection system, triggering fight-or-flight or freeze responses that effectively shut down higher-order cognitive processing. (Sapolsky, 2017, p. 45)
This neurological vulnerability is particularly pronounced in adolescents, whose prefrontal cortex does not fully mature until the mid-twenties.

The amygdala, by contrast, reaches adult sensitivity early, meaning that adolescents possess adult-level threat detection with immature prefrontal regulation capacity. The amygdala responds most intensely to two specific conditions: unpredictability and lack of control. "The amygdala is particularly sensitive to unsettling circumstances that are social." (Sapolsky, 2017, p. 35) This is precisely the context of audition situations.

When students cannot predict what will happen next or perceive no control over outcomes, the amygdala remains hypervigilant, diverting cognitive resources away from learning and performance toward threat monitoring. This creates a neurological paradox: the very situations where students most need access to their prefrontal cortex, challenging performances, and skill development outside their comfort zone, are precisely the situations most likely to trigger amygdala activation.

The implications for creating an effective learning environment are substantial. Establishing clear classroom procedures and social norms directly addresses the amygdala's need for predictability and control. Teaching students to distinguish between controllable and uncontrollable factors reduces perceived threat, as the brain responds differently to challenges

over which agency exists versus those perceived as beyond control. When students understand the behavioral expectations, performance protocols, and consequences within their learning environment, the amygdala receives consistent signals of safety. Similarly, explicitly teaching students to distinguish between controllable factors (practice strategies, breathing techniques, self-talk) and uncontrollable factors (audience reactions, performance order, venue acoustics, subjective audition panels) provides a cognitive framework that reduces perceived threat. By clarifying what lies within their sphere of influence, students can redirect cognitive energy from anxiety about uncontrollable variables toward actionable preparation strategies.

This structured predictability does not eliminate challenges or discomfort -- rather, it creates a secure framework within which students can safely venture outside their comfort zones. When the "rules of engagement" are clear and consistent, the amygdala can remain calm even during complex tasks, allowing the prefrontal cortex to stay online and support adaptive learning behaviors. In such an environment, the prefrontal cortex remains engaged, learning and emotional development can proceed, and the biological capacity for resilience expands.

IV. Cognitive and Linguistic Frameworks

A. Language and Internal Dialogue

Preparing for an audition necessitates consistent and proficient practice. Although the specific practice methods are not the primary focus of this paper, their significance in achieving audition success is undeniable. Instead, we will focus on the emotional and physiological aspects of audition preparation. To initiate this process, we will examine the nature of our inner voice, commonly referred to as the "chatter box," and explore strategies to transform it into a more beneficial one. This transformation hinges upon our awareness of what our subconscious perceives.

Our word choice is of paramount importance. In the book *Feel the Fear...and Do It Anyway*, Dr. Susan Jeffers lists what she calls "fear words." (Jeffers, 2007, p. 8) She suggests replacing the verb "hope" with "I wonder." Wondering fosters curiosity and openness, contrasting with hoping for a specific outcome. (Jeffers, 2007, p. 109)The author of *Big Magic* puts it this way, "Curiosity is what keeps you working steadily, while hotter emotions may come and go." (Gilbert, 2016, p. 245)

"Be Careful" is another phrase that promotes fear. *"In all my life, I have never heard a mother call out to her child as he or she goes off to school, 'Take a lot of risks today, darling.' She is more likely to convey to her child, 'Be careful, darling.' This 'Be careful' carries with it a double message: 'The world is really dangerous out there,'...and 'You won't be able to handle it.' What mom is really saying, of course, is 'If something happens to you, I won't be able to handle it.' You see, she is only passing on her lack of trust in her ability to handle what comes her way."* (Jeffers, 2007, p. 8)

The subconscious is where our "chatter box" resides. The subconscious does not judge. It accepts anything it hears as the truth, even if it is untrue. It also hears the words spoken by others around you. The subconscious's inability to judge can work both against us and to our advantage. If it hears, "I am afraid to play in the audition room", it will believe. It will also believe you if you say, "I am feeling butterflies in my stomach; I must be excited to play in the audition room." By providing your subconscious with positive language, you can help it develop into a beneficial inner voice when faced with pressure.

B. Positive Affirmations and Mindset

Positive affirmations serve as a powerful tool in training our subconscious to cultivate a supportive internal dialogue. As the subconscious operates without judgment, it readily accepts the information it receives, even if our conscious mind may harbor reservations. Students gain insight into the workings and influence of the subconscious on their inner voice, as well as the practice of habitual repetition over an extended period, which they can apply in practical ways. Students engage in this practice at the commencement of each class session. It is essential to express affirmations with confidence and to visualize one's success. Typically, positive affirmations commence with the phrase "I am."

General Affirmations:

- I am enough.
- I am confident in my abilities.
- Practicing is beneficial. I love to practice.
- I believe in myself and my music.
- I can handle what comes my way.

Audition and Performance Specific Affirmations:

- I am in control of my nerves.
- I release any tension and embrace the moment.
- I will play each note with intention and artistry.
- I embrace the challenge and enjoy the process.

In an audition, it can be beneficial to place positive affirmations or a meaningful word on the page to guide your mood or focus on an aspect of the music before you begin playing. This can help you focus your mind on positivity and guide your intention in the musical passage. For example, in a lyrical passage, the player can select a word, such as "flow," and place it on the paper. The chosen word should hold personal significance and convey a specific meaning to the player. In the book *Audition Success*, author Don Greene provides guidance on selecting what to place on one's music, stating, "A word or phrase that represents what you do when you are performing at your best or what you think about in order to perform well." (Greene, 2015, p. 25)

C. Constructive vs. Destructive Feedback

The structure of feedback profoundly influences how students process performance experiences and develop (or fail to develop) accurate self-assessment capacities. This feedback intervention employs a structured self-assessment protocol designed to promote metacognitive awareness while protecting students' psychological safety. Following a performance or practice attempt, students are prompted to provide a diagnostic analysis of their execution, adhering to three specific guidelines:

1. Avoid using pronouns.
2. Avoid using qualifiers (evaluative adjectives) like "good," "bad," "okay," or "horrible." These words can be confusing and don't provide any helpful information.
3. Start with a positive statement and then follow up with areas for growth.

D. Separating Skill from Self: The Neuropsychological Function of Language

By omitting pronouns and qualifiers, this protocol prevents students' internal dialogue from labeling their performance as inadequate or subpar, thereby separating the skill from the self. Instead of saying, "I was flat," they would respond, "The F-Natural was flat." Similarly, instead of saying "The sound was horrible," they might say, "The bow hit two strings simultaneously." Alternatively, they could mention, "The bow is too close to the fingerboard."

This linguistic reframing serves a critical neuropsychological function. Rather than directly assessing students' weaknesses during their performance, the instructor utilizes their performance as a guiding principle for their lesson plan or practice plan to facilitate their future development. Each exercise's purpose is clearly articulated. It is noteworthy that when specific skills are developed in class with a clear explanation of their objectives, students begin to incorporate the addressed issues into their subsequent assessments. This analytical approach is beneficial for two reasons. Firstly, it guides the student to identify specific areas for improvement with precision. Secondly, it assists in distinguishing between their emotional self and their technical skills -- a critical separation given that "emotions filter the nature and accuracy of what is remembered." (Sapolsky, 2017, p. 29)

By maintaining objective, descriptive language, students develop accurate performance memories unclouded by shame or self-judgment.

The psychological stakes of feedback language are high. As van der Kolk notes, defensive criticism operates on two principles: "If you criticize others, they don't dare hurt you," followed by "If you are perfect, nobody can criticize you." (Van der Kolk, 2019, p. 296) These defensive patterns, common in performance anxiety, create rigid perfectionism that paradoxically increases vulnerability to criticism.

E. Discrimination vs. Criticism: A Transpersonal Framework

In the realm of Transpersonal Development, Dr. Roberto Assagioli delineates a distinction between criticism, characterized by ego and negativity, and discrimination, a higher and more conscious faculty rooted in the self. Discrimination, associated with the higher self, promotes growth and self-acceptance, while criticism, linked to the lower self, leads to negative self-judgment and strained relationships. (Assagioli, 2008, pp. 181-182)

Key distinctions include:

- **Motivation:** Criticism is driven by personal biases and emotions, whereas discrimination originates from a heightened level of awareness and wisdom.
- **Impact:** Criticism leads to negative self-perception and strained relationships, while discrimination fosters growth and self-acceptance.
- **Connection to Higher Self:** Assagioli posited that discrimination is associated with the higher Self, while criticism is linked to the lower self.

The structured self-assessment protocol operationalizes Assagioli's concept of discrimination through the practice of disidentification – the volitional act of separating one's core identity from temporary emotional states or musical outcomes. By requiring students to use objective, third-person language, the protocol trains them to observe technical execution with detached awareness rather than ego-driven judgment. This cultivates what mindfulness practitioners term "the observing self" – a metacognitive stance that can witness performance challenges without identifying them as personal failures. Through this lens, the self-assessment protocol becomes more than a checklist; it is a tool for identity reconstruction

With a foundation of supportive language and cognitive frameworks, students can effectively navigate the challenges of stepping outside their comfort zones during performance situations. The self-assessment protocol becomes internalized over time, providing students with a reliable cognitive tool for managing pre-performance anxiety and post-performance evaluation. Rather than catastrophizing mistakes or engaging in negative self-talk, students develop the capacity to analyze technical challenges with the same objective precision they would apply to a scientific experiment.

V. Performance Psychology and Comfort Zone Theory

A. Benefits and Challenges of Growth

Performing in front of an audience, whether it is a class or an audition committee, can be intimidating. However, the comfort zone expands with each step taken outside of it. It is crucial to take manageable steps to develop this comfort zone sufficiently for an audition. Performing in front of familiar individuals, such as parents, friends, or teachers, can be beneficial. Additionally, teaching students about the emotional and physical sensations they experience when venturing outside their comfort zone empowers them to make informed decisions when stepping out of it.

See Appendix C: Performance Preparation Checklist for a tool that facilitates the attainment of this objective.

Benefits of stepping outside one's comfort zone:

- Enhanced self-esteem and confidence upon emerging from the experience.
- Opportunities for enhancing neurological proficiency for optimal performance.
- Pride in one's courage and determination.

- Cultivation of resilience and adaptability.
- Expansion of the comfort zone.
- Personal growth and fulfillment.
- Acquisition of new opportunities and experiences.

Emotional and Physical responses when venturing beyond the comfort zones:

Emotional Responses:

- Initial uncertainty, fear, and anxiety as one confronts the unknown.
- Heightened self-doubt and negative self-talk.
- A sense of unease or discomfort.
- Excitement and anticipation.

Physical Responses:

- Accelerated heart rate and adrenaline (a natural response mediated by the Sympathetic Nervous System – Yellow).
- Potential for temporary stress and anxiety.
- Heightened awareness and alertness.

- The temporary increase in the cortisol hormone. (Cortisol increases blood pressure, sugar, and energy levels.)

Public performances, such as playing in front of teachers, classmates, and participating in mock auditions, can effectively induce eustress. Mock auditions offer students a holistic comprehension of the audition process and provide avenues for practicing effective management of their nervous system. This heightened state of arousal can facilitate the development and expansion of one's comfort zone.

B. Reframing the Audition Experience

Several of my former high school students have been awarded full-time positions in professional orchestras. Initially, when they began auditioning, they would express a sense of failure and rejection. However, as they participated in more auditions, they approached them with a more optimistic perspective, expressing their aspirations and satisfaction with their performance, regardless of the outcome. Their positive and confident demeanor consistently led to audition success. It is crucial to frame auditions as a process rather than a result. "If you focus too much on winning or try too hard to be spectacular -- which is something most people tend to do -- you actually take yourself away from doing the things you need to do to get the results you want, and that includes experiencing flow." (Mumford, 2015, 71)

As a core component of the intervention design, the researcher introduced a linguistic reframing strategy that replaced traditional competitive terms (‘winning/losing’) with process-oriented terms (‘awarded/not awarded’). This pedagogical choice was implemented to evaluate

whether shifting outcome language would reduce student performance anxiety and more accurately frame the audition as a job interview.

Numerous self-help books designed explicitly for auditions incorporate the term "winning" either in their titles or within their narratives. While I hold great respect for Don Greene's book, *Audition Success*, the subtitle, "An Olympic Sports Psychologist Teaches Performing Artists How to Win," (Greene, 2015) suggests that the book's success is solely determined by achieving "winning" or "getting a job." However, when a book is written by someone with a personal history of auditions, the definition of success appears to encompass broader parameters, such as process and self-exploration, rather than focusing solely on "winning" or "getting a job." At the university I attend, "winning" refers to a student's placement in an orchestra. **See Appendix E: Examples from the Curtis Institute and the University of Oklahoma.** However, this approach is not always accurate, as exemplified by the recent bassoon audition where the initially invited player declined, and the committee offered the position to another candidate. Despite the use of "winning" and "losing" to describe orchestra positions, when individuals are appointed to jobs at the same university, it is often framed as an appointment, even though they also underwent an interview process among many candidates. When the University of Oklahoma announced its "Outstanding Senior," the term "awarded" was used. Similarly, as with an audition, there is a pool of candidates from whom one is selected for a position.

In a Curtis Institute of Music newsletter announcing that two students were awarded chairs in an orchestra, the organization stated that they "joined" the Cleveland Orchestra and that the orchestra "welcomed" them. In *The Audition Process*, author and oboist Dr. Stewart Dunkel cautions against an aggressive mindset that prioritizes winning. "If you have an obsessive need to

win or be right all the time, you are suffering from a desperate need to prove yourself. The motivation is always to receive acceptance and approval, trying to be 'better than' someone else. (Dunkel 1989, 129)

As a member of numerous professional and academic audition committees, I have observed that there is often limited consensus on how to interpret audition results. Music is subjective, and the outcomes of auditions are not indicative of winning or losing. For instance, two bassists could ascend a flight of stairs carrying their instruments and declare that the first one to reach the summit shall be declared the winner; this is an objective concept. Conversely, determining the recipient of an award for carrying their bass with greater finesse presents a more intricate challenge. However, art is subjective, and the outcomes of an audition are not definitive.

Angela Duckworth's transcription of Ta-Nehisi Coates's account of his writing process in his book *Between the World and Me* portrays "failure" as an inherent component of the process. Duckworth quotes Coates, stating, "Failure is probably the most important factor in all of my work. Writing is failure. Over and over and over again." (Duckworth, 2016, p. 276)
She elaborates on this concept by transcribing a portion of Coates's MacArthur Fellowship grant speech as a poetic composition, thereby capturing his rhythmic and melodic speech pattern. This composition is displayed in my room for the students' reference:

"The challenge of writing

Is to see your horribleness on page.

To see your terribleness

And then go to bed.

And wake up the next day,

And take that horribleness and that terribleness,

And refine it,

And make it not so terrible and not so horrible.

And then go to bed again.

And come the next day,

And refine it a little bit more,

And make it not so bad.

And then to go to bed the next day.

And do it again,

And make it maybe above average.

And then one more time,

If you’re luck, Maybe you get to good.

And if you’ve done that,

That’s a success.

This description effectively outlines the practice process.

As educators and coaches, we can emphasize the significance of celebrating students' progress through appropriate processes. Instead of capturing a photograph for the school newsfeed of the students who were awarded chairs at an honor group audition, we can capture a photo of all the students who successfully auditioned. Of course, for students to be successful, the teacher will play a crucial role in guiding them through the preparation process. Perceive audition success as the culmination of the process, akin to a victory. Later, we can take a photograph of the students who performed in the honor group for the school newsletter. We can remind students that the distinction between an individual who is awarded a chair and one who is not is minute; nevertheless, the distinction between someone who auditions and someone who never takes that risk is substantial. Congratulatory letters or emails can be promptly dispatched to students immediately following an audition, both for those who have been selected and those who have not. To those who have not yet been chosen for a position, it would be appropriate to extend congratulations on their participation in the audition process.

To foster a sense of belonging and normalize audition outcomes, the curriculum incorporated ‘The Club’ – a metaphorical pedagogical framework representing the community of all musicians who prepare for and participate in auditions, regardless of placement. In the post-semester survey, students evaluated the impact of this framework (Q35: Mean = 3.75, SD = 0.92), providing empirical insight into how adolescent musicians internalized this community metaphor. Membership is not contingent upon being awarded a chair; rather, it is earned through the act of preparing for and participating in an audition. This inclusive framework recognizes that every accomplished musician -- from students to professionals -- has faced audition challenges, including not being awarded a position. This shared experience of vulnerability,

preparation, and evaluation creates a bond of understanding among members. By reframing audition participation as entry into this esteemed community, educators shift the focus from outcome-based achievement to process-based growth, emphasizing that the courage to audition and the resilience developed through the experience are hallmarks of successful musicianship. The "Club" thus represents a pedagogical tool for normalizing varied outcomes, celebrating effort, and fostering a growth mindset within music education. It is crucial to emphasize their commendable efforts and to encourage them to continue pursuing their musical aspirations. All auditioning students are encouraged to complete an **Audition Reflection Form** (see Appendix D), which serves as a platform for self-reflection and sharing their audition experiences. This form facilitates the establishment of supportive channels for communication and guidance. The essence of this approach is to celebrate the process rather than fixating solely on the outcomes.

In her book *Big Magic*, author Elizabeth Gilbert succinctly encapsulates the essence of process this way. *"Maybe it is better to reconsider your definition of success, period. For my own part, I decided early on to focus on the devotion to the work above all. That would be how I measured my worth. I knew that conventional success would depend on three factors - talent, luck, and discipline -- and I knew that two of those three things would never be under my control. Genetic randomness had already determined how much talent I'd been allotted, and destiny's randomness would account for my share of luck. The only piece I had any control over was my discipline. Recognizing that, it seemed like the best plan would be to work my ass off. That was the only card I had to play, so I played it hard."* (Gilbert, 2016, p. 143)

"Interest is one source of passion. Purpose---the intention to contribute to the well-being of others---is another. The mature passions of gritty people depend on both." (Duckworth, 2016, p. 143)

The notion that our purpose is to contribute to the well-being of others resonates deeply. Framing one's purpose during an audition is an intriguing concept. Can our purpose extend beyond securing a position? Could it encompass elevating the performance of ourselves and those around us? Can we inspire and appreciate each other's growth within the musical community? If our definition of success transcends our individual well-being, can it draw upon universal energy and cultivate a healthier mindset, free from anxiety?

This mindset can enhance our ability to perform at our optimal level. As educators, our primary aspiration for our students extends beyond mere academic achievements or external accolades. A more profound and enduring objective lies in fostering a culture of continuous learning and personal growth. By emphasizing the importance of process-oriented learning, encouraging students to excel in their endeavors, and prioritizing the well-being of others, we can create an environment that nurtures their holistic development and yields substantial long-term benefits. When Angela Duckworth contemplates her aspirations for her children, she posits, "Do I want them to be great at whatever they do? Absolutely. But greatness and goodness are different, and if forced to choose, I'd put goodness first." (Duckworth, 2016, p. 273)

Many musicians emphasize the significance of hobbies beyond the audition process. For instance, the principal bass player for the Philadelphia Orchestra is a weightlifter who dedicates considerable time to exercise. One of the most successful auditionees from my teaching

institution was also a skilled painter, proficient in multiple instruments, a member of the Science Olympia team, and a member of the track team. My former student, who plays in the Houston Symphony, dedicates time to golf. A life characterized by diversity presents greater opportunities for social engagement and facilitates the discovery of purpose and joy. In the book *Grit*, Angela Duckworth concludes with a piece of wisdom on life. "My final thought pertains to happiness. While success, measured by factors such as winning the National Spelling Bee, graduating from West Point, or leading the division in annual sales, is important, it is not the sole determinant of our well-being. Of course, we also desire happiness. Although happiness and success are related, they are not synonymous." (Duckworth, 2016, p. 271)

These theoretical frameworks and performance psychology principles require systematic implementation through structured reflective practices and comprehensive preparation strategies.

VI. Self-Efficacy and Agency

Central to the development of emotional intelligence in student musicians is the cultivation of agency, or the capacity to exercise influence over one's own functioning and environmental events. While Polyvagal Theory provides an understanding of the autonomic "hardware" that detects threat, Albert Bandura's Self-Efficacy Theory (1997) provides the psychological framework for how students develop the belief that they can regulate that hardware under pressure.

Bandura defines self-efficacy as the conviction that one can successfully execute the behavior required to produce a desired outcome. For the student musician, this is the bridge between knowing a regulation tool exists and having the confidence to deploy it during a high-stakes audition.

Bandura identifies four primary sources of self-efficacy, which were operationalized simultaneously throughout this intervention study to move students from a reactionary "school of hard knocks" approach to one of causal agency.

A, Mastery Experiences

Mastery experiences are considered the most influential source of efficacy because they provide authentic evidence of one's capability. In this study, mock auditions served as "mastery alongside adversity," in which students encountered substantial yet manageable challenges in a simulated environment. Although physiological biomarkers were not directly measured, student self-reports and practice journal reflections aligned with the mechanisms predicted by Polyvagal Theory, suggesting a perceived shift toward regulated readiness during mock auditions.

B. Psychological and Affective States

Students often judge their capabilities by how they interpret physical symptoms of stress, such as a rapid heartbeat or "butterflies." Without intervention, these somatic signals are often processed as a "neuroception of danger," leading to a sympathetic (Yellow) or dorsal-vagal (Red) shutdown. This study utilized breathing exercises as a "vagal brake" to directly modulate the autonomic nervous system. By teaching students to manage their physiological state, the intervention helped them reframe performance-related energy as eustress (a healthy challenge) rather than distress.

C. Social Persuasion

Self-efficacy is further strengthened through social persuasion, which includes encouragement and developmental feedback from significant others. In the context of this study, practitioner-led feedback (e.g., the researcher's observation to a student that "It is time") and the peer-supported "Audition Club" environment functioned as social persuasion. This external

validation helped students calibrate their self-perception and strengthened their belief in their ability to handle advanced challenges.

D. Verbal Self-Persuasion

Verbal self-persuasion involves using internal dialogue to convince oneself of one's capabilities. The study's affirmation protocol served as a tool for this cognitive-related reframing. As students moved from generic scripts ("I got this") to owned identity claims ("I am enough," "Progress not perfection"), they engaged in disidentification, a process described by Assagioli in which students separate their core self-worth from temporary musical outcomes.

Synthesis: From Reaction to Agency

The merging of these four sources fosters volitional agency. When students learn that their emotional and physiological states are not fixed or involuntary but are responsive to conscious intervention, they take back control over their bodies. The ultimate pedagogical goal of this framework is to move the orchestra classroom from a site of technical skill development alone to a site of true emotional maturity, where students possess the agency to remain "Green" and present even under the highest levels of pressure.

VII. Practical Integration and Synthesis

A. Reflective Practices

"There are other ways to access your inner world of feelings. One of the most effective ways is through writing." (Van der Kolk, 2019, p. 240)

Journaling serves as a valuable tool for self-reflection, enabling individuals to identify their reactions to specific situations. By documenting these reactions, individuals can gain a

better understanding of their patterns and potential areas for improvement. This self-awareness can then be used to adjust their behavior and trajectory in a more effective manner.

The opportunity to attend a masterclass with the renowned Jazz bassist, Major Holley, provided insight into the process of writing out one's initial improvisations, referring to it as "improvising slowly." He explained that this approach allows for ample time to analyze and contemplate one's actions. Consequently, as one improvises over tunes, an automatic vocabulary emerges, facilitating the decision-making process. Similarly, journaling operates on this principle, providing time for introspection and emotional reflection.

Maintaining a practice journal serves as an effective tool for guiding our practice sessions. Students can dedicate a section to recording their emotional responses during play and include a brief narrative detailing any potential factors that influenced their feelings. This practice aids in preparing our nervous system for future performance.

