

Recognizing Fear in the Voice Studio and Applying Strategies for Redirection

Darrell J. Jordan

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Reading Committee:

Kari Ragan, co-chair

Stephen Rumph, co-chair

Patricia Campbell

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University of Washington

**Abstract**

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Darrell J. Jordan

Chairs of the Supervisory Committee:

Dr. Kari Ragan, School of Music

Dr. Stephen Rumph, School of Music

This document is a compilation of teaching strategies to inform teachers of singing or singing teachers, and choral conductors about the negative impact fear and anxiety may have on the voice student. It catalogues the various ways fear and anxiety may manifest in a musician by detailing both external, observable responses, such as inefficient posture or visible shaking, and internal, unobservable responses, such as vasoconstriction and heart rate variability. This document examines the impact fear and anxiety have on learning, motivation, memory, and motor skills of the voice student. Furthermore, it offers various approaches to mitigate or prevent fear by exploring positive reinforcement strategies, emotional regulation skills, mindfulness, and additional techniques to act as a means of reducing fear in the voice studio.

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Recognizing Fear in the Voice Studio and Applying Strategies for Redirection  
Darrell J. Jordan, DMA Candidate in Voice Performance

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## CHAPTER ONE

### Introduction

Imagine the following scenario. A university student walks into the voice studio ready for their<sup>1</sup> weekly voice lesson. They are a well-prepared student, yet they begin to encounter a vocal issue in one of their songs. For the voice teacher, there is a checklist of tests to run. These include examining the five principal systems of voice mechanics (resonance, respiration, registration, phonation, and articulation);<sup>2</sup> determining that the extraneous variables of healthy function-based singing are not the primary cause; checking that the student has properly prepared for the lesson; and finally, judging whether their comprehension of the text and music is satisfactory. If these factors are not the culprit, the teacher may decide that the student is experiencing a type of “mental block.” Specifically, they are experiencing a fearful event in the voice studio.

Several responses are possible: (1) the teacher may encourage the student to address their fears, thereby aiding the student in learning new, helpful behaviors; (2) the teacher may become frustrated and annoyed that the student cannot seem to “get over” this mental block; (3) the teacher may intentionally ignore the students struggles, hoping that the situation will go away if no attention is paid it; (4) the teacher may praise the student on things they are doing correctly, still ignoring the fearful mental block; or (5) the teacher may provide well-intended

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<sup>1</sup> I will be using gender-neutral pronouns throughout this document.

<sup>2</sup> Kari Ragan, *The Systematic Approach to Voice: The Art of Studio Application*, (San Diego, CA: Plural Publishing Inc, 2020).

but ultimately unhelpful advice like “don’t be afraid.” As a result, the student may begin to shut down emotionally, pay less attention to their fears, or stop communicating their concerns out of fear of annoying or distressing the voice teacher. The lines of communication have been severed by both parties. If any of these scenarios have occurred, an environment may have unintentionally been created where fear is normalized in the voice studio. If not addressed, the student may begin to develop habitual actions that are based on negative fearful moments. This could include inefficient respiratory mechanics: they may resort to clavicular breathing when approaching the passaggio or unintentionally hold their breath before beginning a passage, creating an uncoordinated glottal onset. Students may also become victim to the “ironic effect<sup>3</sup>,” in which they deliberately try to suppress certain thoughts (“don’t think about cracking!”) but end up actualizing those thoughts.

Perhaps this was not even the first sign of anxiety or fear in the voice studio. Did the voice teacher miss the signs completely? Should the teacher even be held accountable if they are not aware of those signs? Did they accidentally mistake shyness for legitimate fear? Lynn Holding comments that “one impediment to [music performance anxiety (MPA)] research is the mash-up of terminology (performance anxiety, stage fright, and shyness are often used interchangeably) that has not allowed MPA to claim its own distinctive set of traits.”<sup>4</sup> Anxiety is the most common form of mental illness in the United States, yet only 37% of the population seeks any treatment. According to the official Anxiety and Depression Association of America website, over 40 million adults in the United States suffer from some form of anxiety, which

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<sup>3</sup> Lynn Holding, “Break a Leg! The Ironic Effect, Choking, and Other Mind Games,” *Journal of Singing* 67 no. 2 (November/December 2010), 210.

<sup>4</sup> Lynn Holding, “Music Performance Anxiety,” *Journal of Singing* 73 no. 1 (September/October 2016), 84.

amounts to roughly 20% of the entire population.<sup>5</sup> This number is consistent with countless studies of artists, where almost 25% of all musicians reportedly cope with some form of music performance anxiety.<sup>6</sup> If a voice teacher is instructing a university studio of twenty students, four of the students may have a diagnosable anxiety disorder, and this does not even account for the less recognizable and often subclinical fear and performance anxiety.

So, what exactly is fear? Fear is an unpleasant and strong emotion caused by an awareness of danger, the anticipation of the unknown, anxious concern, or a reasonable ground for alarm.<sup>7</sup> Fear is generally experienced as intense feelings of perceived danger, either imminent or predictive. Students that experience fear commonly suffer from reduced levels of achievement.<sup>8</sup> Fear often causes one to seek safety above all else, to the detriment of academic achievement and self-actualization. The biological and metabolic responses to fear include sweating, shortness of breath or difficulty in breathing, the sensation that one is choking, tachycardia (rapid heartbeat), the need to use the restroom, dry mouth, nausea, confusion, dizziness, and disorientation. Simply put, fear is an anxiety state.<sup>9</sup> Once entered into that state of anxiety or fear, one has little chance of emerging quickly from the perceived state of danger; and even if one can, the immediate residual effects of this state can be devastating to a vocalist. Attempting to sing a long and vocally demanding passage with an efficient respiration strategy is a challenging feat by itself without the added challenges of shortness of breath or a

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<sup>5</sup> For more information, see Anxiety and Depression Association of American (<https://adaa.org/about-adaa/press-room/facts-statistics>).

<sup>6</sup> Casey Eileen McGrath, "Music Performance Anxiety Therapies: A Review of the Literature," (DMA Dissertation, University of Illinois, 2012), 2.

<sup>7</sup> Merriam-Webster, s.v. "fear" accessed April 20, 2020, ([https://www.merriam-webster.com/dictionary/fear?utm\\_campaign=sd&utm\\_medium=serp&utm\\_source=jsonld](https://www.merriam-webster.com/dictionary/fear?utm_campaign=sd&utm_medium=serp&utm_source=jsonld))

<sup>8</sup> Agne, Karen. "Fear: The Teachers' Teacher," *Educational Horizons* 74 no. 3 (Spring 1996), 131.

<sup>9</sup> Charles D. Spielberger, "Trait-State Anxiety and Motor Behavior," *Journal of Motor Behavior* 3 no. 3 (1971), 268.

dry mouth that leads to problematic articulation. Motor learning skill acquisition is nearly impossible if one loses focus or becomes disoriented. Fear is debilitating and disabling for the voice student. Fear directs all focus to the self, interrupting efficient reception and retention of stimuli and decreasing the likelihood that the student can obtain high levels of achievement.<sup>10</sup>

“Fear” is not technically a diagnosable disease and is often categorized as a symptom of some form of anxiety. The clearest clinical definition of this state pertaining to the voice student is found in the social phobia/social anxiety disorder section of the *Diagnostic and Statistical Manual of Mental Disorders* (fifth edition), which lists the following as potential criteria for diagnosis:

- Fear of being observed or performing in front of others
- Fear of showing or displaying symptoms of anxiety
- Fear of being humiliated or being rejected
- Fear and anxiety are persistent lasting more than six months<sup>11</sup>
- Fear and anxiety are not attributed to other conditions such as a medical condition or substance abuse
- This fear is restricted to performing in public<sup>12</sup>

It is worth noting that music performance anxiety, or more broadly, “performance anxiety,” is listed as a subsection of social anxiety disorder and is still currently not included as its own distinct condition.<sup>13</sup>

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<sup>10</sup> Karen Agne, “Fear: The Teachers’ Teacher,” *Education Horizons* 74 no. 3 (Spring 1996), 131.

<sup>11</sup> This qualifier eliminates “first lesson jitters” as the cause of fear.

<sup>12</sup> American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders: DSM-V* (Arlington VA: American Psychiatric Association, 2013), 202–203.

<sup>13</sup> Lynn Holding, “Music Performance Anxiety,” 84.

The human mind is fascinating because it excels at both creating and preserving fear.<sup>14</sup> This means that an academic voice teacher inherits a group of eighteen-year-old freshmen who enter college with normalized exposure to fear and anxiety. Rüdiger Vass states in *Scientific American Minds* that emotionally intense experiences essentially “scar” our cerebral tissue in certain ways that produce a perfect breeding ground for anxiety.<sup>15</sup> In my own case, I entered a collegiate voice studio familiar with many perceived shortcomings. As a baritone, I had learned to be afraid of both high and low pitches, and subsequently learned to incorrectly manipulate the vocal mechanism to compensate. I knew I was afraid to sing in these ranges but had never been offered any strategies to overcome the fear. By acknowledging and creating awareness of the signs of stress, fear, and anxiety, the teacher can and should be the first line of defense for their student’s fears. The teacher can help the student unlearn these behaviors and empower them with the skills to alleviate potential future fearful events in the voice studio.

### ***Statement of Purpose***

The goal of this dissertation is to bring awareness to all teachers of singing—the seasoned university professor, the independent voice teacher, and the choral conductor—of the harmful impacts that fear and anxiety may have on a student’s physiological responses and ability to sing with optimal efficiency. Hopefully, it will encourage educators to continue what they are already doing: fostering honest and emotionally safe learning environments and

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<sup>14</sup> Rüdiger Vass, “Fear Not,” *Scientific American Mind* 14 no. 1 (2004), 69.

<sup>15</sup> Vass, “Fear Not,” 66. See Appendix for the image.

instilling students with a sense of purpose and creative freedom.<sup>16</sup> This study is designed to prepare the voice teacher to identify accurately and effectively the various signs of how fear may manifest itself in a student—both in externally observable physiological responses such as lack of eye coordination or posture and in internal responses like heart rate variability and vasoconstriction—as well as the negative impacts it might have on motivation, memory, and motor learning skills. It offers a unique approach by encouraging a collaborative learning environment between the teacher and student. Upon recognizing fearful tendencies within the student, an extensive list of approaches is offered such as mindfulness and emotional regulation skills, in addition to positive reinforcement and motivation tactics. This provides detailed and tangible application for the voice teacher to redirect fear into a more productive and efficacious learning environment, with the long-term goal of these strategies acting as a means to reduce fear significantly in the voice studio. The goal is to cultivate a habit of interest in the voice studio rather than a habit of fear.<sup>17</sup>

The intention of this dissertation is not, however, to bring shame or doubt to any voice teacher who may find that they occasionally use strategies or methods that may be deemed antiquated or “fear-based.” Teaching exclusively by fear is not the same as administering some well-timed “tough love” to a vocal student. The aim is to focus on how the voice teacher may react to a nervous or anxious student in order to enhance available teaching strategies. This will further expand upon the voice teacher’s vast tool box of knowledge, and simultaneously increase the teacher’s empathy and understanding toward the student. It should be stated that

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<sup>16</sup> Karin S Hendricks, Tawnya D. Smith, and Jennifer Stanuch, “Creating Safe Spaces for Music Learning,” *Music Educators Journal* 101 no 1. (September 2014), 35.

<sup>17</sup> Stephanie A. Baer, “The Fear of Art and the Art of Fear,” *Education and Culture* 28 no. 1 (2012), 50.

this document pertains more to prolonged episodes of fear and anxiety in the voice studio and not to the normal and expected “first lesson jitters.” Moreover, serious issues or concerns regarding the treatment of anxiety disorders should be referred to either a primary care physician or clinical psychologist.

### ***Glossary of Terms and Concepts***

**Amygdala Hijack:** The amygdala hijack is an immediate emotional response. It is overwhelming and often not reflective of the actual stimulus. The term was coined by psychologist Daniel Goleman who posited that humans have retained ancient structures in their brains designed to respond instantly to danger and threat. The amygdala hijack can and often does interfere with functioning in our modern world.<sup>18</sup>

**Beta-Blockers:** Created for the management of cardiovascular disease, beta-blockers are also used for the clinical treatment of glaucoma, migraines, and numerous anxiety conditions. They have an impact on peripheral somatic manifestations like stage fright, but also on cognitive and psychomotor skills.<sup>19</sup>

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<sup>18</sup> Jennifer J. Salopek, “Train Your Brain,” *Training & Development* 52 no. 10 (October 1998).

<sup>19</sup> Jacqueline Nube, “Beta-Blockers: Effects on Performing Musicians,” *Medical Problems of Performing Artists* 6 no. 2 (1991), 67.

**Emotional Regulation:** Emotional regulation is a term describing the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying reactions to stressful situations. Developing and modifying these skills is a part of dialectical behavioral therapy.<sup>20</sup>

**Fight-Flight-Freeze-Fawn:** This is the hyperarousal and acute stress response. It is a physiological reaction to perceived fear or danger. The first three are obvious: the individual either fights back, flees from danger, or freezes up completely. The fourth *f* is fawn; this refers to someone who typically abandons the first three strategies and loses the ability to express needs or assertiveness. The fawning response is especially prevalent in those in whom codependency is an issue.<sup>21</sup>

**Meditation:** The practice of training one's attention and awareness to achieve mental clarity. This can be achieved through various types of yoga, body scanning, or breathing exercises.

**Mindfulness:** Mindfulness is the heightened attention to present experience or day-to-day reality. This process should occur without judgment and often develops through daily practice and meditation.<sup>22</sup> Simply put, it is an awareness of awareness.<sup>23</sup>

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<sup>20</sup> Ross A. Thompson, "Emotional Regulation and Emotional Development," *Educational Psychology Review* 3, no.4 (1991), 269.

<sup>21</sup> For more information on "fawn" refer to Pete Walker's website: <http://pete-walker.com/codependencyFawnResponse.htm>.

<sup>22</sup> Laura A Clevenger, "A Study of the Correlation Between Mindfulness and Music Performance Anxiety Among College Music Majors: Implications for Counseling and Counselor Education," (DMA Dissertation, Capella University, 2015), 17.

<sup>23</sup> Lynd Holding, "Singing With Your Whole Brain: The Mind-Body Problem," *Journal of Singing* 71 no. 2 (November/December 2014), 227.

**Motivation Theory:** Motivation is a force that encourages an action or behavior, often with some obtainable goal in mind. The theory of motivation suggests there are two distinct systems, the intrinsic and extrinsic.

**Motor Learning Skills:** This is how our bodies learn to perform a movement. Motor learning is a process that leads to sustained, permanent changes due to repeated practice or exposure.<sup>24</sup>

**Music Performance Anxiety:** Music Performance Anxiety (MPA) is a debilitating condition that impacts musicians as they perform in a recital or concert setting. Kenny states that MPA is “the experience of marked and persistent anxious apprehension related to music performance, which is manifested through combinations of affective, cognitive, somatic, and behavioral symptoms.”<sup>25</sup>

**Polyvagal Theory:** The Polyvagal theory was developed by psychologist Stephen Porges. It offers insight into the physiology of stage presence and vocal communication, including its visceral impact on the audience, by measuring the vagus nerve activity and its impact on the ability to communicate effectively.<sup>26</sup>

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<sup>24</sup> Lynn Holding, “Motor Learning and Voice Training, Part II. Locus of Attention: Internal or External? That is the Question,” *Journal of Singing* 72 no. 5 (May/June 2016), 621.

<sup>25</sup> Joseph A. Diehl, “Stage Fright: A Topical Guide for Singers Concerning Music Performance Anxiety Literature,” (DMA Dissertation, Ball State University, 2016), 2.

<sup>26</sup> Joanna Cazden, “Stalking the Calm Buzz: How the Polyvagal Theory Links Stage Presence, Mammal Evolution, and the Root of the Vocal Nerve,” *Voice and Speech Review* 11 (October 2017), 132.

**Reinforcement Theory:** Developed by psychologist B.F. Skinner, reinforcement theory holds that an individual's behavior is a function of its consequences. Positive reinforcement is one type of reinforcement, in which giving someone a positive response when they show achievement or complete a required behavior is believed to increase how often they will perform that task.

**State Anxiety:** State anxiety is the transitory emotional reaction or response that is elicited in a person who perceives a situation as personally fearful or dangerous, irrespective of the presence (or absence) or actual, objective danger.<sup>27</sup>

**Trait Anxiety:** Trait anxiety refers to the tendency of an individual to respond to a situation with feelings of stress, worry, and discomfort. This is often a stable trait for an individual and varies between people as they each experience regular day-to-day stressors.<sup>28</sup>

The following chapters fall into three sections that deal, respectively, with recognizing fear in the voice studio, understanding its negative impacts on learning, and exploring various approaches to redirecting fear. Chapter Two (Recognizing Fear in the Voice Studio) explores various concepts of fear from a fundamental aspect, including internal and external physiological responses and state versus trait anxiety. Chapter Three (The Negative Impact Fear Has on the Voice) reviews how fear responses manifest in the mechanics of the singer,

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<sup>27</sup> Charles D. Spielberger, "Trait-State Anxiety and Motor Behavior," *Journal of Motor Behavior* 3 no. 3 (1971), 267.

<sup>28</sup> Ibid.

investigating fine and gross motor learning skills, memory, with special attention to the amygdala, hippocampus, and neocortex; the amygdala hijack theory and emotional learning; the fight-flight-freeze-fawn responses; the cognitive or emotional aspect of fear; Polyvagal theory; and the literature on Music Performance Anxiety. The exploration of these concepts will lay the groundwork for Chapter Four (Strategies for Redirecting Fear in the Voice Studio), which describes suitable interventions, such as beta-blockers and meditation; the Lessac Y-Buzz; positive reinforcement theory and motivation theory; and cognitive and dialectical behavioral therapies like emotional regulation skills and mindfulness skills. Finally, the Conclusion will discuss limitations of this study and suggest possible areas for future research.

## CHAPTER TWO

### **Recognizing Fear in the Voice Studio**

This chapter introduces various scientific concepts applicable to voice teachers and their students. Familiarity with these concepts will give voice teachers a rudimentary understanding of the theories that are directly applicable in the context of a voice lesson. It should inform educators of both the negative and positive implications these concepts have on productive learning.

Before exploring fear in the voice studio, we must draw a distinction between short-term or a chronic state of fear, nervousness, and anxiety. A case of the jitters at a first lesson is entirely expected. Regardless of age, gender, or experience, a singer is likely to exhibit some fear or nervousness in the initial lesson with a new voice teacher. These fears may manifest as brief, almost unobservable actions, and the teacher may ascribe them to a quiet, shy, or overdisciplined personality. In a university setting, these “first-lesson jitters” are likely to resolve within the first semester, with or without intentional intervention from the professor. For independent studio teachers, this process generally takes ten to twelve weeks anecdotally, although it can ideally resolve much more quickly. A student who continues to experience consistent fear and nervousness after three months may develop chronic fear and anxiety. Worse yet, they may develop a generalized anxiety disorder. This disorder is characterized by excessive worry and anxiety that persists for at least six months, with a twelve-month

prevalence being up to almost 6% in the United States.<sup>29</sup> It should be noted that development of a generalized anxiety disorder is likely not the result of the dynamic with the teacher; the student may have an underlying condition.

According to the DSM-V, there is an observable and fairly succinct timetable during which a fear evolves from short-term into long-term.<sup>30</sup> By the time uncontrollable and persistent anxiety and nervousness have surpassed the six-month time mark, they are considered to be chronic. At this crucial stage, the voice teacher should decide if interventional strategies are necessary. This might include implementation of emotional regulation skills, deliberate and genuine positive reinforcement, or a referral to a trained medical professional. If a student's symptoms present outside of an expected norm of performance anxiety, such as severe depression, suicidal ideation, eating disorders, or substance abuse, they require mental health services and should be directed accordingly.<sup>31</sup>

As explained in Chapter One, state anxiety refers to a transitory emotional state, which may present in a student as nervousness and apprehension induced by a voice lesson with a new teacher. The feelings of apprehension are focused and localized in state anxiety.<sup>32</sup> Trait anxiety, however, represents the tendency of an individual toward state anxiety. It is considered to be a part of a person's personality and varies from individual-to-individual. For example, a hypochondriac, who constantly perseverates about their health, has higher trait

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<sup>29</sup> Kathleen W. Wyrwich, Neesha Harnam, Julie C. Locklear, Henrik Svedsäter, and Dennis A. Revicki, "Understanding the Relationship Between Health Outcomes in Generalized Anxiety Disorder and Clinical Trials," *Quality of Life Research* 20 no. 2 (March 2011), 256.

<sup>30</sup> American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders: DSM-V*, 202.

<sup>31</sup> Leonard Zaichkowsky, "Sport Psychology: A Primer for Educators," *The Journal of Education* 187 no. 1 (2006), 6.

<sup>32</sup> Keith Allan Currie, "Performance Anxiety Coping Skills Seminar: Is It Effective in Reducing Musical Performance Anxiety and Enhancing Musical Performance Quality?" (PhD Dissertation, Virginia Polytechnic Institute and State University, 2001), 3.

anxiety (i.e. threshold to feel worry) than someone who approaches new situations with ease and calmness. One method for assessing differences in anxiety thresholds among people is the State-Trait Anxiety Inventory (STAI).

Charles D. Spielberger created the STAI (Figures 1 and 2) as a way to measure both the presence and severity of anxiety symptoms, as well as the overall propensity to be anxious.<sup>33</sup> This is a self-reported inventory with two different versions: one for adults and another for children. The STAI has forty questions based on a four-point Likert scale: twenty questions are allocated for the State Anxiety Scale (S-Anxiety), and twenty questions comprise the Trait Anxiety Scale (T-Anxiety). The S-Anxiety Scale evaluates how the student is feeling “right now,” while the T-Anxiety Scale is concerned with proneness to anxiety compared to states of calmness, confidence, and security.<sup>34</sup> The STAI was created in 1970 and was revised in 1983. Answers are added to obtain a total score in each category (state anxiety and trait anxiety). The scores range from 20-80, with higher scores correlating with higher levels of anxiety.<sup>35</sup> The interpretation of a score of 39 or higher indicates potentially clinically significant symptoms for the S-Anxiety Scale.

