APPLICATIONS OF SOMATIC EDUCATION PRINCIPLES TO VOICE PEDAGOGY

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ABSTRACT OF THE DISSERTATION

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Students of voice are trained in complex processes of coordinated movements, many of which occur internally. Somatic education techniques may promote complementary skills, such as the ability to integrate the mind and body, to move with ease and efficiency, and to intervene with awareness and volition against interfering habits. After examining three related approaches to somatic education, a multiple case study was conducted on three professional voice teachers, each of whom is also certified in the somatic education disciplines of the Alexander Technique, the Feldenkrais Method, or Hanna Somatic Education. Each teacher was interviewed three times, and observed teaching four voice lessons. One voice student at each site was interviewed as well. A comparison and analysis of interview and observation data from these contexts may illuminate the ways in which somatic education principles can be applied to the teaching of voice.

For Nana Barbara.

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Chapter I: INTRODUCTION

The field of Somatics encompasses a broad range of overlapping approaches, including mind–body techniques, movement therapies, bodywork, and somatic education. Practitioners within the field conceive of every human being as a soma, "the body as perceived from within by first-person perception" (Hanna, 1986, p. 4). Some somatic practices are therapeutic in nature, while others are educative with ancillary therapeutic benefits (Hanna, 1977). This distinction can be blurred at times, because forms of somatic education can relieve pain or increase mobility without explicitly aiming to do so. Three related forms of somatic education are the Alexander Technique (AT), Feldenkrais Method (FM), and Hanna Somatic Education (HSE). Practitioners of these disciplines empower their students by providing strategic sensory-motor experiences through which they can hone their awareness of themselves in movement, strengthen their mind–body connections, and learn how to replace habitual movement patterns with efficient, intentional movements.

A defining characteristic of somatic education, as opposed to somatic therapy, is the idea that the practitioner–client relationship is more akin to that of teacher and pupil than it is to doctor and patient. The aim of the Alexander Technique, for example, is to enable pupils to find a better "use" of their bodies (Alexander, 1984), or more specifically, their entire psycho–physical selves (Alexander, 1985). In the Feldenkrais Method, students learn how to best organize themselves to move by exploring and discovering a variety of movement choices (Lyttle, 1997). In Hanna Somatic Education, students learn how the somatic activity of awareness can allow them to regain volitional control over unwanted involuntary movement, and how to restore mobility and sensation

to areas held fast by tension (Hanna, 1986). In each case, students are empowered to consciously control their movements, which become more efficient, coordinated, pleasurable, and even more expressive.

Somatic education practices are enacted through the first-person perspective of a unified, total organism that is sensed from within: a self that encompasses mind, body, and spirit. When a voice student is upset because her larynx "keeps pulling up" as she sings, she has misattributed another source of free will to an area subject to her own voluntary muscular control. The larynx does not have a mind of its own, but its extrinsic musculature *can* operate beneath one's conscious awareness once a habitual movement pattern is established. The somatic viewpoint holds that the larynx is not being pulled up by one's rogue, malicious tongue muscles; the human soma is responsible for this action. For some reason, however, this student no longer believes this function is within her volitional control. The voice student is raising her own larynx and can, through somatic education, learn to sing with or without that habitual response should she choose to do so. Somatic education can help such voice students as the one described above to become more attuned to sensations of movement, more observant of movement patterns and changes, and more aware of the role of thoughts, feelings, and unnecessary actions that stand in the way of conscious control.

Mullan's (2012) description of somatic practitioners' interactions with pupils parallels some of voice teachers' most important functions in voice lessons: "Somatic practitioners are trained to read body language and use information gleaned from their observations to aid a client's capacity in becoming aware of their own habits and expand beyond limitations to a more expansive repertoire of movement choices" (p. 84).

Similarly, voice teachers read body language for outward manifestations of anxiety, confusion, uncertainty, distraction, fatigue, and discomfort. These states may present in a variety of behaviors such as fidgeting, conducting, shaking, staring, bracing, shifting weight, tapping the foot, nodding, furrowing the brow, inhaling audibly, collapsing the chest, and myriad others. It is then the voice teacher's job to determine whether these movements interfere with singing, discover what triggers them, bring the behavior to their students' awareness, and then work with them to address habits, emotional barriers or gaps in understanding to make way for teaching functional techniques. Voice teachers, therefore, awaken students to *what* they are doing that may be causing vocal difficulty, help them discover *why* they are doing it, and then teach them *how* to use vocal technique for more reliable, intentional results.

The nature of singing is inherently somatic; the mind, body, and spirit are embodied in the physical, expressive instrument that communicates through the soma's voice. It stands to reason, therefore, that the principles that inform somatic education methods may present valuable tools for voice teachers, who hope to guide their students to enact their expressive intentions with efficient, coordinated, non-injurious, and artistic movement patterns of singing.

Principles and Techniques of Somatic Education

The following sections introduce general somatic education concepts, as well as the background of the three somatic education disciplines examined in this study. The chapter concludes with examples of how these concepts are presented in voice pedagogy literature, as well as examples of the ways teachers may apply them to address a common habitual movement pattern they may encounter in their voice students' singing. The next

chapter provides more extensive information about the history of and research in the Alexander Technique, the Feldenkrais Method, and Hanna Somatic Education.

Somatic Education Principles

In his article "Principles versus Techniques: Towards the unity of the Somatics field" (1986), Johnson explained that fragmentation within the field of Somatics was due to "emphasis put on the techniques of a specific method" (p. 4). In other words, while approaches and modalities differed, a few main principles inspired early practitioners to generate diverse techniques.

Sensitivity and awareness improve with practice. According to Johnson (1986), one common principle among somatic education approaches is the importance of developing sensitivity to one's inner and outer feelings and movements, sensitivity toward the sensations and movements of others, and awareness that there is a difference between what we think we are doing and what we really are doing, which he labeled, "the dialectic between one's body image and then public patterns of one's body" (Johnson, 1986, p. 5). The more we practice awareness of sensations during movement, the more we understand and improve how we move.

According to Cheever (2000), the tools somatic educators employ with their students (and teach their students to employ) are connected knowing and somatic empathy. Connected knowing is the "sensory-motor self-image" that integrates inner and outer sensations and kinesthetic awareness of our movement and orientation in the environment, enabling us to "focus on our somatic experience in the present, as we learn to sense how to move most comfortably and with the least effort" (Cheever, 2000, p. 6). Somatic empathy enables teachers to take their connected knowledge of movement in

their own bodies and be "able to put [themselves] in the shoes or 'soma' of another, and sense what their body/mind might need to learn how to function better" (Cheever, 2000, p. 6). Connected knowing and somatic empathy can promote trust in oneself—as well as trust between student and teacher—while students begin to let go and allow new movement possibilities to surface.

Learning is physical, emotional, and mental. Allison (1999) described "unifying principles" of a more specific subset of the field of Somatics: movement education. These principles include the idea that the human body is constantly sensing and moving, as well as the notion that the human being is an integrated whole comprised of physical, mental, and emotional elements that are involved in every movement. This integrated concept explains why stress and trauma can lead to injurious or inefficient movement patterns, pointing to an important consideration in voice pedagogy: difficulties with a movement pattern in singing do not necessarily belie a lack of conceptual understanding, but may arise from any number of physical, mental, and emotional barriers to change.

Habits are changeable. Allison (1999) noted that the stages of somatic education involve unlearning maladaptive habits, replacing these habits with patterns of movement "that work more harmoniously with natural forces such as gravity and with the physical realities of our bodies" (p. 203), restoring awareness and the mind–body connection (through hands-on and verbally guided activities), and applying new patterns to contexts from general everyday functions to specialized actions such as singing. Eddy (2009) described a similar approach across somatic education disciplines, whose originators "discovered that by being engaged in attentive dialogue with one's bodily self we, as

humans, can learn newly, become pain-free, move more easily, do our life work more efficiently, and perform with greater vitality and expressiveness" (p. 6).

Students can be taught to self-improve. The stages of unlearning and restoration promote the final unifying principle Allison described, in that the goal of somatic education is for students to eventually be able to continue improving on their own. The somatic education approaches of the Alexander Technique, Feldenkrais Method, and Hanna Somatic Education rely on this principle, training students to hone sensitivity and awareness so that they can continually improve their functioning. Cheever (2000) echoed this principle of facilitated self-reliance, noting that the Alexander Technique, Feldenkrais Method, and Hanna Somatic Education all involve "having a student…learn new ways of moving while being guided, through touch and/or verbally by a qualified somatic educator. Each also emphasizes the importance of the student taking responsibility for his or her own learning" (p. 3).

Somatic education assumes that the mind and body comprise an integrated whole, and its various techniques facilitate reintegration by cultivating the use of proprioceptive awareness to identify undesirable movement patterns and discover freer, more effective alternatives. In this way, somatic education empowers individuals to continually improve upon themselves. By becoming more sensitive and present during coordinated tasks such as singing, students can attend to present-moment processes rather than becoming distracted by concerns about the end result. In particular, the Alexander Technique, the Feldenkrais Method, and Hanna Somatic Education exemplify the principle that it is possible to regain or improve voluntary control over our movements for the purpose of overcoming habits and barriers to free, efficient functioning in activities such as singing.

Somatic Education Techniques

This section introduces three somatic education techniques: the Alexander Technique, the Feldenkrais Method, and Hanna Somatic Education. These three specific disciplines are discussed in greater detail in the next chapter, but are presented here to begin relating the four general somatic education principles to the methods and concepts that were investigated in this study. After providing an overview of the three discipline-specific perspectives on these principles, I present possible applications in the context of a hypothetical voice lesson.

Origins of the Alexander Technique. The Alexander Technique, developed in the 1890s, was a pioneering somatic education method that influenced the development of the Feldenkrais Method, which in turn inspired the creation of Hanna Somatic Education. After repeatedly losing his voice during his career as a reciter of Shakespeare, Frederick Matthias Alexander (1869-1955) studied himself in a special configuration of mirrors in order to find clues as to what he might have been doing to unconsciously contribute to the problem. He realized that his awareness of himself was unreliable, because even after making adjustments he thought remedied his habits, he would return to the mirror only to find what he felt he had corrected was still faulty. Alexander (1984) found that by consciously inhibiting his habitual movement and giving himself mental directions that generated coordinated movement and a favorable relationship between the head, neck, and upper back, he could activate controlled yet free movements.

Origins of the Feldenkrais Method. Moshe Feldenkrais (1904-1984) was influenced by Alexander, and had a similar journey to cultivating his technique. In Feldenkrais' case, a knee injury inspired him to uncover the mechanics of the movements

that caused pain in comparison with those that did not. His background in physics and engineering, coupled with his interest in physiology and his mastery of judo, gave him a unique and thoroughly sequenced understanding of coordinated, integrated somas in motion (Reese, 2010). Unlike Alexander, whose method emphasizes the direction of the primary control (the relationship between the head, neck, and upper back) and specific guiding directions as the means to improve movement, Feldenkrais' approach facilitates organic learning; a slow, individualized process of exploring the novel sensations of performing familiar tasks in new and varied ways. Feldenkrais (1981) attributed bodily dysfunction to a lack of choices: habits are formed and left unchanged because the afflicted individual can neither imagine nor recall any option but the habitual approach.

Origins of Hanna Somatic Education. Thomas Hanna (1928-1990), a student of Moshe Feldenkrais, problematized habitual movements as his teacher and Alexander had in their self-studies. Hanna (1988), however, attributed habitual behavior to the somatic consequences of chronic stress. Once stress triggers reflexive evolutionary responses, the normal state is not restored as long as the stressful stimulus remains. The cumulative muscular spasm and resulting alterations to alignment, over time, remove the ability to sense and move the body voluntarily (Bruno et al., 2009). Hanna's (1986) viewpoint that sensation and motion are intertwined informed the development of movement exercises, which gradually reintroduce movement and sensory awareness so that the soma regains control. Eventually, the student is able to continue these exercises on her own for maintenance and new sensory-motor discoveries.

Applications of Somatic Education Principles

In order to clarify how the principles of somatic education are applied within each of the three techniques, the invented scenario below is based on voice pedagogy literature on the Alexander Technique and the Feldenkrais Method, and, in the absence of voice pedagogy literature on Hanna Somatic Education, based on Hanna's pedagogical writings. It explores the different pedagogical approaches that voice teachers specializing in one of the somatic education disciplines might use with a hypothetical voice student, Juli, who presents with jaw tension while singing. This section was written prior to the data collection phase of this study, and will be revisited in the Discussion section (Chapter VI) to compare the expected approaches with observed applications in the participants' practices.

Since all three of the disciplines introduced in the previous section rely on a combination of guided awareness (hands-on and verbal) and movement reeducation, the ways the voice teachers in this study may apply somatic education principles (such as improving sensitivity and awareness, changing destructive habits, and encouraging self-improvement) during voice lessons was predicted to include a combination of verbal guidance and physical movement to bring awareness to unconscious or extraneous motion, facilitate sensations of alternative actions, and reinforce new responses by enabling students to consciously apply them in similar vocal tasks. The teachers were also predicted to apply the principle of mind–body (or mental–physical–emotional) unity to hypothesize the cause of dysfunctional habits, interpreting common vocal faults such as clenching the jaw as a somatic manifestation of anxiety, and then helping their affected students to recognize the connection.

Juli's Jaw Tension: An Invented Voice-teaching Scenario

Voice teachers with somatic education backgrounds can help a student like Juli discover a pattern that may indicate why and how jaw tension occurs while she sings. For example, they may notice that tension of the masseter muscle is most prominent at the point of her vocal onset, and conclude that Juli has developed a habitual use of her jaw that she associates with phonation. A voice-teaching Alexander teacher, Feldenkrais practitioner, or Hanna Somatic Exercise coach might come to the same conclusion, but approach the issue in slightly different ways.

A possible Alexander Technique approach. An Alexander-trained voice teacher might explain Juli's jaw tension to be the result of habitual misuse, brought on by focusing on the ends (phonation) rather than the means (vocal technique) that enable the desired result to occur. For addressing jaw tension more specifically, Heirich (2011) suggested that first, the habit of clenching must be broken, followed by stretching to help the muscles around the jaw to "regain natural elasticity" so that they can more readily experience free movement (p. 17).

A next step could be to remove the conditions (in this case, the song) in which the habit presents itself, and engage in an activity that brings awareness to the sensations of head balance and ease of jaw movement. Manual guidance would be especially helpful in this situation, as the teacher's hands can facilitate balance and release, providing tactile feedback while the student is singing (Hensel, 2013; Hudson, 2002a; Jones, 1972). Heirich (2011) recommended sequential exercises that teach a student like Juli to sense how it feels when her jaw is released at rest, while she is speaking, and then while she is singing (see pp. 17–20).

Once Juli has experienced singing with a released jaw, the Alexander-trained voice teacher gradually reintroduces the context of the song. The teacher may play the measures leading up to a vocal entrance upon which the jaw tension typically occurs, instructing Juli to look at herself in the mirror and breathe for the entrance without going on to sing (breaking the association between the stimulus, or impetus to sing, and the response: phonation). Perhaps the inhibited response of singing is then replaced with exhalation, "silent rehearsal," (de Alcantara, 1997, p. 232) or a "whispered ah" (Heirich, 2011, p. 85), assuming the jaw stayed free in the first attempt (for an explanation of this activity, see de Alcantara, 1997, pp. 144–151; Heirich, 2011, pp. 85–89). The teacher may then guide Juli with directions such as, "let the neck and jaw be free," inserting these thoughts in the context of the musical passage and reminding Juli to *allow*, not enact, the new pattern. Then, the teacher might play the measures prior to the entrance again, this time asking Juli to repeat the guiding directions to herself and breathe as if about to enter. It is at this point that Head (1996) recommended playing an "inhibition game" with Juli (p. 17), in which she would stop Juli as soon as she detects jaw clenching, possibly prior to phonation should she breathe or otherwise prepare with anticipatory tension. The inhibition game strategy might guide Juli toward a more acute awareness of her jaw as she tries to preempt getting stopped by choosing not to employ her habitual pattern. Eventually, the pattern of misuse is replaced with process-oriented thoughts that prime the body to learn free singing.

A possible Feldenkrais Method approach. A Feldenkrais-trained voice teacher might explain Juli's jaw tension as an inseparable part of the only movement pattern she can imagine how to use in order to begin to sing. Nelson and Blades-Zeller (2002)

explained that when singers try to directly control an area, such as the jaw, they attempt to exert control in the form of muscular effort and force, eventually believing that "if the force is not there, we are doing something wrong" (p. 19). Asking Juli to relax the jaw may not be successful if clenching is the only way she knows how to start her sound. Instead, Juli's Feldenkrais-certified voice teacher may lead her through a very gradual process of guided awareness, either manually demonstrating her jaw's possibilities for movement or by verbally guiding her in various explorations of movements in the jaw, face, neck, and other areas; in both cases directing her to make finer and finer discriminations between differences in kinesthetic sensations (for example activities, see Gilman, 2014, pp. 94–106; Nelson & Blades-Zeller, 2002, pp. 125, 153). The teacher may also ask Juli to imagine her jaw hanging freely, to note any before-and-after differences in sensation, and to pause for periods of rest so that her attention does not become encumbered by fatigue and her brain has a chance to integrate new sensory-motor connections. Juli may not vocalize for the remainder of the lesson if her teacher feels more time is needed to cultivate a wider variety of movement choices. In fact, Gilman (2014) recommended that a vocal component be added only after "the student has had time to explore the movements and integrate them" (p. 72).