Your body provides feedback on your current state based on your sensations. Somatic feelings and emotions are distinct concepts. Somatic feelings refer to physical sensations, such as an uneasy stomach, rapid heartbeat, or sweaty palms. Emotions, on the other hand, are the labels we assign to our somatic feelings. The manner in which we frame our somatic feelings is of paramount importance. "I do not like the term performance anxiety. Putting a label on something as normal as the energy which accompanies most stressful circumstances is not helpful. It somehow makes what highly functioning individuals experience before and during live performances wrong, as if it were a disease. It may be uncomfortable until one learns what to do with it, but it's not a disease. Thinking that it is wrong and needs to be suppressed can make it more of a problem than need be." (Greene, 2015, p. 6)

B. Holistic Preparation Strategies

The dietary choices we make significantly influence our emotional well-being. "Today we know about the complexity of gut sensations and the crucial role the vagus nerve plays in transmitting these signals to the brain regions like the hypothalamus and limbic brain regions, which in turn influence a wide range of vital functions such as pain, appetite, mood, and even cognitive function." (Mayer, 2018, p 67)

To optimize gut diversity and enhance its resilience, in addition to consuming moderate portions of lean meats, particularly fish and poultry, it is essential to increase the intake of food items that contain probiotics and prebiotics. Fermented foods contain both. Probiotics are beneficial microorganisms that can confer health benefits, while prebiotics are substances that promote the growth of beneficial bacteria. **See Appendix B: List of Fermented Foods** for a detailed compilation curated by the Nutritional Therapy Association. These foods contribute to the preservation of a healthy gut microbiome.

Obtaining adequate sleep is essential for achieving optimal performance. The human brain possesses specialized signaling molecules, including well-known hormones, that play pivotal roles in diverse physiological processes. When stressed, the CRF-cortisol system undergoes a significant increase, which can disrupt sleep patterns and overall recovery.

Environmental and social support systems play a crucial role in performance preparation. Identifying a supportive network of individuals can be beneficial in the preparation and execution of auditions. The presence of co-regulators -- individuals who help maintain a calm, ventral vagal state -- can significantly impact a student's ability to perform optimally under pressure.

The interconnected nature of neuroscience, psychology, and pedagogy offers essential insights into addressing performance pressure in music among young musicians. By understanding the autonomic nervous system's role in stress response, the power of language and cognitive frameworks, the importance of social support, and the value of reflective practices, educators can develop comprehensive approaches to help students manage performance anxiety and develop emotional intelligence. The integration of these evidence-based strategies provides a foundation for transforming how young musicians prepare for and experience high-pressure performance situations, ultimately fostering both musical excellence and personal growth.

Part 2: Intervention Design and Implementation

To establish a rigorous foundation for this action research study, the literature review is structured across two distinct tiers. Tier 1 comprises the study's primary theoretical anchors, grounded strictly in peer-reviewed scholarship across educational neuroscience, social-cognitive psychology, and performance science. These foundational frameworks include Stephen Porges' Polyvagal Theory (autonomic nervous system regulation), Albert Bandura's Self-Efficacy Theory (perceived capability and agency), Carol Dweck's Mindset Theory (implicit beliefs regarding intelligence and talent), and Barry Zimmerman's Self-Regulated Learning model (cyclical forethought, performance, and self-reflection).

Tier 2 examines supplementary practitioner literature and performance-based resources, including work by Don Green, Susan Jeffers, and George Mumford. While these texts do not constitute empirical scientific frameworks, they represent widely utilized practitioner tools within music and athletic domains. In this study, Tier 2 literature was reviewed exclusively to document the pedagogical origins of specific classroom activities, mindfulness prompts, and student reading excerpts implemented during the six-phase intervention.

PROCEDURE: Six-Phase Intervention

The following six-phase intervention is designed to be integrated into the standard orchestra curriculum over one semester (approximately 18 weeks). Each phase builds upon the previous one, creating a comprehensive approach to developing emotional intelligence and performance resilience in adolescent musicians.

Phase 1: Foundational Neuroscience Education

Reframing Auditions: From Objective Competition to Subjective Process

Objective: Introduce students to the neuroscience of performance anxiety and establish a shared vocabulary for discussing nervous system states.

Timeline: Weeks 1-2 of the semester

Key Concepts to Teach:

- Polyvagal Theory and the three nervous system states (Green/Ventral-vagal, Yellow/Sympathetic, Red/Dorsal-vagal)
- Neuroception and threat detection
- The difference between distress and eustress
- How the amygdala responds to unpredictability and lack of control
- The role of the prefrontal cortex in decision-making and performance

Activities:

- Introduce the "traffic light" system (Green, Yellow, Red) to help students identify their current nervous system state.
- Discuss real-world examples of how students experience each state (in class, during performances, in social situations)
- Explain that auditions are job interviews, not competitions, and reframe language accordingly ("awarded" vs. "won")

- Introduce the concept of the "Club" - the community of all musicians who have auditioned, regardless of outcome.
- Have students reflect on past audition experiences and identify which nervous system state they were in.

Assessment: Students can accurately identify their nervous system state and explain how it affects their performance

Phase 2: Nervous System Regulation Tools

Building a Toolkit for Self-Regulation

Objective: Teach students practical techniques to manage their nervous system and maintain optimal performance states.

Timeline: Weeks 3-7 of the semester (ongoing practice throughout the semester)

Key Techniques to Teach:

1. Breathing Techniques

Diaphragmatic Breathing (Abdominal Breathing):

- Teach students to breathe deeply into the diaphragm rather than shallow chest breathing.
- Practice: Inhale for 4 counts, hold for 4 counts, exhale for 4 counts.
- Benefits: Activates the parasympathetic nervous system, promoting calm and focus.
- Practice frequency: 2-3 minutes daily, especially before performances.

Box Breathing (Square Breathing):

- Inhale for 4 counts, hold for 4 counts, exhale for 4 counts, hold for 4 counts.

- Repeat 5-10 times.
- Benefits: Creates a sense of control and rhythm, calms the nervous system.
- Best used: 5-10 minutes before auditions or performances.

4-7-8 Breathing:

- Inhale for 4 counts, hold for 7 counts, exhale for 8 counts.
- The extended exhale activates the parasympathetic nervous system.
- Repeat 4-8 times.
- Benefits: Particularly effective for anxiety reduction.

Resonant (Coherent) Breathing:

- Breathe at a rate of 5-6 breaths per minute (inhale for 5 counts, exhale for 5 counts)
- This rate creates coherence between heart rate and breathing patterns
- Benefits: Optimizes nervous system function and emotional regulation

2. Positive Affirmations and Language Reframing

- Teach students to replace fear-based language with empowering language
- Replace "I hope" with "I wonder."
- Replace "I'm nervous" with "I'm excited" or "I'm energized."
- Create personal affirmations that resonate with each student
- Practice: Students write and recite affirmations in a practice journal.
- In-class practice: Begin each class with affirmation practice

General Affirmations:

- I am enough.
- I am confident in my abilities.
- Practicing is beneficial. I love to practice.
- I believe in myself and my music.
- I can handle what comes my way.

Audition-Specific Affirmations:

- I am in control of my nerves.
- I release any tension and embrace the moment.
- I will play each note with intention and artistry.
- I embrace the challenge and enjoy the process.

3. Nutrition and Performance

- Educate students about foods that support optimal mood and cognitive function
- Discuss the gut-brain axis and how nutrition affects emotional regulation
- Provide guidance on pre-performance meals (light, easily digestible)
- Emphasize hydration throughout the day
- Introduce fermented foods and their role in supporting a healthy microbiome.
- See Appendix A and B for detailed nutritional information.

4. Meditation and Mindfulness

Progressive Muscle Relaxation (Top-Down):

- Guide students through systematically tensing and releasing muscle groups
- Start with the head and work down to the toes
- Duration: 3-5 minutes
- Benefits: Increases body awareness and promotes relaxation

5-4-3-2-1 Grounding Technique:

- Identify 5 things you can see
- Identify 4 things you can touch
- Identify 3 things you can hear
- Identify 2 things you can smell
- Identify 1 thing you can taste
- Benefits: Anchors students in the present moment, reduces anxiety
- Best used: When feeling overwhelmed or anxious

5. Visualization and Mental Rehearsal

- Visualization techniques for successful performance outcomes will be taught to students. Scaffolded support through a step-by-step guide and instructional video will be provided for students who struggle with visualization, breaking down the mental rehearsal process into manageable components.

- Include sensory elements: what they see, hear, feel, and experience
- Timing: Best practiced in the evening or before bed
- Benefits: Primes the nervous system for optimal performance and builds confidence

Activities:

- Dedicate 2 minutes at the beginning of each class to practice one breathing technique
- Have students maintain a "regulation toolkit" in their journal, documenting which techniques work best for them
- Create a classroom poster displaying the traffic light system and available regulation techniques
- Encourage students to practice techniques daily at home

Assessment: Students can demonstrate at least 3 regulation techniques and explain how each affects their nervous system state

Phase 3: Parental Engagement

Building a Supportive Home Environment

Objective: Involve parents/guardians in supporting their students' emotional development and performance preparation.

Timeline: Week 5 (can be ongoing)

Activities:

- Host a parent information session explaining the neuroscience of performance anxiety and the intervention

- Provide parents with a handout explaining the traffic light system and how they can support their child's nervous system regulation
- Explain the importance of co-regulation and how parental presence and support affect student performance
- Provide guidance on pre-performance meals and nutrition
- Discuss the importance of adequate sleep and how to support healthy sleep habits
- Encourage parents to use affirming language and avoid fear-based language ("be careful")

Communication:

- Send regular updates to parents about the intervention and student progress
- Provide resources for parents to support their students at home
- Invite parents to attend mock auditions to observe and support their students

Assessment: Parents understand the intervention and actively support their students' emotional development

Phase 4: Reflective Practice and Self-Monitoring

Developing Metacognitive Awareness

Objective: Help students develop self-awareness and the ability to monitor their own emotional and physical states during practice and performance.

Timeline: Weeks 7-12 (ongoing throughout the semester)

Practice Journals

- Students maintain a practice journal documenting their practice sessions
- Include sections for: date, time, duration, pieces practiced, technical focus, emotional state before/during/after practice, and reflections
- Encourage students to note patterns in their emotional responses and identify triggers
- Review journals periodically to identify progress and areas for growth

Somatic Awareness and Emotional Labeling

- Teach students to distinguish between somatic feelings (physical sensations) and emotions (labels we assign to those sensations)
- Practice identifying physical sensations: heart rate, breathing, muscle tension, stomach sensations, etc.
- Teach students to reframe somatic sensations in positive ways ("butterflies" = excitement, not fear)
- Introduce the concept that performance energy is normal and can be channeled productively.

Self-Assessment Protocol:

Following a performance or practice attempt, students provide feedback using these guidelines:

1. Avoid using pronouns ("I was flat" becomes "The F-Natural was flat")
2. Avoid using qualifiers ("good," "bad," "okay," "horrible")
3. Start with a positive statement, then follow with areas for growth

Example: "The opening phrase had good intonation and clear articulation. The bow speed could be adjusted in measure 12 to create a smoother transition."

Activities:

- Model the self-assessment protocol in class
- Have students practice giving feedback to each other using the protocol
- Review student journals and provide feedback on their reflections
- Celebrate progress and growth identified through journaling

Assessment: Students can accurately identify their emotional and physical states and provide objective, constructive feedback on their performances

Phase 5: Mirror Neurons and Peer Co-Regulation

Building a Supportive Musical Community

Objective: Help students understand the power of co-regulation and create a classroom environment where students support each other's emotional well-being.

Timeline: Weeks 10-15 (ongoing throughout the semester)

Theoretical Foundation

- Teach students about mirror neurons and how our nervous systems influence each other.
- Explain co-regulation: how being in the presence of calm, supportive people helps us regulate our own nervous system.

- Discuss co-dysregulation: how being around anxious or stressed people can amplify our own anxiety.
- Emphasize that "co-regulation is a fundamental biological imperative."

Cultivating Student Co-Regulators

- Identify students who naturally embody a calm, supportive presence.
- Train these students to be "co-regulators" for their peers.
- Teach them to maintain a ventral vagal state (calm, present, supportive) even when others are anxious.
- Encourage them to use laughter, positive affirmations, and quiet presence to support their peers.
- Have co-regulators sit near students who are preparing for auditions or performances.

Classroom Culture:

- Establish norms of mutual support and encouragement
- Celebrate all students who participate in auditions, regardless of outcome
- Use affirming language when discussing audition results ("awarded," "joined," "welcomed")
- Create opportunities for students to support each other before, during, and after performances

- Encourage students to identify their own co-regulators (supportive friends, family members, teachers)

Activities:

- Have students practice maintaining a calm presence while others perform
- Teach students to recognize when they need co-regulation and how to ask for support
- Create a "support buddy" system where students pair up to support each other through audition preparation
- Discuss the importance of laughter and how it activates the vagus nerve

Assessment: Students demonstrate empathy and supportive presence with their peers; classroom culture reflects mutual encouragement and psychological safety

Phase 6: Progressive Exposure Through Mock Auditions

Building Confidence Through Graduated Challenge

Objective: Provide students with progressively challenging performance experiences that build comfort with audition conditions while maintaining psychological safety.

Timeline: Weeks 12-18 (ongoing throughout the semester, with increasing frequency as audition season approaches)

Initial Mock Auditions (Low-Stress Baseline)

Weeks 12-13: Classroom Mock Auditions

- Setting: Quiet warm-up room.
- The students select the excerpts before the audition.

- The student performs in front of adjudicators behind a screen.
- Feedback: Use the self-assessment protocol; the teacher provides objective, constructive feedback
- Objective: Students become comfortable performing in front of a screen.

Weeks 14: Small Group Mock Auditions

- Setting: Quiet warm-up room.
- The students receive the excerpts 30 minutes before the audition.
- The student performs in front of adjudicators behind a screen.
- Feedback: Use the self-assessment protocol; the teacher provides objective, constructive feedback
- Objective: Students become comfortable performing selected excerpts.

Progressive Modifications (Increasing Authentic Stressors)

Week 15: Mock Auditions with Unfamiliar Audience

- Setting**:** Warm-up room, equipped with a recording of other musicians preparing for their performance on the same material.
- Format: Complete audition simulation including waiting, performance, and results announcement
- Modifications: Include all stressors present in real auditions (time pressure, formal evaluation, results)

- Objective**:** Enhance students' comfort levels in audition environments through gradual warming-up procedures.

Supporting Students Through Mock Auditions

- Before each mock audition: Review regulation techniques, positive affirmations, and the Performance Preparation Checklist (Appendix C)
- During each mock audition, maintain a calm, supportive presence and use co-regulation strategies.
- After each mock audition, Have students complete the Audition Reflection Form (Appendix D)
- Celebrate participation: Acknowledge all students who participate, emphasizing their membership in the "Club"
- Identify patterns: Use reflection forms to identify which regulation techniques work best for each student.

Activities:

- Conduct mock auditions at regular intervals throughout the semester
- Gradually increase the authenticity and stressfulness of mock auditions
- Have students practice regulation techniques before each mock audition
- Use mock auditions as opportunities to practice the self-assessment protocol
- Encourage students to identify their co-regulators and have them present during mock auditions.

- Discuss audition results using affirming language ("awarded," "not awarded," "joined the Club")

Assessment: Students demonstrate increasing comfort with audition conditions; they effectively use regulation techniques; they provide objective self-assessment; they support their peers

Integration and Ongoing Support

Throughout all six phases, maintain consistent practices:

- **Daily:** 2-3 minutes of regulation technique practice at the beginning of class
- **Weekly:** Reflection and journaling; peer feedback using the self-assessment protocol
- **Bi-weekly:** Review of student progress; adjustment of intervention strategies as needed
- **As needed:** Individual support for students experiencing heightened anxiety or challenges

By the end of the semester, students will have developed a comprehensive toolkit for managing performance anxiety, built confidence through progressive exposure, and internalized the neuroscience principles that support optimal performance. Most importantly, they will understand that auditions are a normal part of a musician's journey and that their worth as musicians and individuals is not determined by audition outcomes.

Part 3: Research Methodology

Methodology

Introduction

This chapter describes the research design, participants, data collection procedures, and data analysis methods employed in this study. The purpose of this **action research study with**

mixed methods was to examine the implementation and perceived effectiveness of emotional intelligence training on orchestra students' performance anxiety and emotional resilience during Fall 2025. As a practitioner-researcher, I implemented the intervention as part of regular orchestra instruction while simultaneously collecting data to understand its impact and inform ongoing refinement. This chapter provides a detailed account of how the study was conducted to ensure transparency and replicability.

Research Design: Action Research with Mixed Methods

This study employed an **action research design with concurrent mixed-methods data collection** (Herr & Anderson, 2015; Mertler, 2020). Action research is a systematic, cyclical process of inquiry conducted by practitioners to improve their own practice and understand the impact of instructional innovations in authentic educational settings (Kemmis & McTaggart, 2005). Rather than testing predetermined hypotheses through experimental manipulation, action research generates practical knowledge about "what works" in specific contexts while remaining responsive to emerging insights (Reason & Bradbury, 2008).

The concurrent collection of quantitative and qualitative data—what Creswell and Plano Clark (2018) term a "convergent parallel" approach—enabled me to triangulate findings across multiple sources. Quantitative data (survey responses, frequency counts from journals) identified patterns and trends, while qualitative data (journal narratives, video reflections, open-ended responses) provided rich context and explanation for those patterns. This mixed-methods approach is particularly well-suited to action research, as it captures both measurable outcomes and the nuanced experiences that explain why an intervention succeeds or struggles (Johnson & Onwuegbuzie, 2004).

Key Characteristics of This Action Research Study:

- **Practitioner-Led:** I served as both orchestra director and researcher, implementing the intervention as part of the regular curriculum while collecting data on its effectiveness.
- **Contextually Grounded:** The study was conducted in my own classroom with my own students, prioritizing authentic implementation over experimental control.
- **Improvement-Focused:** The primary goal was to understand whether and how the intervention improved student outcomes, with findings intended to inform ongoing instructional refinement.
- **Cyclical and Reflective:** Data collection and analysis occurred throughout the semester, allowing for real-time reflection and adjustment of instructional strategies as needed.
- **Mixed-Methods Triangulation:** Multiple data sources (surveys, journals, video reflections) provided complementary perspectives on intervention effectiveness.

Limitations of Design and Implications for Interpretation

As an action research study, this design carried important limitations that required careful consideration during interpretation. The absence of a control group precluded causal claims about intervention effectiveness. Without a comparison group, changes observed in students' emotional regulation and audition performance could not be definitively attributed to the intervention alone. However, the three naturally occurring groups based on audition participations allowed for comparative analysis that provided some insight into differential intervention effects.

The lack of pre-intervention baseline measures similarly limited the ability to quantify the magnitude of change. Data collection focused on post-intervention perceptions and retrospective comparisons. However, retrospective survey items asked students to compare their current state to "the beginning of the semester," providing approximate baseline information against which to interpret post-intervention improvements.

My dual role as instructor and investigator introduced potential researcher bias and the possibility that students might have responded in ways designed to please the instructor or align with perceived expectations about the interventions' success. This bias was mitigated through several strategies: triangulation across multiple data sources, reflective awareness of personal biases, focus on descriptive rather than inferential statistics, and deliberate inclusion of student voices through direct quotations and open-ended responses that allowed students to express critical perspectives.

Students were not randomly assigned to audition or non-audition groups; instead, they self-selected based on their own choices regarding whether to pursue competitive honor orchestra placements. This self-selection bias meant that audition participants may have differed systematically from non-audition participants in motivation, confidence, or musical background, confounding the effects of audition participation with pre-existing differences.

For interpretation, these limitations required that findings be understood as descriptive and exploratory rather than causal and definitive. The study provided a rich description of students' perceived experiences and identified patterns that warranted further investigation. Findings were most applicable to similar contexts, such as secondary orchestra programs in independent schools.

Setting and Context

The study took place at a private independent school serving students in grades pre-kindergarten through 12. The orchestra program includes students in grades 7-12, with class

sizes ranging from 15 to 30 students per section. Orchestra classes meet daily for 50-minute periods as part of the regular school schedule.

As the orchestra director, I have taught at this school for 27 years, and have observed that many students experience significant performance anxiety during auditions and high-pressure performances. This observation, combined with research on emotional intelligence and performance psychology, prompted the development and implementation of the emotional intelligence intervention. The intervention was designed to be integrated seamlessly into existing curriculum rather than implemented as an add-on, ensuring authentic classroom implementation and sustainable long-term application.

Participant Selection and Description

The study employed a census sampling approach, including all students enrolled in orchestra at the research site during Fall 2025 (N = 102). Census sampling was appropriate given the bounded nature of the population and the goal of understanding intervention implementation and perceived effectiveness across the entire program (Lavrakas, 2008). All students in grades 7-12 enrolled in orchestra were eligible to participate in the study.

The participant pool consisted of 102 students distributed across grades 7-12. Students played a variety of string instruments, including violin, viola, cello, and bass. Participants represented diverse musical backgrounds, ranging from beginners to advanced players with multiple years of private instruction.

Students were organized into three groups based on their participation in auditions during the semester. These groups emerged naturally from students' choices to participate in audition opportunities rather than through random assignment. While these groups are not equivalent to

experimental and control conditions, they allow for **comparative analysis** of how different performance contexts may have influenced students' experiences with the intervention.

Group 1: Honors Orchestra Auditioners (n = 25). Students who auditioned for competitive honors orchestra placements through regional or state music organizations. These students experienced high-pressure performance evaluation contexts and the core classroom emotional intelligence curriculum.

Group 2: Mock Audition Participants (n = 14). A subset of Group 1 who participated in both progressive mock auditions and honors orchestra auditions. These students received graduated exposure to audition stressors through practice audition experiences before the formal audition, allowing for examination of how progressive exposure influenced their audition experience.

Group 3: Regular Orchestra Only (n = 63). Students who participated in regular orchestra classes and received the intervention but did not participate in formal auditions during the study period. This grouping structure enabled comparative analysis of how participation in auditions and mock-audition experience influenced the intervention's perceived impact.

Ethical Considerations

The study received approval from the University of Oklahoma's Institutional Review Board prior to data collection. Informed consent was obtained from all participants and their parents/guardians. Students were informed that participation in data collection was voluntary and would not affect their grades. All data were stored securely and anonymized during analysis to protect participant confidentiality. As the instructor, I maintained professional boundaries and made clear that honest feedback—including critical feedback about the intervention—was valued and would not affect student grades or classroom standing. To protect student confidentiality, all

participant names used throughout this study are pseudonyms. No identifying information has been included in the data presentation or analysis.

The Intervention

All participants received daily instruction in emotional intelligence techniques integrated into regular orchestra classes over one semester (18 weeks). The intervention was designed based on neuroscience research on emotional regulation and performance psychology (Porges, 2011; Dweck, 2006; Van der Kolk, 2014). A detailed description of the six-phase intervention is provided in Part 2 of this dissertation. In summary, the intervention consisted of four primary components implemented throughout the semester:

- **Breathing Exercises:** Daily practice of various breathing techniques (diaphragmatic, box breathing, 4-7-8 breathing, resonant breathing) designed to activate the parasympathetic nervous system.
- **Positive Affirmations:** Daily recitation of personalized affirmations to cultivate supportive internal dialogue and challenge negative self-talk.
- **Reflection Language Guidelines:** A structured self-assessment protocol requiring students to avoid pronouns and qualifiers when evaluating their performance, promoting objective analysis and separating skill from self-worth.
- **Constructive Feedback Practices:** Teaching students to distinguish between discrimination (growth-oriented observation) and criticism (ego-driven judgment), emphasizing the Transpersonal Development framework.

Additionally, students who participated in auditions (Groups 1 and 2) received progressive mock auditions designed to provide graduated exposure to audition stressors while maintaining psychological safety.