[Figure 1 Follows]

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<sup>33</sup> Laura J. Julian, “Measures of Anxiety,” *Arthritis Care & Research*, 63 no. 11 (November 2011), 467.

<sup>34</sup> *Ibid.*, 467.

<sup>35</sup> *Ibid.*, 468.

**State Anxiety Scale (S-Anxiety)**

STAI FORM X-1

**DIRECTIONS:** A Number of statements which people have used to describe themselves are given below. Read each statement and then circle the response option to the right to indicate how you feel right now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement, but give the answer which seems to describe your present feelings best.

	Not at all	Somewhat	Moderately so	Very much so
1. I feel calm .....	1	2	3	4
2. I feel secure .....	1	2	3	4
3. I am tense .....	1	2	3	4
4. I am regretful .....	1	2	3	4
5. I feel at ease .....	1	2	3	4
6. I feel upset .....	1	2	3	4
7. I am presently worrying about possible misfortunes .....	1	2	3	4
8. I feel rested .....	1	2	3	4
9. I feel anxious .....	1	2	3	4
10. I feel comfortable .....	1	2	3	4
11. I feel self-confident .....	1	2	3	4
12. I feel nervous .....	1	2	3	4
13. I am jittery .....	1	2	3	4
14. I feel "high strung" .....	1	2	3	4
15. I am relaxed .....	1	2	3	4
16. I feel content .....	1	2	3	4
17. I am worried .....	1	2	3	4
18. I feel over-excited and rattled .....	1	2	3	4
19. I feel joyful .....	1	2	3	4
20. I feel pleasant .....	1	2	3	4

Figure 1: STAI Form 1. Figure reproduced from Charles D. Spielberger, *Anxiety: Current Trends in Theory and Research*, Vol 1, (New York: Academic Press, 1972): 52.

**Trait Anxiety Scale (T-Anxiety)**

**STAI-X2**

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
1. I feel pleasant.....	1	2	3	4
2. I tire quickly.....	1	2	3	4
3. I feel like crying.....	1	2	3	4
4. I wish I could be as happy as others seem to be.....	1	2	3	4
5. I am losing out on things because I can't make up my mind soon enough.....	1	2	3	4
6. I feel rested.....	1	2	3	4
7. I am "calm, cool, and collected".....	1	2	3	4
8. I feel that difficulties are piling up so that I cannot overcome them.....	1	2	3	4
9. I worry too much over something that really doesn't matter.....	1	2	3	4
10. I am happy.....	1	2	3	4
11. I am inclined to take things hard.....	1	2	3	4
12. I lack self-confidence.....	1	2	3	4
13. I feel secure.....	1	2	3	4
14. I try to avoid facing a crisis or difficulty.....	1	2	3	4
15. I feel blue.....	1	2	3	4
16. I am content.....	1	2	3	4
17. Some unimportant thought runs through my mind and bothers me.....	1	2	3	4
18. I take disappointments so keenly that I can't put them out of my mind.....	1	2	3	4
19. I am a steady person.....	1	2	3	4
20. I become tense and upset when I think about my present concerns.....	1	2	3	4

Figure 2: STAI Form 2. Figure reproduced from Charles D. Spielberger, *Anxiety: Current Trends in Theory and Research*, Vol 1, (New York: Academic Press, 1972): 52.

In an article from 1971, Spielberger concluded the following regarding the State-Trait Anxiety

Theory:

1. In situations that were perceived as threatening, a state anxiety reaction will be elicited. Through sensory and cognitive feedback, high levels of state anxiety will be experienced as discomforting or unpleasant.
2. High trait anxiety will perceive situations that involve threats to self-esteem, such as failure or negative evaluation of performance, as more threatening, and will respond to situations with greater elevations of state anxiety.
3. Elevations in state anxiety have motivational or driving properties that may directly influence behavior. They will also serve to initiate psychological defenses that have been effective in reducing state anxiety in the past.<sup>36</sup>

Utilizing a tool such as the STAI to explore state- and trait-anxiety in university students in a vocal performance program, for example, may provide an opportunity to create a dialogue between the teacher and the student. This has the potential to inform future approaches to lessons and studio masterclasses. Administering a sophisticated questionnaire such as the STAI, however, may be problematic. A student may perceive such a questionnaire as strange in the context of a voice lesson, or the teacher may not feel adequately prepared or have the means necessary to administer the STAI questionnaire. A more approachable tactic to identify anxiety

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<sup>36</sup> Spielberger, "Trait-State Anxiety and Motor Behavior," 277.

in students might be learning how to recognize physical reactions that students may display during stressful situations.

### ***External Responses***

Directly observable, or external responses in the voice studio refer to gestures that are visibly noticeable by the teacher. It is expected for any of the following types of external responses to occur occasionally. If these reactions are presented in tandem and/or presented consistently over a long duration, they are mostly likely manifestations of learned fear. The following represent some of the most common or relevant types of external responses a voice teacher may encounter. Becoming familiar with these reactions is the first step toward recognizing fear in students.

### ***Appearance***

Changes in a student's appearance that could suggest anxiety states include looking fatigued or restless, or a dramatic alteration in wardrobe or hygiene. A drastic change in appearance may be a sign of an anxiety disorder. Teachers of singing should be aware of changes that may represent learned fear in the voice studio.

### ***Breathing Patterns***

For a singer to be successful balanced breath mechanics are imperative. Breathing patterns may be noticeably altered if a student is fearful. Normal rates of respiration vary between 12 and 20 breaths per minute. However, an increase in state anxiety can be

accompanied by acute respiration rates.<sup>37</sup> Respiration rates exceeding 20 breaths per minute is considered abnormal. Often, rapid or shallow breathing are common pitfalls for the singer related to anxiety, which can create problematic breath management for the singers. Ragan asserts that stability in the respiratory system, together with laryngeal stability, prevents unnecessary compensatory engagement of muscle activity.<sup>38</sup> Students experiencing emotional distress may inadvertently hold their breath, which may lead to numerous challenges within the breath management system; including the regulation of air pressure and airflow. Inefficient breathing patterns can also produce breathy or pressed phonation, both of which are problematic to efficient singing. These changes can be audibly and visibly noticeable to the teacher.

### *Excessive Swallowing*

Anxiety may cause students to experience tightness in the throat and as a result experience an issue with excessive swallowing.<sup>39</sup> Students may describe this as having the sensation of a “lump” in the throat. This is in part due to the body shutting down non-essential activities (like eating) during a fight or flight response. Frequent swallowing can also be a direct response to dry mouth due to reduced salivary secretions, which is an internal response addressed in the next section. Additionally, excessive swallowing may be a sign of a tic disorder. From a singing perspective, unnecessary swallowing interrupts efficient singing. It further

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<sup>37</sup> Nicholas Giardino, Seth Friedman, and Stephen Dager, “Anxiety, Respiration and Cerebral Blood Flow: Implications for Functional Brain Imaging,” *Comprehensive Psychiatry* 48 no. 2 (March-April 2007), 105.

<sup>38</sup> Ragan, *A Systematic Approach to Voice*, 24.

<sup>39</sup> Allan House and Dan Stark, “ABC of Psychological Medicine: Anxiety in Medical Patients,” *British Medical Journal* 325 no. 7357, (July 2002), 208.

disrupts musical phrasing necessary for a successful performance and can be emotionally disturbing to a singer.

### *Eye Contact*

A teacher should take notice if a student consistently fails to look them in the eye, or at a minimum, the face. This may be especially noticeable when the teacher is giving feedback, which can be an anxiety-provoking experience. This is often called gaze aversion. Those with increased fear or anxiety are often unable to look someone directly in the eyes when they are talking or being talked to, as they feel as if they are being judged or scrutinized, especially if they make eye contact. Lack of eye contact could also indicate that the student is unable to focus on tasks. It should be noted, however, that duration and degree of eye contact may also reflect cultural practices and norms, distinct from anxiety states.

### *Facial Features*

Facial features, like a smile or a frown, or even the “deer in the headlights look” of fright are signals of communication, relating to the individual’s actual or idealized emotional state. Careful attention to the facial expressions of a singer both during vocal production and during lesson feedback may allow earlier detection of anxiety states. Not only do facial muscles express emotions, but they can also modulate subjective experiences of emotions and even initiate emotions themselves.<sup>40</sup> Furthermore, two important muscles of facial expression, the

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<sup>40</sup> Ulf Dimberg and Sven Söderkvist, “The Voluntary Facial Action Technique: A Method to Test the Facial Feedback Hypothesis,” *Journal of Nonverbal Behavior* 35 (2011), 17.

zygomaticus major and corrugator supercilii, have an impact on the singing voice, which will be discussed later.

### *Jaw Tension*

Freedom in the jaw is essential for vocalists to achieve optimal vocal tract shaping for resonance and phonation strategies. The elevator (closing) muscles of the jaw are biologically stronger than the depressor muscles.<sup>41</sup> If the jaw closing muscles are tense, then the muscles that open the jaw will lead to elevation of the larynx.<sup>42</sup> Tension in the jaw, however, may be a sign of an anxious student. Proper jaw position additionally depends on various factors related to articulation strategies (vowel formation, vowel modification, etc.).

### *Lip Trembling*

Another articulator to observe is the lips. Properly functioning lips must remain free of tension and be ready to move as needed. If the lips are shaking or trembling, they will not be effective articulators, and the timbre of the voice will be affected as.<sup>43</sup>

### *Posture*

One of the most readily observable signs of fearful tendencies in the studio is the lack of proper posture. The following traits can be observed in optimal singing posture: (1) the head aligns atop the spine with freedom; (2) the eyes should remain level to avoid unnecessary

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<sup>41</sup> Ragan, *A Systematic Approach to Voice*, 154.

<sup>42</sup> Ibid.

<sup>43</sup> James C. McKinney, *The Diagnosis & Correction of Vocal Faults* (Long Grove, Illinois: Waveland Press, 1994), 151.

protrusion of the chin<sup>44</sup>; (3) the shoulders should be relaxed and feel as if they have gently dropped into their sockets; (4) the arms and hands should hang loosely to the side of the body; (5) the knees should have a sense of buoyancy<sup>45</sup> rather than locking or rigidity.

An anxious or nervous student may manifest their fear by a posture not represented in the list above. The incorrect body posture may present in the following ways: the head may be improperly aligned, most likely looking downward; the shoulders may be rounded or hunched; the chest may be collapsed; the arms or hands may be clasped in front or the singer may grab at their clothing or a nearby object; the knees may be locked; there may be excessive body movement, such as swaying back-and-forth.

Improper posture, due to fear and anxiety, may have a devastating effect on the efficiency of the singing voice. If the head is looking downward, this could lead to difficulty in opening the jaw, adversely affecting the shaping of the vocal tract. If the shoulders are inappropriately engaged, this could lead to clavicular breathing, which hampers singing due to the lack of muscular antagonism necessary for efficient singing.<sup>46</sup> Clavicular breathing is known to create either airy or pressed phonation. If the chest is collapsed, this could lead to inefficient inhalation. Arms and hands that are held in front of or behind the body decrease efficient breath management. Locked knees create an undesirable swayback posture, which increases the likelihood of tension in other parts of the body.<sup>47</sup>

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<sup>44</sup> Ibid., 39.

<sup>45</sup> Davids, *Vocal Technique: A Guide for Conductors, Teachers, and Singers*, 16-17.

<sup>46</sup> Scott McCoy, *Your Voice: An Inside View* (Delaware, Ohio: Inside View Press, 2012), 89.

<sup>47</sup> Davids, *Vocal Technique: A Guide for Conductors, Teachers, and Singers*, 16.

### *Speech Pattern/Inflection of the Voice*

Fearful or nervous students may speak with abnormal speech characteristics. Students may end their sentences in a whisper, with unfinished words, or with unintentional vocal fry. Vocal fry is not a preferred long-term mode of vocal production as it is limiting in dynamics and timbre.<sup>48</sup> However, modern studies have shown that vocal fry is not injurious.<sup>49</sup> Likewise, the volume of their speaking voice may be quiet or difficult to discern. Characteristics of speaking often infiltrate the singing voice. Severely affected students may have no vocal inflection at all.

### *Stimming or Nervous Habits*

Stimming, continuous and repetitive body movement, is most commonly associated with those who are on the autism spectrum. The DSM-V includes stimming as a diagnostic criterion for autism, defining stimming as stereotyped or repetitive motor movements involving objects or speech.<sup>50</sup> These nervous habits can also manifest themselves in those not affected by autism. Fearful singers may engage in habitual throat clearing, clutch at the piano and music stand, or grab at their pants, behaviors that affect mental engagement and bodily posture. Excessive movement and swaying may also occur. Other nervous habits may include pacing, nail-biting, or excessive swallowing.

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<sup>48</sup> Ragan, *The Systematic Approach to Voice: The Art of Studio Application*, 106

<sup>49</sup>Ibid.

<sup>50</sup> American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders: DSM-V*

### *Throat Clearing*

Throat clearing may be a nervous tic that a student develops due to anxiety. Excessive clearing of the throat is traumatic to the vocal folds and will produce irritation and swelling. Additionally, medical conditions such as laryngitis, acid reflux, or allergies may cause or contribute to throat clearing.

### *Tics*

Tics are sudden and repetitive movements (motor tics) or vocalizations (vocal tic) and are classified as complex or simple.<sup>51</sup> Tics are not necessarily a result of nervous behavior but are usually heightened by fearful circumstances. Examples of simple nervous tics are uncontrollable swallowing, throat clearing, or inarticulate noises.<sup>52</sup> Complex vocal tics may have linguistic meaning and consist of words or phrases.

### ***Internal Responses***

Internal responses are reactions that do not present themselves directly to an observer. To accurately assess the following responses, either medical equipment or a medical professional is recommended. As with external responses, these reactions may present themselves simultaneously or consistently over a long period of time as manifestations of learned fear.

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<sup>51</sup> David Shprecher and Roger Kulan, "The Management of Tics," *Journal of the International Parkinson and Movement Disorder Society* 24 no. 1 (January 2009), 15.

<sup>52</sup> Ibid.

### *Blood Pressure*

Blood pressure will change during times of stress and fear.<sup>53</sup> If the student is experiencing fear, their blood pressure may rise, generating symptoms such as fatigue, confusion, headache, difficulty in breathing, irregular heartbeat, or vision problems. According to the American Heart Association,<sup>54</sup> normal blood pressure is 120/80. The most efficient method to check blood pressure is with a sphygmomanometer (a blood pressure cuff with pressure sensor) and a stethoscope.

### *Galvanic Skin Response*

The Galvanic skin response, or skin reflex, is the change in electrical resistance of the skin, which is caused by intense emotional stress. It is caused by changes in sweat gland activity related to the intensity of emotional arousal. This is not directly noticeable to an observer and requires a galvanometer to measure accurately.

### *Heart-Rate Variability*

Heart-rate variability is the variance of time between the beats of the heart. Measuring the heart rate variability is a common way to monitor stress on a fetus during pregnancy, the effect of stress on the adult body, and general autonomic health.<sup>55</sup> Usually, a low heart-rate variability suggests the body is under stress, either from exercise or psychological events. A high

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<sup>53</sup> Spielberger, "Trait-State Anxiety and Motor Behavior," 267.

<sup>54</sup> For more information on blood pressure, please visit <https://www.heart.org/en>

<sup>55</sup> Myron Ross Thurber, "Effects of Heart-Rate Variability Biofeedback Training and Emotional Regulation on Music Performance Anxiety in University Students," (PhD. Dissertation, University of North Texas, 2006), 37.

heart-rate variability means the body can tolerate stress. The most common way to measure heart-rate variability is through an electrocardiogram. It is important to remember that heart rate focuses on the beats per minute, while heart-rate variability measures the changes in time between heart beats.

### *Vasoconstriction*

Vasoconstriction is the constriction of small blood vessels that occurs as a response to autonomic arousal and is characterized by a decrease in skin temperature.<sup>56</sup> Vasoconstriction can be a direct result of a stress response, or a secondary effect of elevated blood pressure. This can have an impact on the blood vessels in the vocal folds, constricting them and making the folds move less efficiently.

### *Xerostomia*

Dry mouth, or xerostomia, occurs when the salivary glands do not make enough saliva to keep the mouth wet. This is a common symptom of fear and can be recognized by a student swallowing excessively. Dryness in the mouth can also lead to thick and viscous saliva, and eventually hoarseness or sore throat. Lack of adequate saliva may lead to increased vocal effort, increased air pressure, and general problems with phonation and phonation threshold.<sup>57</sup>

These examples represent only a partial list of external and internal responses to fear. Familiarity with these reactions is important for every educator as they can provide insight into

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<sup>56</sup> Ibid., 42.

<sup>57</sup> Jong-Lyel Roh, Hyo Seon Kim, and Ah-Young Kim, "The Effect of Acute Xerostomia on Vocal Function," *Arch Otolaryngology Head Neck Surgery* 132 (May 2006), 543.

what type of fear the student is experiencing. An assessment of these responses can then help to determine appropriate strategies for redirection.

## CHAPTER THREE

### **The Negative Impact Fear Has on the Voice**

Recognizing the physiological signs of stress and trauma in students is a powerful tool for any teacher of singing. Recognizing fear, however, is only the first step. This chapter will detail theories and concepts of learning in the voice studio. Deeper understanding of these theories will help the teacher to decide which of the interventional strategies outlined in Chapter Four will most effectively combat fear in their studio.

#### ***Motor Learning Theory***

Motor learning is the process of learning and refining new skills by repetition.<sup>58</sup> It encompasses motor adaptation, skill acquisition, and decision making. One may experience this process starting as early as the first music lessons, with repetitive exercises and practice as a way of learning new skills or songs. As voice teachers, one must have a basic understanding of motor learning theory and the impact it has on fine and gross motor skills and on memory. When the teacher assigns a new warm-up, vocalise, or art song, the student gradually begins the arduous process of mastering the musical skill. Although the student may not realize it,

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<sup>58</sup> Scott McCoy, *Your Voice: An Inside View*, (Delaware, Ohio: Inside View Press, 2012).

each new technical task introduced involves three stages of motor learning: a cognitive phase, an associative phase, and an autonomous phase.<sup>59</sup>

The cognitive phase is the most taxing and thus presents the greatest risk of incorrect skill acquisition and learned fear. It is a slow-moving phase that is inconsistent, requiring active effort to “control” learning of the task. For example, when learning a melismatic passage for the first time, the student will approach it slowly, perhaps with staccato accentuation of each note, in order to commit the passage to memory. Because this phase requires the most amount of energy in both the mind and the body, anxiety or fear may trap a singer in this phase, preventing them from advancing to the second stage, the associative phase. This phase occurs when vocal movements begin to become more reliable and less cognitive effort is required to actively control the situation. The melisma is sung on the words and at a faster tempo, though still not at the final performance tempo. In the final stage, the autonomous phase, movement is unconscious, accurate, and consistent; the melisma is now sung at performance tempo. This tedious three-step process serves to increase the student’s cognitive effort, and thus enhances learning.<sup>60</sup> By the final phase, the singer is no longer consciously putting forth significant effort and can focus on artistic expression—that is, unless they have carried fear throughout all three phases. For example, the student’s careful mastery of pitches and tempo in the melisma may be derailed by their similarly memorized and fear-based recruitment of unneeded jaw activity.

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<sup>59</sup> Janelle Weaver, “Motor Learning Unfolds Over Different Timescales in Distinct Neural Systems,” *PLoS Biology* 13 no. 12 (2015). For the full article, visit:

<https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1002313>

<sup>60</sup> Katherine Verdolini, “On the Voice: Learning Science Applied to Voice Training: The Value of Being “In the Moment,” *The Choral Journal* 42 no. 7 (2002), 5.

A primary goal of motor learning is the ability to increase muscular efficiency, the ability to create fine movements effortlessly.<sup>61</sup> Fine motor skills are defined as coordinated efforts between small muscles. In child development, one example is hand-eye coordination. In vocalists, this applies more closely to movements of the intrinsic musculature of the larynx<sup>62</sup> (Figure 3): the cricothyroid, posterior cricoarytenoid, lateral cricoarytenoid, interarytenoid, and thyroarytenoid.

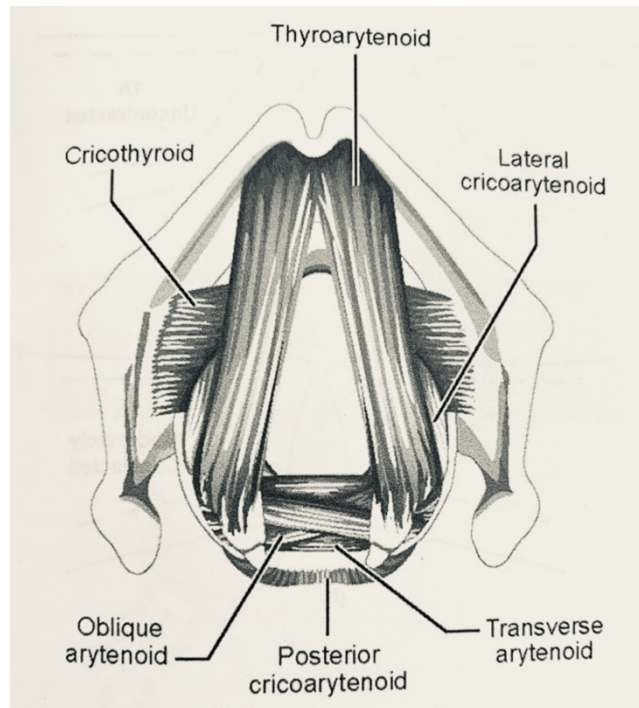


Figure 3: Intrinsic laryngeal muscles. Image reproduced from Kari Ragan, *A Systematic Approach to Voice: The Art of Studio Application*, (San Diego, CA: Plural Publishing Inc, 2020): 117.

Gross, or complex, motor control is defined as the coordination of movement between larger muscles or body parts. In the developing child, this is defined as running, walking, or

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<sup>61</sup> Lynn Holding, "Motor Learning and Voice Training: Locus of Attention," *Journal of Singing* 72 no. 1 (2015), 88.