Another Feldenkrais strategy entails deconstructing the component actions of preparing to phonate and phonation, making sure Juli understands how to initiate, sequence, and differentiate by noticing and imagining what she senses throughout the process. The purpose of this activity would be to train Juli to move only what she wishes to move and nothing more. She may not yet know how to move her jaw and tongue independently of one another. For example. Vittucci (2002) explained that in order to

differentiate movements, one must be aware of the sequential movement of various body parts as they articulate in different ways. The more Juli learns to differentiate the movements of preparation and onset, the more efficient her singing will become, thus disabling excess tension in the jaw musculature. Feldenkrais activities are detailed, differentiated, and sequential to promote this very event. For example, Nelson and Blades-Zeller's (2002) Awareness Through Movement activities include a lesson relating the jaw to the neck and shoulders (p. 125) and a lesson on the independence of the eyes from the jaw (p. 153).

A possible Hanna Somatic Education approach. While literature integrating Hanna Somatic Education and voice pedagogy is presently unavailable, Hanna's (1993) own descriptions of working with two instrumental musicians indicate an approach from which to extrapolate how he might work with Juli on her habitual jaw tension. In the case of Pete, a vibraphone player suffering wrist pain, Hanna noticed that his trunk was rigid; Pete's spine did not twist and his shoulder blades did not move, causing him to overwork his elbows and wrists during playing. Operating from the principle that playing should involve movement of the entire soma, Hanna manually introduced small movements into Pete's shoulders and trunk, calling his attention to the sensations as he did so, and eventually asking Pete to imagine playing the vibraphone while being moved.

In the case of Martin, a bass player who experienced pain in his forearm, Hanna discovered that he was using only muscles localized to this area, while underutilizing the rest of his musculature. Hanna's approach was to guide Martin through a systematic sequence in which he first imagined having to play the bass from his shoulder blade as if his hand and elbow were frozen, then to play from his spine and hips as if his shoulder

was now paralyzed as well, and then to unfreeze the right shoulder and play using his shoulder, back, and hip. Finally, Hanna asked Martin to unfreeze his forearm, wrist, and hand and use them to play along with his shoulders and back. At each step, of course, Martin still plucked the strings and therefore employed his fingers, hand, wrist, and forearm; however, Hanna (1993) asked Martin to practice each stage until the jerky, uncertain movements of the body part in question became smoother, gradually adding back parts until he was able to coordinate the component movements into an integrated action.

In both cases, Hanna addressed afflicted areas indirectly, looking at the entire soma for clues as to why it moved inefficiently, and helped reintroduce sensations of movement to promote ease, efficiency, and voluntary control. If a Hanna Somatic Education practitioner, such as a voice teacher who is also a Hanna Somatic Exercise coach, observed Juli clenching her jaw when she began to sing, she would likely look for anything else Juli does, or does not do, at the same time that might indicate uncoordinated movement. The Hanna Somatic Exercise coach may note that Juli, while anticipating her entrance in a difficult musical passage, is presenting a habitual reflexive response to stress—one that was likely present when she walked into the studio as well. This characteristic response pattern may include contractions beyond the muscles of the jaw, such as the muscles of the chest and abdomen. If Juli routinely locks through the center of her body, as Pete did, it is unlikely that her muscles of respiration can perform their necessary roles in supporting phonation. Therefore, Juli may have unconsciously learned to use her jaw to compensate for the imbalance of muscular tonicity needed for those movements. Vittucci (2002) explained:

> The complex coordination of muscles for singing is largely indirect, because the intrinsic muscles within the larynx are not accessible by direct "volitional control," and those who attempt to do so may upset the "balance of muscle coordination required for reflexive natural movement" (p. 264).

A series of Somatic exercises that target the waist (see Lesson 2 in Hanna, 1988, p. 102) may be demonstrated and manually assisted to facilitate optimal ordering and coordination. These exercises can then be assigned as homework, so that Juli can proactively counter the somatic effects of stress, along with a journal in which she can note new sensations, observations, and changes in her breathing and onset. Since Hanna Somatic Exercises include instructions on how to synchronize breathing with components of the movements, the teacher may train Juli to vocalize during the expiratory phase, knowing that this foreign movement pattern will be less likely to stimulate the same jaw tension response to vocal onset that occurred at the start of the lesson.

Somatic Education Techniques and Habits of Singing

All three somatic educators in this hypothetical scenario operated from similar principles: that through discipline-specific techniques, Juli could learn how to become more aware of the use of her jaw and improve her overall use and functioning to remove the perceived need for her dysfunctional approach. Ohrenstein (1999) cautioned that students like Juli may misinterpret what they deem to be a desirable sound as evidence of healthy production, which is why somatic educators play the important role of "instilling particular motor patterns, reinforced by students' recognition of particular kinesthetic sensations" (p. 24). Practitioners of all three disciplines in this study bring maladaptive habits to their students' awareness, determine the stimulus that evokes the undesirable habitual responses, and teach them how to replace dysfunctional habitual responses with intentional, functional action. In this way, somatic educators can help students develop

the tools to sing with awareness, efficiency, and with access to the whole human soma as an instrument of unified expression. While Juli's fictitious experience was based on pedagogical literature, this study enabled me to investigate how, if at all, the overarching and/or discipline-specific principles were manifest in the pedagogical approaches of three somatic education and voice practitioners.

Rationale

As described in a previous section, a somatic perspective is a first-person perspective. Therefore, voice teachers who wish to instill greater somatic awareness in their students cannot merely take on the third-person role of diagnosing students' vocal difficulties. If the ability to apply somatic education principles to voice lessons hinges on teachers' ability to tap into the inner sensations of their students, they will not be able to capitalize on its benefits (as no individual can feel the sensations of another). A more authentic way to teach students through somatic education is to model the best possible use of our own somas—to know precisely how it feels to perform the specific act of singing we ask of our students.

Hudson (2002b) argued that "reliable sensory appreciation is a prerequisite of being able to notice and change postural, alignment, and muscle use habits that impede the body's holistic response to the respiratory impulse" (p. 106). Hudson was referring to the moment of truth wherein the student's intention to sing, often in the form of the stimulus to breathe, provokes the physical response that student has come to associate with "getting ready to sing." Engelhart (1989) explained, "Teaching singing is largely concerned with overcoming problems caused by physical and psychological habits, and these habits begin to operate during the student's preparation to sing" (pp. 1–2). A

proprioceptively aware teacher is essential for this reason, so that he/she can detect "how the musculature is being used" in his/her students (p. 106). Somatic education brings the focus from "hitting that note" by whatever means necessary to the reliable, controllable movements involved in the process of singing in that area of the vocal range. Hensel (2013) explained, "I teach my voice students to think more about what I call the 'how' and the 'what;' not 'how am I doing vocally or musically?' but rather, 'how am I actually doing the activity?' What is actually happening physically?" (p. 4).

The reality of habitual, reflexive, and anticipatory muscle tension and anxiety is that it does not remain context-specific. In other words, our psychosomatic reactions to stress during a voice lesson will follow us out of the studio, just as stress elsewhere in our lives will inevitably follow us into it. Lloyd (1988) warned that developing sensory awareness and other somatic tools can mean the difference between professional success or failure. If our movements are governed by habit, reflex, or an inability to sense and control our instrument, we can no longer enact our expressive intent:

> In this way tension patterns become our habitual use and filter into daily activities as well as the use required for performances. This limits the repertoire of emotions the body can portray convincingly and eventually limits a performer's potential employment. (Lloyd, 1988, p. 25)

In other words, the performing singer can only make artistic and interpretive choices if the emotional responses do not trigger interfering tension. Somatic education provides an invaluable resource for changing the body's way of perceiving and responding so that we have the opportunity to practice the productive movements of our choosing instead of unconsciously reinforcing ways of moving that are destructive. For voice teachers to guide students in discovering more ease and efficiency in movement, it is important that

we first educate ourselves with our own first-person encounters with Somatics. Joly (2004) explained:

> The practice of somatic education relies on the practitioner's capacity to sense her/his own self in movement; and also on the ability to perceive—by way of observation, touch, and imaginative projection—what is going on in the other person's subjective experience. It is as if one could tune one's own inner experience into that of another living system and on that basis set in motion an educational process by employing the particular strategies which characterize each method. (p. 5)

Such a perspective provides an alternative to one-size-fits-all approaches in the voice studio, because it helps teachers to relate their own learning experiences in singing to what their students are experiencing. This may encourage more individualized, student-centered instruction.

One of the challenges to bringing somatic awareness to the practice of singing is, unlike playing a musical instrument, the act of singing and the voice mechanism itself is internal and personal; use of an external instrument provides a degree of protective detachment that separates musician from instrument. For singers, however, frustration with one's instrument means frustration with oneself. Ohrenstein (1999) posited that a sort of stigma may prevent sufficient discourse in the community about ways to address this issue: "Media stories about debilitating muscular tension in prominent string players and pianists are not uncommon, but discussing similar problems among professional singers seems to be taboo" (p. 24). Meanwhile, there is evidence to indicate a need to destigmatize this subject:

> The growing number of professionally trained singers who have sought training in bodywork and sensory appreciation through modalities such as [the Alexander Technique] implies that singing teachers need to become more sensitive to subtle body movement and varying degrees of tension and muscle effort in their students and in themselves. (Hudson, 2002b, pp. 105–106)

This increased interest in the Alexander Technique may indicate that teachers are looking for new ways to help their students gain—or regain—control over the ability to use their bodies efficiently and effectively during the act of singing.

My Somatic Education

My personal experiences with somatic education have had a profound impact on the way I sing and teach singing. After experiencing several traumas in multiple automobile accidents, I came to see my body as a broken instrument, and felt it would no longer be possible for me to sing without my physical limitations and dysfunction ruining my sound. After hearing about the premise of Somatics from a friend, I realized that a great deal of my pain came from protective muscular spasm around the areas of injury: the cervical and lumbar spine. In other words, the injuries themselves did not cause permanent muscle damage, but my fear of pain caused me to unconsciously hold my neck and back in a rigid position. Eventually, this holding became habitual spasm, and I could no longer consciously control those areas of my body.

After reading about various somatic education techniques in the year that followed my initial epiphany, I realized that the Alexander Technique, Feldenkrais Method, and Hanna Somatic Education share a life-changing, hopeful truth: Each of us has the ability to restore or enhance our body awareness, sensation, mobility, coordination, and volitional control. Furthermore, since my profession as a high school music teacher involves modeling and instructing voice students in using their developing bodies to sing, I feel it is my duty to study how I can improve my own singing through somatic principles so that they can embark on a similar journey. The essence of this sentiment echoes one of the defining characteristics of somatic education as told by one

of its pioneers, Thomas Hanna (1993), creator of Hanna Somatic Education and student of Moshe Feldenkrais:

> First work on yourself, then work on others.…What was fascinating to me was that to the degree that one became aware of one's own internal kinesthetic and proprioceptive senses, one became more aware of the same thing in others. (p. 183)

The idea that my ongoing somatic education may enhance my teaching abilities has inspired this study, and may serve as an important reminder to voice teachers that we must continually check in with our own singing instrument if we are to teach students how to improve theirs.

Statement of the Problem

Voice students bring their pre-existing habits and fears with them into their voice lessons (Head, 1996; Hensel, 2013; Hudson, 2002a; Gilman, 2014; Lewis, 1980; Lloyd, 1988; Paparo, 2015; Weiss, 2005). They may lack the awareness of their bodies to understand and implement the feedback that is given to them. They may, to the frustration of their teachers, continue to exhibit behavior that they were instructed to correct, often due to the inability to conceive of an alternative. This is especially true when students do not know how it will feel to perform the "correct" version of the singing task in question. Even when students receive positive feedback, they may not be equipped to replicate the praised action in subsequent lessons. Somatic education is an approach that can address these pervasive challenges, because it empowers singers to fully sense, explore, coordinate, and embody the human instrument.

Purpose of the Study and Research Question

The purpose of this study was to examine the ways in which principles of somatic education may be applied to voice pedagogy, specifically within the three approaches of

the Alexander Technique, the Feldenkrais Method and Hanna Somatic Education. After conducting a multiple case study in which I observed and interviewed professional voice teachers who are also certified practitioners of Alexander Technique, Feldenkrais Method, or Hanna Somatic Education, my findings illuminated common best practices in somatic education that voice teachers can integrate as their students' needs demand. The primary question shaping this inquiry was: In what ways do professional voice teachers who are certified in the somatic education disciplines of the Alexander Technique, Feldenkrais Method, or Hanna Somatic Education apply somatic education principles to their pedagogical approaches?

Key Terms and Definitions

Proponents of the three somatic education techniques investigated in this study use characteristic language to describe their approaches to the somatic re-education process. The following terms pertaining to somatic education practices are employed throughout this study. Additional terms beyond the scope of this section are defined in Appendix A.

Alexander Technique Key Terms

Alexander Technique® (AT). An approach to movement reeducation that hones sensory awareness, seeks out a habitual pattern of misuse (often characterized by misalignment and/or muscle tension), practices inhibiting the habitual response, eventually replacing it with a pattern of use initiated by the primary control (see below).

End-gaining. An overemphasis on product at the expense of awareness and control over the process.

Inhibition. In the context of the Alexander Technique, inhibition refers to stopping during a familiar movement pattern just before the point at which habitual behavior occurs.

Means-whereby. The process in which conscious execution of a set of instructions is used to replace an unconscious response.

Primary Control. The relationship between the head, neck, and back; the mechanism from which Alexander believed all properly coordinated movement was initiated.

Feldenkrais Method Key Terms

Feldenkrais Method® (FM). An approach to lifelong learning for improving both physical and mental functioning through the exploration of body movement patterns and the use of attention.

Functional Integration (FI). A modality of the Feldenkrais Method in which the practitioner uses gentle touch to reawaken sensation and refine movement awareness.

Awareness Through Movement (ATM). A modality of the Feldenkrais Method in which students are taken through a variety of slow, verbally-guided movement patterns at their own pace, range, and comfort level.

Parasitic movements. "[The] extraneous movement that attaches itself unnecessarily to another action or learned pattern of action or learned movement pattern resulting in increased effort or work" (Gilman, 2014, p. 26).

Hanna Somatic Education Key Terms

Soma. The self, perceived in a unity of mind, body and spirit, as experienced from the first-person perspective.

Somatics.[1] Hanna's term for the field of study that deals with the embodied human being from an inside-out, first-person perspective. This term is also short for Hanna's own somatic practice, Hanna Somatic Education (see below).

Hanna Somatic Education℗ (HSE). A movement reeducation approach that uses a regimen of systematic exercises, knowledge of physiology and neuroscience, and awareness derived from the somatic viewpoint to help students free themselves from locked, reflex-induced postures.

Pandiculation. A method of intentional muscular contraction that can help restore sensation, voluntary movement, and the ability to consciously relax unwanted muscle tension or spasm.

Sensory Motor Amnesia (SMA). A condition that occurs when a person can no longer control voluntary muscles that have habituated to a state of chronic contraction, preventing movement and accurate sensory feedback.

Sensory-motor Key Terms

Exteroception. The perception of external stimuli.

Interoception. The awareness of one's own inner sensations.

Proprioception. The spatial and kinesthetic awareness of one's bodily sensations.

Delimitations

The field of Somatics includes a wide variety of disciplines, which are explored in the next chapter. In an effort to delimit the contexts and types of practices that were examined in this study, the following section presents the potential areas that are beyond the scope of the dissertation.

[1] When Caitlyn, one of the teacher participants in this study, uses the term "Somatics" in Chapter V, she is referring specifically to Hanna Somatic Education. In Chapter II, the capitalized term "Somatics" refers to the broader field of somatic education and therapy.

Context

I observed voice teachers with somatic education training as they taught voice lessons. However, I did not observe these teachers as they practiced somatic education in another form, such as in an Alexander Technique lesson that did not involve singing. This choice was made in an effort to limit the scope of the study, because while the reason people attend voice lessons is likely because they want to improve their singing, the motivations for seeking a somatic education practitioner are more varied.

Therapeutic and Dance-Based Somatic Disciplines

I have chosen not to include cases and literature related to somatic practices that are closely associated with psychology, dance, or those with a primarily therapeutic orientation, in favor of somatic education practices. Somatic education practices included in this study are applicable to improving daily activities and specialized skills such as singing. I will also exclude somatic education practices that employ general awareness training without a movement component in favor of modalities that train awareness as the means to movement reeducation. Finally, I will exclude somatic education practices outside a specific traceable lineage. The lineage of interest to this study began with F. M. Alexander (1869-1955), founder of the Alexander Technique. Moshe Feldenkrais (1904-1984), creator of the Feldenkrais Method, studied with Alexander, and Thomas Hanna (1928-1990), originator of Hanna Somatic Education, studied with Feldenkrais. I will follow this educational tradition to examine how concepts were developed in each "generation." While many other lineages in the field of Somatics can be traced, they are beyond the scope of this study.

Established Somatic Voice Approaches

I will not be studying participants who have created integrated somatic approaches to voice pedagogy (Somatic Voicework™, YogaVoice®, Andover Educators®, Vocal Movement Integration, Hennessy Whole Body Voice™, etc.), because I believe that applications of somatic education principles may be more readily useful to a wider range of voice teachers for use in their studios. Furthermore, it will bring greater clarity to the analysis by better isolating the criteria of interest. However, after working towards an understanding of the fundamentals of these three individual somatic education disciplines, study of integrated methods will likely be a useful research avenue to pursue.

Eastern Mind–Body Disciplines

Mind–body dualism (a concept explored in the next chapter) is largely a Western construct, whereas Eastern spirituality, medicine, meditation, martial art forms, and other practices assume mind–body unity (Batson, 2009). While these practices have become increasingly popular in the United States, Eastern movement practices are outside the scope of this study because their ancient cultural origins and initial approaches to study largely developed independently of movement education practices in the West. However, as communication, information, and travel became more accessible in the twentieth century (and, as the West "caught up" with the idea of mind–body unity), an Eastern influence became evident in the United States (Eddy, 2009; Hanna, 1977). Somatic practitioners began to draw from Eastern and Western disciplines, creating an exchange that warrants additional research apart from this study.