Data Collection

Data were collected over the 18-week semester using three primary instruments: practice journals, video reflections, and a post-semester survey. This multi-method approach enabled

triangulation of findings and provided both longitudinal and summative perspectives on intervention implementation and perceived effectiveness.

Practice Journals

Description. Students maintained practice journals documenting their emotional states, the use of regulation techniques, and practice reflections. The journal template included structured prompts for recording emotional and physical states before and after practice, identifying which regulation techniques were used, and reflecting on practice sessions using the Feed Up/Feed Back/Feed Forward framework (Hattie & Timperley, 2007).

Data Collection Procedure. Students submitted practice journals monthly in class throughout the semester. The researcher reviewed submissions for completeness and provided feedback to encourage consistent documentation.

Data Collected. Practice journals yielded both quantitative data (frequency of technique usage, emotional state classifications using Green/Yellow/Red system) and qualitative data (narrative reflections on practice experiences and emotional awareness). A purposive sample of 10-15 journals representing all three participant groups was selected for in-depth longitudinal analysis.

Video Reflections

Description. Students recorded themselves playing and provided written reflections in accordance with the established language guidelines. Video reflections occurred 3-4 times throughout the semester, creating a longitudinal record of technical and emotional development.

Data Collection Procedure. Students submitted video recordings and written reflections via Google Drive or Flipgrid. The researcher assessed written reflections using a rubric evaluating: (1) adherence to language guidelines, (2) specificity of technical observations, (3) balance of

strengths and growth areas, (4) actionable improvement strategies, and (5) evidence of emotional awareness.

Data Collected. Video reflections provided qualitative data on students' developing capacity for objective self-assessment and emotional awareness over time. Exemplary reflections demonstrating strong objective self-assessment were identified for inclusion in findings.

Post-Semester Survey

Description. A comprehensive survey instrument was administered during the final week of the semester to assess perceived improvements in emotional regulation, performance confidence, and audition-specific outcomes. The survey included both Likert-scale items and open-ended questions.

Survey Sections. The survey consisted of seven sections:

- Section A: Background information (grade level, instrument, participation group)
- Section B: Emotional regulation skills (8 items, 5-point Likert scale)
- Section C: Practice and performance impact (5 items, 5-point Likert scale)
- Section D: Audition-specific questions for Groups 1 and 2 (7 items, 5-point Likert scale)
- Section E: Mock audition experience for Group 2 only (3 items, 5-point Likert scale)
- Section F: Open-ended questions for all students (5 questions)
- Section G: Audition outcome reflection for Group 1 (3 questions)
-

Data Collection Procedure. To adhere to Institutional Review Board (IRB) guidelines and mitigate potential researcher bias or perceived coercion, the survey was not administered by the researcher. Instead, the administration was facilitated by the committee chair, Dr. Anthony Stoops, who served as the Principal Investigator for the survey phase. Dr. Stoops emailed an invitation to parents/guardians, who first provided informed consent through the Qualtrics platform. Upon consenting, parents entered their student’s email address into Qualtrics, which

then automatically sent an invitation to the student to provide their assent and complete the instrument.

Students completed the survey independently at home on their own time to ensure privacy and voluntary participation. To maintain strict ethical boundaries, the researcher did not discuss the survey with students during class time and was not involved in the distribution or collection of the survey. This procedure ensured that student responses remained independent of their classroom standing and that participation did not affect their grades.

Data Collected. The survey yielded quantitative data (Likert-scale ratings) and qualitative data (open-ended narrative responses) on students' perceptions of intervention effectiveness across multiple dimensions.

Research Questions

Rather than testing predetermined hypotheses, this action research study was guided by the following research questions:

RQ1: Implementation and Engagement

- How do students engage with the emotional intelligence intervention over the course of the semester?
- Which techniques do students find most useful, and how does usage vary across the three participant groups?
- What patterns emerge in students' practice journal entries regarding emotional awareness and technique application?

RQ2: Perceived Effectiveness

- Do students perceive improvements in their ability to manage emotions and regulate their nervous system?
- How do students report the intervention influenced their confidence, resilience, and enjoyment of music?
- Are there differences in perceived effectiveness between students who auditioned versus those who did not?

RQ3: Audition-Specific Outcomes

- How do students who participated in auditions perceive the intervention's impact on their audition preparation and performance?
- Do students who participated in mock auditions report different experiences than those who auditioned without prior mock audition practice?
- How do students interpret and process audition outcomes in light of the intervention's emphasis on process over results?

RQ4: Longitudinal Development

- How do students' reflections on their playing and emotional states evolve over the semester?
- Do students demonstrate increasing sophistication in their use of objective, non-judgmental language when assessing their performance?
- What evidence exists of students internalizing the intervention's frameworks and applying them independently?

Exploratory Hypothesis

Consistent with the action reseach orientation of this study, the following exploratory hypotheses guided data interpretation rather than serving as formal causal predictions. These hypotheses were developed based on the theoretical foundations of the intervention and emerged from preliminary observations during the semester.

H1: Audition Frequency and Emotional Regulation Confidence, posited that frequency of audition experiences will positively correlate with students' confidence in emotional regulation techniques, such that students with greater audition exposure will report greater confidence in managing performance-related emotions.

H2: Combined Audition Exposure and Emotional Outcomes, proposed that combined exposure to both mock auditions and honors auditions would positively correlate with emotional regulation skills and negatively correlate with audition-related anxiety, with students experiencing both types of auditions showing the strongest relationships.

H3: Practice Frequency and Performance Outcomes, suggested that Frequency of regulation technique practice as documented in journals would positively correlate with self-reported performance confidence and emotional management, as consistent practice reinforces resilience-building behaviors.

H4: Progressive Improvement in Self-Assessment, hypothesized that students' written reflections would show progressive improvement in objective, non-judgmental self-assessment language over the semester, reflecting increased emotional resilience developed through repeated exposure to challenging performance situations.

H5: Post-Intervention Music Enjoyment and Resilience, predicted that following the intervention, students across all groups would report high levels of music enjoyment and resilience when facing musical challenges, with the greatest scores expected in groups with more frequent audition experiences due to extended time outside their comfort zone.

Data Analysis

Data analysis followed a convergent parallel approach, with quantitative and qualitative data analyzed separately and then integrated during interpretation (Creswell & Plano Clark, 2018). This section describes the analytical procedures for each data type.

Quantitative Data Analysis

Survey Data. Descriptive statistics, including means, standard deviations, and frequency distributions, were calculated for all Likert-scale survey items. Means were calculated for the overall sample and disaggregated by participant group (Groups 1, 2, and 3) to identify patterns in perceived intervention effectiveness based on audition participation. Data were analyzed using Microsoft Excel. **Note:** Descriptive statistics are reported to identify patterns and trends rather

than to test statistical significance, consistent with the action research orientation toward practical understanding rather than inferential hypothesis testing.

Practice Journal Data. Quantitative metrics from practice journals were analyzed to identify patterns in technique usage and emotional state changes over time. Frequency counts documented how often students used each regulation technique. Emotional state data (Green/Yellow/Red classifications) were converted to numerical values and analyzed to identify trends across the semester. Percentages were calculated to determine the proportion of students using techniques regularly.

Qualitative Data Analysis

Open-Ended Survey Responses. Qualitative data from open-ended survey questions were analyzed using thematic analysis (Braun & Clarke, 2006). The researcher read all responses multiple times to achieve immersion in the data. Initial codes were generated inductively, identifying meaningful units related to students' experiences with the intervention. Codes were then organized into broader themes representing patterns across participants. The researcher noted differences in themes between participant groups to understand how audition participation influenced intervention experiences.

Practice Journal Narratives. A purposive sample of 8 practice journals representing all three participant groups was selected for in-depth qualitative analysis. The researcher conducted longitudinal analysis, comparing early-semester and late-semester entries to identify evolution in students' language and emotional awareness. Critical incidents where students successfully applied regulation techniques during stressful situations were identified and documented as exemplars of intervention impact.

Video Reflection Written Components. Written reflections accompanying video submissions were analyzed for adherence to language guidelines and quality of self-assessment. The researcher used a simple 100-point rubric to rate each reflection, then compared scores from students' first and last video reflections to assess improvement over time. Exemplary reflections demonstrating strong objective self-assessment were identified for inclusion in findings. Qualitative analysis was conducted manually using Google Docs for coding and theme organization. This approach was appropriate given the manageable data set size and the researcher's deep familiarity with the context (Saldaña, 2016).

Integration of Quantitative and Qualitative Findings

Following separate analysis of quantitative and qualitative data, findings were integrated through triangulation, explanation, and expansion (Fetters et al., 2013):

- **Triangulation:** Comparing quantitative patterns (e.g., high frequency of breathing technique use) with qualitative themes (e.g., student reports of breathing helping them feel calm) to validate findings across data sources.
- **Explanation:** Using qualitative data to provide context and depth to quantitative results (e.g., explaining why certain groups reported higher perceived effectiveness).
- **Expansion:** Employing qualitative insights to illuminate aspects of the intervention experience not captured by numerical data (e.g., unexpected benefits or challenges).

Integration occurred during the interpretation phase, with findings presented in a manner that connected numerical patterns with student voices and experiences.

Trustworthiness and Validity in Action Research

Rather than traditional validity criteria, action research employs alternative standards for assessing quality (Lincoln & Guba, 1985; Herr & Anderson, 2015):

Credibility

Credibility was enhanced through: (1) triangulation of multiple data sources (surveys, journals, video reflections), (2) prolonged engagement with participants throughout the semester,

(3) member checking through sharing preliminary findings with students, and (4) reflexive awareness of researcher bias. The researcher's insider position as the orchestra director provided deep contextual understanding while requiring careful attention to potential biases.

Dependability

Dependability was addressed through: (1) detailed documentation of data collection and analysis procedures, enabling an audit trail of research decisions, (2) use of structured instruments (survey, journal template, reflection rubric) to promote consistency in data collection, and (3) clear articulation of how findings were derived from data.

Transferability

Transferability was supported through thick description of the setting, participants, and intervention, allowing readers to assess the applicability of findings to their own contexts. While the findings are specific to this orchestra program, detailed description enables other music educators to consider thoughtful adaptations for their settings.

Reflexivity

As an action researcher, I maintained reflexive awareness throughout the study, regularly examining my own assumptions, biases, and influence on the research process. This included: (1) acknowledging my investment in the intervention's success, (2) actively seeking disconfirming evidence and alternative explanations, (3) being transparent about limitations, and (4) recognizing how my role as instructor may have influenced student responses.

Limitations

This study was subject to several limitations that constrained the strength of causal and generalizable claims. The absence of a control group precluded causal claims about intervention

effectiveness. The lack of pre-intervention baseline measures limited the ability to quantify the magnitude of change observed in student outcomes. The dual role of researcher as classroom instructor introduced potential researcher bias and social desirability bias in student responses. Students were not randomly assigned to audit and non-audit groups, introducing self-selection that confounded group membership with pre-existing differences in motivation or musical background. The study was conducted in a single school context with a unique student population, limiting generalizability to other educational settings.

Self-reported data from surveys and reflections may have been subject to social desirability bias, with students potentially inflating their responses to align with perceived expectations about the intervention's success or to please the instructor. Most significantly, of 102 enrolled students, only 12 surveys were sufficiently complete for quantitative analysis, representing an 11.8% response rate. This substantially limited the statistical representativeness of survey findings and required that all quantitative results be interpreted as preliminary and descriptive rather than generalizable.

Summary

This chapter described the action research design with mixed-methods data collection employed to examine the implementation and perceived effectiveness of emotional intelligence training for orchestra students. The study included 102 participants organized into three groups based on audition participation. Data were collected through practice journals, video reflections, and a post-semester survey administered via Qualtrics and were then analyzed using descriptive statistics and thematic analysis. The concurrent collection of quantitative and qualitative data enabled triangulation and integration of findings, providing a comprehensive understanding of

students' experiences with the intervention. As an action research study, findings are descriptive and exploratory rather than causal and definitive, but provide rich insight into how emotional intelligence training can support student development in authentic educational contexts. Despite significant limitations, particularly the low survey response rate, the multiple data sources and mixed-methods approach strengthened confidence in the study's findings and their relevance to similar educational contexts.

Part 4: Findings

Section 1- Survey Data

This section presents the findings from the integrated quantitative and qualitative analyses of post-intervention survey data collected from participants in the emotional intelligence intervention study conducted at a private school during the 2025-2026 academic year. The survey instrument, administered via Qualtrics at the conclusion of the semester, captured self-reported measures of emotional regulation, confidence, technique usage, and perceived effectiveness of the polyvagal-informed neuroscience-informed emotional intelligence interventions. Thematic analysis of open-ended responses revealed nuanced patterns and mechanisms of change that triangulated and extended the quantitative findings. This section focuses exclusively on survey data; practice journals and video reflections are analyzed separately and presented in Sections 2 and 3, respectively.

The study was designed with 102 enrolled participants distributed across three groups: Group 1 (Honors orchestra auditioners, n=25), Group 2 (Mock audition participants, n=14), and Group 3 (Regular orchestra students, n=63). Of the 102 enrolled participants, 24 individuals

accessed and engaged with the survey, yielding a 23.5% initial engagement rate. However, 12 of these respondents provided consent only and did not complete the instrument, leaving 12 participants with useable data. This represents an effective completion rate of 11.8% of the total enrolled sample. The small sample size reflects the challenges inherent in action research conducted within the natural constraints of a secondary school environment, where participation is voluntary and competing academic demands affect completion rates. Nevertheless, the respondent who completed the survey represents all three study groups, with meaningful variation in audition exposure and intervention dosage.

The 12 survey respondents comprise all three groups: (Honors auditioners, n = 10) contributed responses from students with direct audition experience; Group 2 (Mock audition participants, n = 7) provided data from students who participated in structured mock auditions designed to simulate the audition environment; and Group 3 (Regular orchestra students, n = 2) included students with limited or no formal audition experience. This heterogeneous sample allowed for comparative analysis between groups with different levels of audition exposure.

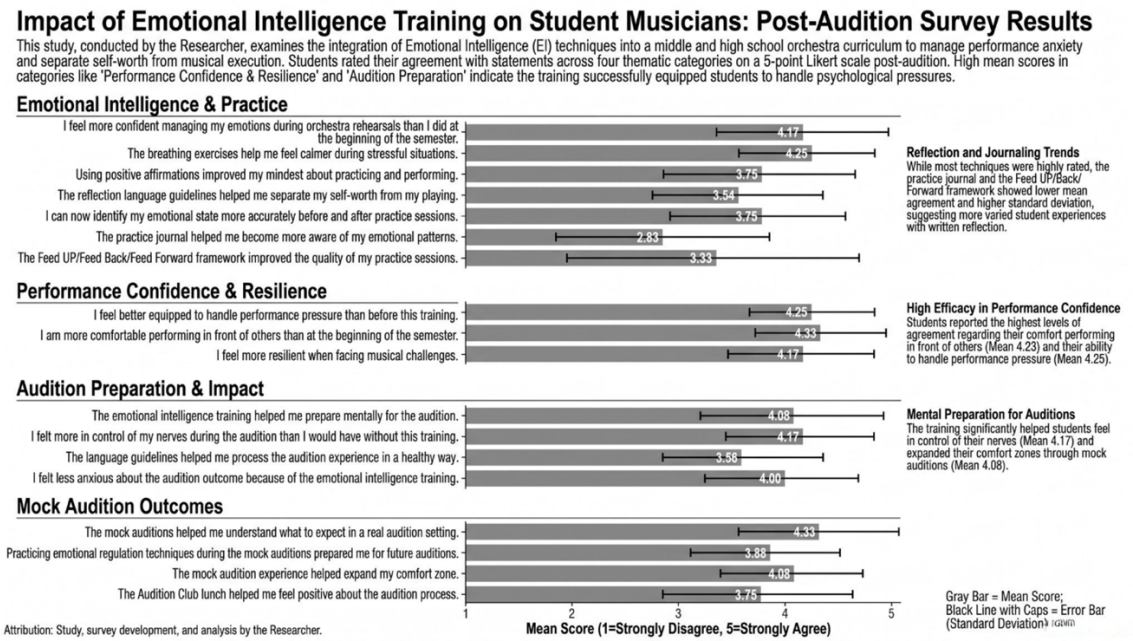


Figure 1. Post-Audition Survey Results Across Four Thematic Categories (N=12). Grey bars represent mean scores on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). Error bar represents the standard deviation. Items are grouped by thematic category.

Finding 1: Perceived Effectiveness for Performance Confidence

A primary finding from the survey data concerns the perceived effectiveness of the training on student confidence. Survey results demonstrate robust increases in emotional regulation and performance confidence across the full sample, with particularly strong endorsement of confidence in managing emotions and handling performance pressure. Participants reported strong agreement with the statement “I feel more confident managing my emotions during orchestra rehearsals than I did at the beginning of the semester” (M = 4.17, SD = .80), indicating that the majority of respondents experienced meaningful gains in their ability to recognize and regulate their emotional states during musical performance. This finding is further reinforced by responses to “I feel better equipped to handle performance pressure than before this training” (M = 4.25, SD = 0.60), which showed one of the highest mean scores and one of the lowest standard deviations, suggesting both high mean agreement and strong

consensus across respondents. When combined with the statement "I am more comfortable performing in front of others than at the beginning of the semester" (M = 4.33, SD = 0.62), which tied for the highest mean score in the survey. These items collectively indicate that students internalized a sense of agency over their emotional experience during performance

Additionally, participants endorsed the item "I feel more resilient facing musical challenges" (M=4.17, SD=0.72), suggesting that the interventions fostered not merely a temporary reduction in anxiety but a more enduring capacity to recover and persist through difficulty. Taken together, these four items (Q4, Q10, Q14, Q16) show mean scores ranging from 4.17 to 4.33 on a 5-point scale, with uniformly low standard deviations, indicating strong and consistent positive change in confidence in emotional regulation across the sample.

The finding is consistent with polyvagal theory (Porges, 2011), which identifies the ventral vagal system as the physiological basis for states of safety and social engagement, conditions that support confidence and openness. By teaching students to recognize and modulate their autonomic state through targeted interventions, the researcher created conditions for the vagal brake to remain engaged even in the evaluative context of performance, thereby supporting the conscious shift in emotional regulation that respondents reported.

Finding 2: Breathing Exercises as the Primary Intervention Mechanism

The second major finding concerns the primacy of breathing exercises as a tool for emotional regulation. Across the data, students consistently identified breathing exercises as the most transferable and impactful intervention, making them the central mechanism of change.

Quantitatively, participants strongly agreed that "breathing exercises help me feel calmer during musical performance" (M=4.25, SD=0.90). More strikingly, when asked to identify which

technique they found most helpful, 75% of respondents (9/12) selected breathing exercises as their primary tool. Among the 10 audition participants (Groups 1 and 2), 100% reported using breathing exercises before or during their audition (Q19), compared to 60% who used positive affirmations (Q20). The overwhelming consensus suggests that breathing exercises functioned as the most psychologically accessible and immediately effective intervention within the broader toolkit.

The qualitative data illuminate why breathing served as such a powerful regulatory mechanism. One student reported: *"I used the breathing techniques before our contest this year, and it really helped. The technique focused my mind on the contest."* Another shared: *"I used box breathing before my solo at the state competition, and it helped slow my heart rate and calm me down. I then had possibly my best and most confident performance ever."* A third described the phenomenological effect: *"Preparing for NCHO auditions and performances, and it really calmed me and helped me get into a mental flow state."*

These accounts suggest that breathing exercises operated on multiple levels. At the physiological level, they directly modulated the autonomic nervous system, slowing heart rate and activating parasympathetic tone, consistent with polyvagal theory. At the cognitive level, they provided a focal point for attention, interrupting the rumination loop that typically precedes performance anxiety. One student attributed success in a non-musical domain to this mechanism: *"Before a swim competition, I felt a lot of nerves, but I used box breathing, which helped me calm down and swim a 7-second PR."* This transfer to extracurricular athletics demonstrates that the breathing exercises functioned as portable, context-independent tools rather than domain-specific musical techniques.

The universal uptake of breathing exercises among audition participants suggests that this intervention bypassed common barriers to engagement (complexity, time, or perceived relevance) and leveraged the body's innate capacity for self-regulation. As such, breathing emerges as the foundational intervention, with other techniques serving as complementary strategies.

Finding 3: Positive Affirmations and Cognitive Reframing or Performance Identity

Positive affirmations functioned as a secondary but significant intervention mechanism. Particularly in fostering a shift from performance outcome-focused anxiety to process-oriented confidence and self-worth separation. While 60% of audition participants used affirmations before or during their audition, the qualitative data reveal a deeper cognitive and emotional shift associated with deliberate affirmation practice.

Quantitative responses to "Positive affirmations have improved my mindset" showed moderate to strong agreement (M=3.75, SD=0.97). More meaningfully, qualitative responses indicate that affirmations facilitated a conceptual shift in how students approached performance: away from concern about external evaluation and toward internalized confidence in effort and ability. One student reflected: *"The emotional intelligence training definitely helped separate me from the results at the contest. I believed I did my best and that was good enough."* Another elaborated: *"I knew that I put my best foot forward, the best that I could give them, and that was enough for me, whether I made it or not; I believed in myself and my abilities."*

These quotes reveal the operation of what the theoretical framework identified as linguistic reframing and the separation of skill from self (Assagioli, 1973). Through repeated affirmation of effort, preparation, and intrinsic capability, students internalized an identity as

capable musicians whose sense of self was not contingent on audition outcomes. A third student made explicit this transformation: *"My self confidence around performing has greatly improved. At the beginning of the semester, I got extremely anxious even just playing in class. By implementing techniques to reduce my nerves and anxiety, I look forward to every performance and class."* This progression from anxiety in low-stakes rehearsal to anticipation of performance opportunities suggests a fundamental reframing of the performance context itself.

Perhaps most notably, one student reported the spontaneous generalization of affirmation practice: *"When I realized how much saying positive affirmations during my practice improved my mood and mental health, I started saying them to myself throughout the day, not just when I was practicing with my instrument. It has really helped me improve my mental health and learn how to change my mood when I'm feeling upset or bad about myself."* This unsolicited extension of the technique beyond the musical domain speaks to the motivational and emotional power of affirmations when they resonate authentically with a student's lived experience.

Finding 4: Reflective Practice and Linguistic Reframing – Mixed Results and Implementation Challenges

The intervention component centered on reflective practice and structured self-assessment using the Feed Up/Feed Back/Feed Forward framework and pronoun-free, qualifier-free language guidelines produces mixed results. While some respondents found reflective protocols valuable, others experienced friction with the method, raising important considerations about implementation fidelity and individual variation in learning preferences.

Survey results show moderate endorsement of reflective strategies. Participants agreed that "reflection language helped me separate my self-worth from my musical performance" (M=3.54, SD=0.84) and that "I can identify my emotional state more accurately" (M=3.75,

SD0.87). When asked whether "the practice journal helped me develop greater awareness of emotional patterns," responses dropped to M=2.83, SD=1.03, the lowest score in the full survey, suggesting that the practice journal component was the least effective or popular intervention element.

The discrepancy between reflective language and journaling suggests that brief, structured reflection may have been more palatable than sustained journaling. This interpretation is supported by stronger agreement with "recording and reflecting helped me identify specific improvements in my playing" (M=4.17, SD=0.58), which directed reflection toward a concrete musical outcome rather than abstract emotional awareness.

The qualitative data reveal substantial resistance to the journaling protocol. Multiple students offered direct criticism: *"I don't like doing practice journals," "The practice journals are really annoying to fill out," and "No more practice journals. Get rid of the practice journals."* One student identified a structural issue: *"The practice journal feed-up part can sometimes feel too similar to the reflection at the end. There should probably be more of a distinction between the two."*

Two qualitative responses suggest that for some students, the discipline of reflection and linguistic reframing did take hold. One student noted: "Moving away from pronouns and qualifiers in my reflections was hardest for me. It was hard for me to break the habit of thinking of myself; however, the practice went." This comment acknowledges the difficulty while suggesting a gradual acceptance; the student struggled but continued. This finding points to a broader challenge: implementing a novel metacognitive protocol with adolescents required sustained effort. While the theory behind pronoun-free, qualifier-free reflection is sound (separating identity from performance outcomes), the practice does not come naturally to all

learners and may conflict with the language patterns and reflective habits adolescents already have.