<sup>62</sup> McCoy, *Your Voice: An Inside View*.

standing with a sense of balance. For vocalists, this applies most directly to respiration strategies. Breathing is a complex motor function that generates a negative intrathoracic pressure to bring air into the lungs (inhalation), due to the major inspiratory pump muscle: the diaphragm<sup>63</sup> (Figure 4). Sundberg describes exhalation as: Contraction of the abdominal muscles moves the abdominal content upward, returning or raising the diaphragm, and exhaling air from the lungs.<sup>64</sup>

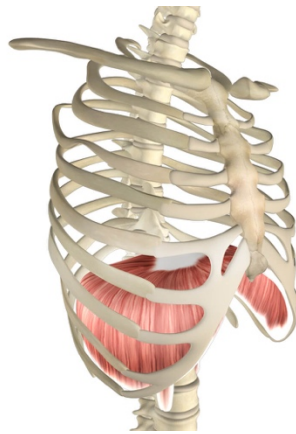


Figure 4: Illustration of the diaphragm, digital image, Yoga Anatomy, accessed May 8, 2020, <https://www.yoganatomy.com/diaphragm-muscle/>

Most voice programs require a pedagogy class that covers the basic anatomy of the intrinsic laryngeal muscles. To assist the developing singer, however, the voice teacher should also cultivate an understanding of the function and coordination as part skill acquisition. This

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<sup>63</sup> Matthew J. Fogarty, Carlos B. Mantilla, and Gary C. Sieck, “Breathing: Motor Control of Diaphragm Muscle,” *Physiology* 33 no. 2 (2018), 113.

<sup>64</sup> Davids, *Vocal Technique: A Guide for Conductors, Teachers, and Singers*, 31.

will allow the voice teacher to recognize and address problems with the motor skills integral to efficient singing and recognize when fear and anxiety are jeopardizing healthy function.

## **Memory**

Memory is the process of reproducing or recalling what has been learned and retained and is a critical aspect of motor learning theory. Holding states that the evidence that a task is truly learned is shown by its repeatability.<sup>65</sup> She further explains that this is a feat of memory, whether intellectual (e.g., how to read a music staff) or bodily (e.g., how to maintain a lowered larynx for classical singing).<sup>66</sup> Emotionally arousing experiences are more likely to be remembered than a neutral or mundane experience.<sup>67</sup> This means that anxiety and fear during lessons or practicing can more easily be engraved in memory, leading to bad habits. (Of course, the fault may lie in inefficient practice, a problem the student can readily address.)

When someone learns or creates memories, they are storing new information in the brain. Yet memories are stored in different parts of the brain. Motor learning and skill acquisition depend on a learning and memory process involving the amygdala and hippocampus.<sup>68</sup> Memory is divided into two types, long-term memory and short-term memory. However, short-term memory (also called active memory) can be distinguished from working memory.<sup>69</sup> Short-term memory allows the brain to remember small amounts of information for

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<sup>65</sup> Lynn Holding, "Memory, Hither Come," *Journal of Singing* 69 no. 3 (January/February 2013), 337.

<sup>66</sup> Ibid.

<sup>67</sup> Turhan Canli, John E. Desmond, Zuo Zhao, and John D. E. Gabrieli, "Sex Differences in the Neural Bases of Emotional Memories," *Proceedings of the National Academy of Science of the United States of America* 99 no. 16 (August 2002), 10789.

<sup>68</sup> Verdolini, "On the Voice: Learning Science Applied to Voice Training: The Value of Being "In the Moment," 6.

<sup>69</sup> Holding, "Memory, Hither Come," 339.

a short duration of time.<sup>70</sup> An example of this would be a student remembering the Italian translation a teacher recites as they vigorously flip through their pages to find the spot to which the teacher is referring. Working memory, a type of short-term memory, however, involves not only the storage of data, but also the manipulation and organization of information, and even plays a role in transferring information into long-term memory. Working memory is often cited as an index of general intelligence.

Short-Term memory	Working memory
Refers to <b>storage</b> of information.	Refers to the <b>structures and processes</b> used for temporarily storing and manipulating information.
Immediate impressions. <b>NO</b> manipulation or organization of material held in memory.	YES: Storing, manipulating, and organizing information.
Two short-term storage mechanisms: 1) the phonological loop (how language sounds). 2) visuospatial "sketchpad."	Plays role in transfer of information to long-term memory.
Also called <i>primary</i> or <i>active memory</i> .	Also called <i>working attention</i> .
Duration: 20–30 seconds.	"One of the major building blocks of IQ" (Beilock).
Capacity: Plus or minus seven items; or 4 "chunks."	Involves the ability to hold information in mind (and protect that information from disappearing) while doing something else at the same time (Beilock).

Figure 5: Short-term and working memory chart. Figure reproduced Lynn Holding, "Memory, Hither Come," *Journal of Singing* 69 no. 3 (January/February 2013), 337.

Long-term memory is even more complex and is divided into explicit (conscious) and implicit (unconscious). Explicit memory is further divided into either episodic or semantic memory, while implicit memory is divided into procedural or priming memory (Figure 6). Explicit memory (also called declarative) is memory that requires conscious thought. For example, when someone says the word "opera," a trained singer may instantly recall an extensive list of operas. Episodic memory, one type of explicit memory, is based on events that

<sup>70</sup> The University of Queensland Australia has an excellent source: <https://qbi.uq.edu.au/brain-basics/memory/types-memory>

happened in one's life.<sup>71</sup> This type of "autobiographical" memory allows someone to remember a summer program in Italy, or the person they spent time with last night. Semantic memory is the other type of explicit memory and refers to general knowledge. Semantic memory allows a musician to state that a quarter note is round and black without any association to when or where they learned this information (i.e., without any episodic link).

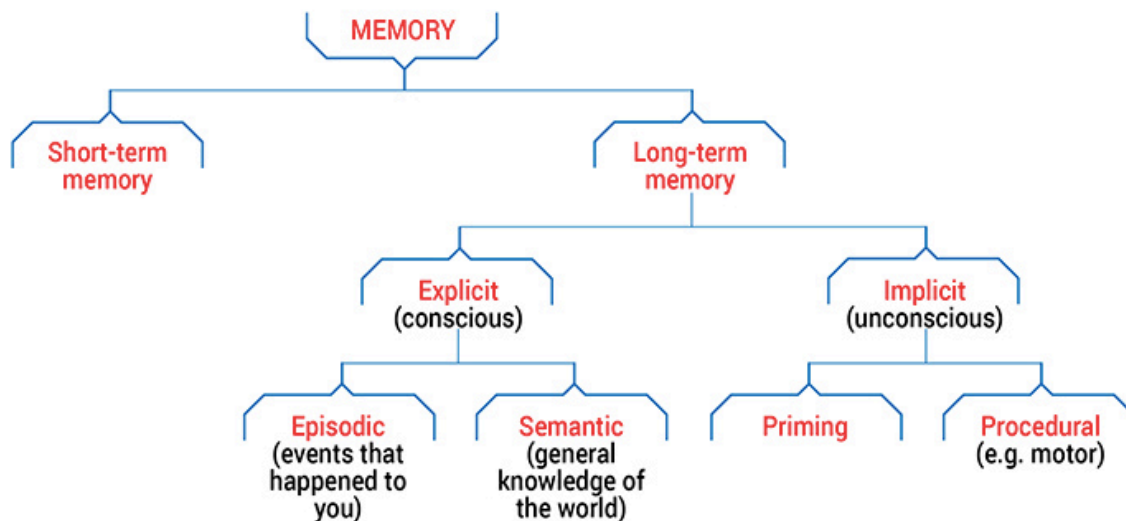


Figure 6: Illustration of memory, digital image, The University of Queensland Australia, accessed May 8, 2020, <https://qbi.uq.edu.au/brain-basics/memory/types-memory>

Implicit memory, on the other hand, is not consciously recalled, depends on repetition,<sup>72</sup> and allows one to perform everyday activities like driving a car or navigating one's own home. Verdolini describes this as memory without awareness.<sup>73</sup> Procedural memory is one type of implicit memory and involves learned motor skills,<sup>74</sup> such as knowing how to ride a bike

<sup>71</sup> The University of Queensland Australia: <https://qbi.uq.edu.au/brain-basics/memory/types-memory>

<sup>72</sup> Katherine Verdolini, "Principles of Skill Acquisition Applied to Voice Training," in *The Vocal Vision: Views of Voice by 24 Leading Teachers, Coaches and Directors*, ed. Marion Hampton and Barbara Acker, (Monclair, NJ: Applause Books, 2000).

<sup>73</sup> Ibid.

<sup>74</sup> The University of Queensland Australia: <https://qbi.uq.edu.au/brain-basics/memory/types-memory>

or effortlessly walking across the stage. Priming memory is the other type of implicit memory and occurs when exposure to one type of stimulus influences the response to a later type of stimulus. For example, the word “yellow” is more likely to evoke the word “banana” than the word “sweater.” In music, the name “Puccini” evokes the word “opera.” For the singer, the most important of these are the "know-that" type of episodic and semantic explicit memory and the "know-how" type of procedural implicit memory, as compared by Lynn Holding (Figure 7)."

Declarative memory	Procedural memory (Physical Skills)
Also called <i>explicit memory</i> .	Also called <i>implicit memory</i> .
Also called <i>long-term or complex memory</i>	Also called <i>nondeclarative memory</i> .
Also known as <i>Propositional Knowledge</i> ; “know that” (Gardner).	Also known as <i>Tacit Knowledge</i> ; “know-how” (Gardner).
Requires <i>selective attention</i> for both <i>encoding</i> and <i>recall</i> (Kandel).	Largely unconscious (Beilock).
Two types: 1. <i>Semantic</i> (words); 2. <i>Episodic</i> (events).	Associated with <i>motor skill memory</i> , or physical “habits.”
Capacity: Plus or minus seven items; or 4 “chunks.”	Involves the ability to hold information in mind (and protect that information from disappearing) while doing something else at the same time (Beilock).

Figure 7: Two types of long-term memory. Figure reproduced Lynn Holding, “Memory, Hither Come,” *Journal of Singing* 69 no. 3 (January/February 2013), 337.

Verdolini, however, brings up an interesting contradiction regarding motor learning:

Although motor learning appears to require cognitive effort, intentional trying may be harmful. What we mean here by “trying” refers to conscious effort to identify, use, and judge specific information, rather than letting the non-conscious mind solve the motor problem.<sup>75</sup>

<sup>75</sup> Verdolini, “On the Voice: Learning Science Applied to Voice Training: The Value of Being “In the Moment,” 5.

This will usually recruit tension from unwanted muscles and access the explicit memory, which is mostly irrelevant to motor learning.<sup>76</sup> Since teachers music work to increase the student's cognitive effort to enhance learning,<sup>77</sup> some fundamental knowledge of how memory works is useful. Being aware of the different types of memory can help facilitate a more intentional teaching environment and will likely decrease the stress of the educator.

### **The Brain**

Although the neuroanatomy of memory and learning is complex and interconnected, there are several regions of the brain that are more significantly involved in memory formation and storage: the amygdala, hippocampus, neocortex, basal ganglia, cerebellum, and prefrontal cortex. The amygdala (Figure 8) is part of the limbic system, along with the thalamus, hippocampus, and fornix.<sup>78</sup> It is almond or pear-shaped and is located in the mesencephalon, or the brain's medial temporal lobe. Considered the "emotional hub" of the human brain, the amygdala attaches emotional significance to memories.<sup>79</sup> Strong emotional memories, such as those involving guilt, shame, or love, are difficult to forget. Emotional arousal specifically occurs in the left amygdala.<sup>80</sup> The amygdala is also crucial in the formation of new memories related to fear<sup>81</sup> and is a driver in Pavlovian fear conditioning.<sup>82</sup> Likewise, anxiety is also coded by the

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<sup>76</sup> Ibid., 6.

<sup>77</sup> Ibid., 6.

<sup>78</sup> Moulshree Kularni, "Amygdala: A Beast to Tame," *Science Reporter* (December 2014), 38.

<sup>79</sup> Ibid., 38.

<sup>80</sup> Turhan Canli, et al., "Sex Differences in the Neural Bases of Emotional Memories," *Proceedings of the National Academy of Science of the United States of America* 99, 10790.

<sup>81</sup> The University of Queensland Australia: <https://qbi.uq.edu.au/brain-basics/memory/types-memory>

<sup>82</sup> Jonathan D. Raybuck, K. Matthew Lattal, "Double Dissociation of Amygdala and Hippocampal Contributions to Trace and Delay Fear Conditioning," Department of Behavioral Neuroscience, Oregon Health and Science University, Portland, Oregon (2011).

amygdala and may lead to avoiding tasks that may present as stressful or challenging.<sup>83</sup> For example, if a student is fearful of a seamless registration transition (e.g. moving from head to chest) they may inadvertently create too much subglottic air pressure as a perceived means of control. Because of the anxiety felt during this vocal task, not only will the ineffective strategy be more quickly committed to memory, but the emotional arousal (anxiety state) will be encoded with the vocal task itself, making future attempts similarly laden with fear.

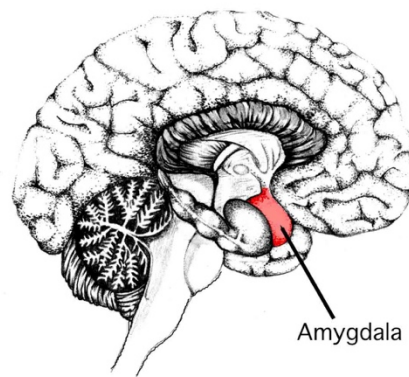


Figure 8: Illustration of the amygdala, digital image, Better Help, accessed May 8, 2020, <https://www.betterhelp.com/advice/psychologists/the-amygdala-function-psychology-of-fight-or-flight/>

The hippocampus (Figure 9), another component of the limbic system, is embedded deep in the temporal lobe, and is comprised of a layer of neurons that curl into an S-shape structure. It plays a major role in both learning and memory. The hippocampus is a convergence zone that connects separate elements of an event,<sup>84</sup> essentially turning short-term memory

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<sup>83</sup> The University of Queensland Australia: <https://qbi.uq.edu.au/brain-basics/memory/types-memory>

<sup>84</sup> James A. Bisby, Aidan J. Horner, Daniel Bush, and Neil Burgess, "Negative Emotional Content Disrupts the Coherence of Episodic Memories," *Journal of Experimental Psychology General* 147 no. 2 (February 2018), 243.

into long-term memory. The hippocampus is also where episodic memory is stored for later access.<sup>85</sup> Dopamine is a key neurotransmitter in the formation of associative memory.<sup>86</sup> When dopamine is released in the dorsal hippocampus, it attaches to receptors to promote episodic memory formation and attention, along with spatial learning and synaptic plasticity.<sup>87</sup> Together, these activities promote long-term learning. If there is a negative or fearful experience connected to that episodic memory, there is a different response. A study in 2018 revealed that negative events may disrupt associative binding and the coherence of representations in memory.<sup>88</sup> Memory binding is when items or events are bound to one another at encoding.

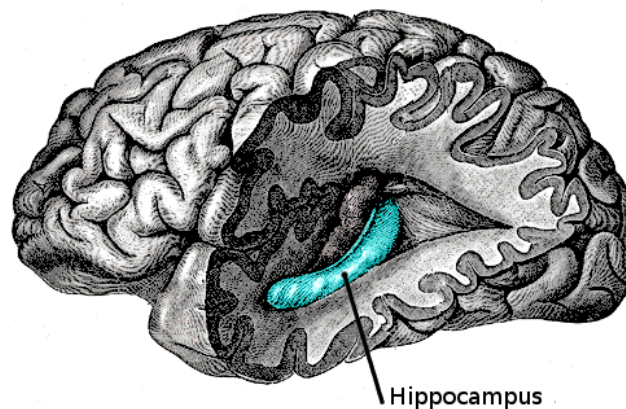


Figure 9: Illustration of the hippocampus, digital image, The Conversation, accessed May 8, 2020, <https://theconversation.com/explainer-what-happens-in-the-hippocampus-32589>

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<sup>85</sup> The University of Queensland Australia: <https://qbi.uq.edu.au/brain-basics/memory/types-memory>

<sup>86</sup> Kimberly A. Kempadoo, Eugene V. Mosharov, Se Joon Choi, David Sulzer, and Eric R. Kandel, "Dopamine Release from the Locus Coeruleus to the Dorsal Hippocampus Promotes Spatial Learning and Memory," *Proceedings of the National Academy of Sciences of the United States of America* 113 no. 51 (December 2016), 14835.

<sup>87</sup> *Ibid.*, 14835.

<sup>88</sup> Bisby, et al., "Negative Emotional Content Disrupts the Coherence of Episodic Memories," 256.

The neocortex (Figure 10) is the largest section of the cerebral cortex. A sheet of neural tissue that forms the surface of the brain, it is involved in higher functions like sensory perception, motor commands, and even language.<sup>89</sup> It is also involved with visceral and emotional reactions. Like the amygdala, the neocortex is partially located in the medial temporal lobe, but it is also part of the frontal, parietal, and occipital regions. Information that has been stored temporarily in the hippocampus can be transported to the neocortex, turning temporary information into general knowledge, or converting short-term data into long-term semantic memories.<sup>90</sup> Psychologist Daniel Goleman (who coined the term “Amygdala Hijack”), has the following to say about the neocortex:

This part of the brain learns through association, and it can get it in a single exposure. The brain is embedding that new information in a contextual web of association, and it can do that very quickly.<sup>91</sup>

Fortunately, the neocortex can undergo neurogenesis, even in adulthood. This means that throughout the lifespan of a human, one can grow new neurons, which provides hope that the brain can recover even after emotionally traumatic events.

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<sup>89</sup> The University of Queensland Australia: <https://qbi.uq.edu.au/brain-basics/memory/types-memory>

<sup>90</sup> Ibid.

<sup>91</sup> Jennifer J. Salopek, “Train Your Brain,” *Training & Development* 52 no. 10 (October 1998), 2.

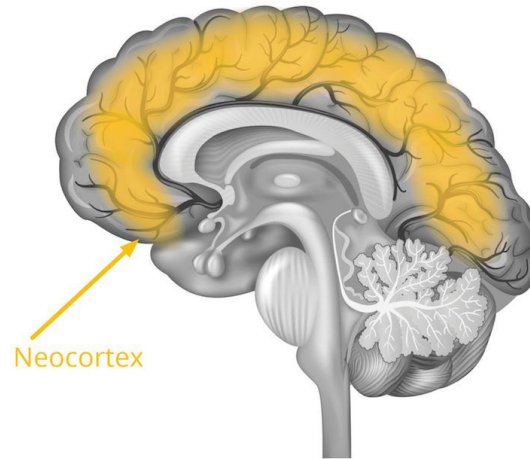


Figure 10: Illustration of the neocortex, digital image, Toward Data Science, accessed May 8, 2020, <https://towardsdatascience.com/machine-learning-of-human-brain-739ab0419612>

The basal ganglia (Figure 11) consist of several subcortical cell groups deep in the brain whose primary focus is to regulate motor skills and learning, behaviors, and emotions.<sup>92</sup>

Functionally, the basal ganglia are divided into subcategories: motor learning, associative, and limbic and emotional domains. The motor domain is involved in coordinating motor activities that require sequential motion, such as playing a musical instrument or performing gymnastics.

The associative and emotional domains are involved in implicit learning and habitual patterns or reinforcement learning, as well as reward-based behavior.<sup>93</sup>

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<sup>92</sup> José L. Lanciego, Natasha Luquin, and José A. Obeso, "Functional Neuroanatomy of the Basal Ganglia," *Cold Spring Harbor Perspectives in Medicine* 2 no. 12 (December 2012).

<sup>93</sup> Ibid.

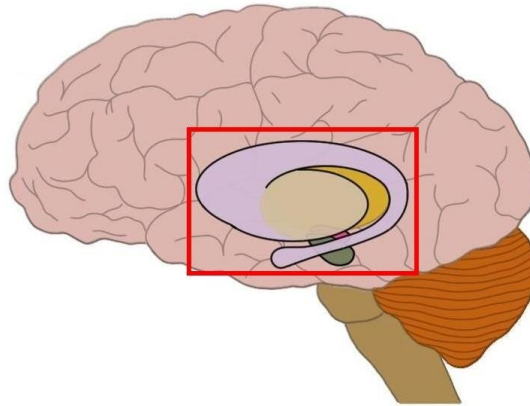


Figure 11: Illustration of the basal ganglia, digital image, Neuro-Scientifically Challenged, accessed May 8, 2020, <https://www.neuroscientificallychallenged.com/blog/what-are-basal-ganglia>

The cerebellum (Figure 12) is located in the back (posterior aspect) of the brain. It is involved in many cognitive functions, including attention, language, motor control, and responses to both pleasure and fear<sup>94</sup>, but its most well-established function is to regulate fine motor control.<sup>95</sup> For example, the cerebellum controls our ability to touch the fingers softly to a phone. For the singer, the cerebellum coordinates the intrinsic musculature of the larynx.

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<sup>94</sup> Uri Wolf, Mark J. Rapoport, and Tom A. Schweizer, "Evaluating the Affective Component of the Cerebellar Cognitive Affective Syndrome," *Journal of Neuropsychiatry and Clinical Neurosciences* 21 no. 3 (2009), 245.