In the next chapter, I contextualize somatic education principles in the literature pertaining to their development and in the research on their utility inside and outside of the voice studio.

Chapter II: LITERATURE REVIEW

In order to explore applications of somatic education principles to voice pedagogy, this chapter will provide a historical context for the development of somatic education, discuss research contributions from related fields, elaborate on the practices of the Alexander Technique, Feldenkrais Method, and Hanna Somatic Education from their founders' perspectives, and incorporate research and connections to voice pedagogy literature. The chapter will then present studies relating the somatic education disciplines to voice pedagogy, suggest avenues for future research, and clarify the need for the present study.

The Development of Somatic Education

The field of Somatics, along with the subset of somatic education disciplines that are of interest to this study, grew out of a shift away from the concept of the self-as-intellect and toward the idea that human beings are irreducible to the false dichotomy of "mind" and "body." The former concept, called mind–body dualism, persisted in Western Europe and the United States as social norms, technological advancements, and cultural ideals lead to a disembodied state in which physical ways of knowing and engaging with the environment were devalued. The following section will elaborate on this phenomenon and how it relates to the eventual emergence of Somatics.

Mind–Body Dualism

The idea that the mind and body are separate entities dates back to ancient Greece (Bakal, 1999; Johnson, 1987; Mullan, 2014). Johnson (1987) asserted that Western culture, particularly in the "Platonic and Christian traditions," was shaped by two major premises:

> The one…defines the body as a wild, irrational animal needing to be tamed by a "higher self." The other, becoming popular with the beginnings of modern science, considers it a desouled physical object, to be ordered and manipulated like any physical thing, and understood through quantitative logic. (p. 1)

Somatics later presented a third premise, one of embodiment, which encompasses the mind, body, and spirit.

Social norms. Pioneers in somatic education such as F. M. Alexander knew from experience that learning is a fully integrated somatic event, but this notion was ahead of its time. Alexander (1985) argued that while man's mental capacities developed over time, the opposite was true of his physical abilities, causing his somatic balance to tilt toward the mind (p. 73). Alexander stated that this imbalance created in man a conflict that results in nervousness and even fear of one's own body. Hanna (1970) noted that Western conventional morality taught its people to be ashamed of their bodies, and that self-denial of earthly pleasures was virtuous. Those who had the self-control or discipline to ignore impulses and bodily yearnings were admired, as they were for restraint against the public expression of emotion and affection.

Technology and adaptation. Hanna (1970) explained that early Homo sapiens survived by attending to the immediate needs of their bodies, adapting themselves to their environment. In the twentieth century, however, humans were able to engineer an environment that supported *them*; creating a technological society with conveniences that freed us to explore our intellectual potential. Pursuits of the mind, no longer encumbered by the physical labor of survival, were elevated, while hands-on work was held in lower esteem. Culturally, Westerners rejected the body in order to enlighten themselves, depriving them of their full potential as embodied somas. Johnson (1987) summarized the pervading ideal at the time to hold that "the truly human qualities of freedom, wisdom,

and love are thought to be found by distancing oneself from the body" (p. 20). However, the neglect of bodily sensation, coupled with societal pressure to contain and suppress emotions, was a limiting combination.

Cultural ideals. Feldenkrais (1992) disagreed with the notion that the environment was changing too fast for man to keep up (p. 11), but explained two major contributors to human degeneration. First, he claimed that man's physical decline was largely self-imposed, by believing self-fulfilling prophecies or by neglecting his potential. Second, Feldenkrais argued that pervasive ignorance causes us to extol harmful cultural ideals at the expense of understanding the necessities of life. He lamented that "scourges" such as being "constantly enterprising," concentrating, and exercising self-control cause neuroticism and rigidity—both physical and mental (Feldenkrais, 1992, p. 13).

According to somatic educators such as Alexander, Feldenkrais, and Hanna, the obstacles of ignorance, fear, and conditioning stood in the way of accepting mind–body dualism in the late 19th and early 20th centuries. A paradigm shift was needed in order for the concept of soma to emerge, and with it, the acceptance of integrating, embodied approaches in what would ultimately be named the field of Somatics.

Somatic Practices Emerge

The physical culture and phenomenon of gymnastik in Western Europe during the early 20th century made it a fertile ground for movement education, with teachers such as Delsarte, Dalcroze, Laban, Duncan, Stebbins, and many more serving as precursors to early somatic practitioners (Eddy, 2009; Mangione, 1993; Mullan, 2012; Mullan, 2014). During and after World War I and World War II, the somatic pioneers and their students brought their somatic methods to the United States. By the 1960s, the American

counterculture (which celebrated free love and experimentation with altered states of consciousness), human potentialities movement, and interest in Eastern culture (including martial arts and yoga) helped prime the environment for the spread of new ideas (Hanna, 1977; Mullan, 2012). It was in this climate that the field of Somatics began to coalesce. In the 1970s, Thomas Hanna brought Moshe Feldenkrais to California to teach the first Feldenkrais Method training program in the United States. After establishing the Novato Institute of Somatic Research and Training in 1975, Hanna founded the first journal to bring somatic practices into a field under a new defining heading, "Somatics," first published in 1976 (Mower, 1990, p. 73).

Branches of Somatics. Since many somatic practices trace their roots to dance and Western European physical culture, resulting in lineages with complex networks of branches, it is difficult to isolate or classify any one somatic discipline into a single category without overlapping others (Eddy, 2009). However, under Allison's (1999) category of Bodywork and Movement Therapy, dance-related movement education practices include Elsa Gindler's and Charlotte Selver's "Sensory Awareness," Irmgard Bartenieff's "Bartenieff Fundamentals," and Judith Aston's "Aston Patterning." A second branch of therapeutic practices, under the same category of Bodywork and Movement Therapy, includes Mabel Todd's "Ideokinesis," Ida Rolf's "Structural Integration," and Joseph Heller's "Hellerwork."

A third group classified in Allison's Bodywork and Movement Therapy category includes F. M. Alexander's "Alexander Technique," Moshe Feldenkrais' "Feldenkrais Method," and Thomas Hanna's "Hanna Somatic Education." This group can be distinguished from the first two in several respects. First, its practices were not based in

dance, as its three initial practitioners included an actor (Alexander), a physicist/engineer (Feldenkrais), and a philosopher (Hanna). Second, the three members of interest to this study, F. M. Alexander, Moshe Feldenkrais, and Thomas Hanna hailed from Australia, Ukraine, and the United States, respectively. Although Alexander and Feldenkrais lived in London for a time, among other places, their connection to the precursors of the Somatics movement is less direct. As for the third distinction, Alexander, Feldenkrais, and Hanna's approaches are characterized by the facilitation of motor learning. Tompkins (2009), though neatly listing these three practitioners in one description, illustrates the difficulty in distinguishing somatic education from therapy, as his account has both educational and therapeutic connotations:

> Somatic education offers the promise of freer and easier movement and enhanced body awareness through gentle exercises and/or body manipulation. Falling under the broad umbrella of mind–body practices, somatic education focuses on restoring healthy patterns of movement by engaging the sensory and motor nerve cells of the central nervous system. Sometimes referred to as movement therapies, functional approaches, or simply Somatics, the term ''somatic education'' encompasses a variety of individual systems including the Feldenkrais Method, the Alexander Technique, and Hanna Somatic Education. (p. 188)

The branches of somatic education and therapy within the larger field of Somatics are discussed in greater detail in the next section.

Somatic education or therapy? The distinction between somatic therapy and somatic education is difficult because of the ancillary reduction in discomfort afforded by the education methods, the overlap between types of disciplines, and the differing terminology used by those practicing and describing the fields. For example, writings that compare somatic healing techniques often include Alexander Technique, Feldenkrais Method, and/or Hanna Somatic Education under headings such as "bodywork and movement therapies" (Allison, 1999), "body awareness therapies" (Schlinger, 2006), and

"mind–body therapies" (Mehling, 2011). Other sources call them "somatic education techniques" (Batson, 2009; Jain, Janssen, & DeCelle, 2004; Neely, 2012).

Mehling (2011) conducted focus groups containing both practitioners and patients of "mind–body therapies" such as the Alexander Technique, Feldenkrais Method, and Hanna Somatic Education. Findings revealed theoretical commonalities, such as the principle of the integrated self and the capacity for embodiment, as well as practical commonalities such as "the central role of breath awareness for practitioner and/or patient, repetition and training, refinement of noticing, and discriminating and discerning physical sensations" (Mehling, 2011, p. 10). While the somatic education principles of training mind–body integration and sensitive awareness are stated, Mehling's (2011) study emphasized the therapeutic elements of the disciplines.

The "education or therapy" categorization of somatic disciplines can be clarified by defining the role of the patient/student and therapist/teacher. If a practice is delivered primarily by doing something *to* a patient, it likely belongs to the therapeutic branch of Somatics (Bakal, 1999; Gold, 1994; Hanna, 1977), while the active participation and training of a *student*—not a patient—suggests a method of education. Hanna (1977) claimed that the difference lies in the fact that while somatic education practices may relieve pain or improve function, this is not their primary purpose:

> The somatic therapies share a common viewpoint, but all of them do not move in a common direction. The somatic healers, like those in traditional medicine, offer remedies for specific ills. The somatic educators, in contrast, seek to educate the client, not to heal—cures are secondary to the more general concern to educate the client toward a higher level of health, growth and happiness. (p. 48)

In a similar way, voice teachers, without claiming to be medical practitioners or healers, often help students address areas of interfering tension or strain during the act of singing. Therefore, they too may encounter lessons in which the educational process indirectly

alleviates students' physical pain. Furthermore, as explained in the Psychology section of this chapter, another indirect response to the release of tension may be the letting down of the "muscular armor" that impedes emotional expression. The somatic educator/voice teacher trains students to become aware of and change psycho–physical patterns that interfere with their singing, enacting the principles of somatic education exemplified by Alexander, Feldenkrais, and Hanna. The next section explores how advancements in various fields of study contributed to the understanding of how somatic education works, how they may have influenced Alexander, Feldenkrais, and Hanna, and how these advancements reflected the shift away from mind–body dualism in the West.

The Influence of Related Fields

The paradigm shift away from mind–body dualism was bolstered by discoveries in a number of fields, including neuroscience, psychology, endocrinology, and physiology. Research in these fields led to greater understanding of the interconnectedness of action, emotion, and thought, confirming the somatic education principle that learning is physical, emotional, and mental.

Neuroscience. Neurologist Charles Sherrington's (1947) research on reflexes, perception, and the mechanisms through which perceptual information interacts with motor behavior suggested that our nervous system functions as an integrated system of connections between the brain, spinal cord, and nerve cells that are distributed throughout the body. Sherrington found that proprioceptors in muscles and joints provide sensory information as to muscle length, muscle tension, and the position of parts of the body in space. He also discovered that when proprioceptive information is sent to the spinal cord, a motor response can be deployed without conscious monitoring. Sensory information

routed to the spinal cord bypasses higher brain functions, eliminating the need to think about executing an action. Proprioception is the soma's sense of how the body is moving, with or without conscious control.

One of the functions of proprioception was illustrated by Sherrington's study of reflexive inhibition, the process through which an agonist and its paired antagonist muscle "take turns" contracting and releasing so that the body is not locked in a tug-of-war with itself. This concept was significant to somatic education because it explained that the conscious mind need not directly command contracted muscles to relax. For example, in order for the bicep muscle to contract, the tricep must relax (because one cannot, of course, bend and straighten the same arm simultaneously). The proprioceptors are activated by movement, initiating reflexive inhibition so that opposing muscles "know," through sensing, to inhibit contraction. Sherrington's work with reflexive inhibition provided an example of our somas' ability to move beneath our conscious perception. This concept also influenced one of the techniques used by Hanna Somatic educators, pandiculation, in which muscle groups are deliberately contracted to help facilitate subsequent release in areas of chronic spasm.

Sherrington also began to map the motor functions of the brain, identifying loci in the portion of the somatosensory cortex responsible for specific regions of the body. This map of the body, called the homunculus, is what enables surgeons to test motor function in a patient by selectively stimulating regions of the brain that correspond to, for example, sensations of the toes and feet. It is the body's representation of itself in the cortex. The concept of the homunculus influenced both Hanna (1993) and Feldenkrais (1977) in the development of their approaches to somatic re-education, as they devised

methods to help clarify this map through sensory-motor integration activities (Ginot, 2013). More recent research on the brain during singing (Kleber et al, 2010; Kleber et al., 2013) has shown that the more experienced the singer, the more activation can be observed in the areas of the brain that correspond to the articulators and larynx. These studies may give credence to some of the somatic educators' approaches by confirming that with training, students can become more attuned to specific sensations and discriminate fine variations in movements; their increased sensory awareness fosters cortical connections and increases motor skill function. According to Kleber et al. (2010), this suggests:

> Vocal skills training correlates with increased activity of a cortical network for enhanced kinesthetic motor control and sensorimotor guidance together with increased involvement of implicit motor memory areas at the subcortical and cerebellar level. Our findings may have ramifications for both voice rehabilitation and deliberate practice of other implicit motor skills that require interoception. (p. 1144)

These findings indicate that experienced singers' brains may show neurological evidence of acquired motor control and motor memory in singing-related anatomical structures. In a subsequent study, Kleber et al. (2013) found additional support for experience-dependent patterns in brain structures. Experienced singers, even when deprived of auditory feedback (from inside a noisy fMRI machine) and localized interoceptive feedback (from vocal fold anesthetization), exhibited less of a decline in pitch accuracy than non-singers. This suggests that in the absence of sensory feedback, experienced singers may be able to utilize "internal representations of acquired motor commands" (Kleber et al., 2013, p. 6078). Experienced singers may acquire a more detailed somatosensory map and more reliable muscle memory through practice. Cross-disciplinary collaboration between fields such as somatic education, voice pedagogy, and

neuroscience could further clarify how somatic mapping and muscle memory in singers is most effectively taught and retained.

Psychology. Reich's contribution to the field of Somatics was his theory that releasing muscle tension, a symptom of repressed emotions, can in turn reduce psychological inhibitions. Reich (1973) used the term "muscular armor" to describe this unconscious muscle tension (p. 300). Reich's therapeutic approach involved "hands-on manipulation of the body and breathing patterns to release the chronically tight muscles and repressed energy" (Allison, 1999, p. 379). Reich's work inspired the development of many other body-oriented therapies in the years that followed, including Hanna's (1970):

> The notion of constricted "muscular armor" is a brilliant and revelatory insight into the nature of the repressed person and of how he can be anxious and suffering but unable to help himself by his own "voluntary" efforts. And, through Reich's description of the various patterns of muscular armor, we gain an understanding of the multiple ways in which the human soma fights against the kinds of energy patterns which are evoked by feared ideas or feared situations, whether actual or only presumed. (p. 135)

The concept of muscular armoring provided an example of the unified soma principle (that learning is physical, emotional, and mental); showing that change in our emotional state can have measurable physiological consequences. For singers, this concept should be considered when singing in a voice lesson, rehearsal or performance on a "bad day," because emotional upset from one context can, if unchecked, affect use and functioning in another. Closely linked to this concept was Hans Selye's endocrinology research on the soma's reaction to long-term stress.

Endocrinology. Hanna (1988) credited endocrinologist Hans Selye with recognizing that "physiological disease [can] arise from psychological causes, such as stress" (p. xii). Selye provided an integrated model of how humans respond to ongoing stress, naming this process the General Adaptation Syndrome (1950). The GAS model

described the somatic reaction to chronic stress in terms of three stages: the activating function of the alarm reaction, the energy-maintaining stage of resistance, and the deactivating stage of exhaustion. Simply stated, the body can only exert a finite amount of energy to adapt to stress before it shuts down. This theory helped Hanna explain the patterns of muscle spasm and distorted alignment in his students, leading him to devise movements to help remobilize—and, therefore sense—areas of the body that prolonged stress rendered inaccessible.

The final stage of the General Adaptation Syndrome is described in what Hanna (1993) called the stage of somatic retraction, in which the body and, in essence, the whole person retracts or shrinks, affecting physical and mental states. Noticing a "painfully distorted bodily structure," a victim will seek help from various medical and mental health practitioners who, according to Hanna, invariably attempt to address the symptomatic structure instead of its function:

> This, however, is absolutely futile. The distortion of the bodily *structure* is simply the last straw; it is the moment when the disintegration of the body's *functions* has endured so long and so intensely that the tissues can no longer support the constant functional stress. Somatic retraction is a functional event. (Hanna, 1993, p. 35)

Hanna was describing the somatic education principle that habits such as stress-induced distortion of functioning can be changed with training, addressing the causes and not the symptoms that motivate people to seek medical assistance. The introduction of biofeedback contributed evidence to substantiate the idea that responses to stress and other states can be changed with practice.

Biofeedback. In the late 1960s, medical research began to confirm the assertion that the conscious mind can control physiological states, beginning with Joe Kamiya's findings that human subjects could consciously control their own brainwaves as

measured by an electroencephalogram (EEG). Up until this point, the accepted stance of neurophysiologists held that consciousness was an illusory effect from neural causes, not that consciousness itself caused neural effects (Hanna, 1993).