The moderate-to-mixed results for reflective practice align with action research principles, which acknowledge that not all evidence-based interventions will manifest uniformly across heterogeneous populations. The journaling data suggests that future iterations should either streamline the protocol, increase teacher scaffolding and modeling, or offer alternative reflective pathways for students whose cognitive and emotional preferences differ.

Finding 5: Audition-Specific Outcomes and Performance Under High Stakes

For the 10 participants who completed auditions during the semester (Groups 1 and 2), the emotional intelligence training demonstrably supported audition preparation and performance confidence. Findings indicate that these students not only reported higher confidence in regulating their emotions during performance but also perceived the training as more effective for their overall practice quality than students in the regular orchestra setting (Group 3) did. This suggests that the practical application provided by the audition process served as a vital catalyst for the training's effectiveness.

When asked whether "the emotional intelligence training helped me mentally prepare for my audition," audition participants reported strong agreement ($M=4.08$, $SD=0.90$). Similarly, "I felt more in control of my nerves during my audition" yielded $M=3.92$, $SD=0.79$, again demonstrating consensus around improved emotional management in the high-stakes audition contest. Participants also agreed that "language guidelines helped me process the audition

experience afterward" (M=3.75, SD=0.75), suggesting that structured reflection supported meaning-making after the audition.

Most tellingly, when asked, "Regardless of the audition outcome, do you feel you performed to the best of your ability?" 8 of 10 (80%) verified audition participants answered affirmatively; 2 responded "somewhat." This indicates a powerful alignment between student preparation and perceived execution under pressure. That is a powerful finding: students reported not only students reported perceived reductions in anxiety and greater emotional control but also a felt sense of alignment among how they prepared, how they felt, and how they performed. One student reflected this sentiment: *"It made me feel confident even though a chair was not awarded."* This quote is particularly meaningful because it demonstrates that the intervention succeeded in decoupling confidence and emotional resilience from audition outcomes, precisely the goal articulated in the theoretical framework.

When asked about a reflective reframing of the audition as a learning process, "The reflection practices helped me view the audition as a learning process rather than just a result", responses were more moderate (M = 3.58, SD = 0.64). This finding, while remaining above the midpoint, indicates that shifting students' perception of auditions from evaluative to developmental proved more challenging than anxiety reduction, where means ranged from 4.17 to 4.33, and may require more deliberate and sustained reframing across the full academic year.

Finding 6: Mock Auditions and the Progressive Exposure Effect

Group 2 participants (n=7), who engaged in structured mock auditions designed to simulate the audition environment, showed robust confidence gains and consistent comfort zone expansion (M = 4.12, SD = 0.35). This finding supports the theoretical principle of progressive

exposure and neuroception, the unconscious detection of threat or safety, by demonstrating how repeated safe exposure recalibrates the autonomic threat response.

When asked whether "I felt less anxious about the audition outcome after participating in mock auditions," Group 2 respondents agreed strongly (M=4.00, SD=0.85). More robustly, 78.6% (4.29 on a 5-point scale) agreed that "mock auditions helped me understand what to expect during a real audition" (M=4.33, SD=0.76). Similarly, "mock audition practice prepared me for further auditions" yielded M=4.00, SD=5.8. Most strikingly, when asked whether "the mock audition helped me expand my comfort zone," respondents agreed at M=4.12, SD=0.35 – the highest endorsement and lowest variability among Group 2 items, suggesting virtually universal perception of comfort zone expansion.

These findings illustrate a principle drawn from threat detection and neuroception: by encountering the audition context repeatedly in a lower-stakes simulation ,students' nervous systems learned that audition environments could be navigated safely. The anterior insula and amygdala, regions implicated in threat detection (Sapolsky, 2017), received repeated, successful presentations of the "audition" stimulus without adverse outcomes, thereby gradually recalibrating the threat threshold. As one student noted in the qualitative synthesis: *"I would approach future auditions with my simple and effective routine, along with my determination and confidence."* The explicit linking of "routine" (The breathing and affirmation practices) to confidence and determination suggests that the mock auditions had internalized a sense of preparedness and agency.

The mock audition component appears to have been especially effective, operating at the intersection of exposure, automatic regulation, and cognitive confidence. This convergence of

mechanisms may account for the strong quantitative and qualitative responses observed in Group 2.

Finding 7: Transfer and Generalization Beyond the Orchestra Domain

A remarkable finding emerged in the qualitative data: several students spontaneously applied the emotional regulation techniques to non-musical performance contexts, demonstrating that the interventions fostered generalizable self-regulation skills rather than domain-specific musical strategies.

As mentioned in Finding 2, one student explicitly described transfer to athletic performance: *"Before a swim competition, I felt a lot of nerves, but I used box breathing, which helped me calm down and swim a 7-second PR."* As mentioned in Finding 3, another extended positive affirmation for daily emotional regulation: *"When I realized how much saying positive during my practice session improved my mood and mental health, I started saying them to myself throughout the day, not just during my practice session, practicing my instrument. It has really helped my mental health and learn how to change my mood when I'm feeling upset or bad about myself."* These examples indicate that the techniques transcended their original pedagogical context and became part of students' broader emotional toolkit, a finding that speaks to the robustness and psychological authenticity of the interventions.

The transfer finding is theoretically impactful because it suggests that the underlying mechanisms are neuroscience-based autonomic regulation and cognitive reframing, rather than music-specific performance strategies. A student who applies box breathing to swimming is leveraging the same vagal brake mechanism that Porges (2011) described; a student who

generalizes affirmations to daily emotional regulation has internalized a cognitive reframing skill that transcends domains.

Finding 8: Overall Music Enjoyment, Resilience, and Convergent Outcomes

Across the full sample, participants reported sustained or increased enjoyment of music and high resilience in the face of musical challenges. When asked whether "the emotional intelligence techniques improved my enjoyment of music," respondents agreed at M=3.88, SD=1.19. While this moderate-to-high endorsement included more variability than some other items, it suggests that emotional regulation did not come at the cost of spontaneity or joy, a concern sometimes raised about deliberate practice interventions. Additionally, "I feel more resilient facing musical challenges" yielded M=4.17, SD=0.72, with a strong consensus that the interventions fostered persistence and recovery.

These results converge with the quantitative performance data: students felt more confident, more in control, more equipped to handle pressure, and more resilient, and they maintained or increased their enjoyment of the musical activity itself. This convergence suggests that the interventions addressed anxiety without dampening motivation or intrinsic engagement.

The Audition Club Lunch (Q35), a brief social intervention designed to reframe auditions as collective learning experiences rather than individual, competitive events, received a moderate endorsement (M = 3.80). While not as universally praised as breathing exercises or mock auditions, this finding suggests that the social-emotional reframing, though valued, may have required a more explicit connection to the emotional regulation techniques or more frequent implementation to achieve a deeper impact.

Integration of the Quantitative and Qualitative Findings

The mixed-methods convergent design of this study called for an integrated interpretation of quantitative and qualitative data. Across all eight major findings, the survey data and qualitative responses align on core conclusions: breathing exercises emerged as the most effective and accessible interventions; positive affirmations catalyzed meaningful cognitive reframing around performance identity; reflective practice facilitated mixed results, with journaling resistance indicating a need for redesign; audition-specific confidence was robust; and progress through mock audits expanded comfort zones. The qualitative data deepened these quantitative findings by revealing mechanisms (how breathing calms the mind, how affirmations separate self-worth from outcomes, how mock auditions recalibrate threat detection) and by illustrating transfer and generalization beyond the orchestra domain.

Summary and implications

This chapter has presented eight major findings from the analysis of 12 completed surveys in a mixed-methods action research study of emotional intelligence interventions for adolescent orchestra students. The findings demonstrate that neuroscience-informed emotional intelligence training, centered on breathing exercises, positive affirmations, reflective practice, and progressive exposure through mock auditions, facilitated robust gains in emotional regulation, confidence, performance, resilience, and comfort with high-stakes audition contexts. Breathing exercises emerged as the primary intervention mechanism, with near-universal adoption and perceived effectiveness. Positive affirmations catalyzed cognitive reframing and identity shifts that decoupled self-worth from performance outcomes. Reflective practice

facilitated mixed results, suggesting opportunities for methodological refinement. Mock auditions yielded particularly strong gains in confidence and comfort zone expansion. Notably, several students spontaneously generalized the techniques beyond the orchestra domain, suggesting that the underlying mechanisms operate at the level of neuroscience-based autonomic regulation and cognitive reframing rather than as music-specific strategies.

These findings will set the stage for the Discussion chapter, which will situate these results within the broader literature on performance anxiety, emotional intelligence, and neuroscience-informed pedagogy; examine mechanisms of change through the lens of polyvagal theory, neuroception, and co-regulation; and consider the implications for scaling and refining these interventions in future implementations.

Section 2 - Overview of Practice Journal Data Collection

Within the mixed-methods action research framework, practice journals served as the primary qualitative data source, providing sustained, longitudinal documentation of students' emotional and musical development across the six-month study period. As a participant-observer and the students' orchestra teacher, the researcher collected and analyzed these journals to complement quantitative measures of audition performance and technical achievement. This dual role shaped the interpretive lens applied to the data: the researcher possessed intimate familiarity with each student's baseline musical capabilities, personal context, and responses to instruction feedback, yet maintained sufficient analytic distance to identify emergent patterns across the eight-member purposive sample.

The practice journal framework integrated four primary components designed to support both emotional regulation and reflective metacognition. Students structured each entry around the Feed Up / Feed Back / Feed Forward / Reflect model, a framework that progressively deepened self-awareness: Feed Up prompted students to identify their technical starting point; Feed Back encouraged honest self-assessment of effort and outcomes during practice; Feed Forward asked students to project next steps; and Reflect invited broader emotional and musical learning. Complementing this narrative structure, students rated their emotional state on a 1-10 scale before practice sessions, creating quantifiable markers of emotional regulation that could be compared to their qualitative reflections. Four breathing techniques – the 4x4 technique (inhale for four counts, exhale for four counts), the 4-7-8 technique (inhale for four, hold for seven, exhale for eight), Box Breath (equal counts on all four phases), and the 7/11 technique (inhale for seven counts, exhale for eleven) – were introduced as portable, evidence-based tools for autonomic nervous system regulation. Students selected personal affirmations aligned to their growth mindset and musical goals, which they recorded and revisited throughout the month. Finally, each month concluded with a comprehensive overall reflection that synthesized the previous month's entries, emotional trends, and precise musical growth.

The practice journal rubric, scored out of 100 points, evaluated five distinct dimensions of student engagement and reflection.

- Completion and Consistency (30 Points) measured the frequency and thoroughness of entries.
- Quality of Reflection (25 points) assessed the depth and specificity of self-analysis.
- Emotional Awareness (20 points) evaluated students' capacity to identify and articulate emotional states and shifts.

- Musical Growth (15 points) examined technical progress and musical understanding.
- Overall Reflection (10 points) assessed the synthetic thinking evident in monthly summaries.

An additional 5-point bonus was awarded for exceptional insight or for demonstrated transfer of practice journal tools to performance contexts.

The purposive sample of eight students represented deliberate diversity across grade level, instrument, and study group membership:

- Claire, a seventh-grade musician and Group 1 auditioner, exemplified the group's ambitious trajectory.
- Julie, also in seventh grade but assigned to Group 3 (non-auditioners), provided contrast as a student outside the audition pathway.
- Reese, an eighth-grade musician in Group 1 with high placement in the North Central Honor Orchestra, represented the technically advanced author profile.
- Mara, an eighth-grade musician in Group 1, demonstrated sustained excellence across the study period.
- Nadia, a ninth-grade musician in Group 3, brought a distinct insight into the intersection of perfectionism and emotional regulation.
- Brooke, a tenth-grade musician in Group 1 who did not participate in the mock auditions, rounded out the upper-secondary experience.
- Eli, also in tenth grade, a musician in group 3, contributed a critical counterexample: a student whose emotional regulation tools advanced ahead of his technical proficiency.
- Marcus, a ninth-grade musician in Group 3, represented skilled musicians outside the audition-focused pathway.

Collectively, these eight students spanned grades seven through ten, played four different instruments (violin, viola, cello, and double bass), and reflected the study's intentional inclusion of both audition-track and non-audition-track participants.

Journals were collected and reviewed by the researcher monthly from September 2025 through March 2026, maintaining the dual role of teacher and analyst throughout. This participant-observer positioning afforded access to spontaneous student feedback and contextual knowledge, such as Nadia's documented spiral of perfectionism and Eli's mid-October technical struggles, which enriched the interpretation of the written journal entries. The six-month window captured students across the full audition cycle, allowing the researcher to trace development longitudinally and to examine how emotional and regulatory growth intersected with the high-stakes performance demands of the winter audition season.

Breathing as a Regulatory Anchor

Among all the tools integrated into the practice journal framework, breathing exercises emerged as the most universally adopted and consistently practiced across the eight-student cohort. Unlike affirmations, which students personalized and sometimes rotated, or the Feed Forward component, which required creative projection, breathing techniques proved immediately accessible, somatically grounded, and demonstrably regulating. The near-universal adoption of breathing as a self-regulation tool underscored its utility across diverse baseline emotional and technical profiles.

Differences in how students engaged with the interventions, however, revealed important patterns of development. Julie presented a compelling case of skill acquisition across the study

period. In September 2025, her initial journal submissions showed incomplete or inconsistent execution of breathing techniques; Mr. Moore's feedback on her first entries explicitly noted the gaps. Yet by November, Julie had fully integrated breathing into her practice routine, and her consistency remained unbroken through March. This trajectory illustrated that some students required time and explicit reinforcement to internalize the somatic practice, but once established, the behavior proved durable. Her affirmations evolved in parallel, from "I got this" in early entries to "I will practice with purpose" by mid-study

Claire's progression demonstrated a qualitatively different sophistication: rather than simply practicing breathing techniques consistently, she developed the metacognitive capacity to select specific techniques based on her presenting emotional need in the moment. By February and March 2026, Claire's journal entries revealed deliberate technique selection, for instance, choosing the calming extended exhalation of the 4-7-8 method when she felt anxious, or the grounding symmetry of Box Breathing when she needed centered focus before a difficult passage. This evolution from rote application to adaptive selection suggested that Claire had internalized breathing not as an obligatory ritual but as a responsive tool, accessible to her voluntary control and aligned to her emotional state.

Eli's pattern presented perhaps the most striking evidence of breathing's accessibility regardless of technical proficiency. Beginning in September 2025, despite musical challenges that would eventually prompt Mr. Moore's formal intervention letter in October, Eli consistently employed all four breathing techniques in his practice sessions. His early technical baseline, a Declaration video scored at 27/100 in October, stood in stark contrast to his sophisticated

emotional regulation. By January, Mr. Moore's feedback noted improvement, and by February, Eli had attained a score of 96. His final entry from September onward documented the strategic use of breathing, including a September 17th reflection: *"I was a little annoyed today, but I changed my attitude so I could practice."* This early metacognitive shift, supported by somatic regulation tools, appeared to have fortified his resilience during the period of technical catch-up and suggested that emotional stability could scaffold technical growth.

Marcus approached breathing with characteristic methodical deliberation, integrating it as a consistent session-opening ritual that anchored his practice structure. His journal entries, the most systematically organized across the cohort, consistently documented breathing as a threshold practice: he entered focused practice through controlled respiration, establishing physiological and psychological readiness before engaging with musical material. A notable February entry reflected, *"I felt relaxed in today's practice as I played right after I woke up so I could start the day on a good note,"* suggesting that Marcus understood breathing not in isolation but as part of a broader ecosystem of conditions, timing, freshness, and physiological state that supported optimal practice performance.

Among all transfer evidence in the journals, Nadia's documented application of breathing to contest performance stood as the most explicit. In a contest reflection, Nadia wrote, *"Using breathing exercises at State right before playing in between songs really did help ground myself and calm me down."* This statement represented direct evidence that a tool practiced in the controlled environment of home practice had transferred to real-world performance under pressure. Nadia's journey, marked by documented perfectionism spirals in her earlier entries,

illustrates how somatic regulation could interrupt maladaptive emotional patterns and enable a genuine musical presence during high-stakes performance.

These diverse trajectories – Julie's delayed-then-constant adoption, Claire's evolution to adaptive selection, Eli's emotionally sophisticated entry despite technical struggle, Marcus's ritualized integration, and Nadia's explicit performance transfer – converge on a single insight: breathing exercises functioned as a regulatory anchor accessible across developmental and skill profiles. Van der Kolk's theoretical framework illuminated this accessibility: breathing, as a somatic and body-based intervention, bypassed cognitive resistance and directly engaged the nervous system, requiring no prior musical achievement or high verbal-reflective capacity. The technique operated at the level of the body itself.

Porges' polyvagal theory provided the theoretical underpinning for the study's focus on intentional breathing. Controlled, intentional breathing activated the central vagal pathway, the evolutionary system associated with safety, social engagement, and parasympathetic tone. By deliberately extending exhalations or maintaining steady rhythmic patterns, students shifted their autonomic states away from sympathetic activation – the fight-or -flight arousal that could manifest as performance anxiety, perfectionism, or frustration – toward ventral vagal engagement characterized by calm focus, openness to feedback, and optimal consequence for adolescent musicians navigating the high-demand context of audition preparation: breathing tools offered a direct, voluntary pathway to the nervous system regulation required for productive, emotionally sustainable engagement with musical learning.

Affirmation Evolution as a Window into Emotional Development

The practice journals revealed a consistent developmental pattern in the way students deployed affirmations over the eight-month study period. In early sessions, affirmations tended to be generic, externally sourced, or compliance-driven, but they featured motivational language that students seemed to adopt because they understood affirmations as part of the journaling protocol. Over time, these external scripts transformed into deeply personalized statements that tracked students' psychological needs with remarkable precision, evolved from performance-oriented language into identity-based claims, and in several cases demonstrated explicit engagement with the theoretical framework embedded in the study itself. This evolution suggested that affirmations function not merely as motivational tools but as instruments for emotional self-regulation and identity development.

Mara's affirmation arc was the most precisely documented journey toward disidentification in the cohort. On September 8th, she wrote, *"Mistakes are a part of the learning",* a statement that, while psychologically sound, was presented as an external rule or principle to be remembered rather than owned. Two days later, on September 10th, the affirmation shifted to *"I give myself permission to make mistakes,"* a formulation that persisted through November. This revised statement positioned Mara as the subject who grants permission to herself, and an internalized authority figure replaces the external rule. But by January 16th, the affirmation had condensed further: *"I give myself permission,"* the object of permission dropped entirely. The focus had shifted from the specific act of making mistakes to the meta-act of granting permission itself. Finally, between January 19th and 21st, Mara arrived at the starkest formulation: *"I can make mistakes"* and *"I make mistakes,"* plain declarative statements that presented mistake-making as a simple fact rather than a negotiated permission. This three-stage

arc mapped precisely onto Assagioli's concept of self-disidentification. Mara had progressively separated her identity from the fear of making mistakes until the fear itself dissolved into a neutral statement of fact. She no longer needed to grant her full permission; the fear had lost its grip.

Brooke's affirmations functioned as a longitudinal emotional autobiography, each month's statements tracking her psychological needs with striking precision across the arc of audition setback and recovery. In September and October, as she prepared for the audition that would ultimately not result in a chair assignment, her affirmation centered on anxiety management: *"I am confident"* and *"I give myself permission to make mistakes"* addressed the emotional challenges of the high-stakes audition environment. By November, following the audition's disappointing outcome, her affirmations shifted decisively toward self-compassion and acceptance: *"I am enough just as I am"* and *"I am proud of my progress"* reframed her worth outside the competitive audition framework. In January, as she moved into a leadership role in her section, her affirmations tracked this shift in identity: *"I can do hard things"* and *"I deserve to take up space"* signaled a reclamation of personal agency and visibility. By February, the affirmations had matured into statements integrating achievement and gratitude: *"I am becoming the best version of myself"* and *"I am grateful for all I have."* Brooke's affirmations revealed that she was not deploying motivational slogans but rather using this framework as a responsive emotional instrument, adjusting her self-talk to match her evolving psychological needs.

Marcus's affirmation journey traced a movement from obligation reframed as gift, through explicit engagement with growth mindset theory, creative ownership, and identity claims. His October affirmation, *"It's a privilege to practice,"* reframed obligation as gratitude, a shift that Sapolsky's work on stress and burnout recognizes as a powerful emotional regulator. By November, this gratitude frame evolved into *"I will not have a fixed mindset,"* language that directly invoked Dweck's growth mindset theory and suggested that Marcus had absorbed this theoretical language from class discussions and integrated it into his own self-talk. By February, he had arrived at *"I am positive like a proton,"* the most inventively original affirmation in the entire cohort: a statement that blended scientific language with emotional claim-making and revealed a student fully inhabiting his own metaphorical language. His affirmations concluded with *"I am a leader," "I can adapt,"* and *"I am resilient,"* identity claims that reflected the sophisticated emotional and metacognitive development the study was designed to foster.

Eli's affirmation: *"This session doesn't have any effect on my mood"* operated in a distinctly different register, not as a statement of fact, but as an intentional act of disidentification performed before practice began. Rather than affirming a desired state, Eli was using the affirmation to create psychological distance from his emotional reactivity before engaging with his instrument. This represented a pre-regulatory strategy, an attempt to position himself as separate from his emotional state before the practice session commenced. Nadia's affirmation evolution moved in a parallel direction: *"I am enough," "My best is enough," and "I accept and love myself"* gave way to *"Progress not perfection,"* a reframe that functioned as a direct counter-narrative to her documented perfectionism spiral, a self-prescribed cognitive reframing designed to interrupt her characteristic pattern of self-criticism. Julie's transformation from the

self-assurance phrase “I got this,” prevalent in youth athletics and achievement culture, shifted to “I will practice with purpose” and “I am cultivating robust habits.” This transformation marked a shift from a performance-oriented mindset to an identity-oriented approach, evolving from a fleeting assertion of performance to a process-driven affirmation of identity rooted in the consistent effort invested in practice itself.

These affirmation evolutions demonstrated Bandura’s concept of verbal self-persuasion as one of four sources of self-efficacy, but they also revealed something more specific: students were not simply persuading themselves toward confidence but rather using affirmations as tools for emotional self-direction (Bandura, 1997, pp. 79-80). By mid-year, explicit growth-mindset language began to appear organically in student affirmations without prompting from the researcher, suggesting that Dweck’s theoretical framework had been internalized and repurposed. Most profoundly, the affirmation provided empirical evidence of Assagioli’s disidentification process in action: students progressively separating their core identities from limiting emotional states, learning to observe fear of perfectionism or emotional reactivity from a position of psychological distance, and eventually acting from a chosen identity rather than a reactive emotional state.

Metacognitive Growth Across the Cohort Metacognition (The capacity to observe, analyze, and direct one’s own learning processes) emerged as a central developmental outcome of the practice journal interventions, and this outcome was by design rather than by accident. The Feed UP / Feed Back / Feed Forward framework that structured the journals was explicitly created to scaffold metacognitive habits, building students’ capacity to plan (Feed Up), monitor progress

(Feed Back), adjust strategy (Feed Forward), and consolidate learning through reflection (Reflect). This framework aligned precisely with Zimmerman's three phases of self-regulated learning: the forethought phase (Feed Up), the performance monitoring phase (Feed Back and Feed Forward), and the self-reflection phase (Reflect), (Zimmerman and Schunk, 2008, pp. 279-280). Over the eight months of the study, students demonstrated measurable growth in the sophistication of their metacognitive monitoring and control, and in several cases, this growth was striking enough to constitute a primary finding in itself.