<sup>95</sup> The University of Queensland Australia: <https://qbi.uq.edu.au/brain-basics/memory/types-memory>

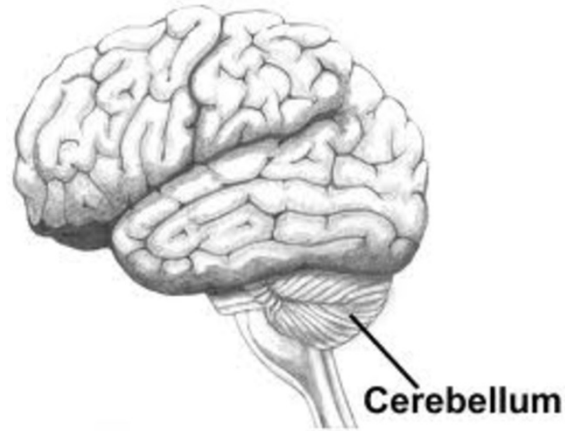


Figure 12: Illustration of the cerebellum, digital image, Psychology Today, accessed May 8, 2020, <https://www.psychologytoday.com/ca/blog/how-think-neandertal/201310/the-cerebellum-creativity-and-neandertals>

The prefrontal cortex is at the front (anterior aspect) of the brain (Figure 13).<sup>96</sup> The primary role of the prefrontal cortex is to carry out executive functions, i.e. complex thinking, planning, and decision making. The prefrontal cortex is activated when humans are required to hold onto information in the short-term memory. In music, the medial prefrontal cortex is shown to be involved with tonal structure, as well as autobiographical memory.<sup>97</sup> Broca's area, within the lateral prefrontal cortex, is crucial for language skills and sensitive to musical syntax.<sup>98</sup>

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<sup>96</sup> The University of Queensland Australia: <https://qbi.uq.edu.au/brain-basics/memory/where-are-memories-stored>

<sup>97</sup> Ricard Ashley and Renne Timmers, ed. *The Routledge Companion to Music Cognition*, (New York: Routledge, 2017), 21.

<sup>98</sup> Ibid.



Figure 13: Illustration of the prefrontal cortex, digital image, PngItem, accessed May 8, 2020, [https://www.pngitem.com/middle/JhXHRT\\_prefrontal-cortex-of-the-brain-prefrontal-cortex-no/](https://www.pngitem.com/middle/JhXHRT_prefrontal-cortex-of-the-brain-prefrontal-cortex-no/)

This overview of neuroanatomy will help the voice teacher understand motor function, fear response, and emotional regulation, particularly as they relate to memory. Familiarity with the locations of brain activity during times of stress or fear will also help orient the reader to various types of behaviors exhibited in these situations.

### ***General Adaptation Syndrome***

Although humans no longer live with the daily fears of being hunted by a larger predator, an innate response to fearful events is embedded within the mind and body and may still be triggered by modern fearful scenarios (e.g. hearing a sound in your house in the middle of the night or running late for a voice lesson). This can generate a response just as it did in the ancestors of humans. The human body creates antibodies to fight the common cold or grows a heavily-used muscle group, similar to an integrated system of adaptive reactions emerges in

response to non-specific stress.<sup>99</sup> All stressful situations bring a sense of danger unless they are mitigated by an adequate adaptive response.<sup>100</sup> The ability to resist or adapt to everyday stressors is a fundamental requirement for a healthy and productive life, since nearly every vital organ and physiological function participates in the stress response.<sup>101</sup>

There are three stages of the general adaptation syndrome (Figure 14). The first stage is the alarm reaction stage. During this stage, a distress signal is sent to the hypothalamus. The hypothalamus then releases a hormone known as glucocorticoid.<sup>102</sup> The glucocorticoid releases adrenaline and cortisol, which in turn, gives the individual a boost of energy by activating the adrenal steroid receptors.<sup>103</sup> They experience this by increased heart rate, vasoconstriction, and an increase in blood sugar levels. This first stage prepares the person to respond to the immediate cause of stress. This stage should sound familiar, as it is comparable to the hyperarousal and acute stress response that is colloquially known as “fight or flight.” During a voice lesson, a student experience the alarm reaction stage when they suddenly forget the words to an aria. Anxiety about singing well or remembering the words to the aria has triggered the alarm reaction, and the student’s entire mental and physical energy is now shunted to deal with acute stress. These physiological changes are controlled by the sympathetic branch of the autonomic nervous system and serve to prepare the student to respond to the stressor.<sup>104</sup>

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<sup>99</sup> Hans Selye, “Stress and the General Adaptation Syndrome,” *British Medical Journal* 1 no. 4467 (June 1950), 1383.

<sup>100</sup> *Ibid.*

<sup>101</sup> *Ibid.*

<sup>102</sup> *Ibid.*, 1385.

<sup>103</sup> McGaugh, James L., Larry Cahill, and Benno Roozendaal, “Involvement of the Amygdala in Memory Storage: Interaction with Other Brain Systems,” *Proceedings of the National Academy of Science of the United States of America* 93 no. 24 (November 1996), 13509.

<sup>104</sup> Medical News Today, “What to Know About General Adaptation Syndrome,” <https://www.medicalnewstoday.com/articles/320172.php>

The next stage of the general adaptation syndrome is the resistance stage. After the body has gone through the first stage, it begins the vital process of repairing itself. During this stage, much of what occurred during the alarm stage (i.e. tissue catabolism, gastrointestinal erosion, vasoconstriction<sup>105</sup>) is corrected, and the body begins to return to its resting state. A smaller amount of cortisol is released, and heart rate and blood pressure begin to return to baseline. Nonetheless, the human body remains on a high alert for some time. If there are no additional stressors, the body can fully recover and return to a pre-stress state; but if the stressors persist, or if additional stressors are added to the situation, the body may begin to perceive this stress as chronic or enduring and begin to adapt to the stress. Although it may seem that this is an optimal outcome to respond to chronic stress, extending the resistance stage is ultimately detrimental to overall mental health.

If the body persists in the resistance stage, it will continue to release stress hormones and blood pressure will remain elevated. Essentially, one creates a new and heightened “pre-stress baseline.” Signs of prolonged resistance stage include irritability, frustration, and poor concentration.<sup>106</sup> In the earlier example, the student made an error in remembering the words in an aria. If an environment is created that does not quickly defuse the situation, not only will the student begin to create a new baseline of fear and stress, they may start to associate an increased stress state with specific parts of the music. The student may become irritable and lose all focus on their art.

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<sup>105</sup> Selye, “Stress and the General Adaptation Syndrome,” 1383.

<sup>106</sup> Medical News Today: <https://www.medicalnewstoday.com/articles/320172.php>

The final stage of the general adaptation syndrome is the exhaustion stage, in which adaptability to stress is diminished or lost.<sup>107</sup> This may manifest as the temporary exhaustion or fatigue that ensues after a prolonged state of stress.<sup>108</sup> During this stage, the body has completely depleted its energy reserves because it could not adequately recover from the alarm stage. Essentially, the body is temporarily no longer equipped to fight future stress properly. When this phase is prolonged, the student may experience excessive tiredness, depression, generalized anxiety, and perceived inability to cope with life events. These may be signs that they require help from a qualified medical professional.

While stress and fear are always unpleasant, the first stage of the general adaptation syndrome helps us respond appropriately to stressful or fearful situations. When these situations only occur for a brief duration, there are no serious long-term consequences. However, prolonged experience in the final phase risks a weakened immune system, thereby increasing the chance of infections, anxiety, and depression.

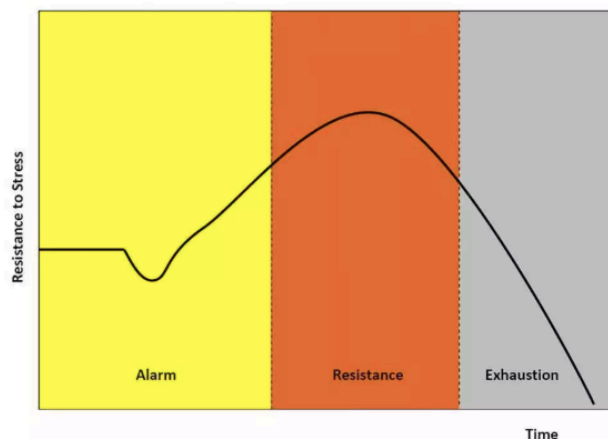


Figure 14: Chart of the general adaptation syndrome, digital image, Healthline, accessed on May 8, 2020, <https://www.healthline.com/health/general-adaptation-syndrome#model>

<sup>107</sup> Selye, "Stress and the General Adaptation Syndrome," 1390.

<sup>108</sup> Ibid.

Understanding the concept of the General Adaptation Syndrome affords the educator greater insight into the various external and internal responses that a student may display in reaction to fear and stress, and thus can help to facilitate a more efficient teaching environment. Awareness that a prolonged exhaustion stage can be maladaptive and have serious health ramifications will help a teacher determine if the student's stress and fear levels require the assistance of a medical professional.

### ***The Hyperarousal or Acute Stress Response and the Sympathetic Nervous System***

As mentioned previously, the hyperarousal or acute stress response occurs during the first stage of the general adaptation syndrome. This is a physiological response to events and situations that seem harmful, dangerous, or threatening to survival. This theory was first developed by American psychologist Walter Bradford Cannon who suggested that animals and humans react to threats with a general discharge of the sympathetic nervous system (one part of the autonomic, or unconscious, nervous system), ultimately preparing for either fight or escape.<sup>109</sup> During this stress, activity in the sympathetic nervous system is drastically changed, which leads to increased cardiovascular activity and a release of adrenal catecholamines.<sup>110</sup> This provides a dual input to both the sympathetic preganglionic neurons, which deal with cardiovascular functions, and the adrenal medullary functions.<sup>111</sup> Alterations occur in estrogen, testosterone, and cortisol, as well as dopamine and serotonin levels. In modern times, the types

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<sup>109</sup> Arthur S.P. Jansen, Xay Van Nguyen, Vladimir Karpitskiy, Thomas C. Mettenleiter, and Arthur D. Loewy, "Central Command Neurons of the Sympathetic Nervous System: Basis of the Fight-or-Flight Response," *Science Magazine* 270 no. 5236 (1995), 644.

<sup>110</sup> Ibid.

<sup>111</sup> Ibid.

of experiences that trigger this response may not be as dire as they were for human ancestors, but the brain still responds in the same manner.

One often hears about the physical sensations that are driven by elevated adrenalin, which may be interpreted as fear or nervousness:<sup>112</sup> dry mouth, elevated heartbeat, clammy or cold extremities, excessive sweating, overactive thoughts, or even the need to have a bowel movement. This reaction is completely expected and meant to keep us alive. For example, when placed in a stressful event, the hands grow cold because more blood stays close to the vital organs;<sup>113</sup> if an arm were to get bitten off by a predator (as happened to our ancestors), the probability of surviving would be higher because of the fight or flight (or freeze or fawn) response. But how do each of these responses directly or indirectly impact a vocalist?

It is important to remember that when entering “fight or flight”, we simultaneously enter the first stage (the alarm stage) of the general adaptation syndrome, with similar shared reactions like elevated blood pressure and vasoconstriction. The following are additional reactions to the hyperarousal response: flushing or blushing sensation on the face, neck, or chest; the need to urinate due to an over-relaxed bladder; constipation and other general digestion issues; shaking; tunnel vision; and, temporary loss of hearing. Ultimately, these responses serve to ensure the ability to function beyond the isolated event and avoid moving into a state of fatigue or exhaustion.

If we believe that we can conquer whatever danger has been placed in front of us, whether real or imaginary, we will experience the fight response. The fight response

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<sup>112</sup> William Westney, “Out of Control? The Fulfilling Drama of Performing,” *American Music Teacher* 53 no. 3 (December/January 2003/2004), 20.

<sup>113</sup> *Ibid.*

communicates to the brain that it is ready to quickly and adequately deal with the danger that has been presented. It is important to have easy access to the fight response, as it helps to ensure safe boundaries, healthy assertiveness, and when needed, aggressive self-preservation or protection.<sup>114</sup> When engaged in the fight response, emotional and physical responses may include crying; the need to physically hit something or someone; jaw tension or teeth grinding; tension in the abdominal region; overall anger. This reaction may sound extreme, but it can also be extremely beneficial. It may ensure that a student is entering the resistance stage of the general adaptation syndrome, ready to heal, and most importantly, ready to avoid the detrimental exhaustion stage. For example, in nature, a cat may assert a dominant posture with raised hair if it is about to be attacked. In a voice lesson, the teacher may notice the fight response by a sharp change in vocal inflection from students, stilted speech, or even rigidity in their posture. Overuse of the fight response may lead to a person who is constantly angry, narcissistic, and may appear to be generally mean-spirited.

When placed in a situation where we believe that we cannot physically or intelligently outwit the assailant or event, we enter the flight response. Leaving the situation is sometimes the best response. There should also be easy and appropriate access to the flight response. We may also retreat if prolonged confrontation would only exacerbate the perceived danger.<sup>115</sup> Emotional and physical responses of the flight response include restless extremities; numbness in the extremities; dilated pupils; feeling trapped; being fidgety or engaging in stimming behaviors; feeling tense. For example, a chameleon engages in the flight response by changing

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<sup>114</sup> Pete Walker: <http://pete-walker.com/codependencyFawnResponse.htm>.

<sup>115</sup> Ibid.

the color of its body to fit the surroundings, effectively fleeing even though they are still physically present. In a voice lesson, the student may begin to shift their eyes rapidly around the room, never making direct eye contact with the teacher. They may also repeatedly grab at the music stand or the piano or begin rapidly shaking their leg or foot. They may also request to leave the studio for a moment. Overreliance on this type of response is seen in a student who exhibits obsessive-compulsive or perfectionistic types of behavior.

While the phrase “fight or flight” has entered the vernacular, it may be an unintentional oversimplification of the hyperarousal and acute stress response. A third type of response is also available during a stressful or fear-inducing situation. When we feel that neither running away nor directly engaging in a confrontation are the most efficient responses, we may also freeze. This, too, can be a healthy response to a situation. We may freeze and stop struggling if we realize that further resistance is futile or counterproductive.<sup>116</sup> Emotional and physical symptom of the freeze response include temporary loss of concentration; numbness in the body and/or extremities; feeling physically cold; having a sense of dread; decrease in heart rate; going pale; and a feeling of heaviness. For example, if an animal has been caught by a predator, it may respond by freezing up or staying completely still. In a voice lesson, this may happen if the student asks a question about the song but feels anxious or fearful and suddenly has a loss of words. Reliance upon freezing can also, at times, be inappropriate. A student who believes that people and danger are synonymous, or that safety requires solitude, may be fixed in a “freeze” state.<sup>117</sup>

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<sup>116</sup> Ibid.

<sup>117</sup> Ibid.

A final, less widely known reaction is the fawn response, sometimes called the “please” response. This may come after repeated attempts and failures at fighting, fleeing, and freezing. Emotional and physical response of fawning include numbness in the extremities; feeling a sense of heaviness; being fidgety or engaging in stimming behaviors; experiencing feelings of both the flight and freeze response. If someone is assaulted on the street, they may try to fawn or please the assailant to escape danger. A voice student may try similarly to reason or rationalize the situation as quickly as possible to escape the “danger” present. They may be overly flattering or overly obedient, agreeing with everything the teacher says to the point of codependency, whether or not they understand or agree with the comments. Chronic reliance on fawning may lead a person to be stuck in a cycle of trying to please everyone, or rescue or fix others, often at the expense of their own stability.

There is no one right or wrong response to fear and anxiety. In fact, there can be situations when more than one response fits the scenario. These are called hybrid responses. A few examples include:<sup>118</sup>

- Fawn-fight: controlling the threat in a manipulative manner
- Fawn-flight: completely avoiding the threat by becoming unassuming or invaluable in the situation
- Fawn-freeze: conceding and taking on the victim role
- Flight-freeze: avoiding threats by centering attention on other situations

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<sup>118</sup> Stephanie Kirby: <https://www.betterhelp.com/advice/trauma/fight-flight-freeze-how-to-recognize-it-and-what-to-do-when-it-happens/>

While it is not the job of the voice teacher to diagnose the student, the following disorders have been associated with the given responses:<sup>119</sup>

- Fight Type: Narcissist Defense
- Flight Type: Obsessive-Compulsive Disorder
- Freeze Type: Dissociative Defense
- Fawn Type: Codependency Defense

The educator needs to understand the concept of the fight-or-flight response, as it will directly correlate to various external and internal responses from the student. Having this knowledge will help to facilitate a more efficient teaching environment and could alter and improve teaching strategies.

### ***The Parasympathetic Nervous System***

The fight-or-flight response is driven by the sympathetic nervous system and is generally contrasted to the parasympathetic system, colloquially known as “rest and digest.” The parasympathetic nervous system balances the demands of external action and self-preservation.<sup>120</sup> Its nerves are visceral branches of the peripheral nervous system and interact with the cranial nerves, including the vagus nerve.<sup>121</sup> The parasympathetic nervous system works to conserve energy, slowing the heart rate, increasing intestinal activity, relaxing the sphincter muscles, and directing blood toward the center of the body to aid in digestion and

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<sup>119</sup> Pete Walker: <http://pete-walker.com/codependencyFawnResponse.htm>

<sup>120</sup> Joanna Cazden, “Stalking the Calm Buzz: How the Polyvagal Theory Links Stage Presence, Mammal Evolution, and the Root of the Vocal Nerve,” *Voice and Speech Review* 11 no. 2 (October 2017), 135.

<sup>121</sup> *Ibid.*

assimilation of nutrients.<sup>122</sup> The sympathetic and parasympathetic nervous systems function in harmony. Just as too much sympathetic nervous activity can be detrimental during stress responses, excessive parasympathetic activity can also produce poor outcomes. For example, the body may be too tired or not energetic enough if the nervous system is focused too internally. Singers may feel like they are just relaxed, however, they may be unable to focus attention, or may appear to be disengaged or even apathetic. Porges explained the relationship between the two systems:

It is critically important to understand that the sympathetic and parasympathetic systems are not opposite ends of the same axis. They do not interact as a polarity like white/black, but as a qualitative mixture like red/blue. Both systems can be turned low at the same time; they can both be turned high; they can mingle in various proportions.<sup>123</sup>

### ***The Nervous System, The Vagus Nerve, & The Polyvagal Theory***

The vagus nerve is one of the most important nerves of the autonomic nervous system, the unconscious nerve network that regulates bodily functions without significant intellectual oversight. The autonomic nervous system commands the body to perform essential functions like breathing, digestion, secreting hormones, and pumping blood.<sup>124</sup> The nerve is the basic unit of the nervous system and is divided into three parts: the soma, the dendrites, and the axon.<sup>125</sup> Nerves communicate with one another by electrical signals that are created in the soma and travel down the axon to their destination point. Nerves can be classified in several ways: (1) anatomical location, (2) the speed of their signals, and (3) the function or type of signal they

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<sup>122</sup> Ibid.

<sup>123</sup> Stephen Porges, *The Pocket Guide to the Polyvagal Theory*, (New York: W.W. Norton & Company), 2011.

<sup>124</sup> Miriam van Mersbergen, "Viva La Vagus!," *The Choral Journal* 55 no. 3 (October 2014), 67.

<sup>125</sup> Ibid.

carry.<sup>126</sup> While most nerves exit the central nervous system through the spinal cord, some nerves exit the brainstem.<sup>127</sup>

Nerves that exit the brainstem are called the cranial nerves, which are numbered one through twelve (CN I through CN XII). The twelve cranial nerves synchronize the muscles, glands, and sensory organs of both the head and the neck. The largest cranial nerve (Figure 15) is the tenth cranial nerve (CN X), which is the vagus nerve.<sup>128</sup> The vagus nerve affects parasympathetic control of the heart, lungs, and digestive tract. Particularly savvy voice teachers may already be familiar with the vagus nerve since its laryngeal branches control the vocal folds, in addition to assisting with engagement of the pharyngeal wall and palate.

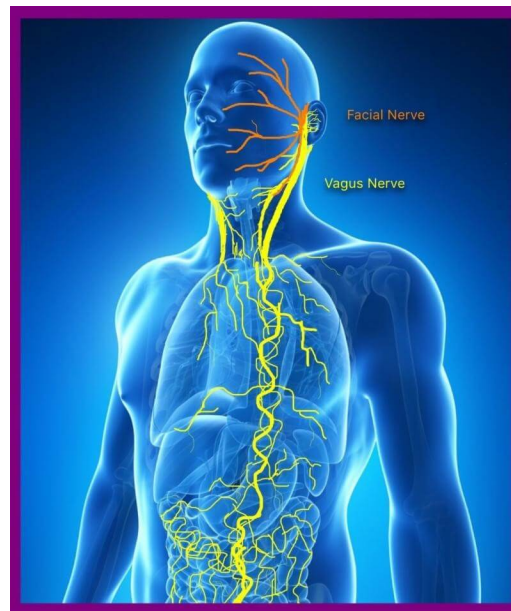


Figure 15: Illustration of the cranial nerve X – the vagus nerve, digital image, Breath Work Science, accessed on May 8, 2020, <https://breathwork-science.org/2019/08/29/respiratory-vagus-nerve-stimulation-rvns-counteracts-fight-or-flight-stress/>

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<sup>126</sup> Cazden, “Stalking the Calm Buzz: How the Polyvagal Theory Links Stage Presence, Mammal Evolution, and the Root of the Vocal Nerve,” 137.

<sup>127</sup> *Ibid.*, 68.

<sup>128</sup> *Ibid.*

Stephen Porges's Polyvagal theory emerged from his study of the autonomic nervous system. It asserts that the nervous system has more than one way of dealing with stress, and that the hyperarousal and acute stress responses are not the only response humans have available. When the social engagement system is properly working, one feels calm. When a dangerous event occurs, the sympathetic system takes over and initiates "fight or flight." If, however, that fails, an immobilized state is initiated, which can be harmful. The Polyvagal theory relates more to social engagement and emphasizes that physiological states support different kinds of behavior.<sup>129</sup> This enables people either to enter into a fight-or-flight stage or to engage socially. For example, this theory posits that humans have physical reactions such as digestive changes that are associated with facial expressions. The Polyvagal theory thus helps to refine, or even redefine, trauma.

The vagus nerve is split into two different pathways, called the dorsal and the ventral. The dorsal branch is phylogenetically older (more primitive) and originates in the dorsal motor nucleus, while the ventral branch is phylogenetically newer branch and originates in the nucleus ambiguus.<sup>130</sup> The dorsal system, sometimes called the vegetative vagus, controls the freezing or immobilization response, which suppresses metabolic functions under stress to conserve valuable resources.<sup>131</sup> The ventral system, sometimes called the smart vagus, increases metabolic output.<sup>132</sup> This is associated with social engagement involving the facial,

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<sup>129</sup> Stephen W. Porges, *The Polyvagal Theory: Neurophysiological Foundations of Emotions, Attachment, Communication, and Self-Regulation*, (New York: W.W. Norton & Company), 2011.