Electromyographic (EMG) feedback is the most popular modality for practitioners of biofeedback (Bakal, 1999). By measuring muscle tension, the EMG shows patients their tension releasing as they employ relaxation techniques. EMG biofeedback can be very useful for helping therapists and patients identify elevated tension and develop strategies for altering tension in specific body regions (e.g., jaw, neck, shoulders), but it is too narrow in emphasis to be used as the sole means of enhancing somatic awareness (Bakal, 1999, p. 187). Instead, a student needs to be able to recreate awareness in day to day life, much in the way a person who feels more relaxed during and immediately after a massage will not achieve lasting benefit without learning to relax every day to prevent compounding tension. The somatic education principle pertaining to sensitivity and awareness is based on the assumption that we do not need to rely on a digital readout or other external indicator if we learn to use interoception, exteroception, and proprioception to monitor ourselves. However, as we learn to hone this sensitivity, objective measurement can assist us in our observation.

For example, Hanna (1970) noted that a form of biofeedback was utilized early in the history of somatic education when Alexander made the discovery that launched his technique (p. 50). When Alexander scrutinized himself in his setup of surrounding mirrors, he could observe the extent to which the physical changes he *thought* or *felt* he was making were actually taking place. This was one of the ways Alexander (1984) realized his ability to sense his alignment, breathing and movements was not yet reliable:

> Later on I took into use two additional mirrors, one on each side of the central one, and with their aid I found that my suspicions were justified. For there I saw that at the critical moment when I tried to combine the prevention of shortening with a positive attempt to *maintain a lengthening and speak at the same time*, I did not put my head forward and up as I intended, but actually put it back. Here then was a startling proof that I was doing the opposite of what I believed I was doing and of what I decided I ought to do. (p. 15)

Modern biofeedback technology is useful in measuring a variety of bodily functions, using indicators such as pulse rate, blood pressure, and galvanic skin response. Its significance in the field of Somatics is that it provides data that may substantiate first-person agency—a function of the mind and body working as one. In this way, students "could be taught to appreciate the subjective experiences associated with their various physiological response systems" (Bakal, 1999, p. 13). That definition outlines a basic tenet of somatic education: that "conscious awareness of what was previously unconscious is the gateway to change" (Hanna, 1977, p. 50).

The contributions of various scientific fields throughout the 20th century paralleled the emergence and spread of a wide variety of somatic practices; however, the research presented in this section was not conducted with the intent of substantiating somatic principles. It may indicate the presence of a path to wider acceptance and popularity of mind–body disciplines, reflecting changing cultural attitudes and an evolving understanding of the mind–body connection. The next section examines how Alexander, Feldenkrais and Hanna drew upon related fields of study and various somatic education principles to form their own approaches.

The "How" of Somatic Education

The overarching principles of somatic education that were introduced in Chapter I pertain to how we sense, change, and control ourselves in action. Somatic education cultivates sensitivity and awareness, which involves learning to use interoception,

exteroception, proprioception, and a focus on process. It is based on the idea that in unified somas, change in one aspect or area affects the entire soma: the anatomical areas, the interplay among physical, mental, and emotional aspects, and the reciprocity of sensing and moving. Somatic educators guide students in changing their dysfunctional habits, with the aim of teaching them to use their honed awareness and connected knowledge to bring all movement patterns under their control so that they can function with efficiency and ease. Put simply, these principles involve an understanding of how we perceive sensory-motor information and how we respond through the use of ourselves in singing or in any other activity. A natural reaction for many voice students when a habit is noticed by a teacher (as was the case with Juli's interfering jaw tension), is to try and fix it—to figure out what it is the teacher is talking about and do better next time. Feldenkrais (1981) advised that, instead, we learn to understand *how*, not *what*, we are doing:

> The "how" is the hallmark of our individuality; it is an inquiry into the process of acting. If we look at how we do things, we might find an alternative way of doing them, i.e. have some free choice. For, if we have no alternative, we have no choice at all. We may kid ourselves that we have chosen a unique way of doing things, but it is compulsive for lack of alternatives. (p. xii)

The next section of this literature review examines how humans sense and use themselves in movement, as well as the ways in which Alexander, Feldenkrais, and Hanna incorporated these concepts into their somatic education disciplines.

How We Perceive Ourselves

As mentioned in the Neuroscience section of this chapter, proprioceptors in the muscles and joints are activated by movement (Burke, 2007; Olsen, 2004; Sherrington, 1947). They provide information about muscle length, muscle tension, and the position of the body and its parts during movement (explaining how most of us can clap our hands

with our eyes closed). In other words, proprioceptors are responsible for our sense of *how* we move, a sense called proprioception. In habitual movement, proprioception operates outside of our conscious awareness. However, when we focus on *how* we are moving, we tune in to potentially helpful proprioceptive information.

Two other ways of sensing include exteroception, which detects external stimuli through receptors in the skin and mucous membranes, and interoception, which detects internal sensations. Interoception is an important sense for singers because it involves "the ability to feel one's own internal body states such as…respiration" (Fogel, 2009, p. 314), made possible by the interoceptors that "receive sensory information from…internal structures, such as the intrinsic musculature of the larynx" (Kleber et al., 2010, p. 1145).

Singing is an example of an activity involving internal processes that necessitate the use of both interoception as well as movements that engage proprioception. As with interoception, proprioception can involve sensing internal stimuli; however, the information perceived pertains to the soma's movements, positioning, and orientation in space. The proprioceptors are responsible for the kinesthetic sense, the sense of one's bodily movement, but the sense of proprioception also contains more specific information as to the degree of exertion and range of motion involved. Neely (2012) suggested another distinction, differentiating kinesthesia from proprioception by whether the sensory information is perceived consciously or unconsciously:

> Kinesthesia refers more to the body's motions and movements, and proprioception is the body's awareness of its movements and behaviors. While kinesthesia allows one to sense the body in motion, proprioception is more than the sense of motion. It is the mostly unconscious feeling of muscle tone and sense of effort and balance within the body. (p. 23)

In other words, Neely's definition of proprioception and kinesthesia implied that kinesthesia involves information on what is moving, while proprioception provides feedback as to *how* we are moving. Proprioception, therefore, is a needed tool for singers to find the balance of muscular tonicity that is sufficient for the act of singing, but not excessive enough to interfere with it, as in the case of Juli in Chapter I.

Sherrington's findings that sensations of movement and corresponding motor commands do not need to be mediated by the conscious mind explained how habitual movements such as walking can occur while our focus is elsewhere. Reflexes, too, such as recoiling after touching a hot surface, are routed by necessity to the spinal cord to facilitate a response faster than our ability to think about what we should do. Burke (2007) noted that Sherrington acknowledged the possibility of volitional control over reflexes (which are inherently involuntary) using conscious awareness (p. 893). For example, scratching is a reflex mammals share, but human beings can choose not to scratch even though the stimulus of an itch is present. The mechanism through which man bridges conscious activity to reflex activity allows learning and adaptability, which contributes to the evolutionary success of the human species. This pivotal concept supports another principle of somatic education: habituated behaviors that have become automatized can be changed. This premise is common to somatic movement education disciplines such as the Alexander Technique, Feldenkrais Method, and Hanna Somatic Education.

Alexander, Feldenkrais, and Hanna encountered students who did not accurately sense *how* they moved, causing inefficiency and discomfort. They recognized that such students were unaware of the functional unity of the soma, and had to teach them how to

sense themselves accurately from within during movement—utilizing proprioception, kinesthesia, and interoception. It is only when we sense ourselves accurately that we can learn to control how we move.

Awareness and agency. Those who struggle with habits may feel victimized by their own bodies, which seem to have minds of their own. In actuality, acquiring more accurate awareness of how we move is what is needed to regain agency over ourselves. Alexander (1985) conceptualized mind–body unity with the term psycho–physical, which he used "to indicate the impossibility of separating physical and mental operations in our conception of the working of the human organism" (Alexander, 1985, p. 5). Hensel (2013) described the psycho–physical self as "the relationship between the students' subjective judgment or perception of sensations and their actual physical movement" (p. 3); what we *think* we may be doing versus what we are *actually* doing. When this relationship reaches "psycho–physical equilibrium," students have sufficient awareness to sense and control their intentional movements. Greene (1995) noted that the psycho–physical self also describes a premise common to Alexander, Feldenkrais, and Hanna, that "all human movements involve the entire person" (p. 140).

The "entire person" is involved in all movement (though not necessarily in a well-coordinated fashion) whether he is conscious of his movements or not. Feldenkrais used the term "self-image" to describe how we view ourselves, including: "the shape and relationship of the bodily parts, which means the spatial and temporal relationships, as well as the kinesthetic feelings. Included with this are feelings and emotions and one's thoughts. All of these form an integrated whole" (Feldenkrais, 1988, p. 52). The self-image encompasses our awareness of the way we move and behave, which Feldenkrais

asserted most people believe to be innate and unchangeable—despite the fact that most of the self-image is learned. The fact that our self-image is acquired "accidentally," and that we believe it cannot be changed, accounts for a lack of awareness and control over our learning (and underscores the importance of the principle that we *can* learn to change our habits).

Hanna explained this lack of control as the result of perceiving oneself as an object. By adopting an external focus instead of engaging with the environment as an integrated being, it is likely one will feel victimized, as though something is happening *to* the soma rather than *from* the soma. In other words, having an external locus of control propagates the belief that an outside agent is acting on an afflicted individual, precluding his sense of empowered agency over his own soma. Hanna (1991) defined the soma as "the body as perceived from within by first-person sensation" (p. 31), suggesting that the soma is a dynamic system, one that is "changeable, adaptable, and in-process" (Hanna, 1993, p. 6).

The interconnectedness of sensing and moving. Beginning with Alexander, the somatic educators understood that the soma learns new movement patterns that can replace habitual movements by bringing awareness to the activity and exploring how alternative choices feel in comparison. The problem: some people do not know how to use their awareness in this way. Rosenburg (2008) connected the generations of somatic educators, beginning with Alexander, with this realization: "The Alexander Technique, having been developed prior to the concept of Somatics, nonetheless is founded upon the realization that the modern-day human being's sense register has become unreliable, leading to misuse and malfunctioning of the self" (p. 35).

When we realize, as Alexander did in the mirror, that what we think we are doing is not what we are actually doing, we discover our awareness has been compromised. Alexander called this faulty "sensory appreciation" (1985). He paused his acting career so that he could study himself carefully for months without the pressure of sounding a certain way for an audience. Free from the demands of the stage, he observed himself carefully as he practiced coordinating the movements of inhalation with maintaining optimal alignment. By doing so, he decontextualized the stimulus, or urge to speak, so that he could practice inhibiting his habitual response and break the habitual chain of behavior. However, he later found that when the stimulus to speak was reintroduced, his old habit would be prompted. So, Alexander happened upon the first step in his process, the inhibition of his response to the stimulus to speak. Once he was able to complete all of his normal preparatory movements and thoughts as if he were about to speak, but without the behaviors like sucking in air and pulling his head down and back, he added a movement as a substitute for the habitual response, such as raising his hand. Eventually, since phonation is exhalation with the vocal folds adducted, he tried simply whispering an "ah," a movement foreign enough not to trigger his habit but much closer to the act of speaking than raising his hand. Alexander (1984) summarizes this process:

> 1) The inhibition of the instinctive direction of energy associated with familiar sensory experiences of wrong habitual use, and
> 2) The building up in its place of a conscious direction of energy through the repetition of unfamiliar sensory experiences associated with new and satisfactory use. (p. 87)

As Alexander had done, Feldenkrais developed his method because he was experiencing a physical difficulty; in his case, an old knee injury that was causing significant pain. Feldenkrais (1981) first needed to ascertain how this pain was being triggered:

> I was far more absorbed in observing how I was doing a movement than I was interested in what that movement happened to be. This seemed to me the real gist of my knee trouble. I could repeat a movement with my leg hundreds of times, I could walk for weeks with no inconvenience whatsoever and suddenly doing what I believed to be the identical movement just once more spoiled everything. Obviously, this one movement was done differently from the former ones, and so it seemed to me that how I did a movement was much more important than what the movement consisted of. (p. 90)

Lundblad, Elert, and Gerdle (1999) offered a possible explanation: "A basic tenet of the Feldenkrais Method is that sensory awareness is a prerequisite for voluntary (cortical) control of the pattern of movement" (p. 184). Feldenkrais could not yet predict when his knee would move in the way that caused him pain, because this was not a *consciously* controlled movement. Movements such as walking are used so frequently that our awareness of them is not usually necessary—that is, unless we become injured. Feldenkrais realized, as Alexander had, that simply trying to meet his end by walking was not an action that gave him the information he needed to improve his walking. Feldenkrais (1981) explained that the aim to achieve a specific purpose can hinder the learning process:

> In life an act must be accomplished at the right speed, at the right moment, and with the right vigor. Failure in any of these conditions will compromise the act and make it fail. The act will not achieve its purpose. Achieving the intended purpose may be just moving for the sake of moving or dancing for the sake of dancing. Yet, all these conditions for successful achievement in life are a hindrance in learning. These conditions are not operative during the first two or three years of life when the foundations for learning are dug and laid. (p. 91)

Feldenkrais discovered a number of attitudes and responses that tend to interfere with learning and recovery, all of which could be solved by somatic education. First, had Feldenkrais been traumatized by or fearful of his pain, he may have altered his gait to try to avoid pain without understanding whether his new action would even be effective in doing so. Individuals decline in ability if an injury or other traumatic past experience

triggers a fear response, limits their self-image (Schlinger, 2006), or makes them feel so victimized by external forces that they lose the power of internal awareness and volition (Feldenkrais, 1992). Even without injury, decline may occur if the perfunctory performance of one's daily tasks becomes so automatic that one's kinesthetic imagination cannot conceive of any other ways of performing those acts, or if one believes he must concentrate so much on performing his tasks that he shuts out sensory information instead of using it. Hanna (1986) offered an explanation about why this is so:

> A fundamental finding of physiological psychology is that humans perceive a sensory impression only of that for which they already have an established motor response. If we cannot react to it, the sensory impression doesn't clearly register; it is shunted away from perception. This happens because in the perceptive process the sensorium never operates alone, but always in tandem with the motorium. (p. 5)

This interconnectedness of sensing and moving Hanna described explains why we lose the ability to sense and control that which we do not move. This phenomenon is one of the central premises of Hanna Somatic Education: the theory of Sensory Motor Amnesia (SMA). The premise of SMA is that somas have a tendency to forget certain movements or ways of relating to muscles, leaving them chronically contracted (and different reflexes from different types of stress and reactions to injury exacerbate SMA and pain). If we forget how to sense certain muscles, their contractions fall outside of our control.

Hanna contended that, much like Feldenkrais' concept of self-image, a negative self-appraisal leaves us ignorant of possibilities to learn throughout life (Greene, 1995). While Feldenkrais believed self-imposed limitations to be a reason many people's mobility declines, Hanna (1993) characterized much of these beliefs as the result of the "myth of aging," in which subconscious responses to the central nervous system

gradually cause muscles to become tighter and tighter while sensory awareness becomes "more and more muted":

> The atrophy of the proprioceptive and somaesthetic senses is such an established event in the maturation of human beings that the unconsciously programmed destruction of the body takes place without the possessor of that body being either aware of it or capable of preventing it. What our culture accepts as the normal effects of aging are, to the contrary, the abnormal effects of our culture. Once, however, we understand the functional origins of this bodily distortion, we discover how this distortion is reversible. (p. 35)

The implications of this concept are surprising, as it suggests our mobility need not decline with age provided we reintroduce sensation through movement, countering the cumulative effects of stress. While aging may not be a myth, the reciprocity between sensing and moving indicates that it is in our best interest to be active and aware in our activity.

How We Use Ourselves

To explain the concept of "use," in Alexander's sense of the word, we can return to the example in Chapter I of Juli, the singer with excessive tension in the muscles around her jaw during singing. Alexander (1986) noted that the constant influence of how we use ourselves generally is present in every specific action. In this way, voice teachers may gather important information by observing Juli's movements before the singing portion of her lesson begins (in her manner of use while walking in, speaking, setting up her sheet music, etc.), because a fault in the manner of overall balance and direction will influence the functioning of her jaw during singing. Alexander (1988) explained how a lack of understanding of the jaw's natural movement can contribute to poor use:

> This is a common fault, even with professional singers, and a moment's consideration of the movements of the jaw—from an anatomical point of view—will show that it should move downwards without effort, and that it is not necessary to move the head backwards in order to effect the opening of the mouth by the lowering of the jaw, since, as a matter of fact, the latter movement will be more readily and perfectly

> performed if the head remains erect without any deviatory posture. Every voice-user should learn to open the mouth without throwing back the head. Very distinct benefits will accrue to those who succeed in establishing this habit. (p. 52)

This point is not intended to suggest that anatomical information alone informs our use, but indicates that we generally employ excess tension, inefficient coordination, and extraneous movement until we acquire the somatic knowledge that it is possible to do otherwise. de Alcantara (1997) points out that since every part of the body is connected to every other part, and that we react to every situation with our whole selves, then it would be more appropriate to speak of how we use ourselves while singing than it would be to refer to how we use our voices or use our jaws; in this case, the jaw is the part that reflects the whole. While Hanna's (1993) assistance was sought out by musicians who, like Martin the vibraphone player, complained of pain in one part of their bodies, a somatic education approach indirectly alleviated this pain by reintegrating Martin's whole soma in his manner of use:

> Now with all of these parts moving together, Martin moved with grace and ease. From that moment onward, Martin ceased to have any pains in the back of the forearm. This was possible because he was now using all of himself to play. He had now learned something that had become a working part of his repertoire of movements. He would not forget how to do it. (p. 118)

The principles of somatic education tell us that just as the mind and body are one entity, sensing and moving are one activity. This is why we can lose sensation and control in parts of the body that have become involuntarily contracted. It also means that a lack of sensory awareness means a lack of knowledge. Hanna (1990) explained that "knowledge and action constitute an inseparable, circular mode of being deriving from the 'sensory-motor loop' that characterizes human embodied existence" (p. 6). Similarly, Feldenkrais (1992) suggested "when we want the potentially best use of our faculties, our failure to obtain it is due to a lack of knowledge, and not to degeneration" (p. 14).