Marcus emerged as the most methodical metacognitive practitioner from the study's opening weeks. Where other students described their practice in general terms, Marcus consistently isolated specific measures, recorded target metronome tempos, and planned session-to-session progressions with professional precision. His muscle memory arc was the most compelling metacognitive narrative in the cohort. In November, Marcus reflected, "*My intonation has really improved over time, and it's starting to become muscle memory."* This statement demonstrated both metacognitive monitoring (his awareness of his own intonation development and the motor learning process underlying it), and metacognitive prediction. By February, he confirmed this prediction: *"The scale was surprisingly easy to me. It must be due to muscle memory."* The surprise itself was the metacognitive signal; Marcus had noticed his own learning process and recognized when it had crossed a threshold from conscious effort to automaticity. Beyond technical metacognition, Marcus also demonstrated metacognitive control over environmental and temporal conditions. He wrote, *"I felt relaxed in today's practice as I played right after I woke up so I could start the day on a good note."* This statement revealed awareness not only of this technical work but also of how circadian rhythms and emotional states

shaped his capacity for learning, a sophisticated integration of self-knowledge into the design of practice.

Mara's metacognitive development traced a clear arc from general awareness to technical precision. In September, her practice goals were characteristically vague: intentions to work on difficult passages or to prepare for upcoming performances. By November, her goal-setting had become highly specific, organized around precise tempos and measurable targets. In one entry, she specified Ukrainian Bell Carol at ♩=100 transitioning to ♩=118. This marked a shift from general goal awareness (knowing improvement was needed) to goal precision: identifying exactly which tempos and measures defined success. By January, she had advanced further, incorporating complex drill notation and integrating dynamics into her technical planning. She had moved beyond identifying what to practice to deliberately structuring how to practice; evidence of metacognitive control at the level of practice itself.

Claire's reflective growth demonstrated the development of narrative metacognition: the ability to construct a coherent story connecting inner experience to outer performance. In early sessions, her entries in the Reflect section consisted of only one or two works, brief emotional reactions devoid of analysis. By March, she was writing multi-sentence reflections that explicitly traced connections between her emotional state and technical outcomes. Where she had once written almost nothing in the reflection space, she had developed the metacognitive language and narrative capacity to explain how her emotions shaped her playing. Julie's temporal comparison offered a different form of metacognitive growth. In February, she wrote, *"I remember how hard this was at the beginning of the year,"* a statement that demonstrated longitudinal self-monitoring: the capacity to compare her present self to her past self and recognize growth across

time. This comparison required not only memory, but the metacognitive ability to hold two versions of herself in awareness simultaneously and measure the distance between them.

The most sophisticated metacognitive diagnosis in the cohort was made by Nadia during Session 5 in January. She reflected, *"I think I figured out why I've been so burnt out/unmotivated to practice. It's because I've only been playing these two pieces, over and over."* This statement demonstrated metacognitive awareness at the causal level; she had not merely recognized her burnout but had traced it to a specific structural cause in her practice routine. More impressively, she did not stop at diagnosis; she proposed a concrete solution, identifying the Rabbath book, a progressive collection of melodic etudes developed by bassist Francios Rabbath to teach extended playing technique, which would broaden her repertoire and reengage her musically. This represents metacognitive awareness paired with self-directed problem-solving, the ability to identify a barrier to her own learning and generate an evidence-based intervention.

Eli's January rubric scores presented a developmental finding in themselves. He earned a perfect 20/20 for Emotional Awareness, the highest score in the cohort for that category, while scoring substantially lower in Quality of Reflection. This gap suggested that Eli's capacity to feel and recognize his emotional states had outpaced his ability to articulate them in writing. He was experiencing deep emotional awareness and regulation but still developing the metacognitive language to translate that inner experience into coherent reflection. The gap itself was a meaningful developmental observation: Eli was learning to feel before learning to speak about feeling, a sequence that suggests emotion precedes the capacity to narrate emotion, and that the journaling practice was gradually scaffolding the language structure necessary to move from emotional experience to metacognitive articulation.

The practice journal framework functioned as intended: it fostered metacognitive self-monitoring, a mechanism through which self-efficacy beliefs were formed and revised. As students monitored their own progress through the Feedback and Feed Forward sections, they accumulated evidence of their own improvement, which shaped their beliefs about what they were capable of learning. The data suggested that metacognitive development was not uniform across the cohort. Marcus's precision contrasted with Eli's emotional depth; Mara's technical specificity diverged from Claire's narrative growth, but all students demonstrated measurable development in their capacity to observe and direct their own learning processes. Metacognition, understood as the capacity to know oneself as a learner, emerged as a direct outcome of the structured journaling intervention and as a necessary foundation for the emotional intelligence the study was designed to cultivate.

Resilience, Adversity, and the Emotion-Practice Relationship

A central finding emerged across the practice cohort: students did not wait for favorable emotional conditions before practicing. Rather, they practiced through unfavorable conditions. Through frustration, exhaustion, disappointment, and external stressors. In doing so, they developed the very emotional regulation skills the program aimed to cultivate. The journal documented this process in real time, capturing moments when students encountered emotional obstacles and chose to proceed with purposeful musical action. This pattern revealed that emotional resilience was not a prerequisite for practice but an outcome of it, built through repeated cycles of adversity recognition, volitional response, and reflective integration.

The Paradigmatic Case: Eli's September Entry

Eli's September 17th entry, written in the third week of the program, offered the most compelling illustration of volitional emotional regulation: *"I was a little annoyed today, but I changed my attitude so I could practice."* This three-part structure- recognition of emotional state, acknowledgment of agency, and purposeful redirection toward practice, encapsulated the central mechanism of the intervention. Critically, this entry preceded any meaningful improvement. Eli's declarations video, recorded the following month, would score 27 out of 100, placing him among the lowest technical performers in the cohort. The emotional regulation capacity he demonstrated- the ability to recognize his annoyance, actively shift his autonomic state, and redirect himself toward purposeful action – was developing independently of, and perhaps prior to, technical mastery.

Through the lens of Polyvagal theory, Eli was actively accessing ventral states, shifting out of sympathetic arousal (annoyance) by purposefully engaging in a structured, goal-directed activity. Assagiolo's concept of disidentification appeared grammatically encoded in his entry: *"I was annoyed"* rather than *I am annoyed."* The past tense, combined with the narrative of shift, signaled an emerging capacity to observe his emotional state as a temporary phenomenon rather than a fixed identity. Finally, from Bandura's framework, the belief that one can change one's emotional state through volitional actions is itself a self-efficacy belief – a conviction that one's actions matter and can produce desired psychological outcomes. In Eli's September entry, we witnessed the earliest formation of this belief.

Marcus: Integration Through Adversity

Marcus embodied the most sustained and emotionally complex narrative of adversity in the cohort. A skilled musician and competitive athlete. Marcus's February practice journal became a running record of the emotional range of athletic competition, fully integrated into his musical development. In Session 2, he wrote "*I felt really annoyed in today's practice as we lost to our rivals, and we were so close to beating them"* – yet he completed the session with accurate intonation on F Major scales. In Session 11, following a playoff victory, he recorded: *"I felt amazing in today's practice because we beat the opposing team in the 1st round of the playoffs,"* with an emotional state rating of 10/10. In Session 16, after a playoff elimination, he wrote: *I felt sad in today's practice as we lost in the playoffs"* – and yet he continued to practice and reflect on his growth. All 16 sessions were completed.

Marcus did not compartmentalize his athletic and musical lives; he integrated them. His practice journal became a space in which competitive disappointment, physical pain, joy, and sadness could be named and then metabolized through purposeful action. This integration aligns with Sapolsky's framework: stress is not eliminated but processed through agency. In Mr. Moore's February feedback, he wrote: *"Your practice journal is one of the strongest in the class. You've set a standard for what intentional, reflective practice looks like."* Marcus's standard was not technical virtuosity but resilience; the repeated choice to show up after loss, pain, and disappointment.

Brooke: High-Stakes Resilience and Affirmation Evolution

Brooke's post-audition resilience represented the most high-stakes adversity moment in the cohort. On October 23rd, immediately following her audition with the North Central Honor

Orchestra, in which she did not receive a chair, she wrote: *"I was struggling when I was warming up, which put my mindset in a bad place, but I stood it through, even though it didn't go as I'd hoped, and I am proud of myself for that."* The entry was remarkable for what it did not contain: self-blame, catastrophizing, or collapse into shame. Instead, Brooke named her struggle, acknowledged the disappointment of the outcome, and anchored herself in acknowledgment of her effort and integrity.

What followed was an affirmation evolution that traced a recovery arc across the subsequent months. In November, her affirmations shifted from anxiety management, *"I am strong",* to self-compassion language: *"I am enough just as I am," "I can do hard things,"* and *"I deserve to take up space."* This progression - from post-audition resilience through self-compassion to active reclamation of her right to take up space – culminated in concrete musical achievement: superior ratings at district contest and qualifying for State. Her resilience was not merely emotional: it was transformational, altering her trajectory and her internal standards.

Julie: Practice as Mood Regulation

Julie's January entry marked a conceptual inversion in the emotion-practice relationship. She wrote: *"Today was one of those days I really didn't feel like practicing, but I'm glad I did because it put me in a better mood."* Most students in the cohort, and most musicians in general, operate from an implicit assumption: one must achieve a favorable emotional state before practicing. Julie discovered the inverse: that practice itself could function as a mood-regulation tool, and that engaging in purposeful bodily action could generate positive emotion rather than waiting for it. This represents a fundamental shift in understanding the temporal relationship

between emotion and practice, moving from emotion as a precondition to practice as an emotional generator.

From Van der Kolk's perspective, Julie's discovery exemplified the body-based regulation of affective state: through the purposeful, structured engagement of her body in musical practice, she altered her emotional state. Her score trajectory – 59,59.69. and ultimately 98 – culminating in an A+ in February. Demonstrated that her conceptual breakthrough facilitated both sustained musical engagement and measurable academic achievement.

Nadia: Metacognition and the Growth Mindset

Among all students, Nadia demonstrated the most dramatic trajectory of resilience. In January, she completed only 7 of 16 practice sessions, her journal documenting a burnout spiral rooted in perfectionism and recording anxiety. As discussed in the earlier metacognitive analysis, her January reflections – despite the low session completion rate – revealed an exceptional capacity for self-diagnosis: she identified the structural cause of her burnout and proposed a concrete solution.

What the metacognitive analysis does not fully capture is what happened next. Nadia acted on her insight. In February, she completed all 16 sessions and earned a score of 98 out of 100. Her affirmations evolved from *"I am enough"* to *"progress, not perfection"* – a reframing that made space for the non-linear nature of growth. She also integrated breathing exercises into her performance practice, reflecting, *"Using breathing exercises on stage right before playing in between songs really did help ground myself and calm me down."*

Her recovery was not merely behavior – completing sessions and raising scores. It was relational: she fundamentally altered her relationship to perfectionism. The January burnout, viewed through Dweck's growth mindset framework, functioned not as a failure but as the turning point that made February possible. Nadia's case illustrates that resilience in this cohort was not the absence of struggle but the capacity to convert struggle into direction.

Mara and Claire: Different Registers of Resilience

Mara and Claire embodied resilience operating at different registers. Mara demonstrated the resilience of consistent showing up: despite fatigue from basketball games and disappointment when her concert was snowed out, she continued to practice. Mr. Moore identified this pattern as a defining leadership moment in his February feedback: *"Mara practiced after basketball games, after studying for tests, despite persistent physical and cognitive fatigue. Her resilience was not flashy but steady – the accumulation of small choices to honor her commitment."*

Claire's resilience manifested as a gradual softening of internal perfectionism. Even when she rated her emotional state highly, her journals revealed an undercurrent of frustration – the mark of a high-achieving student whose internal standard created persistent tension. Yet across the year, her affirmations evolved from *"You can do it"* to *"Each mistake is an opportunity to learn,"* and her scores progressed from 69 to 85 to 100. Her resilience was internal, working not on performance outcomes but on the landscape of self-judgment itself.

Synthesis: Emotional Resilience as Outcome of Practice

The practice journals revealed that emotional resilience was cultivated not by eliminating adversity but by transforming the student's relationship to it. Across the cohort, students did not achieve this transformation through cognitive reframing alone. They achieved it by practicing through difficulty, by using their bodies and minds in purposeful musical action in the face of frustration, exhaustion, disappointment, and external stress. The journals documented this process – the recognition, the choice, the action, the reflection – in real time. In doing so, they revealed that emotional development and musical development were not separate tracks but intertwined, each supporting the other through the central mechanism of agency expressed through practice.

Comparative Analysis: Group 1 Auditioners and Group 3 Non-Auditioners

The purposive sample design enabled a meaningful within-cohort comparison of emotional intelligence development across motivational contexts. Four students represented Group 1 (honor auditioners participating in high-stakes auditions and mock audition preparation): Claire, Mara, Reese, and Brooke. Four students represented Group 3 (regular orchestra students, no audition pressure): Julie, Nadia, Eli, and Marcus. The journals of these two groups revealed distinct patterns in how students generated and responded to emotional challenges, yet converged in their developmental trajectories and the effectiveness of the intervention.

Group 1: High-Stakes Auditioners

Group 1 students' journals were characterized by high-stakes emotional events that created acute regulation demands. Brooke's audition setback – she auditioned for an honor orchestra and did not receive a placement – generated a documented recovery arc. In her October

23rd entry, immediately following her audition, she wrote: "I was struggling when I was warming up, which put my mindset in a bad place, but I stood it through, even though it didn't go as I'd hoped, and I am proud of myself for that." Mara's NCHO clinic placement and concertmaster leadership carried emotional weight: her score arc (70-69-100+) reflected integration of external recognition with internal emotional regulation. Reese, nearly positioning in the top of the honor group, explicitly noted in her journals that mock auditions had served a critical function in reducing the unpredictability of the audition experience – preparing that moved her from uncertainty toward confidence. Claire, concertmaster and persistent achiever, documents as a different kind of acute emotional event: the internal pressure of sustaining high performance. Even as her emotional state ratings climbed, her entries reflected ongoing frustration about technical elements and self-criticism. Group 1 students' emotional events were predominantly externally defined – audition outcomes, placement results, performance opportunities – that required acute regulatory response.

Group 3: Non-Auditioners and Intrinsic Motivation

Group 3 students performed in the orchestra and attended the contest, but without the individual pressure of auditions or placements, their motivational challenge was largely internal. Their journals documented both the struggle and the gradual development of intrinsic regulation.

Eli's trajectory was the most dramatic in the cohort: a baseline video score of 27/100 in October escalated to a 69/100 in January and 96/100 in February – growth driven not by audition stakes but by internal motivation and Mr. Moore's targeted feedback. His entries documented emotional state management entirely independent of external performance pressure: "I was a

little annoyed today, but I changed my attitude so I could practice." (September 17th) and "I was way more happier today because of no school, and used this happiness to practice and I got better (January). Nadia, while not auditioning, generated internal pressure through perfectionism: her burnout diagnosis – "I think I figured out why I've been so burn out/ unmotivated to practice. It's because I've only been playing these two pieces, over and over" – represented regulation demand that arose from her own high standards rather than external audition stakes. Marcus's emotional content derived primarily from his athletic life: playoff wins and losses that shaped his emotional approach to practice, demonstrating that non-auditioners could experience equally acute emotional events, though sourced differently. Julie exemplified the gentlest trajectory: a slow, steady growth from approximately 59/100 to 98/100, driven by cumulative habit formation and internal pacing rather than external deadlines or placement pressures.

Convergence in Developmental Patterns

Yet despite these contextual differences, both groups demonstrated remarkable convergence in their developmental patterns. Both evolved their affirmations from generic encouragement ("You can do it") toward personalized, sophisticated self-understanding ("I make mistakes";"I am enough"; "Progress, not perfection."). Both developed metacognitive awareness – the capacity to observe and articulate their own regulatory processes – as their journals progressed. Both identified breathing as a critical regulatory anchor, deployed across multiple contexts. Both demonstrated resilience in the face of adversity, whether that took the form of audition failure, burnout, athletic disappointment, or simple reluctance to practice. The intervention tools worked across both groups, suggesting that the practice journal's effectiveness

was not contingent on audition pressure as a motivator; rather, the structured framework created space for the development of emotional intelligence regardless of the source of students' regulatory demands.

Temporal and Emotional Architecture of Growth

One meaningful difference between the groups emerged in the temporal and emotional architecture of growth. Group 1 journals documented acute emotional peaks and valleys, with emotional state rating and affective content tied directly to specific high-stakes events: audition days, placement announcements, and concert performances. Their growth occurred in punctuated moments of crisis and recovery. Group 3 journals, by contrast, showed more gradual and sustained emotional development, with affective content woven into cumulative practice habits and daily mood management. Both trajectories facilitated substantial growth – one reactive and event-driven, the other practical and habit-based.

The Brooke Case: Audition Pressure Without Preparation Scaffold

Brooke presented a unique case within Group 1, worthy of particular attention. She auditioned for the honor orchestra without the scaffold of mock audition preparation, and she did not receive a chair placement – positioning her at the intersection of audition pressure and preparation deprivation. Her emotional intelligence, as documented entirely in the practice journal, grew substantially over the study period. Her trajectory suggests that the journaling practice itself served as a compensatory mechanism: in the absence of mock auditions or placement achievement, the reflective practice of journaling provided a space to metabolize disappointment, practice self-compassion, and maintain forward momentum. Her transition from middle school concertmaster to her role as an upper school quartet leader serves as evidence of

her ability to reframe challenges as essential catalysis within a broader trajectory of emotional resilience and musical maturity.

Implications for Universal Application

These comparative patterns aligned with the study's broader research questions about the universality of emotional intelligence development in music education. The practice journal provided evidence that EI development occurred across all three groups, not only among high-stakes auditors, supporting the intervention's value as a universal rather than targeted tool. Drawing on Bandura's framework, both groups built self-efficacy through mastery experiences – but Group 1 students' mastery experiences centered on high-stakes performance events, while Group 3 students' mastery experiences centered on cumulative practice consistency and intrinsic motivation. Both pathways proved effective; both generated the kind of self-efficacy that students reported transferring to non-musical domains.

Longitudinal Score Trajectories and Their Meaning

While rubric scores provided a quantifiable lens for examining student development across the academic year, they necessarily captured only a partial view of the growth in emotional intelligence within the cohort. Scores alone – numerical indices of compliance, consistency, and demonstrated skill – did not encompass the qualitative transformations in students' regulatory capacity, metacognitive sophistication, or resilience. The eight longitudinal trajectories, taken together, revealed patterns that illuminated both the power and the limitation of numerical assessment, and they suggested that the most meaningful growth often occurred in dimensions the rubric was not designed to measure.

The cohort's score trajectories clustered into four distinct patterns, each revealing different aspects of how emotional intelligence developed under different conditions. The first pattern – steady upward growth – was exemplified by students whose scores climbed consistently across the academic year. Claire's trajectory from 69 in November to 85 in February to 100 in March represented a three-month arc of progressive mastery, marked by the evolution of her affirmations from generic encouragement ("You can do it") to personalized, learning-oriented statements (" Each mistake is an opportunity to learn"), and her reflections deepened from single words to multi-sentence causal narrative. Reese's more modest climb from 69 to 78 reflected steady, reliable engagement with the journaling framework, with emotional regulation increasingly tied to the high-stakes context of audition preparation. Both students demonstrated that consistent practice with the reflective structure yielded measurable gains.

The second pattern – plateau followed by dramatic surge – characterized students who showed little movement for extended periods before achieving breakthrough growth. Julie's trajectory remained flat at approximately 59-69 for three months (September through January) before surging to 98 in February, representing the most dramatic single-month improvement in the entire cohort. Mara similarly maintained a score near 70 through November, before reaching 100+ in January, with bonus points awarded for exceptional work. In both cases, the plateau phase was not wasted time; rather, it appeared to represent a period of consolidation during which the journaling framework was becoming internalized, setting the stage for the rapid acceleration that followed. Julie's affirmations evolved from: "I got this" to "I am building strong habits," and by January she had identified practice itself as a tool for mood regulation. Mara's metacognitive sophistication expanded from general goal-setting to specific, technique-focused notation (particular metronome tempos, drill sequences), and her willingness to share

reflections with peers suggested that the framework had become a vehicle for social connection as well as individual regulation.

The third pattern – High start, mid-year dip, and strong recovery – was observed in two students whose trajectories were notably non-linear. Nadia began with a score of 105 in October, dipped to 69 in November during a period of perfectionism-driven burnout, and recovered dramatically to 98 in February following a self-directed intervention. Marcus similarly began at 90, declined to 69 in November, and finished with a feedback score of 99 in February. These trajectories were particularly meaningful because they documented, in real time, the development of resilience – the capacity to experience setback and respond with renewed effort rather than withdrawal. Both students' journals provided evidence of their deepening reflective sophistication: Nadia addressed her burnout, sought support, and implemented a self-compassion practice ("Progress, not perfection"), while Marcus maintained his methodical journaling practice throughout the dip and emerged with reflections of exceptional sophistication.

The fourth pattern – sustained high performance – was represented by Brooke, whose baseline score of 95 in October remained elevated throughout the year (102 in February with bonus points). Her trajectory was notable not for dramatic growth but for consistency and for the creative breakthroughs that occurred within sustained excellence. Following an audition disappointment, Brooke's reflections shifted toward self-compassion and artistic experimentation, culminating in a dynamic breakthrough in which she described *"playing [dynamics] like talking levels"* - a metaphor that suggested she had achieved a new level of integration between emotional understanding and musical expression.

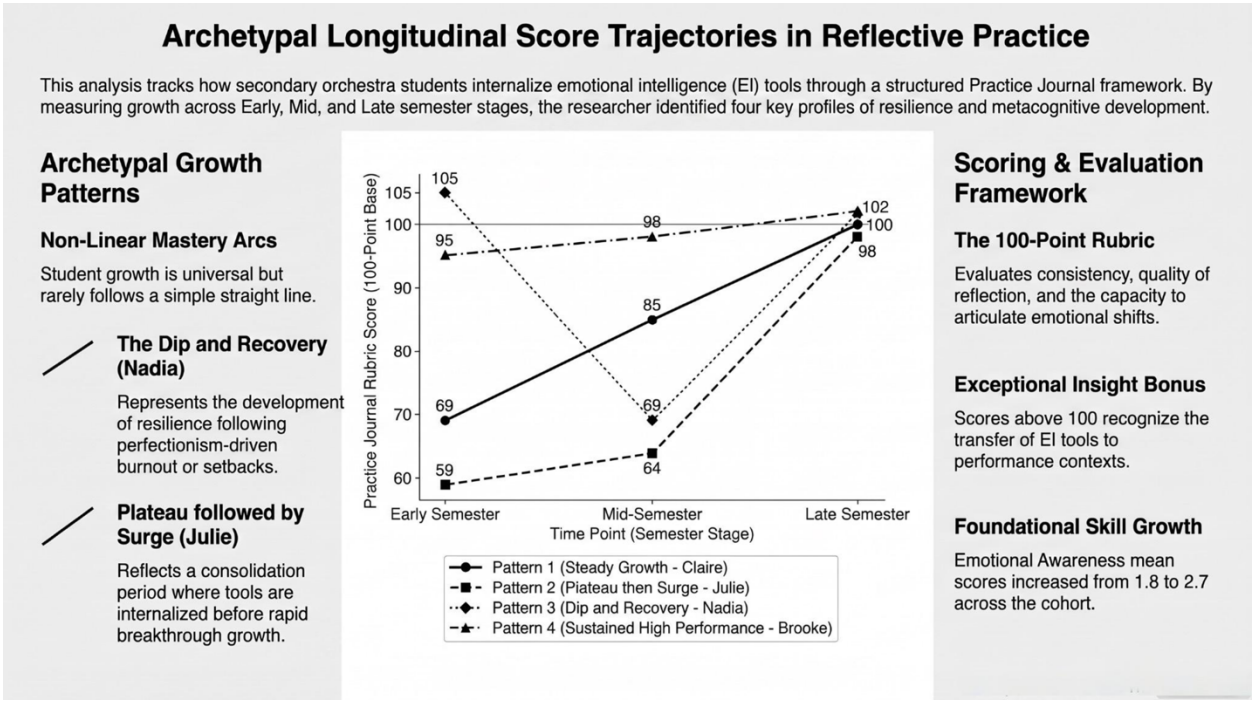


Figure 2. Archetypal Longitudinal Score Trajectories in Emotional Intelligence (Practice Journals)

A fifth pattern emerged in the student whose baseline was lowest: Eli's trajectory from 27/100 on an initial intervention letter from the researcher documented concerning patterns of emotional Awareness. The discrepancy between his rubric score (69) and feedback score (96) in February was particularly instructive: Eli had developed strong emotional awareness and regulatory capacity, but his articulation of that awareness – the Quality of Reflecting category – remained less verbally sophisticated than that of his peers. This gap suggested that feeling had preceded articulation, and that the rubric's measurement of verbal sophistication had underestimated the depth of his emotional development.