<sup>130</sup> Theodore, P. Beauchaine, Lisa Gatzke-Kopp, Hilary K. Mead, "Polyvagal Theory and Developmental Psychopathology: Emotion Dysregulation and Conduct Problems from Preschool to Adolescence," *Biological Psychology* 74 no. 2 (February 2007), 175.

<sup>131</sup> *Ibid.*

<sup>132</sup> *Ibid.*

vocal, and neck muscles. This autonomic response provides the basis for the emotional responses and type of communication during a stressful situation.<sup>133</sup> The nuanced communication between student and teacher is greatly enhanced when the student can balance alertness (sympathetic) with a sense of fundamental security (parasympathetic), the sense, as Cazden put it, that “feeling safe is dependent on unique cues in the environment and in our relationships that promote health and feelings of love and trust.”<sup>134</sup>

Furthermore, the Polyvagal theory suggests that the vagus nerve supports social engagement or interaction between individuals by preparing them to interact with one another. It suggests that the parasympathetic nervous system aids in reducing stress reactions that might occur with increased physical closeness or intense communication in unknown situations. This is evidenced physiologically by reduced heart rate and blood pressure. Bessel van der Kolk gave the best formulation:

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 the people around us. It explains why a kind face, or a soothing tone of voice can dramatically alter the way we feel. It clarifies 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 attuning with another person can shift us out of disorganized and fearful states. In short, Porges’s theory makes us look beyond the effects of fight or flight and put social relationships front and center in our understanding of trauma...”<sup>135</sup>

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<sup>133</sup> Laura A. Clevenger, “A Study of the Correlation Between Mindfulness and Music Performance Anxiety Among College Music Majors: Implications for Counseling and Counselor Education,” (PhD diss. Capella University, 2015), 23-24.

<sup>134</sup> Cazden, “Stalking the Calm Buzz: How the Polyvagal Theory Links Stage Presence, Mammal Evolution, and the Root of the Vocal Nerve,” 145.

<sup>135</sup> Bessel Van Der Kolk, *The Body Keeps the Score: Brain, Mind, and Body in the Healing of Trauma*, (New York: Viking Penguin), 2015.

Basic familiarity with the Polyvagal theory can further assist teachers to cultivate intentionally a responsibility amicable learning environment.

### ***Amygdala Hijack***

Everyone has experienced a situation where emotions suddenly take over, the rational part of the mind shuts down, and an outburst of emotions erupts. Voice teachers may have witnessed such an event firsthand from a student during a lesson. The trigger may seem innocuous, like the instruction to sit in a chair or repeat a musical gesture several times (perfect for motor learning skills). Then, seemingly out of nowhere, the student begins to react negatively. This reaction is likely a manifestation of the amygdala hijack.

The amygdala hijack is a vestigial biological reaction. Human ancestors had to safely navigate imminent dangers and serious physical threats, whereas today, an emotional threat is more likely to be encountered than a physical one. However, this ancient response has been locked into the limbic system and persists today.<sup>136</sup> First identified by Daniel Goleman, the hijack of the amygdala occurs due to a rush of stress hormones that overtake the body before the prefrontal lobe can intervene.

During a normal reaction to stimuli:

1. Perceived sensations are directed toward the thalamus.
2. The thalamus transmits these signals to the neocortex (the thinking/rational brain).

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<sup>136</sup> Kulkarni, "Amygdala: A Beast to Tame," 39.

3. The neocortex processes these signals in a rational way, and if there is a need for emotional reaction, a signal is sent to the amygdala.
4. The amygdala (the emotional/irrational brain) responds, matching an appropriate emotional response to the initial trigger.

However, during an amygdala hijack:

1. Perceived sensations are directed toward the thalamus, as usual.
2. The thalamus bypasses the neocortex due to perceived urgency of an unexpected threat to reduce neocortical processing time and hasten a response, thereby directly signaling the amygdala.
3. The amygdala responds, generating an inappropriate response that is out of proportion to the initial trigger.

Moulshree Kulkarni has provides a helpful flowchart, illustrated in Figures 16 and 17:<sup>137</sup>

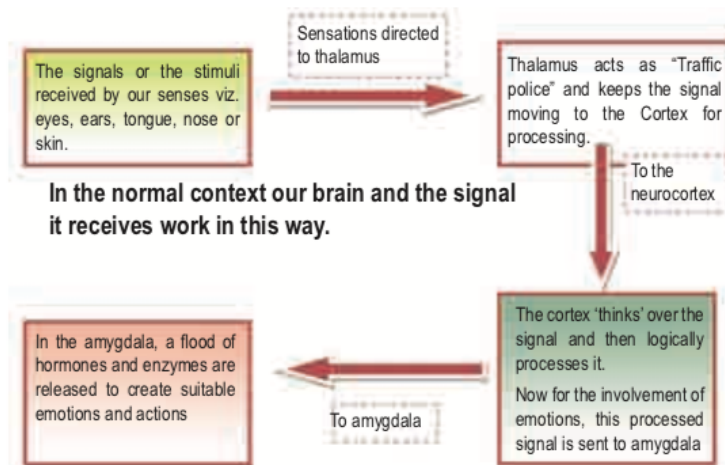


Figure 16: Flowchart of the amygdala’s normal reaction. Figure reproduced from Kulkarni, Moulshree, “Amygdala: A Beast to Tame” *Science Reporter*, (December 2014): 39.

<sup>137</sup> Ibid.

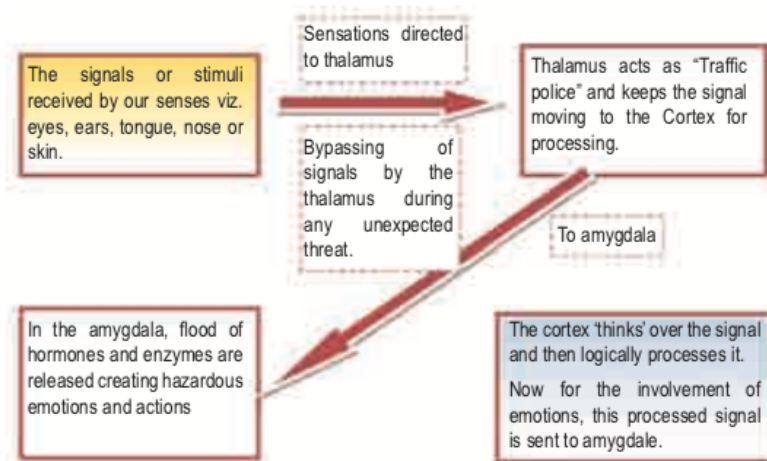


Figure 17: Flowchart of the amygdala hijack. The amygdala’s normal reaction. Figure reproduced from Kulkarni, Moulshree, “Amygdala: A Beast to Tame” *Science Reporter*, (December 2014): 39.

There are three signs that an amygdala hijack has occurred: a strong emotional reaction, a sudden onset, and an after-the-fact reflection period where one thinks “what just occurred was the inappropriate response.” Amygdala hijack does not only occur in the setting of stress or fear. The amygdala has also been hijacked when we experience laughter so intensely that we cannot stop. Whether it is inappropriate laughter or an angry outburst, in modern times the amygdala hijack often is embarrassing and rarely helpful. Being able to overcome or adapt to amygdala hijack is a key part of developing emotional intelligence, strategies for which will be reviewed in Chapter Four.

### **Facial Feature Feedback**

Vocal performing artists must be able to use their faces to express the emotion of the text being sung. This can transform an otherwise good performance into an exemplary one. The

facial expressions of students can also signal their own fear or anxiety, however, with excessive and negative recruitment of certain facial muscles. Dimberg has explained that facial expressions have two main adaptive purposes: (1) as a social signal in a face-to-face interaction, and (2) as a sensory feedback system for the intra-individual experience of emotion.<sup>138</sup>

Two important muscles associated with facial expression are the zygomaticus major (Figure 18), which engages during smiling, and the corrugator muscle, which engages during frowning. In singing, one might additionally encourage a student to gently and subtly “lift their cheeks,” which engages zygomaticus major. This action, if implemented correctly, has the potential to increase awareness of sympathetic vibrations.

Dimberg studied fear and facial expressions in 1986,<sup>139</sup> concluding that if a student is exposed to a fearful event, they engage their corrugator (or frown) muscles. Not surprisingly, when exposed to a stimulus that was not fear-inducing, but instead positive, they would engage their zygomatic (or smile) muscles. In short, positive experiences engage zygomaticus major, whereas fearful stimuli trigger the corrugators.

This is a relatively simple, but important concept. Creating an environment that favors positive stimuli increases the likelihood that students will not only feel at ease, but also properly engage their zygomatic muscles, which may create increase resonance. An environment that favors negative stimuli, however, will recruit tension due to an engaged corrugator muscle.

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<sup>138</sup> Ulf Dimberg, “Facial Reactions to Fear-Relevant and Fear-Irrelevant Stimuli,” *Biological Psychology* 23, (1986), 153.

<sup>139</sup> Dimberg, “Facial Reactions to Fear-Relevant and Fear-Irrelevant Stimuli,” 159.

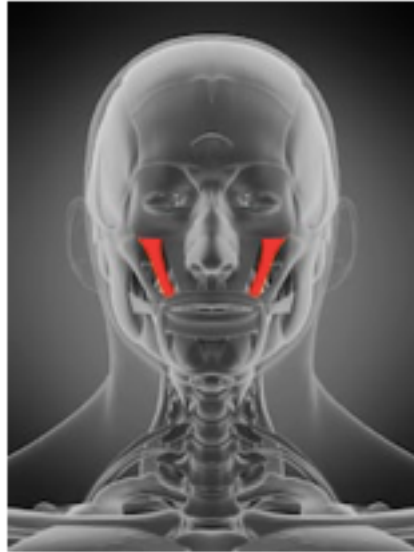


Figure 18: Illustration of the zygomaticus muscles, digital image, Shutterstock, accessed May 8, 2020, <https://www.shutterstock.com/search/zygomaticus+muscle>

### ***Music Performance Anxiety***

Music performance anxiety (MPA) is a condition of apprehension experienced by many musicians when performing that is not always experienced in other settings. Salmon's definition of MPA characterizes it as "the experience of persisting, distressful apprehension about and or impairment of performance skills in a public context, to a degree unwarranted given the individual's musical aptitude, training, and level of preparation."<sup>140</sup> Though previous research suggests that around 25% of musicians suffer from some form of MPA,<sup>141</sup> other studies have shown that up to 96% of musicians may struggle with this type of fear.<sup>142</sup>

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<sup>140</sup> Crystal Sieger, "Music Performance Anxiety in Instrumental Music Students: A Multiple Case Study of Teacher Perspectives," *Contributions to Music Education* 42 (2017), 36.

<sup>141</sup> McGrath, "Music Performance Anxiety Therapies: A Review of the Literature," 2.

<sup>142</sup> Holding, "Music Performance Anxiety," 84.

In an attempt to better understand and quantify MPA, Dianna T. Kenny developed an inventory modeled after Spielberger's State-Trait Anxiety Inventory, called the Kenny Music Performance Anxiety Inventory (K-MPAI).<sup>143</sup> This inventory attempts to identify the causes of anxious propositions, attentional shifts, physiological arousal, and memory bias.<sup>144</sup> The questions are answered on a 7-point Likert scale scored from -3 to 3. The highest score is 156; the higher the score, the greater the likelihood of the musician experiencing MPA.

[Figure 19 follows]

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<sup>143</sup> Dianna T. Kenny and Margaret S. Osborne, "Music Performance Anxiety: New Insights from Young Musicians," *Advances in Cognitive Psychology* 2 no. 2-3 (2005), 104.

<sup>144</sup> *Ibid.*, 105.

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

	strongly disagree <span style="float: right;">strongly agree</span>						
	-3	-2	-1	0	1	2	3
1 Sometimes I feel depressed without knowing why	-3	-2	-1	0	1	2	3
2 I find it easy to trust others	3	2	1	0	-1	-2	-3
3 I rarely feel in control of my life	-3	-2	-1	0	1	2	3
4 I often find it difficult to work up the energy to do things	-3	-2	-1	0	1	2	3
5 Excessive worrying is a characteristic of my family	-3	-2	-1	0	1	2	3
6 I often feel that life has not much to offer me	-3	-2	-1	0	1	2	3
7 The harder I work in preparation for a concert, the more likely I am to make a serious mistake	-3	-2	-1	0	1	2	3
8 I find it difficult to depend on others	-3	-2	-1	0	1	2	3
9 My parents were mostly responsive to my needs	3	2	1	0	-1	-2	-3
10 I never know before a concert whether I will perform well	-3	-2	-1	0	1	2	3
11 I often feel that I am not worth much as a person	-3	-2	-1	0	1	2	3
12 During a performance I find myself thinking about whether I'll even get through it	-3	-2	-1	0	1	2	3
13 Thinking about the evaluation I may get interferes with my performance	-3	-2	-1	0	1	2	3
14 Even in the most stressful performance situations, I am confident that I will perform well	3	2	1	0	-1	-2	-3
15 I am often concerned about a negative reaction from the audience	-3	-2	-1	0	1	2	3
16 Sometimes I feel anxious for no particular reason	-3	-2	-1	0	1	2	3
17 From the beginning of my music studies, I remember being anxious about performing	-3	-2	-1	0	1	2	3
18 I worry that one bad performance will ruin my career	-3	-2	-1	0	1	2	3
19 My parents almost always listened to me	3	2	1	0	-1	-2	-3
20 I give up worthwhile performance opportunities due to anxiety	-3	-2	-1	0	1	2	3
21 As a child, I often felt sad	-3	-2	-1	0	1	2	3
22 I often prepare for a concert with a sense of dread and impending disaster	-3	-2	-1	0	1	2	3
23 I often feel that I have nothing to look forward to	-3	-2	-1	0	1	2	3
24 My parents encouraged me to try new things	3	2	1	0	-1	-2	-3
25 I worry so much before a performance, I cannot sleep	-3	-2	-1	0	1	2	3
26 My memory is usually very reliable	3	2	1	0	-1	-2	-3

Figure 19: Kenny-Music Performance Anxiety Inventory Form. Figure reproduced from Dianna T. Kenny and Margaret S. Osborne, "Music Performance Anxiety: New Insights from Young Musicians," *Advances in Cognitive Psychology* 2 no. 2-3 (2005): 104.

As discussed previously with the STAI assessment tool, administering a questionnaire such as this to a group of vocal performance students may be cumbersome to the voice teacher or seem strange to the students. Likewise, the teacher may not feel adequately prepared to give the K-MPAI questionnaire or may not have the means to administer it. The questions presented by the inventory, however, are potentially powerful conversation starters for the teacher.

There are many possible reasons why music performance anxiety may exist, and they vary among performers. A performer may feel threatened by a competitive colleague or suffer from “imposter syndrome.” A student may feel frustrated by a lack of technical understanding or proficiency. The musician may have an undiagnosed anxiety disorder or social phobia. Whatever the cause, MPA is rarely caused by a lack of preparation or a “lazy” student. It is worth noting that MPA is not necessarily the same thing as stage fright. Stage fright is nervousness before or during engagements with an audience, happens across a variety of disciplines, and does not require any sort of therapeutic treatment.<sup>145</sup> In other words, it is normal to experience stage fright. This becomes performance anxiety when the quality of a performance is compromised.

Voice teachers meet with students for individual lessons on average one hour per week, which may be the most one-on-one mentorship they receive from anyone outside of their family. Teachers are charged with instructing students how to sing efficiently and healthily, but that goes beyond providing basic pedagogical tools and artistic wisdom; it also requires being the first line of defense against their musical doubts and fears. Teachers can shape the

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<sup>145</sup> McGrath, “Music Performance Anxiety Therapies: A Review of the Literature,” 3.

student's success positively by helping to reduce or eliminate negative thoughts through a variety of techniques, some of which will be discussed in Chapter Four. Unfortunately, voice teachers can also be a cause of their fear in their students. In a study of MPA among choral singers, the conductor emerged as one of the greatest contributors to anxiety and fear for choristers.<sup>146</sup> This is a sober reminder of the delicate balance between inspiring growth and instilling fear.

Chapter Four will focus on strategies to help redirect maladaptive behavior, including positive reinforcement strategies, emotional regulation and mindfulness skills, and emotional relearning.

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<sup>146</sup> Charlene Ryan and Nicholle Andrews, "An Investigation Into the Choral Singer's Experience of Music Performance Anxiety," *Journal of Research in Music Education* 57 no. 2 (July 2009), 108.

## CHAPTER FOUR

### **Strategies for Redirecting Fear in the Voice Studio**

Chapter Four introduces strategies and methods relevant for the vocal instructor to alleviate and prevent fear in vocalists. Familiarity with these concepts provides voice teachers tangible guidance when managing the stress and fear of students. It informs the teacher of the importance of directive instruction and redirection behavioral strategies in the voice studio or masterclass setting.

The chapter reviews advanced concepts such as emotional intelligence and emotional learning and relearning, positive reinforcement theory, motivation, acceptance and commitment therapy, and emotional regulation and mindfulness skills. It further details the following “assorted strategies”: medications for stress, meditation, yoga, Alexander Technique, the Y-Buzz, the scratchpad pop-up model, and hacking the vagus nerve. Many of these helpful strategies can be implemented either in a private lesson or a masterclass setting, while some will require the involvement of a trained professional.

I would encourage any teacher who utilizes the strategies outlined to share openly these exercises (and their intent) with students. Although teachers are viewed as the gatekeepers of knowledge, keeping students in the loop and engaged in self-exploration, especially as it relates to fear and anxiety, may unlock new doors and facilitate growth. As

Verdolini has demonstrated, students learn more when they are required to put forth their own cognitive effort in addressing vocal problems.<sup>147</sup>

Before delving into techniques to redirect fear and anxiety, an understanding of learned behavior is important. Learned behaviors are actions that are cultivated as a result of experience. There are four different types of learned behaviors: (1) habituation, which occurs when one gradually stops responding to a repeated stimulus regardless of associated reward or punishment; (2) imprinting, a phase sensitive learning, which occurs during a brief period in younger children; (3) classical conditioning, where one stimulus is gradually associated with a new stimulus to which it had no previous connection (e.g. Pavlov's bell); and (4) operant conditioning, in which people learn to perform behaviors either more or less depending on the reward or punishment that follows.<sup>148</sup> Based on B.F. Skinner's theory of rewards and punishments, fear in the voice studio could be conceptualized as a learned behavior.<sup>149</sup> This behavior could be modified or eliminated by the instructor employing various techniques for controlling the external environment.

Learned behavior is contrasted with innate or instinctive behavior, which is genetically embedded in the body. Sleeping and eating are examples of innate behaviors, as is the hyperarousal response one experiences when danger is perceived. Innate behavior cannot be drastically altered, but the following strategies allow us to manipulate and improve our conscious choices.

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<sup>147</sup> Verdolini, "On the Voice: Learning Science Applied to Voice Training: The Value of Being "In the Moment," 6.

<sup>148</sup> Julie Jaffee Nagel, "Treatment of Music Performance Anxiety via Psychological Approaches: A Review of Selected CBT and Psychodynamic Literature," *Medical Problems of Performing Artists* 25 (April 2010), 143.

<sup>149</sup> *Ibid.*

### ***Social-Emotional Skills: Emotional Learning & Emotional Intelligence***

Social and emotional aptitudes are highly influential skills that can positively affect classroom or studio management, the relationship between the voice instructor and the student, and even the efficacy of instruction. Social and emotional learning is an umbrella term that encompasses a wide variety of theories and concepts, such as emotional intelligence, social competency, emotional learning and relearning, and self-regulation.<sup>150</sup> Understanding and harnessing these skills can make teachers far more effective and may even potentially increase the likelihood of long-term skill acquisition. These skills are meant for the student as well as the voice teacher.

Social and emotional learning skills are composed of three elements. The first element is the emotional process.<sup>151</sup> This process enables us to correctly understand and label our feelings, reflect on other perspectives, and display empathy. The second element, interpersonal skills,<sup>152</sup> allow us to understanding social cues, such as body language and tone of voice. Interpersonal skills, however, extend beyond recognizing social cues to include the ability to identify the intention of a student's behavior. For example, a fearful student's true intention may represent a desire for independence, recognition, and validation rather than them simply difficult or unresponsive behavior. Finally, the third element is cognitive regulation. This includes actions that focus attention, engage working memory, and suppress unhelpful impulses.<sup>153</sup> These strategies are also known as SECURE strategies: Social, Emotional, and

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<sup>150</sup> Stephanie Jones, Suzanne M. Bouffard, and Richard Weissbourd. "Educators' Social and Emotional Skills Vital to Learning," *The Phi Delta Kappan* 94 no.8 (May 2013), 62.

<sup>151</sup> *Ibid.*, 63

<sup>152</sup> *Ibid.*

<sup>153</sup> Jones, *Educators' Social and Emotional Skills Vital to Learning*, 63.

Cognitive Understanding and Regulation in education.<sup>154</sup> SECURE targets executive functioning while also developing benchmarks and routines for the student.

SECURE strategies are highly effective for classroom management in Pre-K aged children.<sup>155</sup> While some of these strategies may be too elementary for collegiate students, the following suggestions may still be helpful in the voice studio:

- Encourage students to plan and set goals. This provides structure and organization, which helps to alleviate fear. This can be done through a practice journal.
- Encourage focus and attention by using nonverbal hand signals without interrupting instruction. For example, if the fearful student begins to exhibit signs of inefficient breath management (shallow or rapid breathing), the voice teacher might gesture to put a hand on the chest. This nonverbal signal communicates that the voice teacher acknowledges and validates the emotional state of the student, and simultaneously encourages a different type of breathing pattern to “ground” the student.
- Include the entire roster of the studio. In a studio masterclass situation, the teacher can use a grown-up version of the “cool kid” routine in SECURE; after a nervous student has performed, encourage the other students to give detailed and positive feedback such as, “I appreciated the artistry you brought to the melisma in measure 54,” or “your resonance strategy was excellent during the passage on page 4.”