The preemptive actions that Alexander observed in the mirror as he prepared to speak, such as pulling his head back and down and sucking in air audibly, caused pressure on his larynx and a pressurized breath. This set of preparatory behaviors is as unproductive to singers as to actors like Alexander, and, as it was in his case, often an unconscious habit. Duarte (1981) and Engelhart (1989) studied the "preparatory set" phenomenon in singers. Duarte's (1981) subjects reported feeling more control over tension and extraneous movement after four Alexander Technique lessons, and EMG readings from Engelhart's subjects indicated the Alexander Technique group was better able to free their neck and upper back muscles than other treatment groups. However, muscle tension was elevated in Engelhart's (1989) subjects when students needed to begin singing on a precise beat, suggesting that the added pressure of correctness may override newly acquired abilities. The desire to be "correct," coupled with a lack of sensory awareness, is a powerful attitudinal obstacle.

Learning and unlearning. The somatic educators noted that while humans are born with innate functional movement patterns, the act of imitating of family members, the influences of acculturation and socialization, and the long periods of sedentary and repetitive behaviors that characterize school and workplace activity cause children to develop habits that overtake their natural coordination. In order to reverse this conditioning, somatic educators must first help students to *unlearn* their conditioned knowledge before reeducating them to employ optimal somatic movement.

> The sensorimotor functions at the heart of the human central nervous system are, in the typical adult, atrophied. Except in rare instances the contemporary, urbanized human being reaches adulthood with a sensorimotor system that is only minimally developed, and then, during the remainder of his life, he steadily loses the ability both to sense his body and to move it efficiently. (Hanna, 1993, p. x)

Scholastic and social learning reinforces restrained behavior such as sitting still, focusing, sitting up straight, and being quiet. Before we learn how to behave, we learn much more somatically. Infants move with natural coordination and ease, exploring through sensations of movement. They can be seen leading with their heads, using what Alexander called their primary control (as explained by the Landau response, which is explored later in this chapter). Thought and sensation, mind and body are more unified in babies because they are not mediated by the ability to verbalize, or tempered by emotions such as shame, self-consciousness, or fear of being wrong. Once our innately coordinated movement patterns are corrupted by socialization, they are difficult to recognize if reintroduced. Allison (1999) explains that we may "mistrust" our innate coordination because it comes naturally; we are skeptical of what is "too easy" because we are taught to value "hard work" (p. 204).

Feldenkrais classifies our exploratory movement early in life as organic learning, and formal learning as academic learning. The difference is that the latter involves meeting set educational objectives (*what* students will know and be able to do), while the former allows us to explore options and discover *how* things work on our own time and in our own way. It is the difference between teaching what is in the curriculum and teaching how to learn, a function essential to Feldenkrais' work. The Feldenkrais Method is characterized by creating the conditions through which students can discover movement options. Compulsive, habitual movements, to Feldenkrais, were indicative of a lack of choice, imagination, or variety. If there is only one right answer, we do not continue seeking more answers.

Hanna argued that the traditional education system pits man against environment with attention outward instead of inward at the soma (Hanna, 1970). He also pointed out that "our cultural program is a program of human diminution and destruction," which we are unable to notice once we are acculturated. As a result, "we cannot see that these breakdowns are not the normal and inevitable results of aging but are the abnormal and preventable results of cultural conditioning. Stated simply, the typical mental and physical diseases of our society are learned" (Hanna, 1993, p. xi).

Habits. Habits are the result of chronic somatic misuse, reflexive reactions, a perceived lack of alternatives, and Sensory Motor Amnesia (Alexander, 1986; Feldenkrais, 1981; Hanna, 1988). Some habitual movements pertain to the way we perform everyday tasks, but others serve no purpose and we may not even be aware they are happening at all. Feldenkrais called these "parasitic movements."

Habit correction. Posture is a common example of habitual behavior because its somatic influence is constant, is often culturally derived, and because it is a learned behavior that can be changed. It implies a static condition that, to maintain, is often held unnaturally when it would be more useful as a dynamic condition. Feldenkrais (1966) described the difference between stable posture, which may appear useful but has no mechanical advantage, and a dynamic configuration:

> For instance, suppose I normally stand with my feet wide apart. I have stability this way, but can't walk without first shifting around completely. Though this is the "best" posture by definition, I cannot move forward or backwards. This is the extreme case of bad posture. Now if I stand with a leg forward and back bent, I can of course walk forward or backwards. But if somebody asked me to jump, I couldn't do it without changing my position. But if I stand so that I can, without preliminaries, rise, stoop, move forward, backwards, right and left, and twist myself-then elementary demands of good posture are fulfilled. This is also true for the voice and the breath. (p. 117)

If we only address habits of posture and other use when we are corrected in the third person, as when a teacher reminds a student to "sit up straight," we are not reeducating our bodies for lasting change: "The new posture can be held only as long as there is conscious attention. As soon as this relaxes…the habitual, faulty manner is elicited automatically" (Feldenkrais, 1992, p. 120). According to Hudson (2002b), a common postural correction for singers exemplifies this difficulty, because the classic "noble posture" with lifted chest overworks the muscles of the back, contributing to a holding pattern reminiscent of that which Alexander blamed in part for his own vocal difficulty (p. 106).

Habit inhibition. The practice of error-correction and certain therapeutic techniques, as external agents, do not empower students to manage themselves. Alexander (1988) cautioned that treatments, cures, or regimens of exercise may convey the impression that we can use our bodies mindlessly and habitually all day as long as we compensate with an hour of exercises. That is akin to stating that you are simultaneously practicing a lack of awareness and poor use for 15 hours per day and hoping that employing good use and awareness one hour per day will be sufficient. Instead, the key to maintaining awareness and preventing dysfunctional habit formation is to see every waking moment as practice for the soma's functioning. For habits that have already formed, Alexander's concept of inhibition breaks the automaticity of a habitual reaction so that the student can practice controlling the actions she may (or may not) wish to perform. According to Alexander (1988), the key to reeducating ourselves involves first identifying what defective behaviors are present and then gaining the sensory awareness to recognize and inhibit them. These behaviors are then replaced, through use of

inhibition and new correct guiding orders, until ultimately all activity becomes easy and mechanically efficient (Alexander, 1988).

Habitual tension. Postural alignment suffers significantly in those who experience a constant state of anxiety or stress. Just as Alexander noted we cannot expect an hour of good use to counteract poor use the rest of the day, Hanna suggested that if we hold tension in our bodies during a stressful day, a little relaxation later on will not be as effective as learning to selectively dismantle tension. This is particularly important if we consider the cumulative effects of tension, wherein our state of unresolved tension one day rolls over to the next (Hanna, 1993).

"Relaxation" is not the answer (de Alcantara, 1997; Duarte, 1981; Engelhart, 1989; Heirich, 2011; Weiss, 2005). Alexander noted that trying to relax part of the body, instead of conceiving of ourselves as a somatic whole, merely transfers tension elsewhere. His concept of non-doing and indirect control relies on awareness, not exertion, to allow our bodies to move well. This does not mean we have become void of energy, but rather that we are no longer wasting that energy in chronic tension. While the voice functions through "intrinsic reflex mechanisms" (Kleber et al., 2013), singers often attempt to control it using extrinsic muscles. The Alexander Technique, with its principle of "non-doing," may be useful for singers who need to *allow* the intrinsic laryngeal structures to function without interference (Engelhart, 1989; Heirich, 2011; Weiss, 2005).

Habituated stress reflexes. General Adaptation Syndrome explains that there is only so much stress and hoarded tension human beings can endure without reaching the exhaustion phase. As a student of Feldenkrais and reader of Hans Selye's (1950) work, it is not surprising that Hanna's explanations for declining sensory awareness and function

were drawn from the General Adaptation model and Feldenkrais' principles. Hanna, however, took the idea of chronic stress responses further toward a diagnostic theory, continuing the tradition of Alexander and Feldenkrais who had identified the startle reflex as the culprit for postural distortion (Hanna, 1990). The startle reflex is activated by stress, but unless it is later deactivated, muscle tension will accumulate until an individual is frozen in the position prompted by the initial reflex. For each reflex response, Hanna (1993) identified a corresponding pattern of misalignment that, through Sensory Motor Amnesia (SMA), instigates habitual somatic distortion.

Hanna (1988) called habituation the "simplest form of learning," because our reflex responses are not under our volitional control, and need only be repeatedly triggered to become habituated (p. 53). It involves no conscious work on our part, at least, until we want to break the ensuing habits. Triggers include repetitive tasks, emotional stress, physical trauma, past injuries, and others. The three reflexes in question are the startle reflex (also known as the "red light reflex" and the withdrawal response), the Landau response (also known as the "green light reflex"), and the trauma reflex (Hanna, 1988).

The startle reflex causes the anterior flexor muscles to contract as a response to distress and anxiety, and if habituated, causes a hunched posture characterized by a depressed ribcage and shallow breathing. The Landau response is the reflex first observed when babies develop the strength in their back muscles required to lift their heads and arch their backs, eventually enabling them to sit and stand. This reflex is nicknamed the "green light response" because it primes the body for action, and while it is not inherently associated with distress, the curiosity that activated our "green lights" as children gives

way to responsibility and busy schedules in adulthood, activating us for action too often. Since busy schedules and states of anxiety and distress often go hand in hand, the body is pulled anteriorly and posteriorly at the same time to the point of pain and exhaustion (which, Hanna argues, is the cause of what we call aging). When a third stress reflex, the trauma reflex, is activated, the body contracts protectively toward the location of the injury, often to either side. Consequently, the characteristic postures of Sensory Motor Amnesia can be hunched forward, backward, to either side, or in a combination.

Our use of ourselves depends on our somatic knowledge, attitudes, habits, and awareness. An inaccurate somatic map, self-image, and self-appraisal limit the extent to which and ways in which we organize ourselves to move. End-gaining or results-focused attitudes, influenced by traditional education and cultural programming to "try harder" and be "correct," cause us to tune out sensory-motor feedback of the present moment, disembodying ourselves into fallacious mental and physical fragments. This lack of awareness, often in the presence of chronic stress, allows destructive habits marked by excessive tension, strain, and effort to form. As the sensory-motor feedback loop degrades, our habituated movements fall outside the purview of the voluntary motor cortex, and our ability to accurately sense what we are doing, and how we are doing it, declines. Somatic educators can help reverse this process, giving students the tools they need to preempt it in the future.

How We Improve Ourselves [With Help from a Somatic Educator]

The role of somatic educators in students' sensory-motor growth and change is to make them aware of interfering habits and to help direct and develop somatic awareness to sensations of moving freely and effectively in-process. One obstacle to this work is

that unguided awareness is unreliable, often mistaking that which feels familiar for the way that is (or, to them, feels) "right." Another obstacle is the need to be "right" at all, which takes students' awareness away from the process of sensing "the how" and fixates instead on product—the "what."

Feeling wrong. How could Alexander be sure that he would do on stage what he did while monitoring himself in the mirror? One of the most problematic interferences of faulty sensory appreciation is the fact that the habit, or "wrong way," has been done so many more times than the new "right way" that the wrong way feels right and the right way feels wrong! Behnke (1995) explained why, although somatic educators aim to empower students to eventually self-regulate, the guidance of a teacher is essential:

> [My] sense for what feels *right* and what feels *wrong* may not be trustworthy, for what feels right to me is likely to be some version of the same age old pattern I thought I was learning to change. What this all adds up to is that there are indeed times when self-help does not get to the root of the problem; we may genuinely need the other person to help. (pp. 327–328)

Furthermore, the desire to be "right" and correct, to finally fix a problem worked on for a long time, or to please a teacher, works *against* the student. The cultural idea that all actions can improve through hard work can sometimes translate in the body as excess effort, exertion, and concentration to the exclusion of the very sensory awareness we need to perform those actions. Behnke (1995) explained how the sincere effort to try and "fix" a habit can lead students down the wrong path:

> But I may not notice that I have my own bodily style of *trying* (and if at first I don't succeed, trying not only again, but *harder*). Yet my somatic pattern of trying may be intimately interwoven with the very best pattern I am trying to correct, so that the more I *try* to change, the more I let my old pattern sneak back in. (p. 327)

Additionally, the focus on gaining our desired end does not differ in thought or sensation from the habitual version of the action—what *has* changed is the means-

whereby we perform the task. "End-gaining" and "means-whereby" are crucial principles of Alexander's work, so much so that Hanna included "means-whereby" as a focus of Hanna Somatic Education.

Process focus. Focusing on the process relieves anxiety, restores awareness of what we are doing in the moment, and may preempt unnecessary tension and exertion by replacing these behaviors with habits of better "use." And, as Hanna said, the soma is after all an "adaptable process" (Hanna, 1993, p. 6). Studies on attention and test anxiety (Wan & Huon, 2005; Wine, 1971) have shown that a focus on process can decrease state anxiety and increase performance. This makes a case for attending to the means-whereby of the Alexander Technique, or for embodying the unhurried, present, nonjudgmental awareness states that enable more enjoyable learning in the Feldenkrais Method and Hanna Somatic Education.

Central to Alexander's concept of the "means-whereby" are the "guiding orders," a set of mental instructions for allowing the direction of one's "primary control" to initiate all action indirectly. The primary control refers to the relationship and alignment of the head, neck and upper back, from which Alexander claimed all movement is facilitated. The primary control is corrupted by adulthood due to "mistrust" of its innate, natural coordination (Allison, 1999, p. 204). Guiding orders, or sending directions, are the means-whereby we activate the primary control, and include instructions such as: "let the neck be free," "allow the head to go forward and up," and "allow the back to lengthen and widen" (de Alcantara, 1997; Neely, 2012). Alexander (1984) substituted the means-whereby the primary control coordinates the use of the body by inserting the directions of good use in place of the habit, learning:

1) that before attempting to "do" even the first part of the new "means-whereby" which I had decided to employ in order to gain my end (i.e., vocal use and reciting), I must give the directions preparatory to the doing of this first part very many times;
2) that I must *continue* to give the directions preparatory to the doing of the first part while I gave the directions preparatory to the doing of the second part;
3) that I must *continue* to give the directions preparatory to the doing of the first and second parts while I gave the directions preparatory to the doing of the third part; and so on for the doing of the fourth and other parts as required. (pp. 27–28)

Alexander (1984) described using guiding orders during movement as a way of continually directing awareness toward the primary control, forming a foundation for all other work. The example guiding orders, gleaned from his own vocal studies, are used to train students to be constantly attentive of their overall use rather than fixating on a specific vocal "problem." In this way, Alexander incorporated the means-whereby into the process of vocalizing, discovering how he was using himself in the process.

In order to further examine the processes each somatic educator employs, it is useful to examine the various modalities, or component types of instructional activities, used during lessons in each discipline.

Comparing modalities. Somatic educators are facilitators of learning, establishing the conditions for somatic re-education. Greene (1995) distinguished this approach from a traditional, outcome-oriented form of instruction, stating: "Somatic practitioners do not mandate behavior or outcome; rather, individuals are encouraged to find in themselves, inside their own bodies, what is best" (Greene, 1995, p. 137). They reeducate by helping students disable their misuse, enabling their better use. This involves making the student as comfortable as possible, fostering a trusting relationship and a willingness to try the unfamiliar, so that sensations of discomfort or emotions like fear do not get in the way of sensory awareness (Alexander, 1985; Feldenkrais, 1975). In

the interest of training awareness, the Alexander Technique, Feldenkrais Method, and Hanna Somatic Education all employ some form of hands-on guidance, especially at the beginning of the process, serving as awareness surrogates to highlight sensations of touch and assisted movement to promote the increasingly attuned perception of the student.

Alexander Technique modalities. Alexander Technique lessons often begin with touch to establish a sensory-motor referent to the concept of primary control. This is intricately related to the reflex mechanisms man has developed to be upright against gravity, as well as the concepts underlying his entire approach:

> We have a reflex mechanism, or righting mechanism that supports our bodies against the pull down of gravity. Alignment and movement therapies often refer to this mechanism as "anti-gravity [response]". The Alexander Technique calls it "primary control" (the dynamic, balanced, head/neck/back relationship which incorporates this righting mechanism). The Alexander Technique's verbal "directions" (along with the inhibition) are the conscious part of activating and maintaining the righting mechanism that supports us against gravity. (Head, 1996, p. 19)

Alexander lessons do not involve exercises to the extent of Feldenkrais and Hanna Somatics, but guided everyday movements such as walking, sitting, and standing up help students' developing awareness of the primary control to connect to the familiar. However, since the familiar is often unconscious, these movements, with the manual and verbal guidance of the teacher, are experienced with optimal use of the primary control via the means-whereby that can coordinate the soma in action. For this reason, the few exercises that are utilized in the Alexander Technique are used to engage the primary control. They include activities such as "Monkey" or "Hands on the Back of a Chair" (de Alcantara, 1997; Lloyd, 1988; Nafisi, 2013; Weiss, 2005). Allison (1999) notes that:

> The specific exercises that a person experiences in a session will be designed according to the activities that he or she wants to improve. For example, athletes, actors, singers, or musicians will want to focus on motions and parts of the body that are used in each activity. (p. 206)

Touch is used to make gentle adjustments and bring focus to new sensations of use depending on where and in what direction the student feels the touch. For example, a teacher may lay hands over the scapulae while saying "imagine space under your arms," and feel whether the student has either let go and enabled the space, or forced the action. During tablework, the student lies down while the practitioner's hands and words continue to direct the imagination and awareness so that the body can start to release toward its natural configuration. Images and descriptions such as the suspension of muscles or the load-bearing function of the skeleton may also be mentioned so that the student understands she need not actively hold herself together.