Analysis of rubric category patterns across the cohort revealed a crucial finding: Emotional Awareness was the most consistently high-scoring category, even among students with lower overall scores. This pattern suggested that the journaling framework had successfully

cultivated emotional self-awareness as a foundational skill, independent of students' baseline verbal sophistication or metacognitive development. Quality of Reflection, by contrast, was the most variable category, reflecting differences in students' verbal sophistication, metacognitive maturity, and willingness to engage in deep self-analysis. Eli's high Emotional Awareness score, coupled with his lower Reflection score, exemplified this pattern; Nadia's exceptional reflections, by contrast, elevated her overall trajectory even during periods when her rubric scores dipped.

The gap between rubric scores and qualitative feedback scores emerged as a meaningful finding in itself. Eli earned a 20/20 for Emotional Awareness in January while scoring lower in Quality of Reflection – a discrepancy that suggested feeling had developed ahead of articulation. Nadia's January journal, spanning only seven of sixteen possible sessions, contained some of the most sophisticated reflections in the entire cohort, yet her rubric score was lower than her February score despite the exceptional quality of her written work. Marcus's February rubric score of 69 contrasted sharply with his feedback score of 99, a discrepancy that the researcher attributed to the rubric's measurement of compliance and consistency (session frequency, adherence to format) versus the feedback's assessment of depth, insight, and growth. These discrepancies suggested that the rubric had captured one important dimension of student engagement – behavioral consistency – while the qualitative feedback had captured another – the actual quality and sophistication of emotional and metacognitive development.

The most dramatic growth arcs were concentrated in Group 3 – the students without audition pressure (Eli, Julie, and Nadia). This finding had meaningful implications for understanding the intervention's value. Rather than functioning solely as a tool for managing high-stakes performance anxiety, the practice journal framework appeared to cultivate intrinsic

motivation and emotional intelligence development through the reflective process itself. Students in Group 3 developed an engagement with the framework for its own sake, discovering that systematic reflection on their emotional and regulatory processes yielded tangible improvements in the quality of their practice and overall well-being. This Pattern Suggested that the intervention might serve as a universal tool for all secondary orchestra students, rather than merely a targeted intervention for audition-anxious students.

The longitudinal trajectories were consistent with Bandura's theory of self-efficacy development through mastery experience. (Bandura, 1997, p. 101) Each improved score, each moment of successful emotional regulation documented in a journal entry, reinforced the student's beliefs in their capacity to manage their own learning and emotional responses. The upward trajectories appeared to create an upward spiral: improved performance on the rubric led to increased confidence, which led to greater engagement with the framework, which led to further improvements. Even the non-linear trajectories – Julie's plateau-to-surge, Nadia's dip-and-recovery, Marcus's mid-year decline followed by exceptional finish – were consistent with Dweck's growth mindset framework. In each case, setbacks were not interpreted as evidence of fixed inability but as opportunities for renewed effort and learning (Dweck, 2008, pp. 1104-1105). The students who recovered from mid-year dips did so not by abandoning the practice journal framework but by deepening their engagement with it, using reflection as a tool to understand and overcome obstacles rather than as evidence of failure.

Summary of Practice Journal Findings

The practice journal analysis examined how a structured reflective framework cultivated emotional intelligence skills in secondary orchestra students across a full academic year. The eight students who participated in the study – spanning grades seven through ten, multiple instruments, and two distinct motivational contexts – provided rich longitudinal data on the processes through which emotional awareness, regulatory capacity, and metacognitive sophistication developed in the context of daily musical practice.

Five thematic findings emerged from the qualitative analysis of the journals and warranted synthesis. First, breathing functions as a universal regulatory anchor across the cohort. The student began the year with a vague or incomplete understanding of breathing as a calming technique; across the year, their uptake of breathing practices increased, and their sophistication in selecting and deploying specific breathing techniques grew. By February, students were strategically choosing breathing techniques in response to specific emotional or performance challenges. Most impactful, the transfer of breathing practices from the practice room to performance contexts was documented: Nadia's use of breathing during a contest moment, for example, represented the integration of a practice-room tool into real-time performance regulation.

Second, affirmations evolved dramatically across the academic year. In early journals, affirmations were often generic compliance statements ("You can do it," "I got this") that students appeared to include because the framework invited them to do so. By February, affirmations had become personalized, need-responsive, and identity-based statements that functioned as genuine tools of self-efficacy and self-identification. Claire's evolution from *"You*

can do it" to "Each mistake is an opportunity to learn" represented a shift from external encouragement to internalized learning orientation. Brooke's affirmations became autobiographical, reflecting her actual emotional journey of self-compassion and agency as she navigated an audition setback, moving from "I am strong" to "I am enough just as I am" and "I deserve to take up space. Meanwhile, Marcus demonstrated his highly creative cognitive ownership of his learning, progressing from "it's a privilege to practice" to his inventively original February identity claim. *"I am positive like a proton."* Mara's statement *"I make mistakes"* represented a disidentification from perfectionism – a separation of her self-worth from her performance outcomes. These affirmations functioned, in Asssagioli's terms, as tools for stepping back from identification with failure or anxiety and reconnecting with a larger, more resilient sense of self.

Third, metacognitive sophistication grew across the cohort. Early journal entries often contained simple descriptions of what students had practiced; by February, entries demonstrated increasing capacity to monitor, analyze, and direct their own learning. Students began to notice patterns in their own practice (Marcus's prediction in November that his muscle memory work would pay off, confirmed in February), to adjust their strategies in response to observed outcomes, and to articulate learning goals with increasing specificity. Mara's evolution from general goals: *"Improve my piece*" to specific, technique-focused notation (Particular metronome tempos, drill sequences) exemplified this growth. This pattern was consistent with Zimmerman's framework of self-regulated learning, in which students develop increasing capacity to set goals, monitor progress, and adjust strategies in response to feedback. (Zimmerman and Schunk, 2008)

Fourth, resilience was documented in real time across multiple students' journals. Rather than resilience being measured through a single post-hoc assessment, the journals provided

evidence of students' practice through adversity and, in doing so, built the very regulation skills the program aimed to cultivate. Nadia's navigation of perfectionism-driven burnout and her self-directed recovery, Marcus's sustained engagement with reflection during a mid-year performance dip, and Julie's emergence from a three-month plateau all represented instances in which students faced emotional or performance challenges and responded by deepening their engagement with the reflective practice framework rather than withdrawing from it.

Fifth, transfer of emotional intelligence skills beyond the practice from occurred in multiple domains, The journals documented transfer to performance contexts (Nadia's contest moment), to social contexts (Mara's willingness to share reflection with peers), to athletic contexts (Marcus's integration of his musical practice insights into his sports performance), and to general modulation (Julie's discovery of practice as a tool for emotional well-being). This pattern of transfer suggested that the emotional intelligence skills cultivated through the journaling framework were not narrowly domain-specific but represented genuine developments in students' overall capacity for self-awareness and self-regulation.

The comparative analysis of Group 1 (audition-focused students – Claire, Reese, Mara, and Brooke – were motivated by high-stakes audition events, and their engagement with the journaling framework was often explicitly connected to audition preparation. Group 3 students – Eli, Julie, Nadia, and Marcus – lacked the external pressure of auditions yet showed equally dramatic growth, suggesting that the framework cultivated intrinsic motivation through the reflective process itself. The finding that the most substantial growth arcs occurred in Group 3 indicated that the intervention functioned across different motivational contexts and might be most valuable as a universal tool for all secondary orchestra students rather than as a targeted intervention for audition-anxious students.

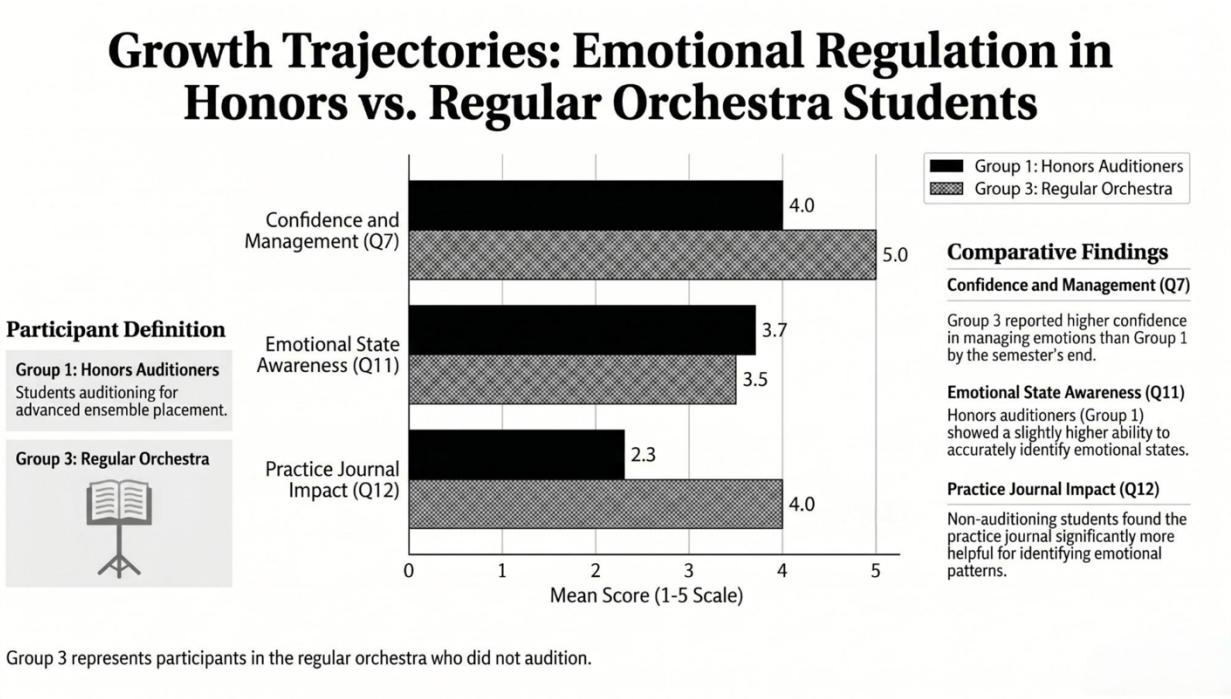


Figure 3. Comparison of Practice Journal and Growth Trajectories for Group 1 and Group 2.

The longitudinal trajectories revealed that growth was non-linear but universal: all eight students showed net positive development from their first to their final journal entries. Rubric scores, however, did not uniformly capture the depth of development that occurred. The gap between numerical scores and qualitative feedback – most evident in Eli's case (high Emotional Awareness, lower Reflection score) and Marcus's case (9 rubric score of 69 versus feedback score of 99) – suggests that the rubric measured behavioral compliance and consistency while the qualitative feedback assessed the actual depth and sophistication of emotional and metacognitive development. Emotional Awareness emerged as the most consistently cultivated skill across the cohort, suggesting that the journaling framework successfully developed student's capacity to notice and manage their own emotional state, independent of their baseline verbal sophistication.

The practice journal findings, taken together with the quantitative survey data presented earlier in Chapter 4, supported the study's central claim: emotional intelligence is not a fixed trait but a developable capacity. Secondary orchestra students demonstrated, across a full academic year, the capacity to cultivate emotional awareness, regulatory skill, metacognitive sophistication, and resilience through structured, reflective practice. These developments occurred across grade levels (seven through ten), across instruments (violin, viola, cello, double bass), and across motivational contexts (audition-focused and intrinsically motivated students). The journals provided evidence than an emotionally intelligent approach to orchestra education produces measurable and meaningful outcomes for students.

At a theoretical level, the journals documented, in students' own works, the processes that Porges, Van der Kolk, Bandura, Dweck, and Assagioli described in their respective frameworks. Students' reflections provided evidence of autonomous regulation through breathing and somatic intervention, of self-efficacy development through mastery experiences and improved performance, of growth mindset development through non-linear trajectories marked by setback and recovery, and of disidentification through affirmations that separated self-worth from performance outcomes. The practice journal framework had served as a bridge between theory and practice, translating the abstract constructs of emotional intelligence into concrete, daily tools that secondary orchestra students could deploy to support their musical development and overall well-being.

Section 3 - Overview of the Video Reflection Assignment

The video reflection assignment functioned as a critical data collection instrument within the convergent parallel mixed-methods design of this study, operationalizing the quantitative

measurement of emotional intelligence development while simultaneously capturing qualitative evidence of metacognitive growth. This assignment required participants to record video performances of three distinct musical selections – Declarations, Psalms, and Scales #1 – and subsequently compose written reflections that demonstrated both the technical self-awareness and emotional understanding of their performances. The dual-component structure created a natural bridge between the objective performance data and the subjective self-perception data, central to understanding how emotional intelligence manifests in high-stakes audition preparation.

The video reflection rubric consisted of two weighted components: Video Performance (60 points) and Written Reflections (40 points). The Video performance component assessed four dimensions: Technical Accuracy, Tone Quality and Bow Technique, Musical Expression, and Preparation and Focus, each evaluated on a scale of 0-4 points. The Written Reflection component evaluated five distinct dimensions: Language requirements, Positive Aspect Identification, Growth Areas Identification, Musical Understanding, and Self-Assessment Accuracy, each worth 8 points (scored on a 1-4 proficiency scale). This structure ensured that participants' ability to accurately perceive and articulate their own performance directly contributed to their overall assignment score, creating an incentive structure aligned with the development of emotional intelligence competencies.

A critical pedagogical feature of the assignment was explicit language guidelines requiring students to compose their reflections in a third-person or objective voice, deliberately eliminating first-person pronouns such as "I" and "me." This constraint functioned as a metacognitive scaffold grounded in Assagioli's disidentification theory, which posits that separating oneself from one's action creates psychological space for objective observation and

reduces defensive reactivity to self-critique. By describing their performances as external observers rather than as the performers themselves, students were guided toward the kind of detached awareness that characterized mature emotional intelligence. The language requirement thus transformed the reflection assignment into a structured practice of the observer's perspective, a foundational skill in the development of emotional intelligence.

Four focus students emerged from the larger participant pool as exemplars of sustained engagement with video reflection process. Nadia, a musician in Group 3, demonstrated consistent technical growth across the assignment sequence. Sallie, also in Group 3, exhibited the most sophisticated self-assessment practices and deepest metacognitive engagement. Clint, a musician in Group 3, displayed honest, contextually aware reflections that connected individual performance to ensemble roles. Brooke, a musician in Group 1, showed measurable improvement in the emotional accuracy of her self-assessments across the study period. All four students earned perfect scores of 100 out of 100 points on both the Psalms and Scales #1 assignments analyzed in their chapter, indicating that technical proficiency alone did not fully explain the qualitative differences in their reflective practices. While the Declaration video was recorded early in the study period and provided contextual information about baseline performance, it was not the primary focus of this analysis. Notably, Eli's Declaration video received a score of 27 out of 100, illustrating the wide range of initial performance levels across the participant group. The Psalms and Scales assignments, recorded during the middle and later phases of the study, provided richer evidence of the developmental processes under investigation.

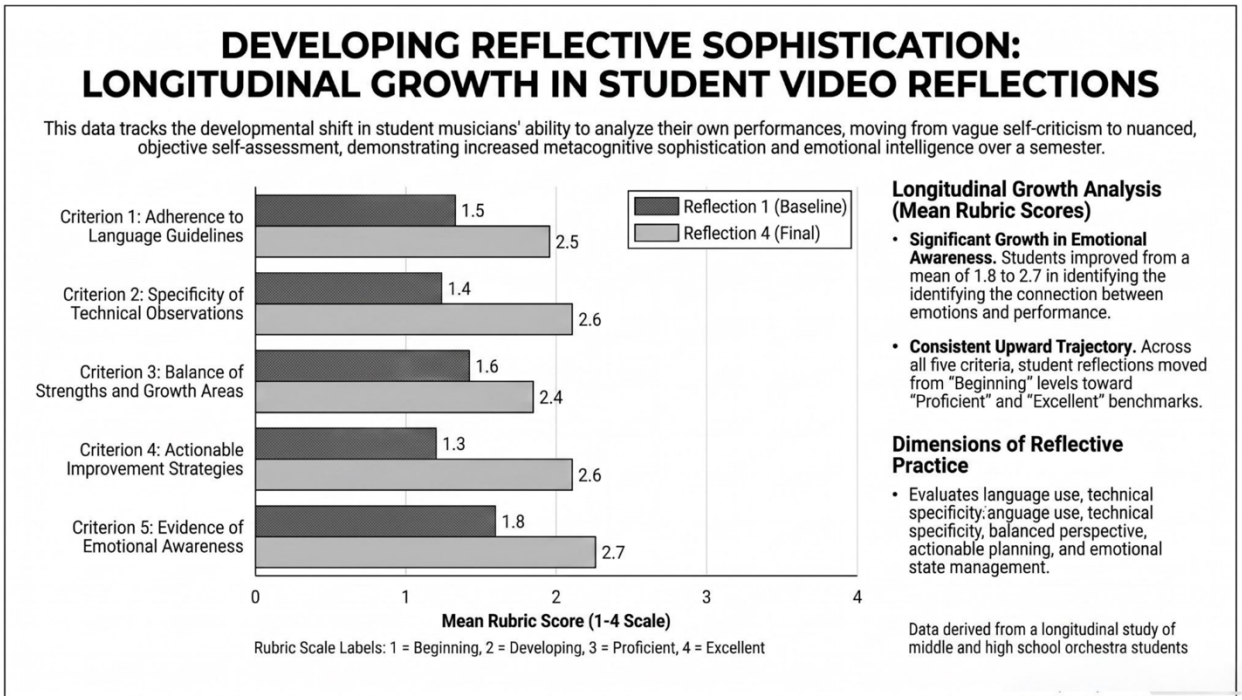


Figure 4. Longitudinal Growth In Student Reflection Videos

Self-Assessment Accuracy and the Development of the Observer's Perspective

Self-assessment accuracy- the ability to perceive one's own performance with objectivity and precision – represented one of the most meaningful rubric categories in the written reflection component, directly linking to the core emotional intelligence competency of self-awareness. The language guidelines enforced throughout the assignment created the conditions for developing this observer's perspective by requiring students to describe their performances as if narrating another musician's actions. This structural constraint operationalized Assagiolo's disidentification theory in practice, asking students to create psychological distance between the observing self and the performing self, thereby reducing the defensive distortions that typically accompany self-evaluation in high-stakes contexts.

Sallie emerged as the most sophisticated self-assessor in the study, demonstrating a level of technical and emotional accuracy that distinguished her reflective practice from her peers. In her Psalms reflections, Sallie wrote, *"There was a visible effort to incorporate the vibrato…"* and proceeded to identify a specific technical challenge: difficulty achieving a consistent fourth-finger F in half position, which she diagnosed as stemming from hesitancy in her bow technique. In response, Mr. Moore provided extensive technical validation, affirming her diagnosis and suggesting that a longer bow stroke would address the identified issue. By the Scales assignment, Sallie had refined her observational capacity further, noting in her reflection, "In this assignment, the scales covered were…" and proceeded to analyze the distinction between rushing and dragging relative to the metronome, demonstrating an internalized standard for rhythmic accuracy. Mr. Moore's feedback on this reflection was notably affirming, and he extended a developmental challenge: *"Consider adding a solo. It is time."* This comment served simultaneously as recognition of her current mastery and as an invitation to growth, aligning with Dweck's growth mindset framework and Assagioli's vision of progressive self-development through disidentified observation.

Nadia's arc across the two assignments revealed a different but equally important developmental pattern. In her Psalms reflection, she wrote, *"The tone is full and the intonation is correct…"* demonstrating accurate technical self-assessment. Mr. Moore confirmed her observation, validating her perception of her own performance. By the Scales assignment, Nadia had extended her self-assessment to include more nuanced observations, writing, *"Scales: D major, A major…"* and identifying specific intonation and arm placement concerns. Mr. Moore again confirmed the accuracy of her observations. Yet Nadia's reflections contained a qualifier

that revealed honest ambivalence about her self-perception: she described her self-assessment as *"mostly accurate-ish,"* a phrase that captured her uncertainty about the reliability of her own judgment. Rather than correcting this self-doubt, Mr. Moore reframed it in developmental terms, telling Nadia that she was *"right where she should be in her journey."* This response aligned with Bandura's concept of self-efficacy calibration, suggesting that Nadia's honest acknowledgment of her developing observation capacity represented appropriate confidence for her developmental stage rather than a deficit.

Brooke's development illustrated the relationship between technical accuracy and emotional completeness in self-assessment. Her Psalms reflection, while technically sound, received only 3 of the 4 points on the Self-Assessment Accuracy rubric category. She wrote, *"The dynamics were noticeable…"* and provided accurate technical observations. However, Mr. Moore identified an emotional dimension that her reflection had not captured: he noted visible tension in her tone quality and extended an invitation grounded in polyvagal theory, though not named as such: an invitation to approach music-making as a source of joy rather than as a performance to be executed. This feedback suggested that self-assessment accuracy encompassed not only technical perfection but also emotional attunement – the ability to recognize one's own physiological state and its impact on musical production. By the Scales assignment, Brooke had internalized this feedback, writing, *"Scales: G major, A major with expressive playing…"* with improved technical accuracy and demonstrating progress to 4 out of 4 points on Self-Assessment Accuracy, suggesting that the integration of emotional awareness into her reflective practice had deepened.

Clint's reflections demonstrated a different strength: contextual awareness and growth orientation. In his Psalms reflection, he wrote, *"Tone was rich, better to ensure…"* and framed

his assessment of tone improvement within the context of his ensemble role, suggesting awareness of how individual development serves collective musicianship. Moore affirmed this contextual thinking in his response. By the Scales assignment, Clint's reflections revealed deepening metacognitive sophistication. He wrote, *"For these first four 'easier' scales…"* and Mr. Moore provided extensive feedback that recognized Clint's honest acknowledgment of growth areas and his articulation of long-term vision, *"providing another layer of help for my orchestral career."* This response connected to Bandura's concept of self-efficacy orientation, suggesting that Clint's ability to frame current challenges within a vision of further contribution represented a mature form of self-assessment.

Across all four focus students, the development from November through February suggested a recursive developmental loop; the video reflection practice itself cultivated the metacognitive capacity it measured. Students who engaged consistently with the observer's perspective required by the language guideline demonstrated increasing accuracy in self-assessment, deepening emotional attunement, and growing capacity to connect individual technical work to larger music and personal purposes. This pattern suggested that structured reflective practice, grounded in disidentification theory and supported by teacher feedback, functioned not merely as an assessment instrument but as an active intervention in the development of emotional intelligence.