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<sup>154</sup> Stephanie Jones, Rebecca Bailey, and Robin Jacob, “Social-Emotional Learning is Essential in Classroom Management” *The Phi Delta Kappan* 96 no. 2 (October 2014), 21.

<sup>155</sup> Jones, “Social-Emotional Learning is Essential to Classroom Management,” 23, see Appendix for Image.

Increasing these skills in both the voice teacher and the students could begin by honing emotional intelligence. Essentially, emotional intelligence is the ability to “read” a person.

Salovey explains emotional intelligence as:

involving the ability to perceive accurately, appraise and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotions and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth.<sup>156</sup>

Rather than allowing the amygdala to hijack and control, teachers can develop emotional intelligence to advance teaching skills and to create an optimal learning environment. Likewise, they can empower students to increase their own emotional intelligence, as well.

- Inspire the student to acknowledge their feelings by asking themselves important questions, such as “What is going on in my body?” and “Can I map where I feel fear building in my body?”
- Reassure the student that the feelings they experience are useful pieces of information by asking “What do these sensations and feelings tell you?”<sup>157</sup> A simple question to train self-exploration might seem innocuous but can help the student regain perspective, and consequently, help to ascertain what the next steps in alleviating fear might be.

Fear in students can cause many different reactions, including the perception of hostility. Successfully managing a contentious situation could be the difference between fostering a lasting and impactful relationship with a student or permanently losing a student from the studio. One of the simplest ways to ease a situation is to employ appropriately timed

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<sup>156</sup> Holly Elissa Bruno, “The Neurobiology of Emotional Intelligence: Using Our Brain to Stay Under Pressure,” *YC Young Children* 66 no. 1 (January 2011), 24.

<sup>157</sup> *Ibid.*

humor. Brown remarks that humor can drastically improve the situation.<sup>158</sup> Humor also helps to build emotional awareness. Another strategy for building emotional awareness is to inspire reflection in the students. Helping students to reflect on an anxious or fearful moment can assist in understanding what is happening, why it is happening, and how things might be changed. While time with a voice student is limited, the teacher can encourage the student to bring a journal to each lesson. Near the end of each lesson, ask the student to free-associate in the journal for five minutes. This simple task could eventually change an outlook on a fearful situation.

Managing the stress of a student is easier to do in an environment that promotes self-exploration and cooperation. Students with a firm grasp on social and emotional learning skills have a greater chance of coping with everyday challenges. From problem-solving and impulse management, to gaining control over one's emotions, this self-awareness will provide a foundation for positive, long-term effects.

### ***Motivation***

The various theories of motivation are created to help explain, predict, and alter or influence behavior.<sup>159</sup> Motivation is not considered a quality of a person, but it is rather a set of exhibited behaviors. How students see themselves in the learning environment, and more broadly in the world, influences how they experience a situation. Teachers in a classroom or studio setting have a responsibility of intentionally and positively motivating the student's

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<sup>158</sup> Holly Elissa Bruno, "The Neurobiology of Emotional Intelligence: Using Our Brain to Stay Under Pressure," 26.

<sup>159</sup> Deborah Stipek, *Motivation to Learn: Integrating Theory and Practice*, Boston: Pearson, 2001, 8.

interpretation of their learning situation and to alter fearful behavior. A student who is genuinely motivated will have a positive outlook on the process of learning, will exhibit a strong desire to learn, and will direct effort toward learning.<sup>160</sup>

Strategies involved with influencing motivation while simultaneously decreasing fear and anxiety are largely based on the environment created in the voice studio.

- Introduce tasks in a nonthreatening way. If a teacher assigns a new aria or vocal warm-up and presents it as being difficult, there is potential to set the student up for failure. The voice teacher can be honest about the level of difficulty while establishing the potential for student empowerment. Perhaps a teacher initiates a conversation by stating, “The aria I have suggested is indeed a fun challenge, but it is one that I know you can manage successfully.”
- Allow the appropriate amount of autonomy. If students make an error in the voice lesson, allow them the opportunity to self-assess, provide feedback, and determine the goal. This will increase their understanding and skill acquisition.

### ***Positive Reinforcement and Praise***

The discussion of social and emotional learning and motivation lends itself to exploration of the reinforcement theory. Modifications that occur in a student’s behavior are produced by changing contingencies in the environment.<sup>161</sup> While reinforcement helps to

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<sup>160</sup> Peter D. MacIntyre, Gillian K. Potter, and Jillian N. Burns, “The Socio-Educational Model of Music Motivation,” *Journal of Music Education* 60 no. 2 (June 2012), 6.

<sup>161</sup> Nathan C. Hall and Thomas Goetz, eds., *Emotion, Motivation, and Self-Regulation: A Handbook for Teachers*, Bingley, UK: Emerald Group Publishing Limited, 2013, 13.

explain achievement-related behavior, it also aids in explaining all human behavior.<sup>162</sup> B.F. Skinner expanded on Thorndike's law, the law of effect, which states that behavior is determined by its consequences.<sup>163</sup> His expansion of this theory led him to originate the term operant conditioning, as previously defined.

There are four different types of reinforcement: positive reinforcement, negative reinforcement, punishment, and extinction. Positive reinforcers are consequences that increase the probability of behaviors. A positive reinforcer is an added reward after the desired behavior has been exhibited. Negative reinforcement increases the likelihood of behavior by removing something from the environment. This involves taking away a positive reinforcer. Punishment serves to suppress the wrong behavior, but often does not eliminate it.<sup>164</sup> Extinction occurs when the reinforcement is no longer provided, resulting in diminishing probability of the behavior occurring. The section will focus on positive reinforcement.

As voice students begin to advance in their training, the technical aspects of lessons will also begin to increase in difficulty. They will begin to learn more challenging repertoire, and the warm-ups utilized will most likely be of equal caliber. Be mindful of the feedback (otherwise known as reinforcement) that is administered during these transitional phases. Growing frustration with a student's inability to perform a vocal task adequately could reinforce their

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<sup>162</sup> Stipek, *Motivation to Learn: Integrating Theory and Practice*, 19.

<sup>163</sup> Ibid.

<sup>164</sup> Robert W. Lundin, "Musical Learning and Reinforcement Theory," *Music Educators Journal* 46 no. 4 (February/March 1960), 48.

fear and anxiety. Be judicious and honest with the feedback, but also be specific. Specific feedback is felt to be more efficacious than non-specific feedback.<sup>165</sup> For example:

- If the student begins to show consistent signs of “choking up” during the same part of an aria, an approach could be: “I see that you are having some difficulties descending the octave. Let us create an exercise based on this passage that focuses on registration changes, so you can feel more successful going forward.”
- Weeks later, if that same student begins to show signs of improvement, offering brief praise will help to reinforce their habitual change: “I notice an improvement in measure 42, where you have that octave leap. I appreciate your diligence in the practice room.”
- If that same student comes back and is still struggling with the passage (and it is not for a lack of earnestly trying), the teacher can approach the situation by saying: “I appreciate you taking a risk like that in the voice studio.” From there, one may move on or attempt the same passage again.

This type of praise is sincere and specific. Praise can serve as a type of reinforcement, especially for the younger students. However, musical and creative communities often strive for perfection, which unfortunately can foster fear and anxiety. Since creativity and risk-taking are desired, be mindful not only to reinforce accuracy and high levels of achievement,<sup>166</sup> but also to offer praise to those students. Reinforcing with praise requires the following:<sup>167</sup>

1. Praise must be delivered systematically.

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<sup>165</sup> Jessica Napoles and Judy Bowers, “Differential Effects of Instructor Feedback vs Self-Observation Analysis on Music Education Majors’ Increase of Specific Reinforcement in Choral Rehearsals,” *Bulletin of the Council for Research in Music Education* no. 183 (Winter 2010), 41.

<sup>166</sup> Stipek, *Motivation to Learn: Integrating Theory and Practice*, 32.

<sup>167</sup> Stipek, *Motivation to Learn: Integrating Theory and Practice*, 36.

2. Praise must be genuine.
3. Attribute success to effort and ability so the student knows this is expected of them in the future.
4. Create an environment where the students believe they want to expend effort on their work because they enjoy their work.

There are many factors in the voice studio that are out of the voice teacher's control but offering genuine praise and positive reinforcement may mitigate fearful tendencies before learned behaviors are developed.

### ***Well-Being: PRP***

Well-being is a state of feeling healthy and happy. More broadly, it includes having a positive outlook on life, a true sense of meaning or purpose in the world, and the ability to effectively manage fear, anxiety, and stress. Educational and learning environments are excellent settings for promoting well-being. Most parents and educators view well-being as an integral aspect of schooling.<sup>168</sup> If this highly sought state of being is considered important, can it then be implemented into a curriculum? The following program has found varying levels of success in promoting well-being in a school setting. This program does involve outside sources and may not be easily incorporated into the voice studio.

The Penn Resiliency Program (PRP) is a cognitive-behavioral intervention strategy that promotes optimism by instructing students to think realistically while also helping them to think

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<sup>168</sup> Martin E. P. Seligman, Randal M. Ernst, Jane Gillham, Karen Reivich, and Mark Linkins, "Positive Education: Positive Psychology and Classroom Interventions," *Oxford Review of Education* 35 no. 3 (June 2009), 295.

creatively when encountering problems. This program was designed by the Positive Psychology Center at Pennsylvania State University. While intended for a younger student, there are no studies that suggest a high school or college student could not also benefit. The primary goal of PRP is to increase the student's ability to manage their everyday stressors,<sup>169</sup> which if not handled properly can lead to higher levels of stress, anxiety, and even depression. PRP aims to build cognitive and emotional skills, to increase strength in relationships, self-awareness, mental agility, and self-regulation,<sup>170</sup> as well as assertiveness and relaxation. PRP has been found to reduce hopelessness in students, while also reducing or preventing clinical levels of depression and anxiety.<sup>171</sup> PRP training ranges from brief one-hour presentations to eight-day workshops. A typical "lesson" in PRP will help the teacher guide the student in linking thoughts to feelings and identify thinking styles, putting thoughts in perspective, coping strategies, and graded task training. For example, the voice teacher can help the student link thoughts and have a greater sense of perspective by using the A, B, C, D Model (Activating Event, Beliefs, Consequences, and Dispute).<sup>172</sup>

1. Identify the activating event: "I have a lesson tomorrow."
2. Identify the belief: "I will sing poorly because I am not a good singer."
3. Identify the consequence/emotional behavior: "I am anxious and cannot focus."

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<sup>169</sup> Seligman, "Positive Education: Positive Psychology and Classroom Interventions," 299.

<sup>170</sup> For more details, please visit the official PRP website: <https://ppc.sas.upenn.edu/services/penn-resilience-training>

<sup>171</sup> Seligman, "Positive Education: Positive Psychology and Classroom Interventions," 298.

<sup>172</sup> See Appendix III for ABC worksheets.

4. Dispute with evidence: “Trying to predict the future is irrational! It would be more accurate to say, ‘I am afraid of failing, but I have no way of knowing how things will turn out.’”

Some obvious drawbacks to this strategy are the cost and, further, the potential for extensive training needed to effectively implement this approach in the voice studio.

### ***Acceptance and Commitment Therapy***

Acceptance and Commitment Therapy, also referred to as ACT, is a newer “third wave” form of therapy for anxiety based on B.F. Skinner’s radical behaviorism.<sup>173</sup> In all forms of anxiety, whether generalized or music performance-based, there is a feature called “experiential avoidance.” According to Hayes,<sup>174</sup> experiential avoidance is a pathology that occurs when someone repeatedly engages in a type of behavior intending to eliminate an unwanted internal thought, sensation, emotion, or memory. The primary goal of ACT is to strengthen and enhance psychological flexibility during the presence of unwanted symptoms, not to reduce these symptoms.<sup>175</sup> ACT suggests that F.E.A.R. is the basis of many problems:

- F: Fusion with one’s thoughts
- E: Evaluation of the experience
- A: Avoiding one’s experience
- R: Reason giving for the behavior

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<sup>173</sup> Robert Kohlenberg, Steven Hays, and Mavis Tsai, “Radical Behavior Psychotherapy: Two Contemporary Examples,” *Clinical Psychology Review* 13 no. 6, 579.

<sup>174</sup> David G. Juncos and Emily J. Markman, “Acceptance and Commitment Therapy for the Treatment of Music Performance Anxiety: A Single Subject Design with a University Student,” *Psychology of Music* 44 no. 5 (2016), 936.

<sup>175</sup> Ibid.

A.C.T. is proposed as a tool for combating F.E.A.R.:

- A: Accept reality
- C: Choose an important direction
- T: Take action!

Psychological flexibility is the ability to adapt to situational changes, demands, and behaviors. Psychological flexibility is analogous to physical flexibility. It is obtained by someone becoming comfortable with their own experience of discomfort, much like someone at the gym stretches every day to become more comfortable with the pain of stretching. Completely avoiding discomfort could lead to psychological rigidity, which could prevent corrective learning.<sup>176</sup> Success with psychological flexibility is achieved through six core principles of ACT, known as the “hexaflex” (Figure 20): accepting one’s own experience, contact with the present moment, identifying values, committed action, a contextual sense of self, and cognitive defusion from thoughts and feelings.<sup>177</sup>

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<sup>176</sup> Juncos, “Acceptance and Commitment Therapy for the Treatment of Music Performance Anxiety: A Single Subject Design with a University Student,” 937.

<sup>177</sup> Ibid.

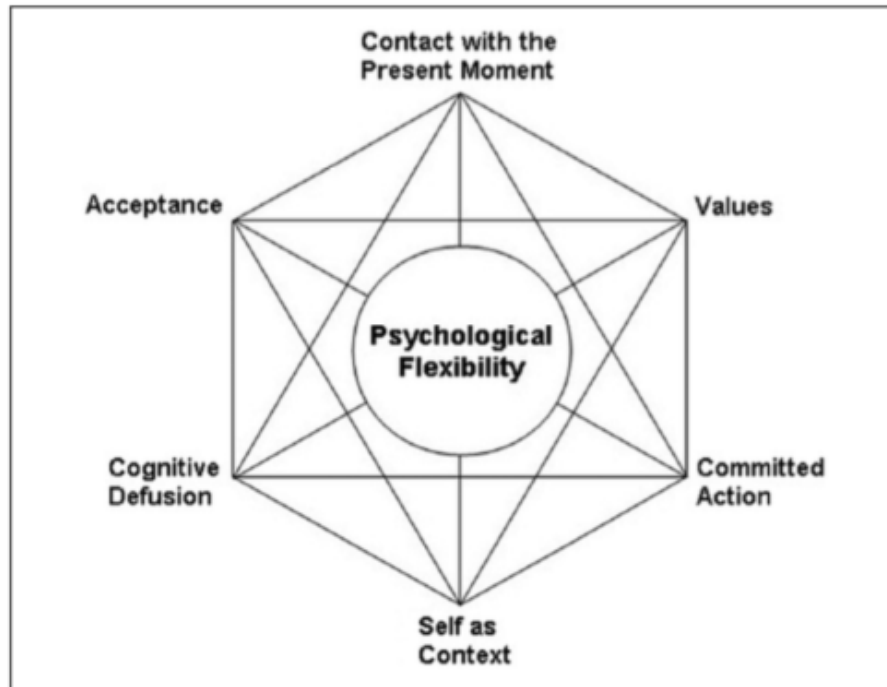


Figure 20: Image of the ACT Hexaflex. Figure reproduced from David G. Juncos and Emily J. Markman, "Acceptance and Commitment Therapy for the Treatment of Music Performance Anxiety: A Single Subject Design with a University Student," *Psychology of Music* 44 no. 5 (2016): 942.

This form of therapy requires a trained psychologist, preferably one who is familiar with various forms of dialectical behavior therapy (DBT). However, one applicable strategy the instructor can use in the voice studio is called the "mistake recovery technique."<sup>178</sup>

1. Instruct the student who is showing fear in a lesson (or a performance) to write down and categorize their mistakes based on the type, e.g. error in language, error in resonance strategy, error in memory, etc.
2. Request the student to identify mistakes that are frequent or infrequent.

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<sup>178</sup> Ibid.

3. Of the frequent mistakes, one may then come up with different methods to minimize the reoccurrence. For example, if the student concludes a frequent mistake is an error in remembering the text, instruct the student to write out the entire text.

The goal of this strategy is to allow the student to accept errors and recover quickly. The teacher can also help the student in defusing the situation:

1. Instruct the students to silently communicate awareness of their discomfort to themselves. For example: "I am experiencing rapid breathing" or "I realize I am anticipating making an error."

The goal of this strategy is simply to begin to notice one's thoughts, rather than become entangled and distracted by them. Furthermore, cognitive defusion can aid the students in recognizing that thoughts do not have to dictate behavior.

### ***Assortment of Strategies***

#### *Beta-Blockers*

Beta-blockers are a type of medicine commonly used for the treatment of stage fright or music performance anxiety to alleviate the unpleasant symptoms of such as hyperventilation, heart palpitations, or a tremor.<sup>179</sup> By blocking postsynaptic receptors of sympathetic nerves, beta blockers reduce the effects of epinephrine (adrenaline) and reduce the fight-or-flight reaction.<sup>180</sup> Originally, beta-blockers were not intended for use in musicians with anxiety; they were created for the treatment of cardiovascular diseases, such as angina and high blood

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<sup>179</sup> McGrath, "Music Performance Anxiety Therapies: A Review of the Literature," 10.

<sup>180</sup> Jacqueline Nube, "Beta-Blockers: Effects on Performing Musicians," *Medical Problems of Performing Artists* 6 no. 2 (June 1991), 61.

pressure.<sup>181</sup> Once beta-blockers they became more widely used, they were deemed effective for several other disorders, such as migraines, glaucoma, and anxiety states.<sup>182</sup>

Beta-blockers and other anxiety-reducing medications are used by a large number of musicians. In a 1989 survey of 2,122 instrumentalists, 27% reported using beta-blockers. Of these instrumentalists, 19% used beta-blockers daily, 11% used them regularly, and 70% used them infrequently.<sup>183</sup> Beta-blockers are widely used by vocalists, as well. Exploration of the use of beta-blockers among 34 vocal students in 1985 revealed that a low dose of medication was effective at combating fear and stage fright, but that a higher dose was ineffective, and in fact produced worse results. Using higher doses of beta-blockers can lead to bradycardia (slow heart rate), which has been associated with rhythmically inaccurate musical performances and with decrease in dynamic intensity.<sup>184</sup> Other negative outcomes of over usage of beta-blockers include lack of sleep, hallucinations, fatigue, depression, and cold extremities.<sup>185</sup>

Beta-blocker usage is effective in reducing anxiety related to stressful events, such as performing, but long-term reliance tends to result in negative effects. Situational usage of beta-blockers, when combined with additional psychological therapy, is most likely to yield positive, observable results. Students may find that other medications and substances also provide relief from stressful situations, though this may lead to substance use disorders and dependence. Discretion is highly advised when discussing medication in the voice studio. It is important to

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<sup>181</sup> Joseph A. Diehl, "Stage Fright: A Topical Guide for Singers Concerning Music Performance Anxiety Literature," (DMA. Ball State University) 2016, 53.

<sup>182</sup> Nube, "Beta-Blockers: Effects on Performing Musicians," 61.

<sup>183</sup> Ibid.

<sup>184</sup> McGrath, "Music Performance Anxiety Therapies: A Review of the Literature," 79

<sup>185</sup> Diehl, "Stage Fright: A Topical Guide for Singers Concerning Music Performance Anxiety Literature," 54.

remember that recommending medication is outside of the voice teacher's scope of practice. Recommending students discuss medical considerations to manage anxiety may be appropriate when directed to a primary care provider or mental health professional. If there is ever a concern about substance abuse or dependency, a referral to the university's counseling service necessary.

### *Meditation*

Meditation is the act of regulating attention through the observation of focused thinking, mindfulness, emotions, and body states. It is a form of consciousness alteration that is intentionally designed to increase self-knowledge and well-being through reduced self-awareness.<sup>186</sup> Although many people practice meditation as part of a religious worldview, meditation can be practiced by anyone. The benefits of meditation do not depend on religious belief.

There are various meditation techniques and practices (Figure 21), and most bring attention to memories, emotions, bodily sensations, mental images, and positive feelings. Meditation practices utilize some of the following strategies: (1) directing focus to an attentional anchor utilizing breathing or an external object, (2) calmly observing internal and external distractions and disengaging from them, and (3) focusing attention from the

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<sup>186</sup> McGrath, "Music Performance Anxiety Therapies: A Review of the Literature," 11.

distraction back to the anchor.<sup>187</sup> For a performing musician, meditation should be considered “mind to muscle<sup>188</sup>” or a cognitive approach to relaxation.

Encouraging students to practice meditation engages a focus on the physiological to benefit the psychological balance important for rewarding the performing experience.<sup>189</sup> A study conducted in 1999 observed the impact of breathing and awareness exercises on thirty-nine collegiate vocal students. The results yielded a decrease in heartbeat, in addition to a sense of calmness.<sup>190</sup> Attention and focus techniques have also been found to greatly reduce symptoms of fear and anxiety in music students.<sup>191</sup>

Advanced meditation should either be outsourced to a professional, or the voice teacher should undergo extensive meditation training to effectively teach meditative practices to their students. Several basic meditative practices can be shared with students, however, either in the voice studio or during a masterclass setting:

1. If possible, encourage the student to sit down
2. Instruct the student to close the eyes to turn the focus away from the outside world
3. Remind the student of the importance of breathing
4. Acknowledge that the mind may wander and have “racing thoughts” and encourage the thoughts to float away without attaching any meaning
5. Remind the student to listen to the body and to relax muscle groups when needed

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<sup>187</sup> Lea Waters, Adam Barsky, Amanda Ridd, and Kelly Allen, “Contemplative Education: A Systematic, Evidence-Based Review of the Effect of Meditation Interventions in Schools,” *Educational Psychology Review* 27 no. 1 (March 2015) 104.

<sup>188</sup> McGrath, “Music Performance Anxiety Therapies: A Review of the Literature,” 37.