Feldenkrais Method modalities. Tablework is used similarly in the Feldenkrais' mode of Functional Integration, in which the student lies down while the practitioner communicates primarily through gentle touch. The practitioner will use pillows and other means to fully support the student and induce a state of minimal effort, strain, and discomfort, and will also use "substituted effort" so that the student can practice feeling a movement without the action of doing it. It is in this state that the student will be maximally receptive to new sensations. The practitioner then facilitates awareness of sensations and self-direction during progressive, slow, and gentle repetitive movements that help the student build an inner map of his or her body in motion. In this way, the self-image becomes more accurate. Knowledge of physics, engineering, and Judo informed Feldenkrais' use of kinetic mirroring: a method of touch that involves moving with the direction of the contortion instead of resisting it, keeping the body from reacting defensively with protective muscle spasm.

Feldenkrais devised many movement activities for his verbally instructed group classes, called Awareness Through Movement (ATM), characterized by their exploratory nature and individualization. Students in an ATM class lie on the floor and relax (again, to help increase receptivity), and are then encouraged to work at their own pace and to rest frequently to give the brain a chance to process new sensations. A Feldenkrais practitioner guides the class through the initiation and sequencing of each movement. Initiation refers to sensing what moves first, where it is located on the body, and how through slow and gentle incremental adjustments a movement can begin from that locus without interference from surrounding structures. Sequencing refers to sensing the independent ordering of the components of each movement.

Feldenkrais incorporated analogies and explanations of the role of physics and physiology to help students connect this information to somatic, experiential knowing. He also used comparative movements as a strategy for students to discern the difference between one way of moving and another. Finer and finer discernment is a skill indicative of increasingly sensitive awareness, and knowledge of the components of efficient movement preempts the rehearsal of injurious movement. These experiences exemplify the organic learning Feldenkrais advocated, which should be nonjudgmental, enjoyable, and free from the pressure of goal-orientation—what Alexander called “end-gaining” (Feldenkrais, 1981, p. 34).

Helpful in deemphasizing correctness is the fact that Feldenkrais practitioners in Awareness Through Movement classes do not demonstrate movements, so that students are not guided by sight but by kinesthetic and proprioceptive sensation. In this way, students are encouraged to discover what a movement feels like instead of worrying what

it is supposed to *look* like (Connors et al., 2010). Feldenkrais practitioners will avoid extrinsic feedback; for example, they will not correct someone who appears to be struggling, but rather redirect their awareness by rephrasing instructions or using questioning strategies to "arouse the thought process among the students on proprioceptive alertness, temporal-spatial consciousness of body-movement, sensory motor awakening and mind-body-movement relationships" (Henry et al., 2016, p. 69). Despite these approaches, Ohman, Aström, and Malmgren-Olsson (2011) found that a sample of women with nonspecific neck and shoulder pain found the exercises to be difficult to perform on their own, according to subjects' interviews and journals. This may suggest that while Hanna Somatic Education exercises are specifically designed for daily use at home, Feldenkrais exercises are best facilitated in a guided Awareness Through Movement class or one-on-one Functional Integration setting.

Hanna Somatic Education modalities. When students find learning pleasurable and not stressful, habitual tension eases and enables finer discernment, greater differentiation, and sharper awareness during movement, eliminating parasitic, compulsive or unintentional action. Somatic experiences help the body organize itself to move via improved motor function. Hanna viewed this method of education as "a direct application of neurophysiology to human education" (Hanna, 1977, p. 51). Hanna's method, like Feldenkrais', involves both direct manipulation and a system of sequenced exercises that everyone can do, even on their own. "In an individual session, the practitioner [accompanies] movements or readjusts postures through a light contact, making sure that the client would first and foremost feel comfortable and relaxed" (De Giorgi, 2015, p. 73). Also like the Feldenkrais Method, Hanna Somatic Education

involves two instructional modes, but in this case, the practitioner uses either hands-on guided tablework or instruction in Hanna Somatic Exercises for an individual's use at home, recommended once or twice daily, slowly and gently for 10 minutes. The exercises are designed, like those in Feldenkrais' Awareness Through Movement classes, to be done slowly and gently to an individual's personal comfort level. However, they are less exploratory and varied. These exercises sequence throughout the functional regions of the body to revive movement, and therefore sensing, throughout the entire soma. In this way, the set routine of exercises enables a daily practice regimen that prevents Sensory Motor Amnesia (SMA) and helps the student continue her ongoing somatic education. Feldenkrais argues that students should stay curious, and with that curiosity explore novel sensations ad infinitum so that the possibility for discovering new-and-improved movement options can continue. From a Feldenkrais perspective, Hanna's set routine of movements, though accessible, could cause automatization and disengage awareness as the mind wanders.

The way Hanna Somatic Education addressed habitual tension also addressed the stress reflexes in a way that Alexander Technique and Feldenkrais Method did not. As explained above, Hanna assessed the starting point for a student by observing the effects of chronically triggered reflex responses on the physical and emotional state of the soma. Similar to the way Feldenkrais used kinetic mirroring and movement in the direction of spasm, Hanna moved the student this way to ease the body's protective response. Then, he taught students awareness by volitional contraction, in a technique called pandiculation:

> Rather than the practitioner focusing on providing sensory feedback by his own manipulations, the learner is invited to make a strong voluntary contraction of the

> amnesic muscles, thus creating his own strong sensory feedback and providing a simultaneous sensory reinforcement to the motor neurons while they are continuing their voluntary contractive activity. (Hanna, 1990, p. 6)

As previously stated, that which is not moved is not sensed. When students learn how to selectively contract muscles, they regain awareness in that area as well as the ability to control their use. This could be a useful technique for singers who, like Juli, experience chronic contraction of the masseter muscles of the jaw. After becoming aware of the tension, they can feel the difference between tension and release using pandiculation to first contract and then allow the muscles to relax.

Learning how to learn. All three disciplines include hands-on and verbal guidance and feedback, facilitated and/or guided movement activities, exercises, tension-releasing measures to rid the soma of interfering sensations or thoughts, directed awareness, practical somatic knowledge, a process focus, individualization, and the means to regain volition to overcome habits. The contributions of F. M. Alexander, Moshe Feldenkrais, and Thomas Hanna to somatic education provided a way to regain control of and fully utilize the potential of human somas. The Alexander Technique concept of the means-whereby draws focus away from anxiety-inducing goal-directed behavior so that we can stay present and aware of how a movement is being carried out, as well as what it feels like to be in control of that process. Studies such as Valentine et al. (1995) showed both reduced anxiety and improved musical performance in student musicians after taking Alexander Technique lessons, which may indicate students were able to focus on the means-whereby instead of worrying what they had to sing or play next.

The Feldenkrais Method expands students' repertoire of movement choices and further dismantles objective-based learning by encouraging exploration of their full

potential and finer awareness of each component sensation involved in coordinated activities. Hanna offered an explanation for the interdependence of sensation and movement, as well the means to reintegrate these components through sequenced exercises and volitional, rather than habitual, muscle contraction. Alexander, Feldenkrais, and Hanna's approaches can relieve the pressure to be correct, replace our fixation on the end goal, and release the self-imposed stress of striving when sensing and allowing will do. When we learn how to learn, we learn with our entire somas. In other words:

> A soma that is maximally free is a soma that has achieved a maximal degree of voluntary control and a minimal degree of involuntary conditioning. The state of autonomy is an optimal state of individuation, i.e., one having a highly differentiated repertoire of response possibilities to environmental stimuli. (Hanna, 1986, p. 5)

Somatic educators help students to overcome their faulty sensory awareness of themselves, to shift students' attitudes toward a focus on process, and to learn how to improve their ability to use themselves as unified somas who can act intentionally. The next section discusses the ways in which research on the Alexander Technique, Feldenkrais Method, and Hanna Somatic Education has explored these and other possibilities for singers, teachers of singing, and other populations.

Research in Somatic Education

Up to this point, this literature review has examined the background of the Alexander Technique, Feldenkrais Method, and Hanna Somatic Education in a historical context, in the field of Somatics at large, in relation to other fields that have contributed pertinent research, and the ways in which each of the originators developed and practiced their techniques. Applications to and parallels from voice pedagogy were interwoven into these topics, as well as questions and implications for further discussion. In the next

section, experimental and descriptive research studies are explored to glean patterns and themes, and to determine gaps that warrant future research.

Research from the Somatic Viewpoint

Empirical research on somatic education is scarce because by nature, somatic knowledge is experienced as first-person perception of personal sensations and subjective reality (Hanna, 1987). Third-person application of a treatment condition, control or placebo *to* a soma is not, therefore, a logical means of studying somatic education (Gold, 1994; Hanna, 1990). However, there are ways to study the contributing factors that enable humans to adopt a somatic viewpoint. For example, the act of sensing oneself while singing involves interoception, proprioception, and kinesthesia, which are explored in the field of neuroscience (Hanna, 1977, 1990, & 1993; Kleber et al., 2010 & 2013; Lyttle, 1997; Neely, 2012; Strauch, 2006). The phenomenon of music performance anxiety can be observed by measuring physiological responses to stressful conditions, such as singing a difficult passage at an intimidating jury (Klein, Bayard, & Wolf, 2014; Lorenz, 2002; Valentine et al., 1995; Weiss, 2005). Habitual patterns of muscle tension, reflex-induced or subconscious movements, and changes in alignment can be monitored during the act of singing to reveal patterns such as bracing behavior in anticipation of singing a note a singer perceives to be too high or too low for her to sing well or reliably (Duarte, 1981; Engelhart, 1989; Ohrenstein, 1999). In order for voice teachers to contribute to the *somatic* knowledge base, they must lead students by example and engage in lifelong learning about their own singing somas. Self-study through experimentation is an important resource for voice teachers to help remind themselves

that there are always new possibilities for learning, and that many of our vocal difficulties are self-imposed. As Joly (2004) explained:

> In order to gain professional competence the teacher-practitioner has to rely on her or his own experience or personal understanding and knowledge, acquired through actual experimentation. In this respect each of the main methods of somatic education employs its own educational strategies for training future teachers. (p. 4)

Between the self-study suggested above, research in other related fields, and perspectives from the various somatic education disciplines with and without a vocal music focus, a wide body of research has already been presented in this chapter and continues below. Patterns of interest within this review include the presence or absence of singers as subjects, the role, if any, of voice teachers as researchers or participants, and the relative proportion of studies pertaining to the practices and/or principles of one or more of the somatic education disciplines of the Alexander Technique, Feldenkrais Method, and Hanna Somatic Education.

Comparing Quantities of Research in Three Somatic Education Disciplines

While a body of research exists connecting the Alexander Technique to singing and voice pedagogy (Barlow, 1978; Duarte, 1981; Engelhart, 1989; Jones, 1972; Lewis, 1980; Lloyd, 1988; Valentine et al., 1995; Valentine and Williamon, 2003; Weiss, 2005; Zipperer, 1991), this is not true of related somatic education disciplines such as the Feldenkrais Method and Hanna Somatic Education. One reason for this disparity is because the Alexander Technique grew out of Alexander's work to recover his speaking voice, making it more readily transferable to the teaching of the singing voice than the other two disciplines (Driskill, 2012).

The Alexander Technique is also the discipline that was conceived first, at the turn of the century, which has allowed more time for it to generate interest and study. As

one might expect, the amount of literature on the Feldenkrais Method, developed in the mid-20th century, is less than that of the Alexander Technique, but greater than that of Hanna Somatic Education, which emerged in the late 20th century. Furthermore, Thomas Hanna's untimely death in an automobile accident truncated the amount of time he had to develop and disseminate Hanna Somatic Education. This disparity is also reflected in the relative number of certificated practitioners of each discipline. Research studies into Hanna Somatic Education are even less plentiful, and literature that connects it to singing or voice pedagogy could not be located for this literature review.

Experimental Studies

Experimental research in somatic education is problematic because the isolation of subjects' responses into measurable units contradicts one of the overarching principles of somatic education, fragmenting the soma as a fully integrated whole. Despite this philosophical contradiction, experimental research is included in this review to help complete a more inclusive picture of the various types and findings of research in somatic education and singing.

Experimental research on Alexander Technique and musicians. In a review of experimental studies in Alexander Technique and music, Valentine (2004) commented that while there is "substantial literature" in this area, "it is still the case that the majority of studies are anecdotal, lacking in adequate experimental controls, on small samples, or simply case studies" (p. 182). Furthermore, it is unclear whether the research studies in Valentine's (2004) survey included singers within their samples of "musicians."

A decade later, another survey of experimental studies in the Alexander Technique and musicians was conducted by Klein, Bayard, and Wolf (2014), who found

that out of the 237 citations assessed, only five pertained to randomized, controlled trials, five more were non-randomized controlled trials, and two were mixed-methods studies. The implications of these 12 studies indicate, according to Klein, Bayard, and Wolf (2014), that the Alexander Technique may improve *musicians'* performance anxiety; however, as in Valentine's (2004) review, *singers* were not analyzed as a specific subset of the sample population. While Klein, Bayard and Wolf found few randomized, controlled trials, a broader swath of experimental research is available.

For example, studies of the effects of Alexander Technique on singers who participated on a voluntary, rather than randomly assigned basis, noted positive physiological changes (e.g., improved posture, decreased muscle spasm, increased breath capacity, decreased anxiety as measured by pulse rate, etc.) and improved vocal quality after subjects received Alexander Technique training (Barlow, 1956), lessons (Barlow, 1978; Lloyd, 1988; Valentine et al., 1995), or manual facilitation of Alexander's principles of alignment (Jones, 1972). While Engelhart (1989) and Valentine and Williamon (2003) found no statistically significant improvement in vocal tone quality in treatment groups who took 10 Alexander lessons, Jones (1972) reported that spectrogram readings taken from one singer whose head was manipulated by an Alexander Technique teacher showed improved resonance, decreased breath sounds, and enhanced richness of overtones relative to readings taken while she sang in her habitual way.

Experimental research on Feldenkrais Method. Hillier and Worley (2015) conducted a survey of experimental research that used Feldenkrais as a treatment, finding only 20 studies that met their criteria for randomized, controlled trials. The primary Feldenkrais modality used across controlled studies was Awareness Through Movement

(the verbally guided class format), and while the studies differed in design, general findings showed "significant positive effects of Feldenkrais Method in a variety of populations and outcomes of interest" (Hillier & Worley, 2015, p. 10). A previous study by Lundqvist, Zetterlund, and Richter (2014) reported generally positive effects as well, noting that a sample of visually impaired individuals with scapular pain felt a statistically significant reduction in their pain symptoms after 12 weekly sessions of Feldenkrais Method lessons. Neither the Lundqvist, Zetterlund, and Richter (2014) study, nor Hillier & Worley's review of multiple studies, included singers (or even, broadly, "musicians") as the population of interest.

Experimental research on Alexander Technique and Feldenkrais Method. Jain et al. (2004) conducted a critical review of studies on the Alexander Technique and those on the Feldenkrais Method, and found that "there are few well-designed, blinded, and controlled studies with objective or standardized outcome measures published in peer-reviewed journals" (p. 819). However, one of the few studies that fit these criteria found that after receiving 20 private weekly Alexander Technique lessons, a healthy treatment group improved respiratory muscle function compared to the healthy control group matched for age and gender (Austin & Ausubel, 1992). These findings specify that the anterior voluntary muscles of respiration, which, as noted above, contract as a result of chronic stress, lengthened after treatment, had less tonicity at rest, and greater strength upon exhalation. The implication for singers is that the Alexander Technique may help lessen the effects of stress that prevent optimal breathing for singing.

Since the Feldenkrais Method and Hanna Somatic Education address stress reflexes as well, similar studies should be considered for those practices. So far, studies

on non-singers, which measured muscle tonicity (Brown & Kegerreis, 1991; Lundblad, Elert, & Gerdle, 1999) or muscle length (Stephens, Davidson, DeRosa, Kriz, & Saltzman, 2006) before and after Feldenkrais training suggest that it may help reduce muscle tension and chronic contraction. However, the extent to which subjects experienced lasting benefits from their knowledge of the Feldenkrais Method is unknown (as is the extent to which these results are generalizable to singers).

Somatic education and music performance anxiety (MPA). One possible reason that the literature review of Klein, Bayard, and Wolf (2014) included multiple studies on the Alexander Technique and music performance anxiety is, as was mentioned in the biofeedback section of this chapter, that specific responses attributed to emotional states such as anxiety are measurable by monitoring pulse rate, galvanic skin response, and other response variables. Indicators of better somatic use while singing, however, are more difficult to operationalize and measure objectively, so one might expect qualitative data to predominate in the literature, a supposition consistent with the findings of Valentine's (2004) survey of Alexander Technique research in music performance.

For the purpose of this literature review, music performance anxiety was the most widely available topic of experimental research. As previously stated, the isolation of measurable characteristics of music performance anxiety, though necessary in quantitative design, contradicts the premise of the integrated soma. General research on music performance anxiety separates cognitive, behavioral, bodily, or emotional factors for the purpose of measurement (Craske & Craig, 1984; Kendrick, Craig, Lawson, & Davidson, 1982; Steptoe, 1989), but for somatic educators to break up the soma in this way is antithetical to the essence of their practices. However, by experimenting with

somatic education methods and then measuring responses, somatic educators can detect patterns in the ways singers physically manifest certain emotions, perhaps aiding them in devising appropriate training for students who cope with MPA on a regular basis.