Teacher Feedback as Emotionally Intelligent Pedagogy

The written feedback responses generated during the video reflection protocol served a dual function within this study: pedagogically, they constituted interventions designed to cultivate emotional intelligence in student musicians; analytically, they functioned as data revealing the degree to which emotionally intelligent practice was embedded in the researcher's own teaching. Because the researcher was simultaneously the classroom teacher, this section operates as a form of reflexivity – an examination of the researcher's pedagogical choices as evidence of the framework the study sought to operationalize. The feedback corpus thus captured not only what students were learning but how the teacher's own emotional and developmental awareness shaped the learning environment. Analyzing these responses across the four focus students revealed that Mr. Moore's written feedback moved consistently beyond technical evaluation toward relational, contextual, and emotionally attuned engagement. In each instance, the teacher situated student performance within a developmental narrative, acknowledged emerging identity as a musician, and extended an invitation toward greater emotional and artistic depth – the same capacities the curriculum aimed to cultivate.

Brooke's Feedback: Integration and Somatic Awareness

Brooke's feedback represented the most emotionally sophisticated response in the dataset. When Mr. Moore wrote, "The October practice journal reveals awareness of the stressors navigated daily as an athlete, musician, and scholar who sets high standards," he was explicitly integrating multiple data sources within his response – crossing the boundary between the performance artifact (the video) and the qualitative self-report data (The practice journal) to contextualize what he heard tonally. This cross-referencing functioned as more than casual observation; it demonstrated that Mr. Moore had listened to the tension audible in Brooke's

playing and traced it to its relation source, the accumulated pressure of competing roles and high self-imposed standards.

His subsequent recommendation moved from diagnosis to invitation: *"Is there a piece of music that is dear? Something that doesn't need to meet a deadline, something that brings joy and calm when played? Not for a contest or recital, but something special for the player alone. That is where the body will find relaxation and allow the bow hand to float a little, to feel the moment."* This passage integrated somatic awareness (the bow hand as a site of muscular tension reflecting emotional state), the neurobiological framework of Polyvagal theory (the body's capacity to access ventral vagal safety and parasympathetic calm), and Bandura's concept of self-efficacy reframing (moving the student's relationship to music from performance obligation toward intrinsic joy and agency). The word "float" was not technical vocabulary; it was an invitation to a physiological and emotional state in which the body could release the tension that constrained expressive tone. By offering this invitation, Mr. Moore modeled the very emotional intelligence the curriculum aimed to develop in students – the capacity to perceive one's own physiological state, to recognize the connection between emotion and technique, and to act from grounded self-awareness.

Sallie's Feedback: Developmental Recognition and Readiness

Sallie's feedback operated at the level of developmental recognition. *"Consider adding a solo. It is time."* This single sentence – the most concise feedback in the dataset – carried the greatest developmental weight. It was a teacher's recognition that a student had outgrown the current level of artistic challenge and was ready for greater autonomy, responsibility, and visibility. In Dweck's framework, this moment – when a teacher explicitly names and celebrates readiness for the next developmental state – becomes a turning point in a student's self-

perception. Combined with the comment about an instrument upgrade or bow rehair, Mr. Moore's feedback communicated that Sallie had achieved a level of musicianship with professional-quality equipment. The recognition also served as Bandura's social persuasion: the teacher's clear confidence in Sallie's readiness strengthened the student's emerging belief in her self-efficacy regarding what was possible for her as a musician.

Clint's Feedback: Identity Affirmation Across Domains

Clint's feedback made explicit the bridge between his existing identity as an athlete and his developing identity as a musician. In the Scales response, Mr. Moore wrote, *"Both athletes and musicians practice fundamentals repeatedly to build mastery and develop muscle memory through consistent repetition. Both set goals and work systematically toward them. Understand that improvement comes with time and dedication."* This extended comparison was a deliberate act of identity affirmation – telling Clint what he already was (an athlete with discipline, systematic work habits, and a philosophy of gradual mastery) was directly relevant to who he was becoming as a musician. This cross-domain recognition mirrored the transfer findings documented in earlier sections of the practice journal analysis: the same regulatory and developmental processes that operate in athletic training operate in musical practice. By making this connection explicit, Mr. Moore strengthened Clint's self-efficacy across both domains and communicated that his athletic identity was an asset rather than a distraction from musical development.

Synthesis: Emotionally Intelligent Teaching in Practice.

Across all four feedback responses, Mr. Moore's pedagogical practice reflected the emotionally intelligent teaching the curriculum was designed to cultivate. The feedback did not merely evaluate technical performance or identify deficits to be corrected. Instead, each response situated the student within a developmental narrative grounded in relational awareness, affirmed emerging musical identity, and extended an invitation toward greater emotional and artistic depth. In doing so, the researcher's own practice demonstrated the framework the study sought to operationalize – a form of teaching in which emotional intelligence, informed by neurobiological understanding and grounded in care for the whole person, becomes inseparable from musical instruction.

Chapter Summary

This chapter presented findings from three distinct yet integrated data streams within a convergent parallel mixed-methods design: quantitative post-intervention survey data measuring emotional intelligence dimensions; qualitative analysis of eight students' practice journals maintained throughout the academic year; and qualitative analysis of video reflections submitted by four Upper Division students. The power of this convergent design lay in its capacity for triangulation – quantitative data established the score and statistical significance of growth in emotional awareness and regulation across all the Honors auditioners (Group1) and Regular orchestra students (Group 3), while the qualitative data illuminated the lived processes through which that growth occurred, revealing not merely what changed but how, why, and in what contexts the change persisted.

Three major themes emerged from integrating the practice journal and video reflection data. First, regulatory skill development demonstrated a characteristic arc across the year: the

teacher introduced scaffolds – breathing exercises, affirmations, and metacognitive goal-setting – which were progressively adopted, practiced, and internalized by students. Breathing emerged as the most widely adopted tool, present across all eight practice-journal cohort members and transferred directly into high-stakes performance contexts, as evidenced by one student's deliberate use of breath during a contest and another student's record performance at a swim meet. Affirmations underwent a particularly striking transformation from external or borrowed language to authentically owned internal statements, a process captured with precision in one student's year-long arc from "Mistakes are part of my learning" to the abbreviated and deeply personalized "I give myself permission." Metacognitive strategies similarly evolved from vague aspirations toward playing better to highly specific technical prescriptions – precise metronome tempos, detailed drill notation, and predicted patterns of skill acquisition that were later confirmed in performance. The progression from scaffolded support to independent use, observed across all three regulatory areas, suggested that the curriculum's tools had been internalized – becoming part of students' working emotional and musical repertories.

Second, across both data streams, students developed increasing capacity for disidentification – the ability to observe themselves, their playing, their emotional state, and their behavioral patterns with growing accuracy and diminishing defensive reactivity. This metacognitive observer's perspective emerged most explicitly in video reflection assignments, where students assessed their own performances against established rubrics and responded to teacher feedback, with evident growth in the accuracy of self-awareness. One student's affirmative trajectory and another's increasingly nuanced video reflections represented the clearest developmental endpoints of this process. This capacity for self-observation without

fusion to identity or defensive contraction represented a core dimension of the emotional intelligence the curriculum aimed to cultivate.

Third, score trajectories, affirmation language, and teacher feedback converged on a common developmental theme: students were not simply acquiring technical skills or cognitive strategies but developing an integrated sense of themselves as musicians – people for whom emotional regulation, deliberate practice, and artistic expression were interwoven dimensions of identity. The characteristic dip-and-recovery pattern visible in most students' scores across the year suggested that emotional regulation capacities were being tested, developed, and consolidated through challenge rather than merely reinforced through success.

The qualitative distinction between Group 1 and Group 3 merits particular note. Both groups demonstrated meaningful growth in emotional intelligence, yet the texture of that growth differed. Group 1 students navigated the specific emotional demands of audition preparation – high-stakes evaluation, failure, recovery, and resilience under competitive pressure. Their affirmations and practice entries focused on audition-related emotions and audition-specific self-efficacy. Group 3 students, by contrast, demonstrated broader integration of the curriculum's regulatory skills into daily life – academic stress, schedule management, and interpersonal dynamics. This distinction suggested that the curriculum functioned as a general emotional intelligence curriculum with particular relevance for students facing specific stressors of audition preparation.

The researcher's dual role as both teacher and researcher warranted explicit acknowledgment. The teacher feedback analyzed in the video reflection section constituted not only pedagogical intervention but also a reflective data source – evidence that emotionally intelligent teaching was operationalized within the curriculum's implementation, not merely its

design. The feedback offered to students modeled the very disidentification and observer's perspective that the curriculum aimed to cultivate in them.

The findings presented in this chapter will be interpreted in Chapter 5, relating to the students' research questions, situated within the broader literature on emotional intelligence in music education and performance psychology, and used to generate implications for classroom practice, teacher professional development, and directions for future research in this domain.

Part 5 — Discussion

Introduction

This study examined the impact of neuroscience-informed emotional intelligence interventions on performance anxiety and regulatory capacity among adolescent orchestra students over a single academic year. The research employed a mixed-methods action research framework, employing cyclical processes of planning, intervention, observation, and reflection within an authentic classroom context. To support convergent triangulation, three integrated data streams were utilized: a quantitative self-report survey (n=12 completers), purposive-sample practice journals (n=8 students), and video-recorded student reflections (n=4 upper-level musicians). This chapter presents an interpretation of the research findings. The analysis maintained reflexive awareness of the researcher's dual role as classroom teacher and investigator, acknowledging both potential biases and unique access to authentic student work over an extended period. This reflexivity guided the design choice of employing convergent triangulation across multiple data sources rather than relying on a single measure. It also shaped the interpretation toward recognizing both the validity of findings within this specific learning community and the specificity required before making broader claims.

Discussion of Research Question One: Student Engagement and Implementation Patterns

The convergence between quantitative survey data and qualitative journal trajectories suggests a significant reduction in self-reported performance anxiety across the study cohort. Survey respondents exhibited high confidence in managing emotions, with a mean score of 4.25 for "I feel better equipped to handle performance pressure" and a standard deviation of 0.62 (the highest mean and lowest standard deviation). Additionally, they reported greater comfort performing in front of others, with a mean score of 4.33 and a standard deviation of 0.65. These group-level shifts in self-perception indicate substantial progress toward emotional regulation, particularly considering the baseline context: students were recruited from two contrasting groups, one of which (Group 3) entered the study with documented performance anxiety sufficiently acute to warrant targeted intervention.

However, the practice journal trajectories reveal a more nuanced pattern than simple linear improvement. Most students followed a recognizable pattern: when faced with an audition challenge or setback, their performance scores initially dropped, then recovered, and often climbed higher than before. This suggests that regulatory capacity grew not through repeated success, but through navigating difficulty. For instance, when Marcus predicted muscle memory in November and confirmed the prediction months later, or when Brooke's setback in the NCHO audition catalyzed superior subsequent performance, these trajectories demonstrate that students were developing volitional access to regulatory tools even under pressure. This distinction holds theoretical significance: resilience built through recovery is more robust than resilience built solely through positive experiences.

From the perspective of Porges' (2011) polyvagal theory, the survey outcomes suggest that students have internalized physiologically grounded regulatory mechanisms. Breathing,

selected as a primary tool by 75% of survey respondents and utilized by 100% of audition participants, provides direct access to the ventral vagal system, the neurological substrate of safety and tranquility. When a student can voluntarily activate this state under performance pressure, the threat response characteristic of performance anxiety becomes optional rather than automatic.

Van der Kolk (2014) posits that trauma and chronic stress are physiologically stored and, therefore, must be addressed through somatic, not merely cognitive, interventions. In the context of performance anxiety, this principle implies that anxiety reduction achieved through breathing and body-based regulation is fundamentally distinct from anxiety reduction achieved solely through reassurance or cognitive reframing. The somatic interventions centered anxiety at its origin—the autonomic nervous system—rather than attempting to override it through thought.

However, Reese's case introduces a necessary nuance. Her score trajectory showed growth from 69 to 78, yet her journal entries remained emotionally flat; she recorded a single affirmation over the year and showed minimal engagement with reflective prompts. This pattern suggests that group-level interventions, while effective for many students, do not cater equally to all learners. Some students require individualized scaffolding, alternative entry points to emotional work, or distinct modalities altogether. Her case is not a failure but rather an indicator of the heterogeneous emotional landscape within even small learning communities.

Discussion of Research Question Two: Perceived Effectiveness on Practice and Focus

Breathing and affirmations emerged as the two most consistently adopted and endorsed intervention components across the study cohort. Survey data showed that 75% of respondents selected breathing as their primary emotional regulation tool; 100% of students who participated in auditions reported using breathing before or during the event. The progression from intellectual understanding to embodied, automatic deployment represents a genuine capacity for self-regulation. When Eli deployed breathing to maintain focus during practice despite a score of 27 on the Declaration, or when Nadia used breathing on the contest stage weeks after its initial introduction, these instances document the translation of knowledge into autonomous habit—the hallmark of learning at its deepest level.

Porges' (2011) polyvagal framework illuminates why breathing occupies this central position. The breath is the most accessible voluntary pathway to modulate the autonomic nervous system; it operates at the intersection of conscious control and physiological response. A student who can slow and deepen their breathing under audition pressure has gained direct access to states of safety and calm, independent of external validation or cognitive reframing. The transfer of breathing to non-musical contexts—the documented use in a swim meet and on a contest stage—represents the highest-order evidence that internalization occurred.

Affirmations followed a distinct developmental arc across the cohort. The evolution from borrowed language ("I got this," "I will not have a fixed mindset") to owned identity claims ("I make mistakes," "Progress not perfection," "I am positive like a proton") reflects Assagioli's (1965) concept of disidentification—the capacity to observe one's thoughts and feelings from a perspective that separates the self from performance outcomes. Mara's trajectory from externally imposed affirmations to self-authored permission statements exemplifies this arc most clearly: she moved from repeating rules to claiming agency over her own emotional state. This

progression is theoretically significant because it indicates that affirmations function not through positive self-talk alone but through the deeper mechanism of identity reconstruction—students repositioning their sense of self as capable, growing, and resilient.

Dweck's (2006) growth mindset theory provides a framework for understanding the affirmation data. Affirmations that named growth orientation ("mistakes are information, not verdicts") or separated the self from outcomes ("progress not perfection") functioned as cognitive reframes that altered students' relationship to setbacks. When students internalized these framings, when affirmations moved from recitation to conviction, they had shifted their fundamental theory of learning. The teacher's deliberate use of growth-oriented feedback language, documented in video reflections (Mr. Moore to Sallie: "It is time"; to Brooke: "find a piece that brings joy, where the bow hand can float"), operationalized this mindset shift in practice.

Metacognitive goal-setting emerged as a third significant component. Marcus' capacity to predict muscle memory and later confirm the prediction, and Mara's evolution from vague aspirations to specific metronome tempos and practice notation, demonstrate a developing ability to observe and direct one's own learning. The video reflection protocol extended this metacognitive work into performance self-assessment through the observer's perspective. Sallie's diagnosis of her own fourth-finger hesitancy and Brooke's initial misalignment between technical accuracy and emotional tension—both instances where students learned to see themselves—illustrate metacognition as a self-regulatory tool.

One significant exception requires acknowledgment: practice journals received the lowest survey endorsement ($M=2.83$, $SD=1.03$), indicating that the reflective protocol, while theoretically sound in promoting metacognition, created friction for some students. The protocol

demanded consistent written articulation of internal states and learning observations—a demand that did not align with every student's processing style or developmental readiness. Future iterations must address this design friction without abandoning the theoretical value of reflective practice.

Discussion of Research Question Three: Audition-Specific Impacts and the Mock Audition Protocol

Repeated safe exposure to a feared stimulus recalibrates the threat response at a neurobiological level (Porges, 2011; Van der Kolk, 2014). Mock auditions applied this principle directly within the orchestra classroom. By creating repeated, low-stakes opportunities to experience performance evaluation under pressure, they gradually shifted students' nervous system response to auditions – from perceived threat to manageable challenge.

Survey data confirm the impact. Students reported high agreement that mock auditions "helped me understand what to expect" (M=4.29) and "expanded my comfort zone" (M=4.14, SD=0.38). The standard deviation of 0.38 on the comfort-zone item is particularly notable—the lowest across Group 2 responses—indicating near-universal agreement. This convergence suggests that mock auditions created a shared, reliable experience of expanded capacity across the cohort.

However, the transformative potential of the curriculum's regulatory tools is also evident in students who did not participate in the mock protocol, such as Brooke. The trajectory from Brooke's NCHO audition setback to her superior subsequent performance ratings demonstrates that the intervention's primary tools, breathing and affirmations, can turn a setback into a developmental catalyst even in the absence of mock auditions. When students practice deploying these techniques while processing disappointment, they build resilience at its deepest level: not

the resilience of avoiding setbacks, but the resilience of surviving and recovering from it. This mechanism aligns with Bandura's (1997) theory of self-efficacy, which holds that mastery experience includes successfully navigating setbacks. In this context, the training provided the necessary scaffolding for Brooke to evolve her reflective practice, allowing her to separate her self-worth from her results and use her experience as a foundation for future success.

The finding that 81.8% of audition participants reported they performed to the best of their ability deserves emphasis. This points to something beyond anxiety reduction: a perceived coherence among preparation, emotional state, and performance. A student who reports performing optimally has experienced alignment between intention and execution—a state that depends not only on technical preparation but on emotional regulation sufficient to allow technique to manifest.

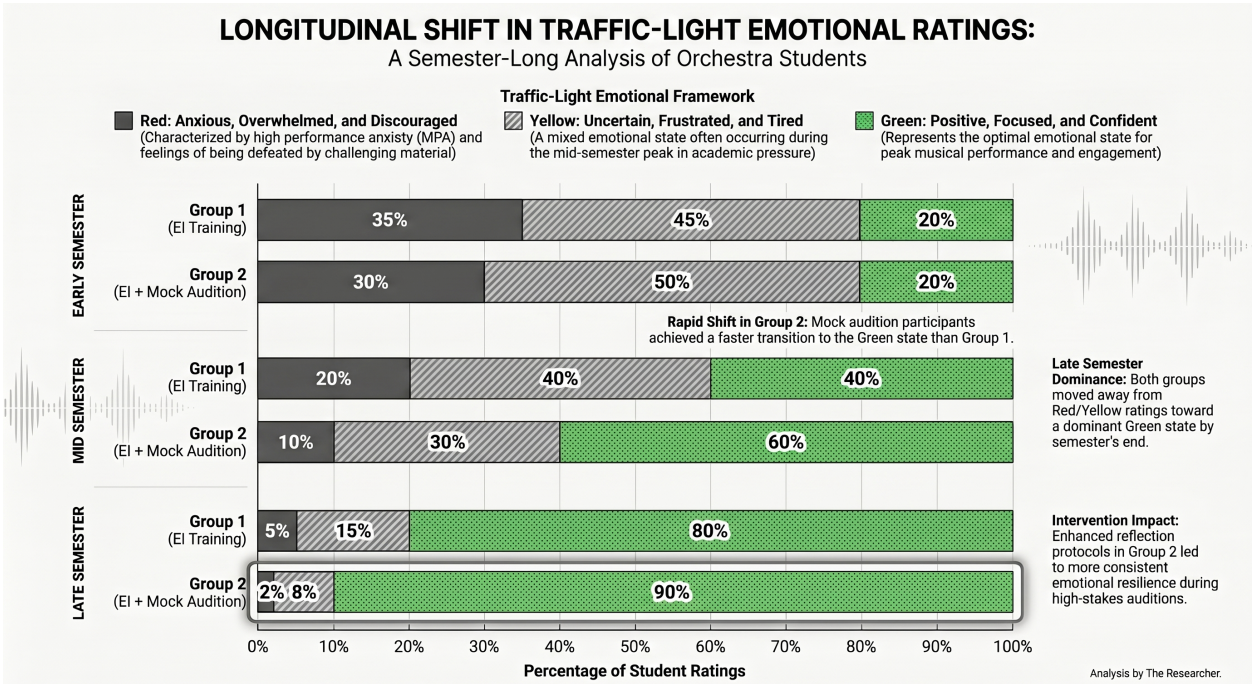


Figure 5. Longitudinal Shift in Traffic-Light Emotional Ratings for Group 1 and Group 2.

Discussion of Research Question Four: Longitudinal Development of Reflective Practice

Transfer of learning across contexts represents the highest-order evidence of genuine, internalized learning. The documented instances of strategy deployment beyond the orchestra classroom—Nadia's use of breathing on the contest stage, Marcus's integration of emotional regulation with athletic performance, Eli's volitional attitude shift applied to daily frustrations, and Mara's sharing of affirmations with peers in social contexts—demonstrate that students had abstracted principles from specific practice and applied them to new situations.

Bandura's (1997) self-efficacy theory provides a framework for understanding transfer. Self-efficacy beliefs generalize across domains when perceived similarities exist; a student who perceives the autonomic nervous system as context-nonspecific will recognize that breathing works the same way whether the stressor is an orchestra audition or an athletic competition. Porges' (2011) polyvagal theory strengthens this interpretation: autonomic regulatory tools are not modality-specific. A breath that activates the ventral vagal system operates with the same neurobiological mechanism whether deployed on stage, at a swim meet, or in an academic testing situation. The students who transferred breathing to new contexts had recognized this principle implicitly and acted on it.

The transfer finding reframes the intervention's significance. It is not merely an audition preparation tool but a general emotional intelligence curriculum with implications for students' broader psychological development. When students report using affirmations to regulate frustration in academic settings, or when Group 3 students describe using metacognitive observation to manage interpersonal conflict, the intervention extends beyond music into the

domains of character development, psychological resilience, and emotional maturity. This broadened scope aligns with the original theoretical foundations: Porges, Van der Kolk, Bandura, and Dweck all frame emotional regulation as a general human capacity with implications across life domains.

Situating Findings in the Literature

The findings both support and extend established theory. Rather than simply confirming what is already known, this study makes specific contributions to each major framework it engages with.

Porges' (2011) polyvagal theory provided the neurobiological foundation for breath-centered intervention. This study provides classroom-level evidence that polyvagal-informed somatic practices reduce performance anxiety in adolescent musicians, extending clinical and trauma-informed applications into educational settings. The efficacy of breathing as a tool, autonomously deployed by 100% of audition participants, suggests that the polyvagal framework is not merely clinically valid but also pedagogically accessible to adolescents. The longitudinal documentation of breathing's transition from a taught technique to an internalized habit offers empirical specificity about how somatic regulation becomes autonomous.

Van der Kolk's (2014) argument that physiologically stored stress requires somatic intervention receives support from findings that body-based techniques (breathing, progressive muscle relaxation, implicit in breath work) demonstrated effectiveness equivalent to or exceeding that of cognitive approaches (affirmations, self-talk). This validates an argument often marginalized in music pedagogy: anxiety reduction rooted in cognitive reframing alone is insufficient. Traditions that frame performance anxiety as a thought-management problem fail to

account for its somatic origins. The present findings suggest that somatic approaches belong in standard music instruction, not only in specialized anxiety-reduction curricula.

Bandura's (1997) four sources of self-efficacy—mastery experiences, social persuasion, physiological state management, and cognitive reframing- were operationalized simultaneously and comprehensively in this intervention. The curriculum included mock auditions (mastery experiences), teacher feedback and peer encouragement (social persuasion), breathing and body awareness (physiological state management), and affirmations and growth-mindset language (cognitive reframing). Most prior music education research addressing self-efficacy has focused on one or two sources; this study's integration of all four provides more comprehensive evidence of their combined effect.

Dweck's (2006) growth mindset framework moved from theoretical to operationalized in this context. The affirmation evolution and the deliberate teacher feedback language documented in video reflections demonstrate how mindset shift is cultivated in practice, not merely articulated in principle. The student's progression from viewing setbacks as verdicts to viewing them as information (operationalized through repeated exposure to setbacks in mock auditions and subsequent recovery) illustrates how a growth mindset becomes a genuine belief rather than an aspirational slogan.