<sup>189</sup> *Ibid.*,” 41.

<sup>190</sup> *Ibid.*

<sup>191</sup> Diehl, “Stage Fright: A Topical Guide for Singers Concerning Music Performance Anxiety Literature,” 95.

6. Encourage patience with the practice of meditation

The fundamental goal of meditation is to increase cognitive function and emotional regulation. Meditation works most effectively when the mental and physical state is relaxed but alert. This is ideal for musicians, as it allows performers to focus on the technical without completely disengaging from the artistic.<sup>192</sup>

[Figure 21 Follows]

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<sup>192</sup> McGrath, "Music Performance Anxiety Therapies: A Review of the Literature," 40.

Meditation practice	Intention of the practice
Accm	Thoughts, memories, emotions and sensations emerge and pass through the objective awareness of the practitioner, without any volitional attempt to control the content
Centering prayer	A method of silent prayer that prepares the practitioner to receive the gift of contemplative prayer, prayer in which the recipient experiences God's presence within them
Loving kindness meditation	Deliberately focussing attention on positive feelings such as compassion, warmth and care for self and others
Mindfulness	Deliberately focussing attention in the present moment, without judgment, to the experience that unfolds (Kabat-Zinn, 1990); attentional faculty comprising of continuous attention to an object without forgetfulness or distraction (Wallace 2006)
Mindfulness-Based Stress Reduction Programme (MBSR)	An 8-week group programme utilising various forms of mindfulness meditation including breath awareness, body scan exercises, walking and eating meditations and hatha yoga (Kabat-Zinn, 2003)
Shamatha	Placing attention on a mental image or visual object to attain attentional stability, vividness and introspection (10 stages of attentional development)
Transcendental meditation	Silently repeating a word or mantra to achieve a meditative state. When distracting thoughts arise, attention is repeatedly redirected back to the mantra
Vipassana	Non-attached observation of bodily sensations and thoughts. Awareness is repeatedly redirected to the breath in the face of mental distractions
Yoga Nidra	Attention is withdrawn from wishing to act and deployed towards sensory stimulation or imagination, while maintaining neutral observation of experience
Zen	Focussing attention on a word puzzle or breath awareness to exclude mental distractions and reach a heightened state of consciousness

Figure 21. List of meditation practices. Figure reproduced from Lea Waters, Adam Barsky, Amanda Ridd, and Kelly Allen, "Contemplative Education: A Systematic, Evidence-Based Review of the Effect of Meditation Interventions in Schools," *Educational Psychology Review* 27 no. 1 (March 2015): 105.

## Yoga

Like meditation, yoga is multifunctional. A practice that originated in India, yoga focuses on physical, mental, and spiritual growth and centeredness. As with meditation, many people who practice yoga do so through the lens of religious beliefs. Yoga can be practiced through a secular lens, as well, but careful attention should be paid to remaining sensitive and avoiding cultural appropriation.

Bringing awareness to the student's physical state and physiological reactions is important in preparing to eliminate fearful tendencies from habituation. The practice of yoga facilitates this by incorporating various breathing and meditation strategies, combined with physical postures or movements, to alleviate anxiety. Yoga can also be beneficial in positively enhancing the mood, alleviating musculoskeletal ailments, and improving overall cognitive and physical performance. As mentioned in Chapter Three, motor skills are vital for a performer; yoga offers one mode of therapy for those who suffer from fear by emphasizing physical balancing and stretching.<sup>193</sup>

While there has not been extensive research on as it relates to fear in musicians, one study by S.B. Khalsa does offer valuable insight. By directly evaluating the benefits of yoga on adult musicians, Khalsa demonstrated a positive correlation between yoga, meditation, and reduced fear of performing and anxiety.<sup>194</sup> In the study, musicians attended at least three Kripalu yoga sessions a week; some groups also attended a weekly discussion session. All of the

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<sup>193</sup> McGrath, "Music Performance Anxiety Therapies: A Review of the Literature," 49.

<sup>194</sup> S.B. Khalsa, S.M Shorter, S. Cope, G. Wyshak, and E. Sklar, "Yoga Ameliorates Performance Anxiety and Mood Disturbance in Young Professional Musicians," *Applied Psychophysiology and Biofeedback* 34 (2009), 279.

participants completed self-report questionnaires. Results suggest an improvement in performance anxiety and mood disturbances, however, did not show a change in any musculoskeletal disorders.<sup>195</sup>

The greatest yields from yoga require the expertise of qualified yoga instructors. However, the following postures and stretches may be suggested to a novice. It is prudent to only offer the following activities if one fully understands how to explain the instructions and goals, as failure to do so could result in an unwanted injury.

#### Legs Up the Wall (Viparita Karani)

The legs up the wall pose helps relieve any discomfort that may be associated with the lower back. This is a posture associated with calming the body and decreasing heart rate. Additionally, in this pose, one may direct attention to the student's respiratory patterns, bringing awareness to any breath-related movement they feel in their back. Have the student start on their backs by placing the buttocks close to the wall. Then, the student should be instructed to place the legs on the wall, allowing the lower body to move forward until the legs are against the wall. Encourage the students to close the eyes and focus on breathing during this pose. The student may remain in this posture for as long as needed.

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<sup>195</sup> S.B. Khalsa, "Yoga Ameliorates Performance Anxiety and Mood Disturbance in Young Professional Musicians," 285.



Figure 22: Legs Up the Wall Pose, digital image, Yoga Journal, accessed May 8, 2020, <https://www.yogajournal.com/poses/legs-up-the-wall-pose>

### Child's Pose (Balasana)

The child's pose assists in relieving any discomfort that may be associated with the back, neck, or shoulders, which are common places to hold stress. Begin the pose on the hands and knees, with the hands directly under the shoulders and the legs hip-distance apart. Reach the arms forward and slowly move the torso back between the thighs. Encourage the students to be mindful of breathing in this pose. The student may remain in this posture for as long as needed.



Figure 23. Child's Pose, digital image, Yoga Journal, accessed May 8, 2020, <https://www.yogajournal.com/poses/child-s-pose>

### Standing Forward Bend (Uttanasana)

The standing forward bend pose can release tension and encourage the student to be mindful of any expansion experienced in the back when breathing. The student should begin the pose by standing with the feet close together. Instruct the student to raise their arms above the head, stretching an elongated spine as they bend from the hip joints. Allow the body to hang down, remaining mindful of the breath. The student may remain in this posture for as long as needed.



Figure 24. Standing Forward Bend, digital image, Yoga Journal, accessed May 8, 2020, <https://www.yogajournal.com/poses/standing-forward-bend>

### Corpse Pose (Savasana)

The corpse pose is intended to free the mind of any negative thoughts. Begin the pose by lying on the floor with the arms at the side, palms up. This pose will bring awareness to any breath-related movement in the back. Instruct the student to close the eyes and focus on the breath. The student may remain in this posture for as long as needed.



Figure 25. Corpse Pose, digital image, Yoga Journal, accessed May 8, 2020, <https://www.yogajournal.com/poses/corpse-pose>

### *Alexander Technique*

T. F. Matthais Alexander, a Shakespearean actor, developed the Alexander Technique as a way to address vocal problems, particularly issues of public speaking. Alexander Technique in the voice studio has become increasingly popular over the past forty years. While the original intention was not to treat fear or music performance anxiety, it has nonetheless become a trusted strategy in mitigating fear. Alexander Technique is not truly about releasing tension, nor is it a relaxation technique; rather, it is about the efficient use of muscles, as well as the balance of strength, coordination, and the ease of movement.<sup>196</sup> The Alexander Technique is a kinesthetic strategy that introduces new postures associated with verbal guidance. The method encourages effortlessness and balanced management of tension.<sup>197</sup>

One particular study focused on twenty-five music students and the effects of the Alexander Technique. The study showed that use of Alexander Technique yielded an improvement in technical and musical qualities; and, most importantly, it produced musicians whose mood was more positive and whose average heart rate was less affected by

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<sup>196</sup> Jane Ruby Heirich, *Voice and the Alexander Technique*, (Berkeley, California: Mornum Time Press, 2005), 7.

<sup>197</sup> McGrath, "Music Performance Anxiety Therapies: A Review of the Literature," 9.

performance, compared to the control group.<sup>198</sup> Another study applied Alexander Technique in a high school choir classroom. The results were equally positive: students reported improved posture and stage presence, in addition to feeling more relaxed and having a better awareness of respiration strategies.<sup>199</sup>

Elenore Rosenthal attributes the success of the Alexander Technique to conscious learning and details three steps to this process.<sup>200</sup> The first step is awareness of any unwanted habitual behavior. The next step is inhibition, which is the suppression of an unwanted response, as opposed to correcting it. Diehl gives an example of a student's head pulling in one direction; the problem is not solved by pulling the other way but rather by inhibiting the undesired action.<sup>201</sup> The third step is conscious control, replacing the old habit now that it has been prevented or reduced with a newer and more efficient movement.

For the most consistent and beneficial results, voice students should seek out instructors trained in the Alexander Technique. As with yoga, mastery requires hundreds of hours of training. The trained instructor will work together with the student to reprogram habitual thinking patterns. However, there are a few strategies for utilizing Alexander Technique for those not officially trained in the method.

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<sup>198</sup> Thurber, "Effects of Heart-Rate Variability Biofeedback Training and Emotional Regulation on Music Performance Anxiety in University Students," 16.

<sup>199</sup> McGrath, "Music Performance Anxiety Therapies: A Review of the Literature," 49.

<sup>200</sup> Eleanor Rosenthal, "The Alexander Technique – What It Is and How It Works," *Medical Problems of Performing Artists* 2 no. 2 (June 1987), 53.

<sup>201</sup> Diehl, "Stage Fright: A Topical Guide for Singers Concerning Music Performance Anxiety Literature," 49.

### Semi-supine position or the Alexander Lie-Down

In a semi-supine position or Alexander lie-down, the student lies on the backs with knees slightly bent. Elevate the head by placing a foam mat or a book behind the head. The student will stay in this position for 15-20 minutes. This position can be combined with strategies from yoga or meditation. The primary benefit is to clear the mind of unwanted thoughts. This position should also bring awareness to any unnecessary tension or movements in the body. It can further aid in realigning improper head, neck, and spine posture.

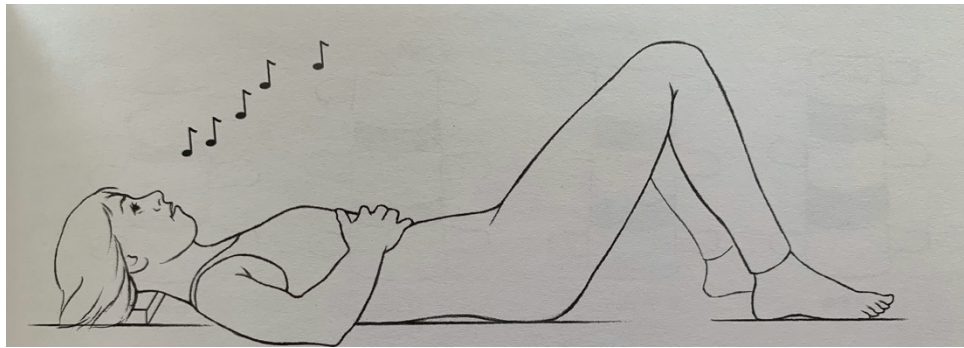


Figure 26. Semi-supine position. Image reproduced from Jane Ruby Heirich, *Voice and the Alexander Technique*, (Berkley, California: Mornum Time Press, 2005): 83.

### A homework assignment

The following statements and questions were written for an Alexander Technique workshop,<sup>202</sup> but can be given to an entire voice studio, with or without a trained Alexander Technique instructor.

- I am my homework.
- I am always with me, and there is always something interesting to observe about myself or others.

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<sup>202</sup> Heirich, *Voice and the Alexander Technique*, 11.

- My assignment is to observe my habitual responses to every stimulus that I encounter during my waking moments.
- How do I respond to a particular stimulus? Disorganized or systemically?
  - Is it a useful, efficient, and healthy response? If not, I can choose to change my response.
- Nobody can possibly learn as much about me as I can learn about myself.
- Consequently, nobody can give me the kind of help that I can give myself.

### *Y-Buzz*

The Lessac Y-Buzz was developed by Arthur Lessac. There is an extensive section in the book *The Use and Training of the Human Voice—A Biodynamic Approach to Life*. The Y-Buzz was developed to create a sense of forward resonance without nasality in order to alleviate strain and stress on the voice. Anecdotally, the Y-Buzz helps voice users (e.g. actors and singers) experience vocal efficiency providing a more relaxed vocal mechanism. Singers have attested to gaining a sense of confidence and empowerment, in addition to feeling less nervous, by employing the usage of the Y-Buzz.<sup>203</sup>

To perform the Y-Buzz, instruct the student to shape the lips into a “sh” position as if telling someone to be quiet. Instruct the student to engage the soft palate to provide lofted resonant space. While the lips are in the shape of a “sh” instruct the student to sing on an [i]. From an imagery point of view, encourage the student to direct the sound behind the top front

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<sup>203</sup> For more details visit: <https://www.vasta.org/newsletter-past/02/ybuzz.pdf>

teeth. The pitch level should remain comfortable during the exercise. The student may feel a soothing sort of buzz in the nose, cheeks, forehead, or the entire head and feel a natural sense of relaxation. The Y-Buzz may also help to regulate heart rate. Warming-up on the Y-Buzz before a lesson could help to alleviate any stress experienced before a lesson. Below is a simple scale a student can perform on the Y-Buzz.



Figure 27. A five-note scale on Y-Buzz.

#### *Scratch Pad Pop-Up Model*

The “Scratch Pad Pop-Up” model is a straightforward strategy that every voice teacher can use, either in a private voice lesson or during a masterclass session. It is an easy way to organize and understand how one’s thought process during an action such as singing. The model, proposed by Robertson and Eisensmith uses the term “scratchpad” as a metaphor for working memory, and the term “pop-up” as a metaphor for intrusive thoughts.<sup>204</sup> Working memory, as detailed in Chapter Three, is a type of memory involved in transforming short-term memory into long-term memory. However, when a student becomes fearful, “memory slips” can be one of the first signs. When a student enters into a stage of fear, the space dedicated to

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<sup>204</sup> Donald U. Robertson and Kevin E. Eisensmith, “Teaching Students About Performance Anxiety: The Scratch Pad Pop-Up Model,” *Music Educators Journal* 97 no. 2 (December 2010), 31.

working memory is now occupied with monitoring a potential threat. Robertson and Eisensmith explain the model in three simple steps.<sup>205</sup>

1. **Scratch Pad Concept:** Have the students think about the small details needing to be remembered when having to sing a particular vocal passage. On a piece of paper, or on a whiteboard in a masterclass setting, have the students list everything they must think about going into the particular vocal passage. This could be simple instructions like “articulation” or “legato” or “remember to achieve lofted resonance.” Be sure to reinforce that everyone also has a “mental scratchpad,” and every thought one has or action one takes is written on the scratchpad of the mind.
2. **Size of the Scratch Pad:** Remind them that the scratchpad is not large, and if too much information fills it, confusion can ensue. Remind them that once an action is achieved, it should disappear from the scratchpad, unless of course, they pay attention to it after it has been completed. For example, after “legato” is achieved, it can be erased from the scratchpad.
3. **Pop-Ups:** This metaphor uses the term “pop-up” like an ad on a website. When there is a pop-up, it can be difficult to focus on the desired task. The pop-ups can take up valuable space. For example, if “legato” was not achieved, the student may begin to think about the past mistake. Require an example to be given such as “I cannot believe I made a mistake!” or “What if my friend in the audience noticed my mistake?” It will be revealed that pop-ups begin to quickly take up space on their mental scratchpad.

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<sup>205</sup> Ibid., 32.

Being aware of strategies to organize and disseminate information efficiently is a powerful tool in eliminating unwanted thoughts or fearful thinking. After the student is familiar with the Scratch Pad Pop-Up Model, interventional preparation strategies are developed. Preparation will take up less space on the scratchpad and should increase the efficiency of complex motor actions.<sup>206</sup> The use of external cues is also encouraged.<sup>207</sup> For example, writing specific notes in the music will free up space on the mental scratchpad. Other simple preparation steps could be teaching a voice lesson in the actual venue or performance hall or reminding the student to assume the stature of the character before singing (a proud stance for a hero character). These strategies will not entirely eliminate pop-ups but should help the student decide when and how to respond to each pop-up. Recognizing when negative thoughts emerge, and then immediately letting them “fade away” is another skill that can be developed through mindfulness strategies and will be discussed later in this chapter.



Figure 28. The Scratch Pad Pop-Up Model. Figure reproduced from Donald U. Robertson and Kevin E. Eisensmith, “Teaching Students About Performance Anxiety: The Scratch Pad Pop-Up Model,” *Music Educators Journal* 97 no. 2 (December 2010): 32.

<sup>206</sup> Robertson, “Teaching Students About Performance Anxiety: The Scratch Pad Pop-Up Model,” 33.

<sup>207</sup> Ibid.

### ***Respiratory Vagus Nerve Stimulation (rVNS) (or Hacking the Vagus Nerve)***

The purpose of “hacking the vagus nerve” is to direct the nervous system toward a “rest-and-digest” (parasympathetic) state, away from “fight-or-flight (sympathetic) state. This influence on the parasympathetic nervous system can be achieved by respiratory vagus nerve stimulation or rVNS.<sup>208</sup> This technique involves slowing respiratory cycles and employing a longer exhalation phase, which in turn stimulates the vagus nerve. This type of respiratory slowing and control is fundamental to many types of meditation and yoga, in addition to tai chi and Alexander Technique. It is a contemplative breathing technique that has been shown to improve cognitive and mental health, especially in situations of musical performance.

The breathing exercise is simple. Author Christopher Bergland suggests practicing rVNS breathing patterns for a minimum of two minutes. Each respiration should use a 4:8 ratio: four seconds of inhalation and eight seconds of exhalation. Repeating this 12-second cycle for ten times would roughly equal two minutes. Remind the student to inhale through the nose. On the exhale, instruct a release of the breath through the mouth, encouraging a sense of buoyancy or prolonged expansion in the intercostal region. If a feeling of stress is still experienced, repeat the breathing pattern as many times as necessary. Additional studies have suggested that slow breathing can not only minimize the hyperarousal and acute stress response, but it may also

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<sup>208</sup> Christopher Bergland, “Longer Exhalations Are an Easy Way to Hack Your Vagus Nerve,” Psychology Today, [https://www.psychologytoday.com/us/blog/the-athletes-way/201905/longer-exhalations-are-easy-way-hack-your-vagus-nerve?fbclid=IwAR154D6xbUN79oqOsomyF9a-GgTX3\\_gI2fohCQpT4zFDEXtrIGQYKP6DjbM](https://www.psychologytoday.com/us/blog/the-athletes-way/201905/longer-exhalations-are-easy-way-hack-your-vagus-nerve?fbclid=IwAR154D6xbUN79oqOsomyF9a-GgTX3_gI2fohCQpT4zFDEXtrIGQYKP6DjbM)

reduce the effects of stress-influenced cardiovascular responses in individuals who may be prehypertensive.<sup>209</sup>

### ***Emotional Regulation Skills & Mindfulness (Mindfulness Based Cognitive Therapy)***

Experiencing positive and negative emotions is a normal part of daily life. The ability to respond and adapt to emotions could be the difference between an effective or ineffective voice lesson. Emotional regulation is the process that is responsible for monitoring and changing an emotional reaction. The regulatory process is integral and needed to provide adequate flexibility to the behavioral process and also to enable one to respond quickly and efficiently to the various changes by maintaining an internal arousal state.<sup>210</sup> Consistent failure to respond to an event with the appropriate emotion is called emotional dysregulation. Individuals who regularly experience overwhelming and intense emotions with no capability to redirect them are much more likely to rely on unhealthy strategies, such as self-injury, to cope. Honing emotional regulation skills can equip the student with the ability to respond appropriately to whatever situation is presented.

Paying attention in a specific and intentional manner while also being present and nonjudgmental is the practice of mindfulness.<sup>211</sup> The purpose of mindfulness-based activities is to increase awareness of positive or negative experience and reactions. The American Psychological Association describes mindfulness as:

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<sup>209</sup> Christopher Bergland, "Diaphragmatic Breathing Exercises and Your Vagus Nerve" Psychology Today, <https://www.psychologytoday.com/us/blog/the-athletes-way/201705/diaphragmatic-breathing-exercises-and-your-vagus-nerve>

<sup>210</sup> Ross A. Thompson, "Emotional Regulation and Emotional Development," *Educational Psychology Review* 3 No. 4 (December 1991), 271.

<sup>211</sup> Wendy Fuchs, *Mindfulness for Students: A Curriculum for Grades 3-8*. New York: Routledge, (2019), 1.

A psychological state of awareness, the practices that promote this awareness, a mode of processing information and a character trait...a moment-to-moment awareness of one's experience without judgment. In this sense, mindfulness is a state and not a trait. While it might be promoted by certain practices or activities, such as meditation, it is not equivalent to or synonymous with them.<sup>212</sup>

Mindfulness has roots in the Buddhist tradition, though it is thought to have perhaps begun before then.<sup>213</sup> Mindfulness requires the teacher to be attuned to the surroundings of their voice studio and to provide detailed instructions, as well as intentional and genuine encouragement to the student, all within the context of fostering and maintaining a trusting relationship. The intention is not to induce total relaxation, though relaxation is certainly a byproduct of mindfulness-based strategies.

Both of these skills are cognitive-based therapies, and many of the aforementioned strategies detailed in this chapter involve some degree of emotional regulation and mindfulness. Mindfulness and emotional regulation are also two of the four skill modules of dialectical behavioral therapy (DBT), along with interpersonal effectiveness and distress tolerance. Dialectical behavior therapy is a specific form of cognitive-behavioral therapy (CBT). CBT is a type of psychotherapy that implements interventional strategies to improve mental health.