Lehrer's (1987) review of various coping methods for musicians with music performance anxiety mentioned "some aspects of" the Alexander Technique and Feldenkrais Method as possible approaches (p. 145); however, no specific studies or experimental results were cited to confirm this assertion. Driskill (2012) compared research on the Alexander Technique, the Feldenkrais Method, and exercise as coping strategies for singers' performance anxiety, but cited only one study (Valentine et al., 1995) that provided empirical data supporting a reduction in performance anxiety after lessons in the Alexander Technique. Considering that none of the studies mentioned above explicitly aimed to compare the relative efficacy of Alexander Technique and the Feldenkrais Method on performance anxiety in singers, this presents another possible avenue for future research, along with a similar comparison with Hanna Somatic Education. While controlled studies of either the effects of Feldenkrais Method or Hanna Somatic Education on *music* performance anxiety could not be located for this literature review, quasi-experimental studies of the effect of the Feldenkrais Method on general state anxiety found their subjects experienced reduced anxiety symptoms (Kerr, Kotynia, & Kolt, 2002; Kolt & McConville, 2000). Replication of these or similarly-designed experiments, measuring the effect of the Feldenkrais Method on singers' music performance anxiety, could be the next step in this area of research.

Considerations for future experimental research in somatic education. Jain et al. (2004) and Driskill (2012) theorized that the difficulty of maintaining sufficient long-

term engagement to yield meaningful research results on the effects of somatic education on various populations constitutes one of the key reasons why such research is lacking. The Alexander Technique, Feldenkrais Method (in its Functional Integration modality), and Hanna Somatic Education, as in private voice lessons, occur with a single practitioner/teacher and student. The time, resources, and design issues that would be raised in attempting a randomized controlled trial of these methods in context are problematic. Since somatic education focuses on the individual student's needs and responses, this partially explains why case studies are more widely used in the field.

Descriptive Research in Somatic Education

Case studies documenting responses of voice students after lessons in a somatic education discipline are often used as accessible, relatable examples that apply common activities, such as a Feldenkrais Awareness Through Movement lesson, to the singing challenges students often face. The "teaching cases" in the following section appear in instructional literature for voice teachers, and are reminiscent of descriptions Alexander, Feldenkrais, and Hanna included in their writings. The "research cases" in this section follow more formal case study designs. This chapter concludes with recommendations for future research.

Teaching cases. Nelson and Blades-Zeller (2002) recounted cases in which they applied principles of the Feldenkrais Method to address characteristic patterns of muscular tension in their voice students, and Gilman (2014) described applications of Feldenkrais' approach to movement reeducation in the voice studio. However, while Gilman (2014), like Grant (2014), substantiated these suggestions by aligning somatic research with voice pedagogy techniques, she did not reference research studies of

Feldenkrais in the context of voice lessons (although she cited a significant body of research in anatomy and physiology). Heirich (2011) authored a similarly structured book in which she applied Alexander Technique to vocal exercises, which are interwoven in a text that dispels common misconceptions about singing that lead to habitual pitfalls, and also includes stories of past students and the way they were able to improve their voices using Alexander Technique.

The cases that Heirich (2011) and Nelson and Blades-Zeller (2002) used to illustrate applications of Alexander Technique and Feldenkrais Method to voice pedagogy are "teaching," rather than "research" case studies. Yin (2009) explained the distinction: "teaching case studies need not be concerned with the rigorous and fair presentation of empirical data; research case studies need to do exactly that" (p. 5). That being said, all three originators of the somatic education methods in this study helpfully described cases of students with whom they worked, and outlined what they did to reeducate each one. These studies presented by Alexander (1984; 1985; 1988), Feldenkrais (1977; 1981), and Hanna (1988; 1993) fit Yin's (2009) description of "teaching case studies."

Alexander (1984; 1985; 1988) recounted his step-by-step lessons with a stutterer, along with a variety of others, illustrating how the ability to change a habit is as much an exercise of changing an attitude as it is learning how to respond volitionally. Feldenkrais' (1977) book, *The Case of Nora* (1977), immerses the reader in an account of his work with a brain-damaged woman, whom Feldenkrais made feel as comfortable and supported as possible so that her body could learn to respond and discriminate between sensations again, without interference from pain and contortion (p. 36). Hanna (1988)

included five case histories to exemplify characteristic somatic reactions indicative of sensory-motor amnesia as the framework through which he outlined the basic concepts of Hanna Somatic Education, arguing that many of the symptoms ascribed to the aging process are merely the result of a preventable (and recoverable) loss of voluntary control over the sensorimotor cortex. Gilman (2014) and Nelson and Blades-Zeller (2002) included cases to show the ways in which somatic education, particularly as it relates to Feldenkrais principles, may be applied to change common habits in singers. In these teaching texts, the mechanism for change, much like that employed in Hanna's somatic exercises and Feldenkrais' Awareness Through Movement exercises, is bringing students' awareness to the sensations of how their instruments move. Though they are highly informative and structured for easy use by teachers, these case studies focus on the pupil, not the teacher.

Research case studies. In contrast to the teaching cases in which the authors recounted their teaching roles and observations of student responses, several researchers placed themselves in the student role as they received somatic education instruction. This design enabled them to recount experiences from the somatic viewpoint. Lewis (1980), Lloyd (1988), and Head (1996) performed case studies focused on the Alexander Technique and voice pedagogy, all documenting their own progress as students in at least one phase of research, and in Lloyd's case, the progress of five of her voice students in a subsequent phase. Reported improvements include reduced tension, easier breathing, a more balanced mind–body connection, more consistent tone quality, and greater confidence while singing. The first-person elements of these accounts are in keeping with the somatic viewpoint, using journal entries as the main source of data. Still, the field of

voice pedagogy must wrestle with the questions these studies raise, such as whether objective data in the form of measurements (as Lloyd used to show thoracic expansion during breathing and compared references points of before-and-after postural alignment) are more valid or useful than thorough accounts of what students perceive as helpful during Alexander Technique lessons (as in Head's two-year journal project), or whether a combination is necessary. Conclusions drawn by these authors as to applications to voice pedagogy were mostly informed by student experiences, and to a lesser degree, the perspectives of the teachers involved. This observation relates to the nature of the present study's design, as described in the next chapter, which focuses on teacher experiences.

Grant (2014) noted that while voice teachers can glean much about their students' learning from reviewing research on the Feldenkrais method and the field of voice pedagogy itself, "Little has been published to date connecting the Feldenkrais Method to singing" (p. 184). The following year, Paparo (2015) published an integrated case study, in which he taught Feldenkrais-based movement lessons in a high school choral class setting. His findings indicated that "Somatic exploration as a part of instruction allowed for the development of singing that was more fully integrated and functionally efficient" (Paparo, 2015, p. 10). Voice teachers interested in somatic education should broaden their research to include studies outside of vocal music. For example, Ohman, Aström, and Malmgren-Olsson's (2011) study, mentioned above, should be considered by voice teachers who wish to assign exercises from the Feldenkrais Method, Hanna Somatic Education, or any other somatic education practice. Their findings raise the question of whether "exercises" are most productively implemented in the manner of an individual student's at-home practice schedule, or only with careful guidance at a lesser frequency.

Despite the difficulty subjects found performing Feldenkrais-based exercises on their own, Ohman, Aström and Malmgren-Olsson's (2011) subjects reported overall positive outcomes, commenting on the somatic education principle of training for ongoing self-improvement:

> Even though they expressed a feeling of dependence on the group leader, they also felt that the Feldenkrais pedagogy could reduce dependence on formal health care in the long run. If it would be possible to retain what they had learned from the training, it would be a help to self-help, they felt. This might result in changes in behaviour that could facilitate better self-care and thereby increased well-being, both physically and mentally. (p. 157)

Since Hanna Somatic Education—more so than Alexander Technique and Feldenkrais Method—relies on a daily regimen of exercises, credentialed practitioners are called "Hanna Somatic Exercises Coaches." Future research into whether these exercises are useful to singers when embedded into their daily vocal warm-up routine, during voice lesson exercises, used separately from singing, or in another integrated plan should be considered.

Suggestions for Research in Somatic Education Principles and Voice Pedagogy

Overarching principles of somatic education are present in the disciplines of Alexander Technique, Feldenkrais Method, and Hanna Somatic Education (Hanna, 1990). These three disciplines are of a lineage within the field of Somatics that reeducates students in the conscious, efficient use of their somas, in everyday and specialized activities, by training students' sensory awareness to develop a complete somatic understanding of how they use and organize themselves in movement (Allison, 1999; Eddy, 2009). Since the human soma itself is the singer's instrument, the implications of acquiring increased awareness and control of the soma warrant further study.

While some historical and theoretical research compares multiple somatic education disciplines in terms of their fundamental principles (Johnson, 1986; Mangione, 1993; Mullan, 2014) and possible applications to voice pedagogy (Neely, 2012), there is a lack of empirical literature that situates the somatic education principles of the Alexander Technique, Feldenkrais Method, and Hanna Somatic Education in the context of voice lessons, as well as a lack of research on voice teachers' experience in these contexts. Such experience encompasses teachers' own somatic perspectives of singing, the way they employ somatic empathy to evaluate their students' singing, and their mind–body experience as it informs their instruction in the moment.

According to Hudson (2002b), "relatively little scholarly research about how the technique can be incorporated into the teaching of singing has been done by certified Alexander Technique teachers who are also professional voice teachers" (p. 105), which is curious considering several studies indicate that interest and even some prerequisite knowledge for that topic is present in the field. For example, survey research results generally support the notion that voice teachers who are informed about the Alexander Technique identify the most problematic areas of tension in the body differently than those who are less informed (Lewis, 1980), and that the majority of voice teachers employed at universities that offer Alexander Technique in some form recommend it as a supplement to voice training (Zipperer, 1991). Head (1996) proposed that Alexander's lack of knowledge about singing-specific voice use, coupled with concerns about transferring decontextualized Alexander Technique skills to the voice studio, are reasons why additional cross-disciplinary studies would be useful. Head (1996) also called for more research on the "discussion of how the parallel principles of singing pedagogy and

Alexander Technique are to be carried out" (p. 35), as well as for a broader base of case studies to be conducted. She recommended that more voice teachers conduct this research so that it can be shared within the voice pedagogy community and advance the implementation of the technique in studios. Additionally, there is a need (though perhaps not the same level of "buzz" amongst voice teachers) for similar research in the Feldenkrais Method and Hanna Somatic Education.

In a recommendation that makes sense for teachers of any of the three somatic education methods in this study, Lloyd (1988) suggested that Alexander Technique teachers collaborate with voice teachers, working in concert to help students they can share for complementary benefit. If the Alexander (or Feldenkrais or Hanna Somatics) teacher in that arrangement took voice lessons, and the voice teacher took Alexander Technique lessons, both would be even more informed about the students' experience and better equipped to derive relevant knowledge from their own. The ideal, following this reasoning and Lloyd's (1988) recommendation, is for these teachers to be one and the same—for voice teachers to also be qualified in Alexander Technique, the Feldenkrais Method, or Hanna Somatic Education.

While the present study examines cases with this dual somatic educator/voice teacher designation, such teachers were observed teaching voice lessons only—not distinctly separate, non-singing somatic education sessions. Research could not be located that studied such educators teaching both voice and somatic education lessons to the same students (in other words, a scenario in which a voice student takes a Feldenkrais lesson from her voice teacher on Tuesdays and has a voice lesson with the same teacher on Fridays). It would be useful to explore these and other combinations of training,

methods of inquiry, and modes of instruction from the perspectives of students and teachers of voice and/or somatic education. Such research may assist in the development of research-based, somatic best practices for use in the voice studio to the benefit of the field of voice pedagogy at large.

This study goes beyond theoretical speculation as to how somatic education principles *might* be applied (such as the case of Juli presented in Chapter I) by providing in-depth descriptions of what professional voice teachers with backgrounds in somatic education are *doing*. It fills a gap in the research by exploring possible realizations of Hanna Somatic Education practices as they relate to the teaching of singing. Furthermore, this study aimed to provide a needed body of inquiry into three different disciplines of somatic education in the voice studio. Finally, by reconstructing somatic-education-trained voice teachers' experiences of their own somatic education and singing, and the meanings somatic education principles hold for them and manifest in their voice studios, this study begins to uncover the "how" of an integrative approach to teaching voice lessons.

Chapter III: METHODS

Introduction

In order to examine the ways in which principles of somatic education may be applied to voice pedagogy, a multiple case study was conducted of three voice teachers, each of whom are also trained in teaching the Alexander Technique, Feldenkrais Method, or Hanna Somatic Education. By interviewing and observing voice teachers with somatic education backgrounds, I aimed to better understand how these teachers individualize or generalize somatic education principles with different voice students, to compare and contrast the ways in which they draw from somatic education methods during voice lessons, and to discover how their specialties in both the fields of voice pedagogy and somatic education shape their approaches and experiences.

Theoretical Background

My research stems from a constructivist worldview, from which I investigated and interpreted the meanings that somatic education principles and voice pedagogy hold for voice teachers in their teaching environments. Creswell (2014) stated that the researcher operating from the constructivist worldview should acknowledge his or her own perspectives in addition to those of the participants:

> Researchers recognize that their own backgrounds shape their interpretation, and they position themselves in the research to acknowledge how their interpretation flows from their personal, cultural, and historical experiences. The researcher's intent is to make sense of (or interpret) the meanings others have about the world. (p. 8)

This aspect of the constructivist worldview is also evident in Guba and Lincoln's (1994) description of the constructivist researcher, who is "actively engaged in facilitating the 'multi-voice' reconstruction of his or her own construction as well as those of all other participants" (p. 115). This idea is consistent with the design and aims

of this study. Head (1996) employed a "combined voices" approach as she simultaneously analyzed writings on the Alexander Technique and singing while documenting her own Alexander lessons and voice lessons in a journal for over a year (p. 5). While I did not take voice lessons from the participants in this study, I combined my personal observations and reactions with my analysis of the literature and the data collected. The combined first-person accounts that my participants and I reconstructed paint a more detailed picture of the cases than would have been generated had I reported data from my perspective alone. Specifically, I have reconstructed the experiences of three professional voice teacher participants who are also practitioners of three different disciplines of somatic education to better understand the meaning of this dual specialty in the context of voice lessons.

The Somatic Viewpoint

I observed and interviewed participants through the lens of my somatic viewpoint, described by Hanna (1986), as "the body as perceived from within by first-person perception" (p. 4). This does not mean that my data contain my personal experiences alone. It means that I attempted to understand teachers' and students' somatic knowledge in context. Consideration of the somatic viewpoint can address the inherent tensions of observing participants from a third-person perspective by meaningfully reconstructing their inner knowledge and subjective experiences, as well as those of the researcher. Subjective, somatic knowledge is not necessarily less truthful. In fact, somatic knowing is useful when non-judgmental (Feldenkrais, 1981; Cheever, 2000), so that one can explore one's responses and embodied actions in the moment to make note of patterns and differences (Joly, 2004), which can then enable one to build on somatic information to

move mindfully and with greater ease and efficiency. In other words, somatic knowing is a practice of self-knowledge.

By employing a case study design and constructivist worldview, the researcher was able to acknowledge both first-person and third-person perspectives, which Hanna (1990) contended are "co-equal" (as are the mind and body in the soma). For example, in this case study, I have provided extensive, objective descriptions open to readers' subjective interpretation. However, as the somatic perspective is one of first-person holistic experience from within, the reflexive aspects of my data (including my field notes, journal, analysis and discussion sections) played an important role as I noted my thoughts and feelings during lesson observations and interviews, compared my somatic reactions and first-person perspective of my participants' subjective experiences, and recounted the study in a manner that includes these multiple viewpoints. Hanna (1977) referred to a bimodal perspective in which "each of us is both I and it, both function and structure, both a first-person observer of ourselves and a third-person observer of everyone else's 'bodies'" (p. 52). From this perspective, I was able to provide more complete and authentic information. Hanna (1986) explained:

> The somatic viewpoint complements and completes the scientific view of the human being, making it possible to have an authentic science that recognizes the whole human: the self-aware, self-responsible side as well as the externally observable "bodily" side…By completing a viewpoint of human beings that has, for so long, suffered from incompleteness, we will set foot on a new continent of human advancement. (p. 21)

Reflexivity enabled me to reconcile the somatic viewpoint with my methodology because it involved "a conscious experiencing of the self as both inquirer and respondent, as teacher and learner, as the one coming to know the self within the processes of research itself" (Guba, Lincoln, & Lynham, 2018, p. 143).

From the somatic perspective, voice lesson observations examined how teachers' and students' somatic knowledge is communicated, exchanged, formed, facilitated, observed, and evaluated. My aim was to ascertain the ways this relationship may be manifested during voice lessons, and whether my perception of these occurrences matched the teachers' and students' experiences as expressed in the interviews.

Overall Approach

A qualitative multiple case study (Yin, 2009) was performed using semistructured interviews with professional voice teachers, each of whom is certified in one of the three somatic education disciplines under investigation: the Alexander Technique, the Feldenkrais Method, or Hanna Somatic Education. The focus of the case was each teacher's practice as a professional voice teacher and her application of somatic education principles broadly, and of each teacher's particular somatic education discipline (Alexander Technique, Feldenkrais Method, or Hanna Somatic Education) specifically. As the area of interest in this multiple case study was on the professional voice teachers' practices, the research relied upon interview and observation data.

Site and Participant Selection

The three participants in this study were selected using a convenience sample, however, as in a purposive sample, participants met specific criteria. Site selection was entirely determined by participants' teaching-schedule-specific studio locations.