Assagioli's (1965) concept of disidentification – the ability to observe one's own thoughts and feelings from a distance – found clear expression in two places: Mara's affirmation arc and the video reflection prompts that invited students to adopt an observer stance. The progression from "I feel anxious" to "I notice anxiety arising" to "I can breathe through this" illustrates that process in sequence.

Collectively, these findings contribute not merely to the confirmation of existing theories but to process-level specificity: they move beyond the question of whether emotional intelligence can be developed to the more precise question of how it develops, at what timescales, through which specific practices, and with what individual variation.

Limitations of the Study

Honest acknowledgment of study limitations strengthens rather than weakens credibility; it positions the findings appropriately within their scope and identifies pathways for refinement. Several significant constraints bound this work.

The study took place in a single private school, college-preparatory school setting with a student population that does not reflect the full diversity of American secondary orchestra programs. The institution primarily serves college-preparatory students from families with the economic resources to support music instruction; results may not generalize to under-resourced public-school contexts, where performance anxiety coexists with material insecurity and systemic inequity.

The researcher-as-teacher dual role created inherent potential for bias in data collection, interpretation, and reporting. While reflexive awareness and triangulation across multiple data sources mitigated this bias, the position cannot be entirely eliminated. Students may have responded to survey and journal prompts with social desirability bias, reporting improvements they believed the teacher-researcher expected. Video reflections, conducted by the researcher, may have elicited different responses than would have emerged with an external assessor.

The sample size limits statistical power. Survey completers (n=12) represent 11.8% of enrolled students; practice journals (n=8) and video reflections (n=4) are smaller still. Small samples increase sensitivity to outliers and make generalization precarious.

Self-report measures introduce well-documented bias. Anxiety reduction is reported, not objectively verified through physiological measurement (cortisol levels, heart rate variability) or external performance assessment. The finding that students felt more anxiety-equipped may reflect genuine regulation or mere accommodation to the intervention's expectations.

The study employed a convergent design rather than an experimental design. No true control group existed; therefore, causal inferences are constrained. The improvement observed over one academic year might reflect maturation, curriculum exposure independent of the intervention, or school-context effects rather than the intervention itself.

One year of data collection provides evidence of short-term gains but cannot address durability. Do students maintain regulatory capacities after the intensive curriculum concludes? Does the benefit persist into subsequent years? Reese's case—score growth without emotional depth—illustrates that the intervention's reach was uneven; some students required supports this iteration did not provide.

These limitations do not invalidate the findings but rather clarify their scope and point toward the necessary next steps.

Directions for Future Research

Future research must address the specific constraints identified above and extend the inquiry into domains this single-site, small-sample study could not fully explore.

Multi-site replication across public schools, diverse socioeconomic contexts, and varied demographic populations is essential. Are these findings stable across populations and school types? Does the intervention's efficacy depend on the private school context?

Longitudinal follow-up will answer the durability question. Do students maintain emotional regulation capacities and performance confidence in subsequent years? Is there a decay in benefit, plateau, or continued growth? Post-graduation follow-up could document whether participants carry these capacities into college auditions and professional music engagement.

A randomized controlled trial design with parallel programs—one implementing the intervention, one providing standard instruction—would permit causal claims. The convergent design used here is methodologically sound and appropriate for exploratory work, but causal inference requires experimental comparison.

Personalized intervention matching deserves investigation. The finding that some components (breathing) appeal across cohorts while others (practice journals) create friction suggests that different students benefit from different entry points. Can student profiles be developed to predict which components will resonate most deeply? Can the curriculum be tailored to individual learning styles?

Research on teacher professional development is essential for scalability. If the intervention requires teacher implementation, can music teachers without specialized training in neuroscience or emotional intelligence be prepared to deliver it with fidelity and effectiveness? What supports and protocols enable replication?

Objective performance outcomes should be integrated alongside self-report. Adjudicator ratings of student audition performances, blind to student identity and intervention status, would provide external validation of the relationship between emotional regulation and performance quality.

Deeper investigation of emotional flatline cases—students like Reese who showed score growth without affective engagement—might reveal alternative modalities, different timing, or additional scaffolding these students require. Cross-disciplinary consultation with sports psychology, clinical social work, and counseling literature could suggest new approaches.

Conclusion

This study demonstrates that neuroscience-informed emotional intelligence interventions, implemented systematically within an orchestra classroom, reduced self-reported performance anxiety, equipped students with autonomous regulatory tools, and fostered emotional regulation capacity that transferred beyond music to students' broader lives. The orchestra classroom, far from being a peripheral site of technical skill development, became a site of genuine emotional development.

As a teacher-investigator, I witnessed the human cost of unaddressed performance anxiety in students—the physiological grip of the fight-or-flight response overwhelming technical preparation, the emotional devastation of setbacks interpreted as verdicts rather than information, the contraction of possibility when a student concludes that they cannot trust their own bodies in high-stakes situations. The intervention offered these students something more fundamental than anxiety-reduction techniques. It offered them agency over their own nervous systems.

When Eli consciously shifted his attitude to preserve his ability to practice, when Mara moved from borrowed affirmations to self-authored identity claims, when Brooke transformed an audition setback into a developmental catalyst—these moments document the recovery of volitional agency. Students learned that their emotional states were not fixed or involuntary; they were responsive to conscious intervention, subject to their own will, open to change.

Performance anxiety and emotional regulation are not peripheral concerns, individual deficits, or motivational issues. They are central pedagogical content worthy of systematic, theoretically grounded instruction in music education. The orchestra classroom, with its inherent pressures, public exposure, subjective evaluation, and profound human stakes, is an ideal context for this transformation. As music educators, we have an opportunity, perhaps an obligation, to recognize that we teach not only technique but human capacity for presence, resilience, and emotional sophistication. The intervention framework presented here offers one operationalized path. Future research, multi-site replication, and disciplinary conversation must follow to refine and extend this work into the standard music pedagogy every student deserves.

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Appendix A: Nutritional Factors Affecting Mood and Performance

The following nutritional guidelines are based on research from the U.S. Navy and Marine Corps Public Health Center regarding foods that influence mood and cognitive performance. These recommendations are particularly relevant for musicians preparing for high-pressure auditions and performances.

Foods That Support Optimal Mood and Performance:

Proteins and Amino Acids:

- Lean meats (chicken, turkey, fish)
- Eggs
- Greek yogurt
- Nuts and seeds
- Legumes (beans, lentils)

Complex Carbohydrates:

- Whole grains (oats, brown rice, quinoa)
- Sweet potatoes
- Vegetables (broccoli, spinach, kale)
- Fruits (berries, bananas, apples)

Healthy Fats:

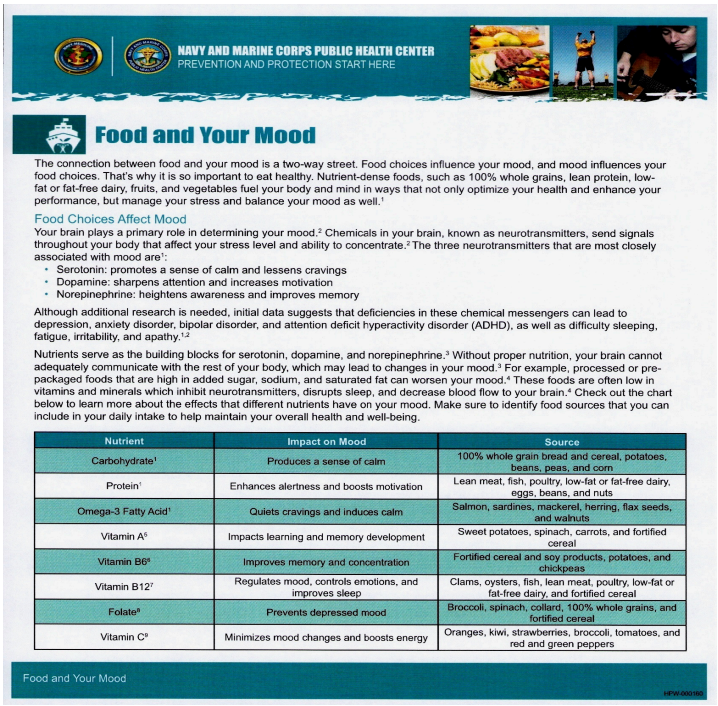
- Avocados
- Olive oil
- Fatty fish (salmon, mackerel, sardines)
- Walnuts and almonds

Foods to Limit Before Performance:

- High-sugar foods and beverages
- Excessive caffeine
- Heavy, fatty meals
- Processed foods with artificial additives

Hydration:

Adequate water intake is essential for cognitive function and emotional regulation. Dehydration can impair concentration and increase anxiety. Aim for consistent hydration throughout the day, particularly in the hours leading up to performance.



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Food and Your Mood

The connection between food and your mood is a two-way street. Food choices influence your mood, and mood influences your food choices. That's why it is so important to eat healthy. Nutrient-dense foods, such as 100% whole grains, lean protein, low-fat or fat-free dairy, fruits, and vegetables fuel your body and mind in ways that not only optimize your health and enhance your performance, but manage your stress and balance your mood as well.[1]

Food Choices Affect Mood

Your brain plays a primary role in determining your mood.[2] Chemicals in your brain, known as neurotransmitters, send signals throughout your body that affect your stress level and ability to concentrate.[2] The three neurotransmitters that are most closely associated with mood are[1]:

- Serotonin: promotes a sense of calm and lessens cravings
- Dopamine: sharpens attention and increases motivation
- Norepinephrine: heightens awareness and improves memory

Although additional research is needed, initial data suggests that deficiencies in these chemical messengers can lead to depression, anxiety disorder, bipolar disorder, and attention deficit hyperactivity disorder (ADHD), as well as difficulty sleeping, fatigue, irritability, and apathy.[1,2]

Nutrients serve as the building blocks for serotonin, dopamine, and norepinephrine.[3] Without proper nutrition, your brain cannot adequately communicate with the rest of your body, which may lead to changes in your mood.[3] For example, processed or pre-packaged foods that are high in added sugar, sodium, and saturated fat can worsen your mood.[4] These foods are often low in vitamins and minerals which inhibit neurotransmitters, disrupts sleep, and decrease blood flow to your brain.[4] Check out the chart below to learn more about the effects that different nutrients have on your mood. Make sure to identify food sources that you can include in your daily intake to help maintain your overall health and well-being.

Nutrient	Impact on Mood	Source
Carbohydrate[1]	Produces a sense of calm	100% whole grain bread and cereal, potatoes, beans, peas, and corn
Protein[1]	Enhances alertness and boosts motivation	Lean meat, fish, poultry, low-fat or fat-free dairy, eggs, beans, and nuts
Omega-3 Fatty Acid[1]	Quiets cravings and induces calm	Salmon, sardines, mackerel, herring, flax seeds, and walnuts
Vitamin A[5]	Impacts learning and memory development	Sweet potatoes, spinach, carrots, and fortified cereal
Vitamin B6[6]	Improves memory and concentration	Fortified cereal and soy products, potatoes, and chickpeas
Vitamin B12[7]	Regulates mood, controls emotions, and improves sleep	Clams, oysters, fish, lean meat, poultry, low-fat or fat-free dairy, and fortified cereal
Folate[8]	Prevents depressed mood	Broccoli, spinach, collard, 100% whole grains, and fortified cereal
Vitamin C[9]	Minimizes mood changes and boosts energy	Oranges, kiwi, strawberries, broccoli, tomatoes, and red and green peppers

Food and Your Mood

HFW-000160



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Nutrient	Impact on Mood	Source
Vitamin D[10]	Eases depressive symptoms	Sunlight, fatty fish, eggs, fortified milk, juice, and cereal
Calcium[11]	Reduces anxiety and irritability and improves sleep	Milk, yogurt, cheese, kale, and fortified dairy alternatives (soy milk)
Iron[12]	Fights fatigue, irritability, and mood swings	Lean beef, eggs, beans, and fortified cereal
Magnesium[13]	Inhibits depression, psychosis, and muscle weakness	Oat bran, brown rice, and almonds
Potassium[14]	Controls mood and prevents depression	Potatoes, bananas, yogurt, tuna, and soy

Mood Affects Food Choices

Do you eat because you're happy or sad? What about when you're bored or stressed? In addition to what you eat, you need to be aware of when and why you eat. Your mood can wreak havoc with your appetite and food cravings causing you to overeat or make poor food choices.[15] Mindful eating is about paying attention to your hunger cues and your level of fullness. If your mood regularly affects your food choices, talk to a health care professional and check out the Navy and Marine Corps Public Health Center (NMCPHC) Health Promotion and Wellness Department's (HPW) fact sheets on Eating with Food in Mind and the Tracker to Identify Your Food Triggers to help improve your eating habits.

The relationship between food and mood is complex. Proper nutrition can help control your stress level and stabilize your mood. However, healthy eating is not a substitute for medication prescribed to treat mental illness. If you think you have an illness or if you have been diagnosed with a condition, seek medical advice from your health care provider.

Resources

For additional information on the amount of each nutrient that your body needs to stay healthy, check out the following fact sheets:

- Nutri-Facts: Nutrient Overview
- Nutri-Facts: Vitamins and Minerals

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Food and Your Mood

Appendix B: *List of Fermented Foods*

Fermented foods contain both probiotics and prebiotics, which support a healthy gut microbiome. A robust microbiome enhances resilience in managing stress and anxiety. The Nutritional Therapy Association curates the following list.

Appendix B: List of Fermented Foods:

- **Sauerkraut** - Fermented cabbage rich in probiotics and vitamin K2
- **Kimchi** - Korean fermented vegetable dish with beneficial bacteria
- **Miso** - Fermented soybean paste used in soups and dressings
- **Tempeh** - Fermented soy product with complete protein
- **Kombucha** - Fermented tea beverage with probiotics
- **Kefir** - Fermented milk drink with multiple probiotic strains
- **Yogurt** - Cultured dairy product (choose varieties with live active cultures)
- **Cottage Cheese** - Cultured dairy with beneficial bacteria
- **Apple Cider Vinegar** - Fermented apple juice with enzymes and probiotics
- **Pickles** - Fermented cucumbers (ensure they are naturally fermented, not vinegar-pickled)
- **Olives** - Naturally fermented olives contain beneficial bacteria
- **Cheese** - Aged cheeses contain probiotics from fermentation
- **Sourdough Bread** - Naturally fermented bread with beneficial bacteria

- **Rejuvelac** - Sprouted grain drink with enzymes and nutrients

Incorporation Tips:

- Start with small portions to allow your digestive system to adjust
- Include fermented foods in meals several times per week
- Combine fermented foods with prebiotic foods (garlic, onions, asparagus, bananas) for optimal gut health
- Avoid heating fermented foods excessively, as heat can destroy beneficial bacteria

Appendix C: Performance Preparation Checklist

This checklist helps students systematically prepare for auditions and performances by addressing physical, emotional, and practical considerations.

Physical Preparation:

- ☐ Adequate sleep (7-9 hours) for 3-5 nights before performance
- ☐ Regular exercise and movement (yoga, walking, stretching)
- ☐ Healthy nutrition with balanced meals
- ☐ Hydration throughout the day
- ☐ Warm-up routine (15-20 minutes before performance)
- ☐ Breathing exercises (5-10 minutes before performance)

Emotional and Mental Preparation:

- ☐ Daily positive affirmations (morning and evening)
- ☐ Visualization practice (5-10 minutes daily)
- ☐ Meditation or mindfulness practice (5-10 minutes daily)
- ☐ Journaling about feelings and concerns
- ☐ Identify and practice grounding techniques (5-4-3-2-1)
- ☐ Review past successful performances

Technical Preparation:

- ☐ Practice audition excerpts daily
- ☐ Practice scales and technical passages
- ☐ Record yourself and listen critically
- ☐ Practice in different environments
- ☐ Simulate audition conditions (time limits, audience)
- ☐ Attend mock auditions

Practical Preparation:

- ☐ Know the audition location and arrival time
- ☐ Plan transportation and parking
- ☐ Prepare audition materials (music, instrument, etc.)
- ☐ Check instrument condition and maintenance
- ☐ Plan outfit (comfortable, professional)
- ☐ Identify a supportive co-regulator to accompany you

Day-of Preparation:

- ☐ Light breakfast or snack (avoid heavy foods)

- ☐ Hydrate consistently
- ☐ Arrive 15-20 minutes early
- ☐ Use 5-4-3-2-1 grounding technique
- ☐ Practice breathing exercises
- ☐ Review positive affirmations
- ☐ Warm up in designated area
- ☐ Focus on process, not outcome

Appendix D: *Audition Reflection Form*

This form provides a structured platform for self-reflection following an audition or performance. Completing this form helps students process their experience, identify patterns, and plan for future growth.

Basic Information:

Date of Audition: _____

Audition Type: _____

Pieces Performed: _____

Pre-Audition Reflection:

1. How did you feel physically before the audition?

☐ Calm and relaxed

☐ Slightly nervous with manageable energy

☐ Very anxious

☐ Other: _____

2. What regulation techniques did you use before the audition?

☐ Breathing exercises

☐ Meditation/mindfulness

☐ Positive affirmations

☐ Visualization

☐ Grounding technique (5-4-3-2-1)

☐ Other: _____

3. Which techniques felt most helpful?

_____

During-Audition Reflection:

4. How did you feel during the audition?

☐ Focused and present

☐ Somewhat distracted

☐ Very anxious

☐ Other: _____

5. Describe your performance (avoid using pronouns or qualifiers like "good" or "bad"):

_____

6. What technical aspects went well?

_____

7. What technical aspects could be improved?

_____

Post-Audition Reflection:

8. How do you feel about your audition experience overall?

☐ Very satisfied with my preparation and performance

☐ Satisfied with my effort and process

☐ Disappointed but learned valuable lessons

☐ Other: _____

9. What did you learn from this audition experience?

_____

10. What will you do differently next time?

_____

11. How does this audition experience contribute to your growth as a musician?

_____

Closing Reflection:

12. Congratulations on completing your audition! You are now a member of the "Club" - the community of all musicians who have had the courage to audition. What does this membership mean to you?

_____

Appendix E: *Examples from the Curtis Institute and the University of Oklahoma*

Curtis Institute of Music Example

In a Curtis Institute of Music newsletter announcing two students who were awarded chairs in an orchestra, the organization used affirming language that emphasized inclusion and welcome rather than competition. The announcement stated that the students "joined" the Cleveland Orchestra, and the orchestra "welcomed" them. This language reframes the audition outcome as entry into a community rather than victory in a competition.



Curtis
Institute of Music

Search

Gawon Kim (’22) and Zubin Hathi (’19) join the orchestra as second violin and principal timpanist, respectively

The **Cleveland Orchestra** recently announced the appointments of two more outstanding Curtis alumni to the ensemble. The orchestra welcomed **Gawon Kim** (’22) as second violin in the fall, and in July will welcome **Zubin Hathi** as principal timpanist, holding the Otto G. and Corinne T. Voss Chair.

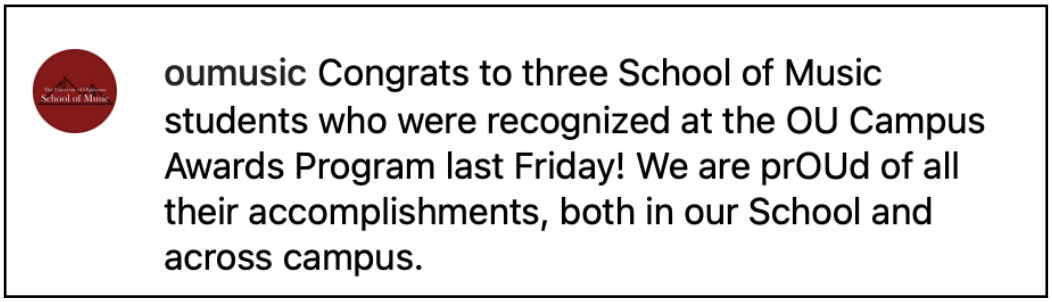
This announcement comes on the heels of the announcement that Joel Link (’11, ’14), first violin of the Dover Quartet, had also been named the Cleveland Orchestra’s concertmaster, beginning July 3.

Photos by Nichole MCH Photography (Kim) and David DeBalko (Hathi).

Similarly, when individuals are appointed to professional positions at universities, the language typically emphasizes "appointment" or "selection" rather than "winning," even though these positions also involve competitive interview processes among multiple candidates.



Example of “winning” the job.



Example of “recognized” for an award.



Example of “appointed” to the position.

Implications for Music Education

These examples demonstrate that language choices in institutional communications meaningfully influence how students internalize audition outcomes. By consistently using affirming, inclusive language ("awarded," "joined," "welcomed") rather than competitive language ("won," "lost," "beat out"), educational institutions can help students develop healthier relationships with auditions and performance evaluations. This linguistic shift supports the development of a growth mindset and process-oriented learning, ultimately fostering both musical excellence and personal well-being.

The distinction between competitive and inclusive language is particularly important in music education, where subjective evaluation is inherent to the discipline. By reframing auditions as opportunities for participation in a community of musicians rather than competitions with clear winners and losers, educators can help students develop resilience, confidence, and a lifelong love of music-making.

Appendix F: Post-Semester Survey Instrument

Section A: Background Information

1. What grade are you in? (7th, 8th, 9th, 10th, 11th, 12th)
2. What instrument do you play?
3. Which group best describes your participation this semester?
    - I auditioned for an honors orchestra
    - I participated in a mock audition
    - I participated only in regular orchestra classes

Section B: Emotional Regulation Skills (All Students)

Rate each statement on a scale of 1-5: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

1. I feel more confident managing my emotions during orchestra rehearsals than I did at the beginning of the semester.
2. The breathing exercises helped me feel calmer during stressful situations.
3. Using positive affirmations improved my mindset about practicing and performing.
4. The reflection language guidelines (avoiding pronouns and qualifiers) helped me separate my self-worth from my playing.
5. I can now identify my emotional state more accurately before and after practice sessions.

6. The practice journal helped me become more aware of my emotional patterns.
7. I feel better equipped to handle performance pressure than before this training.
8. The emotional intelligence techniques improved my overall enjoyment of music.

Section C: Practice & Performance Impact (All Students)

Rate each statement on a scale of 1-5

1. The Feed Up/Feed Back/Feed Forward framework improved the quality of my practice sessions.
2. Recording and reflecting on my playing helped me identify specific areas for improvement.
3. I am more comfortable performing in front of others than at the beginning of the semester.
4. The techniques I learned helped me stay focused during performances.
5. I feel more resilient when facing musical challenges.

Section D: Audition-Specific Questions (For Groups 1 & 2 Only)

Rate each statement on a scale of 1-5

1. The emotional intelligence training helped me prepare mentally for the audition.
2. I used breathing exercises before or during my audition.
3. I used positive affirmations to manage my mindset during the audition process.

4. The reflection practices helped me view the audition as a learning process rather than just a result.
5. I felt more in control of my nerves during the audition than I would have without this training.
6. The language guidelines helped me process the audition experience in a healthy way.
7. I felt less anxious about the audition outcome because of the emotional intelligence training.

Section E: Mock Audition Experience (Group 2 Only)

Rate each statement on a scale of 1-5

1. The mock audition helped me understand what to expect in a real audition setting.
2. Practicing emotional regulation techniques during the mock audition prepared me for future auditions.
3. The mock audition experience helped expand my comfort zone.

Section F: Open-Ended Questions (All Students)

1. Which emotional intelligence technique was most helpful to you? (breathing exercises, positive affirmations, reflection language, practice journaling, or other)
2. Describe a specific moment when you used one of these techniques and how it helped you.
3. What was the most challenging aspect of implementing these emotional intelligence practices?

4. How has your perspective on performance anxiety or stress changed since the beginning of the semester?

5. What suggestions do you have for improving this emotional intelligence training?

Section G: Audition Outcome Reflection (Group 1 Only)

1. Regardless of the audition outcome, do you feel you performed to the best of your ability? (Yes/No/Somewhat)

2. How did the emotional intelligence training influence your response to the audition results?

3. Would you approach future auditions differently based on what you learned? If yes, how?