Given the current popularity of mindfulness-based practices, it is likely that teachers may bring these approaches to the students without adequate preparation.<sup>214</sup> This is problematic, as it can be difficult to facilitate a learning environment if the instructor knows

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<sup>212</sup> American Psychological Association: <https://www.apa.org/monitor/2012/07-08/ce-corner>

<sup>213</sup> Clevenger, "A Study of the Correlation Between Mindfulness and Music Performance Anxiety Among College Music Majors: Implications for Counseling and Counselor Education," 35.

<sup>214</sup> Leigh Burrows, *Safeguarding Mindfulness in Schools and Higher Education: A Holistic and Inclusive Approach*, New York: Routledge, (2018), 26.

only as much as the student. The strategies that follow should help to mitigate any ill-preparedness. While the following strategies outlined are acceptable for use in the voice studio, these approaches overlap with therapy provided by mental health professionals, and any student exhibiting signs of generalized anxiety should be directed to a trained medical professional.

### Labeling Emotions: Primary or Secondary

Many therapists encourage patients to label feelings using descriptive, detailed words rather than ambiguous language. For one to adequately manage emotions, one must first know how to properly identify them. One component of this is discerning the difference between a primary emotion and a secondary emotion. A primary emotion is a natural reaction to events that occur in someone's life. For example, a primary emotion could be experiencing sadness if a friend is cruel, or anger if one cannot master a vocal concept during a lesson. A secondary emotion is how one responds to the fact that they are sad or angry. It is best if a teacher can foster an environment where the student can accept the primary emotion without self-judgement. Allowing the student to express anger when not able to accomplish a particular vocal task will help reinforce the anticipated feeling of frustration during the process. This simple acknowledgment can create an atmosphere where self judgement is minimized, reducing the likelihood that a destructive, maladaptive secondary emotion will take over.

## Emotion Coaching

The goal of emotion coaching is to help younger students self-regulate and manage stress and emotional vulnerability. An aspect of emotional coaching is encouraging students to express negative primary emotions. This should be accompanied by teaching various emotional regulation strategies. Students who have a large repertoire of skills at their disposal are more likely to be able to control negative secondary emotions.<sup>215</sup> The following approaches are appropriate to teach a voice student:<sup>216</sup>

- Comforting oneself
- Distracting oneself
- Refocusing attention
- Changing goals
- Taking a brief walk

For example, if the student becomes stressed by not accomplishing a certain vocal task, encourage a 30-second walk down the hallway. When the student returns, change the intention of the vocal task; if resonance was the primary goal, switch the goal to articulation or respiration instead.

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<sup>215</sup> Gayley L. Macklem, *Practitioner's Guide to Emotion Regulation in School-Aged Children*, New York: Springer, (2008), 130.

<sup>216</sup> Ibid.

### P.L.E.A.S.E.

The body and the mind are closely linked. The well-being of one may directly affect the other. Students will find it far easier to manage emotional health if physical health is properly maintained. Remind students of the following:

- PL – Treat physical illness
- E – Eat healthily
- A – Avoid mood-altering substances
- S – Sleep well
- E – Exercise<sup>217</sup>

### S.T.O.P.P.

A strategy that combines aspects from CBT and mindfulness is the S.T.O.P.P. strategy. This is another approach to use if the student exhibits signs of stress in the voice studio.

- S – Stop! Encourage the student to pause for a moment.
- T – Take a breath. Direct the student to focus on breathing patterns. Bring awareness to which body parts move when inhaling and exhaling.
- O – Observe. Have the student identify and label thoughts. What are they reacting to? What sensations are notice in the body?
- P – Put it in perspective. What is the big picture view? What would a trusted ally say? Will this be important in two months?

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<sup>217</sup> See Appendix IV for more Emotional Regulation Skills.

- P – Proceed. What can effectively and appropriately be done in the situation?

### Gratefulness<sup>218</sup>

It is possible to change the mood and thought process by focusing on things for which one is grateful, such as people, pets, places, events, or accomplishments. Writing a gratitude list at the end of each day can be beneficial. The list should be genuine and detailed. For example, instead of writing down “I am grateful to be alive,” write down “I am happy that I sustained a high note for six measures,” or, “I am grateful that I cultivated the techniques I have learned to sing a long phrase.” Then, find a place to sit and focus on breathing and turn one’s attention to something for which they are grateful. Encourage students to notice distractions that may happen, then to simply begin again with renewed focus. Conclude the gratefulness session by slowing the breathing pattern, opening the eyes, and taking in the surroundings of the room. This may be effective as a masterclass activity.

### Body Awareness and Body Scans<sup>219</sup>

The body awareness and body scans technique allow the student to turn toward any physical sensations in the body rather than away. It acknowledges any thoughts and emotions that occur, during both times of stress and times of calmness. The student should focus on breathing and close their eyes. Begin by having them bring awareness to their feet. Ask them questions like, “what does your foot feel like in your sock? In your shoe? Do you feel your feet

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<sup>218</sup> Fuchs, *Mindfulness for Students: A Curriculum for Grades 3-8*, 53-55.

<sup>219</sup> *Ibid.*, 45-47.

or your toes on the earth?” Encourage them to notice both sensations and the lack of sensations. Pause briefly and then shift to another body part. Slowly ascend up the body from the legs, to the chest and arms, to the head, always observing an intentional pause between each body part. Remind students to notice what their bodies feel like throughout the entire day, during both stressful times and happy times. This may also be done successfully in a masterclass setting.<sup>220</sup>

The voice teacher must always remain mindful of effective approach during an educational situation. Organizing the structure of a lesson may ease the student’s mind. For example, communicate that the lesson will consist of fifteen minutes of warm-ups, thirty-five minutes of repertoire work, and five minutes of cool-down exercises. The teacher must not reward anxiety and stress by offering protection without also teaching a self-management strategy for sustained self-growth. Finally, when the student no longer looks stressed or they appear relaxed, comment on it. Offering genuine comments, such as, “You look so relaxed when you sing that passage!,” gives the student a verbal picture of a calm feeling and will help them have more cognitive control over their feelings.<sup>221</sup> All of these strategies should help the student to develop a “Teflon mind.”<sup>222</sup> Although one cannot completely omit negative thoughts from the mind, through mindfulness and emotional regulation strategies, one can learn to notice the negative thoughts and let them slide away, as if across a Teflon surface, so they do not take up the valuable yet limited space of the mind.

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<sup>220</sup> See Appendix V for more mindfulness-based approaches.

<sup>221</sup> Macklem, *Practitioner’s Guide to Emotion Regulation in School-Aged Children*, 130.

<sup>222</sup> Robertson, “Teaching Students About Performance Anxiety: The Scratch Pad Pop-Up Model,” 33.

## CONCLUSION

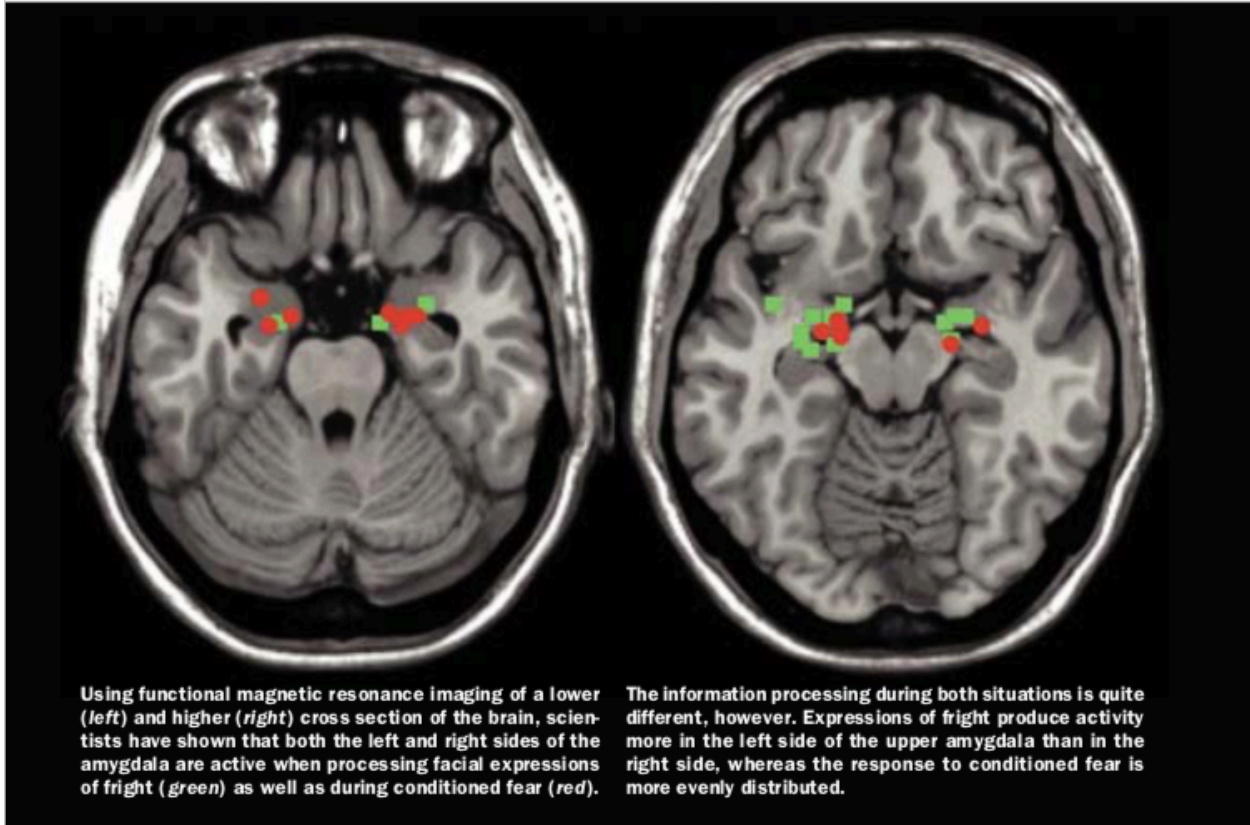
Although there is a rich body of literature reviewing studies on fear and performance anxiety, this document offers practical, evidence-based strategies for fear mitigation and redirection in the voice studio. Unlike previous studies, this dissertation treats the management of fear in the voice studio as a collaborative effort between both the teacher and student, while detailing an exhaustive list of applicable strategies to be used in a lesson. The strategies listed in Chapter Four represent a collection of techniques, some of which have been tested in music studios (beta-blockers, Alexander Technique), some which are slowly gaining widespread attention (vagus nerve stimulation, Scratch Pad Pop-Up), and still others which have been exclusively studied for the treatment of generalized anxiety and personality disorders (emotional regulation skills, the Penn Resiliency Program). Future research is needed to determine the comparative efficacy of each method for the voice student. Additional exploration of how student characteristics, such as gender, sexuality, race and ethnicity, or socio-economic status, may exacerbate fear is warranted. Observation should be made of any features of the music itself that drive fear in a student. For example, do students develop anxiety with difficult tessituras, or do faster tempos or difficult accompaniments increase the chances of habituating fearful patterns?

Teachers of singing are in a unique position to allow the development of meaningful longitudinal relationships with students through consistent one-on-one interactions. Vocal pedagogues and educators must be the first line of defense for the mental well-being of the voice student. While the training of voice instructors differs widely depending on educational background (music education, vocal performance, choral conducting, etc.), none of these

degrees have reasonable scope to diagnose or treat mental illness or affliction, and as such, those cases should always be sent to a trained psychologist or physician. Hopefully, the information synthesized in this document will act as a training manual for recognizing different manifestations of fear and anxiety in the voice studio, and as a guide for strategies to redirect this fear. I hope further that it may foster growth and development in the vocal performing student by cultivating a habit of positive learning rather than a habit of fear.

## Appendix I

Emotionally intense experiences may “scar” cerebral tissue in ways that produce anxiety disorders. Drugs could prevent the scars from forming.



Emotional scarring. Figure reproduced from Rüdiger Vass, “Fear Not,” *Scientific American Mind* 14 no. 1 (2004), 66.

## Appendix II

### SECURE (PreK) routines and strategies

Routine/strategy	Targeted skill(s)	How does it work?
<b>Making choices</b>	<ul style="list-style-type: none"> <li>• Planning and goal setting</li> <li>• Flexibility and transitioning</li> </ul>	<ul style="list-style-type: none"> <li>• Teachers use a visual board to show students what centers are available (blocks, art, etc.). Children indicate where they will play by putting their name card on a sign-in board at that center. Children can move to another center if there is an available spot on the sign-in board.</li> </ul>
<b>Cool kid</b>	<ul style="list-style-type: none"> <li>• Prosocial behavior</li> <li>• Noticing and respecting others</li> <li>• Positive communication</li> </ul>	<ul style="list-style-type: none"> <li>• Cool Kid wears a button to identify him/her. Children give compliments to Cool Kid for positive (helpful, friendly) behaviors all day. At end of day, teacher writes three compliments on a certificate that the Cool Kid takes home to show his/her parents. Cool Kid is chosen at random each day; every child is chosen the same number of times throughout the year.</li> </ul>
<b>Taking turns bag</b>	<ul style="list-style-type: none"> <li>• Conflict resolution</li> </ul>	<ul style="list-style-type: none"> <li>• Children can get the bag anytime during the day if they're having trouble sharing a toy or object. Bag contains a coin and timer. Children flip the coin to see who goes first, then use the timer to ensure that both children get an equal turn.</li> </ul>
<b>Feelings thermometer</b>	<ul style="list-style-type: none"> <li>• Emotion knowledge</li> <li>• Emotion and behavior regulation</li> <li>• Positive communication</li> </ul>	<ul style="list-style-type: none"> <li>• Feelings thermometer poster includes the numbers 1-5 to illustrate that feelings can be more or less intense/strong. Children use the numbers to tell each other when they are about to "lose their cool."</li> </ul>
<b>Think-pair-share</b>	<ul style="list-style-type: none"> <li>• Prosocial behavior</li> <li>• Positive communication</li> <li>• Teamwork and partnerships (Listening, speaking, and waiting/taking turns)</li> </ul>	<ul style="list-style-type: none"> <li>• Children hold a laminated strip that reminds them to first think about what they want to say, then pair up with a partner, and finally to take turns sharing their idea.</li> </ul>
<b>I messages / Say it back</b>	<ul style="list-style-type: none"> <li>• Noticing and respecting others</li> <li>• Positive communication</li> <li>• Empathy and viewing from others' perspectives</li> </ul>	<ul style="list-style-type: none"> <li>• I messages is a communication strategy for intense or escalating situations: "I feel xxx because xxx." After an I message is given, the other person uses "say it back" to acknowledge the other person's feelings and repeat what they heard: "You feel xxx because xxx."</li> </ul>
<b>Stop and think signal Focus binoculars Remember signal</b>	<ul style="list-style-type: none"> <li>• Self-control</li> <li>• Attention/focusing</li> <li>• Memory</li> </ul>	<ul style="list-style-type: none"> <li>• Teachers use these nonverbal hand signals to manage behavior without interrupting instruction. Children use the signals to remind each other when they need to pause or wait before doing something, when they need to look and listen carefully, and when they need to actively remember an important direction or piece of information.</li> </ul>

SECURE chart. Figure reproduced from Stephanie M. Jones, Rebecca Bailey, and Robin Jacob. "Social-Emotional Learning is Essential to Classroom Management," *The Phi Delta Kappan* 96 no 2. (October 2014): 23.

### Appendix III

A = Activating Event	B = Belief/thought	C = Consequence feelings/behaviour	D = Dispute with Evidence –
I have to give a presentation!	I am going to make a show of myself. It's going to be AWFUL. I'll be shaking, my mouth will be dry, I can't do it. People will laugh at me.	Anxious, afraid, can't concentrate on putting together the content... feel ill, can't stop thinking about it.	Fortune telling as an absolute fact that 'I AM' going to make a show of myself is irrational. That's fortune telling a future that I have no clue about. It would be more correct to say 'I am afraid I'll make a show of myself, but I don't know how it will pan out'. Same goes for 'I will be shaking', 'I can't do it', and 'People will laugh at me'. Fortune telling! I simply fear these imaginings, I have no actual evidence those thoughts are rational and correct. I will 'thought stop' and disagree with and derail these thoughts as they occur rather than running them over and over in my head.

A = Activating Event	B = Belief/thought	C = Consequence feelings	D = Dispute

ABC worksheet example, digital image, CBT and Feeling Good, accessed May 8, 2020, [https://iveronicawalsh.files.wordpress.com/2012/06/cbtafg\\_abcdextract\\_handout.pdf](https://iveronicawalsh.files.wordpress.com/2012/06/cbtafg_abcdextract_handout.pdf)

## Appendix IV

# Emotion Regulation Skills

### **P.L.E.A.S.E.**

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Your body and mind are closely linked, and the health of one directly affects the other. An unhealthy body will make it difficult to manage your emotions. The acronym "P.L.E.A.S.E." can be used to help you remember important aspects of this connection.

PL	Treat Physical Illness
E	Eat Healthy
A	Avoid Mood-Altering Drugs
S	Sleep Well
E	Exercise

### **Paying Attention to Positive Events**

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It's only human—most people give more attention to the bad things than the good. If you hear ten compliments, and a single criticism, you'll probably focus on the criticism.

If you notice yourself focusing on the negative aspects of an experience, try to stop and refocus on the positive. Practice by doing a small positive activity every day while making a point to acknowledge the good parts (even if things aren't perfect). Don't let minor problems ruin the moment.

Adding one or two positive activities won't change your life, but over time the happiness they create will start to add up. Here are a few ideas for quick positive activities to get you started:

Have a good, unrushed meal.	Watch a movie.	Visit with friends or family.
Visit a local attraction like a zoo or museum.	Go for a walk.	Put on headphones and do nothing but listen to music.
Have a picnic.	Give yourself a relaxing night in.	Try a new hobby.

Emotional regulation, digital image, Therapist Aid, accessed on May 8, 2020, <https://www.therapistaid.com/therapy-worksheet/dbt-emotion-regulation-skills>

## Emotion Regulation Skills

### Opposite Action

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When you experience an emotion, a behavior usually comes with it. If you are angry, you might fight or argue. If you are sad, you might withdraw from your friends. Your body causes you to react to emotions in a specific way.

Doing the *opposite action* will help you change your emotion. If you typically start to yell when you are angry, try talking quietly and politely. If you withdraw when you are sad, make a point to visit a friend next time you feel this way.

Emotion	Action	Opposite Action
Angry	Fight, yell, and argue.	Talk quietly and behave politely.
Sad	Withdraw from friends.	Visit and communicate with friends.

### Check the Facts

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Maybe you can look back at your life and think of a few situations where you overreacted. Or you might notice that something once felt like a big deal when it was really pretty unimportant. You can *check the facts* in the moment to help reduce the intensity of these extreme emotions.

Ask yourself the following questions to check the facts:

- 1 What event triggered my emotion?
- 2 What interpretations or assumptions am I making about the event?
- 3 Does my emotion and its intensity match the *facts* of the situation? Or does it just match my assumptions of the situation?

Emotional regulation, digital image, Therapist Aid, accessed on May 8, 2020, <https://www.therapistaid.com/therapy-worksheet/dbt-emotion-regulation-skills>

## Appendix VI

# Mindfulness Skills

Spending a lot of time in your head causes stress. There are always new things to worry about, conversations to rehearse, and activities to plan. Research tells us that when you live in the moment—that is, getting out of your head and being consciously aware of your surroundings—you will usually feel happier and experience less stress. With enough practice, you will learn to better control your thoughts and feelings. Below are some techniques to help you achieve this goal.

### **Mindful Activity**

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The goal of a *mindful activity* is to bring your thoughts into the present moment. To practice, first choose any activity where you notice your mind consistently wanders. This could be your commute home, while completing chores around the house, or just about anything else. Next time you do your chosen activity, attend to each of your senses. Below we use the example of going for a walk. It will be best to choose an activity you do regularly so you are sure to practice every day.

Vision	As you leave your home you immediately notice the bright blue sky, trees, and empty streets. As you pay closer attention you notice flowers along the sidewalk with a slight breeze causing them to tilt to their side every few moments.
Hearing	Each time the breeze passes, you can hear the leaves rustling in the wind. Occasionally, you hear the hum of a car passing on a nearby street. Birds are chirping somewhere up above.
Touch	You notice the warmth of the sun and the coolness of the breeze. With each step you feel your foot landing and then pushing off from the pavement.
Taste	You stop to pick up a coffee for your walk. You hold the drink in your mouth for a moment to savor the taste.
Smell	When the breeze floats by, you catch the smell of the flowers and the trees. As you continue your walk, you notice the smell of freshly cut grass by a neighboring home.

Mindfulness skills, digital image, Therapist Aid, accessed May 8, 2020, <https://www.therapistaid.com/therapy-worksheet/dbt-mindfulness-skills>

## Appendix VII

# Mindfulness Skills

### Mindful Meditation

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When you go about your life, it's normal for thoughts, feelings, and experiences to come and go quickly, oftentimes outside of your awareness. You might say or do something because of how you feel, without noticing the processes that influenced you. During mindfulness meditation you will create awareness of these processes by mentally taking a step back from yourself and identifying your thoughts, feelings, and physical sensations.

- 1 Find a place free of too much noise or distraction to practice.
- 2 Sit down on a cushion, the floor, or in a chair. You want to sit up straight to allow easy breathing, but not so straight that you're uncomfortable.
- 3 Turn your focus toward your breathing. Notice the feeling of the breath entering your body and making its way to your lungs. Pay attention to how your body feels, and what it's like as your breath exits your lungs. Continue to focus on the feeling of breathing.
- 4 As you practice, your mind will wander. Try not to judge your thoughts-- simply accept that they are happening. Notice, as an outside observer: "I'm having a thought." The same goes for feelings. If you detect sadness, worry, happiness, or excitement, notice how they feel in your body. Acknowledge what you are feeling, even if it's an uncomfortable sensation. Simply notice: "I am feeling this way."
- 5 When the thought or feeling passes, return your focus to your breathing and your body.
- 6 Try to practice for at least 10 to 15 minutes. If you are more experienced, aim for 30 minutes.

Mindfulness skills, digital image, Therapist Aid, accessed May 8, 2020, <https://www.therapistaid.com/therapy-worksheet/dbt-mindfulness-skills>

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