Participant Selection

The sampling method for this study constituted convenience sampling because the researcher met the participants previously and knew they met the two criteria for inclusion: Each is a professional voice teacher and has a certification in the Alexander

Technique, the Feldenkrais Method, or Hanna Somatic Education. Since participants met certain criteria for inclusion, this sample can also be described as purposive. Directories for the American Society for the Alexander Technique directory, the Feldenkrais Guild, the Association for Hanna Somatic Education, and the National Association of Teachers of Singing confirmed the participants met the criteria stated above.

The sample included three participants (voice teachers with somatic education certification). All three of the teacher participants satisfied the requirements of the purposive sample by meeting the two criteria specified above. Furthermore, since the participants are searchable in the aforementioned directories, I was able to ascertain their status as voice teachers and certified practitioners remotely. For these reasons, it is reasonable to state that bias played a minimal role in participant selection.

Participant and Context Description

The three participants are all professional voice teachers who hold a teaching certification in Alexander Technique, Feldenkrais Method, or Hanna Somatic Education. While I met the participants previously, I did not observe them teaching private voice lessons until conducting the data collection procedures for this study.

Alexander Technique case. This voice teacher, who is also a practitioner of the Alexander Technique, was observed at her private studio in a suburban town in the Northeast. She also teaches at a nearby university. She has been a music educator for 30 years, has a graduate certification from the American Center for the Alexander Technique, and is an AmSAT-certified Teacher of Alexander Technique. I first met her after using the AmSAT directory to find a local Alexander Technique teacher who could give a presentation to my high school students.

Feldenkrais Method case. This voice teacher, who is also a practitioner of the Feldenkrais Method, teaches out of her private in-home voice studio in a major East Coast city. She has been a Guild-Certified Feldenkrais Practitioner for 26 years. I first met her after searching for a Feldenkrais teacher with an understanding of voice who I could consult about my chronic pain. She answered my questions and recommended books I might find useful, but we did not have a lesson.

Hanna Somatic Education case. This voice teacher, who is also a Hanna Somatic Educator, is also an opera singer, and has been a certified Level-1 Hanna Somatic Exercise Coach for five years. She teaches out of her voice studio at a university in the Midwest. I first met this teacher when we were in an opera chorus together in 2014, shortly before she moved there from the East Coast.

Data Collection

Of interest to this study were the ways in which professional voice teachers who are certified in the somatic education disciplines of the Alexander Technique, Feldenkrais Method, or Hanna Somatic Education incorporate somatic principles into their pedagogical approaches. One of the main types of data include the perspectives of each of three professional voice teachers with certification in one of the somatic disciplines mentioned above. Teacher perspectives were obtained through a series of semistructured interviews in the form of audio-recordings, field notes, and transcripts.

The other type of data represents the pedagogical practices of these participants, derived from direct observation of their teaching in voice lessons. This data was gathered in the form of video-recording and field notes. Teachers were observed teaching four lessons, each between 50-60 minutes in duration, at their private or institutional studio

sites. The instrument of audio and video recording was my laptop, with a ZOOM handy microphone/camcorder as backup. In addition to field notes, recorded interviews, lesson videos, and transcripts, the researcher kept a reflexive journal throughout the study to supplement objective accounts of each case with subjective reactions and responses.

At each site, four adult (over 18 years of age) voice students served as additional informants, observed during one of their voice lessons, after which one student per site also participated in a 30-minute interview. Each teacher recommended to which students I sent consent forms, and secured at least one student to be interviewed after his/her lesson. All four students at the Alexander Technique site were observed on the same day, and the student interview at that site took place immediately following that student's lesson. All four students at the Hanna Somatic Education site were observed on the same day; and the student interview took place one week later. The observations at the Feldenkrais Method site took place on three separate dates, the first of which included two voice lessons. The Feldenkrais Method student interview was held two days after his lesson was observed. A flexible protocol was used in the student interviews, so that questions could be asked as they emerged from the individualized content of each voice lesson (see Appendix B).

Each teacher was interviewed three times, as recommended by Seidman (2006), so that teachers could reconstruct past experiences that lead them to their current careers as somatic educators and voice teachers, comment on their present experience in those roles, and speculate as to what somatic education and voice pedagogy holds for them in the future. The planned interview duration was approximately one hour, but these times varied depending on the number of emergent follow-up questions and the length of

teacher responses. Interviews were conducted beginning in July, 2017 after IRB and committee approval was obtained. A general observation protocol was used in all voice lessons observed (see Appendix C).

A semistructured interview approach enabled me to cover themes of interest with each teacher, while allowing for follow-up questions that arose from their responses (Kvale, 1996). A flexible interview protocol was necessary, therefore, so that questions asked of all participants could be balanced by emergent questions that were context or case-specific (see Appendix D). Each section of the protocol for the first, second and third teacher interviews differed in content because they were designed to be used before observations, after observations, and after transcript review. The first two interview protocols utilized reflective questions to enable participants to reconstruct their experiences, while the third interview protocol was more open-ended to allow teachers to provide any additional data they felt was not covered previously (see Seidman, 2006).

Teacher interviews began either the day of voice lesson observations, as was the case at the Alexander Technique site, or the day before observations, as was the case at the Feldenkrais Method and Hanna Somatic Education sites. The second teacher interviews took place approximately one week after the observations were conducted to clarify emergent questions about the voice lessons. The third interview was held approximately two weeks after the second so that teacher participants had time to review and comment on the transcripts of their prior interviews. The participants were then sent the transcripts of their final interviews, along with the transcripts of the voice lesson observations, so that they had the opportunity to comment or clarify. This differed slightly from the original plan, which was to send the voice lesson transcripts (in addition

to interview transcripts) prior to the third interview. However, in order to maintain the spacing of the interview/lesson schedule, and due to the length of the thick descriptions (approximately 60 single-spaced pages of description per site), it was decided that teachers would be sent the voice lesson transcripts with longer time allotted for review. Two teachers provided feedback on these transmitted documents while one teacher declined to provide any additional feedback.

Trustworthiness

Guba and Lincoln (1985) proposed "trustworthiness" as the qualitative equivalent to validity (p. 289). Gómez and Bolster (1988) explained that subjective knowledge has been viewed as insufficient data to validate claims of efficacy in somatic practices, often because the discovery of these practices occurred during activities of self-exploration in efforts to recover from illness or injury. While it was neither the researcher's intention to validate or invalidate subjective knowledge, a variety of measures was taken to ensure the trustworthiness of the findings. More specifically, triangulation and member-checking established "credibility," thick description supported "applicability," and reflexivity promoted "confirmability" (Guba & Lincoln, 1985, pp. 206–299).

Triangulation

The data collection procedure of this study supported credibility by reviewing data at different points in time and by analyzing different data sources. Each participant was interviewed three times and observed teaching four different voice lessons. The use of a series of interviews over time helped reduce the effects of extraneous circumstances that could influence participants' moods, attitudes, and behavior (Seidman, 2006). The observation of voice lessons with four different students per site reduced the impact of

any single student on the overall case description. Furthermore, interviews with students were compared with the participants' second interview, which covered the observed lessons, and both of these accounts were checked against recordings and field notes. Each student interview took place prior to his/her next voice lesson, reducing the likelihood that "history" (Campbell & Stanley, 1963) adversely affected memory and the ability to speak specifically about the observed lesson, which would potentially decrease credibility.

Another threat to credibility (also known as internal validity) is the possible presence of the Observer Effect, which "occurs when people being observed behave differently just because they are being observed" (Ary, Jacobs, Sorenson & Walker, 2013, p. 236). This may have influenced the behavior of the voice teachers or students during observed voice lessons; however, since the context of the lesson and teacher-student relationship were pre-established, the teacher and students had an ongoing routine that may have helped them to proceed as usual. Furthermore, voice teachers and students are often accustomed to studio class and masterclass contexts in which their interactions are observed by an audience, which may have made the presence of the researcher less unnerving. While the impact of the researcher's presence on each observed lesson could not be entirely mitigated, the researcher did not initiate interaction with the student or teacher during the lesson, and set up recording equipment and notes in advance to minimize distracting movements or sounds.

Thick Description

Thick description of each participant, case, and site was used to illustrate the study's context as fully as possible (Geertz, 1973). Sufficient information about the

context has been provided to help inform readers as to the specifics of the individual case and the potential applicability of that particular case to other contexts (Guba & Lincoln, 1985). Use of thick description was particularly important to partially compensate for the inadequacy of third-person interpretations of first-person somatic experiences.

Member Checking

Throughout data collection, the researcher asked participants for clarification or elaboration on their interview responses or of the meaning of the actions observed in voice lessons. After data collection, transcripts were emailed for participants' review and comment to help reconcile the researcher's interpretation with participants' meanings. This use of member-checking was intended to avoid misinterpretation of interview and lesson observation data (Sandelowski, in Given, 2008). The cases were given transcripts of the interviews and observations for review so that they had the opportunity to clarify any statements that they felt did not accurately represent their perspectives, or errors in transcription such as a misheard song title or instruction.

Reflexive Journal

As previously mentioned, a reflexive journal was maintained during and after the data collection process to document the researcher's perspective of the lessons and interviews. It is here that the researcher draws from personal experiences to interpret new information through her own somatic viewpoint. To a certain extent, researcher bias may have been mitigated by reflexive journaling, which documented personal preconceptions, expectations, and interpretations as they developed throughout the study (Ortlipp, 2008).

Clarification of Bias

Selection bias is a possible threat to applicability (also known as external validity); however, as described in the Participant Selection section, the participants' certifications in the Alexander Technique, Feldenkrais Method, or Hanna Somatic Education demonstrate that each underwent a standard course of study as required of all certified practitioners. Obtaining additional data on the participants' background in both somatic education and voice pedagogy, particularly in the first interview, assisted in determining the extent to which the findings of this study can be applied elsewhere. Since the teacher participants designated the additional student informants, *researcher* bias due to race, class, gender, etc., did not affect their selection. However, the researcher had no control over the extent to which participants' bias affected the selection of additional informants.

As described in Chapter I, I have found somatic practices to be helpful in my efforts to improve *my* voice use, despite limitations from injuries and pain. Since my initial experiences with Alexander Technique, Feldenkrais Method, and Hanna Somatic Education were positive, my preconceptions may have shaped my interpretation of what I observed in the voice lessons. To reduce the impact of this potential source of bias, data was gathered from multiple perspectives in the form of both student and teacher interviews. Objective data sources such as audio recordings, video recordings, and transcripts of interviews and observations were reviewed to balance the subjective meanings that the participants and researcher constructed.

Confidentiality

In order to maintain confidentiality, participants' names and other identifiers were stored in the contacts list of a password-protected email account. In all other documentation, labels and pseudonyms were used (as described in the Labels and Pseudonyms subsection below). The sites of interviews and observations have been generalized so that they cannot be used to ascertain the identity of the participants. In accordance with IRB procedures, all participants received and signed informed consent letters (see Appendices E, F, and G) appropriate to their level of participation in the project. Letters were sent as attachments to introductory emails to students and teachers, and the email messages are available in Appendices H and I.

Interviews with the participants and additional informants were audio-recorded for the purpose of transcription. The voice lessons were video-recorded due to the physical and non-verbal nature of somatic strategies in case they were manifest in the voice lessons. Recording files were password-protected and deleted after the completion of study procedures. All procedures in this study have been approved by the Rutgers University Institutional Review Board Process (see IRB approval letter in Appendix J).

Data Storage

To maintain confidentiality during data collection and to minimize subject risk, the researcher personally transcribed the audio and video recordings from interviews and lesson observations, after which said transcripts were stored in a password-protected computer file. Personal information and recordings were also stored in a password-protected computer file, and destroyed after completion of the study procedures.

Labels and Pseudonyms

Confidentiality was also safeguarded during data collection by replacing participant names with labels and by generalizing locations. Teacher labels in field notes and corresponding pseudonyms in the discussion section were assigned as follows:

Teacher AT= Alexander Technique-certified voice teacher; a.k.a. "Victoria"

Teacher FM= Feldenkrais Method-certified voice teacher; a.k.a "Mary"

Teacher HSE= Hanna Somatic Education-certified voice teacher; a.k.a. "Caitlyn"

Labels were used for participating voice students as follows, numbered in the chronological order of the lessons observed. Pseudonyms were assigned to additional informants once identified:

Student AT 1, 2, 3, 4= 1st, 2nd, 3rd, and 4th of Teacher AT's students

Student FM 1, 2, 3, 4= 1st, 2nd, 3rd, and 4th of Teacher FM's students

Student HSE 1, 2, 3, 4= 1st, 2nd, 3rd, and 4th of Teacher HSE's students

References to studio locations were generalized and labeled "Site AT," "Site FM," and "Site HSE." The labeling procedures, along with data storage information, are explained in the appended informed consent letters (see Appendices E, F, and G).

Analysis

According to Creswell (2014), case study research analyzes thorough descriptions of the case, setting, and other data by identifying themes. These themes were emergent, as observable manifestations of somatic principles were not known prior to data collection. Patterns and themes from observation and interview data revealed ways professional voice teachers used somatic education principles in the context of voice

lessons. Codes for the somatic principles were used in the analysis; as well as codes for emergent patterns and themes.

Qualitative data was obtained from interviews and direct observation. These data included field notes and video-recordings of the observed voice lessons, audio-recordings from interviews, transcripts of video and audio recordings, and the researcher's reflexive journal. Data was collected between July and October 2017, beginning with Teacher AT due to scheduling needs. Data from the first interview and voice lesson observations was transcribed, reviewed, and coded prior to the second interview at each site so that subsequent interviews could be informed by emergent themes. Interview data from the second interview was transcribed prior to the third for ongoing coding and to connect follow-up questions to applicable data. Emergent questions, therefore, were added to the third interview protocol as field notes, transcriptions and the reflexive journal were reviewed. The transcripts of the first two interviews were sent to the teachers prior to the third interview for teacher feedback, which partially informed the questions asked during that final interview. Student interview transcripts were sent to additional informants within one week for comment and clarification. The transcript of the third teacher interview and transcripts of voice lesson observations were sent to the voice teachers for review and comment as well.

The next chapter begins with a description of the teachers and students I observed, as well as the teaching contexts in which I observed them. Interview data was collected either at these sites or remotely, but all voice lesson observations were conducted in person. Participants are introduced in chronological order of when data collection began with each teacher. There was some overlap in the interview phase of the study, as

Alexander Technique data was collected between late July and early August, Feldenkrais Technique data between late August and early-September, and Hanna Somatic Education data between late September and early October 2017. There are two results chapters; the first presents the within-case themes and the second the cross-case themes.

Chapter IV: WITHIN-CASE FINDINGS

The purpose of this study was to examine the ways in which principles of somatic education may be applied to voice pedagogy, specifically within the three approaches of the Alexander Technique, the Feldenkrais Method and Hanna Somatic Education. It is important to remember that the participants in this study are voice teachers who are also certified in one of the three somatic techniques investigated and thus their practices blur the lines between vocal pedagogy and therapeutic practices. This chapter begins with a description of each teacher and her practice, followed by the within-case themes that emerged from my analysis.

Alexander Technique: Victoria's Practice

Victoria[1] has been teaching voice for 31 years and Alexander Technique for 23 years. Just as F.M. Alexander developed the Alexander Technique in response to his recurring laryngitis, Victoria found her way to Alexander Technique after seeking out a way to resolve hers:

> I started with the speech therapy, which didn't do a whole lot. I went back to my [voice] teacher and he said "Well, you're a little bit better, but your body doesn't get it. You need to go see this woman in New York who's an Alexander Teacher." And I started taking lessons with [her] […]. Then I decided to train, because I was getting better without anything but that. I decided I wanted to be able to do it myself, and I wanted to finish learning how to take care of myself, and I thought, "gee, teaching it is the icing on the cake!" I already have the piano and the voice, so if I can impart and integrate this knowledge for other people the way I'm integrating it myself, there's no better way to be. Because at the same time that I teach, I have to pay attention to what I do. I was so blown away by what it did for me, in so many ways I thought, "there's a lot of *me*s out there who have similar habits that I can really send on a better path than I took." (Interview, 7/18/17)

On the day I visit her studio, Victoria meets me on the sidewalk outside of her studio. She is dressed comfortably, wearing a tie-dyed tee shirt and casual capri pants, her

[1] All participant names and the names of their students are pseudonyms.

brown shoulder-length hair pulled back half up and out of her face. Behind her, two separate business names are printed on the door: first, her name appears with the words "music studio," and then it is listed a second time along with "The Alexander Technique" and her certification credential. Victoria's business is displayed this way because she offers two different services from this location: Alexander lessons and music lessons.

Victoria leads the way through her waiting room into the room that serves as her Alexander Technique teaching space, with an entryway to the immediate right that leads into her adjoining voice and piano studio. The configuration of Victoria's music and Alexander rooms allow her to close the outer door leading into the waiting room while keeping her suite open. Victoria explains this arrangement during our first interview when I ask how she came to teach in the context in which I would be observing:

> I needed the space for my Alexander practice. It was the best thing I ever did. […] I needed a place to put that part of my practice separate from the music because it is not a musical technique. It is a technique of its own that can branch into anything […], so I have my separate room where I do that, and if I need to branch through the two, I have my doorway here where I can integrate my practice […]. (Interview, 7/18/17)

Victoria's Alexander Technique room includes a mirror-paneled wall, a padded table for tablework, visual aids such as a skeleton and posters, and training tools such as resistance bands, stability balls, and a balance board. Since Alexander lessons tend to cover simple activities such as moving from sitting to standing or walking, stools and chairs of various heights are within reach throughout the space.

Most of my time is spent in the adjacent voice and piano studio. Victoria sits at an upright piano, which faces the wall on the left side of the room, while her students stand a few steps inside the doorway. A few photos are strategically placed on the wall across from where students stand, so that Victoria can say, "head's up to the [photo of the] kitty" or "sing to the bridge [photo]," causing students to lift their heads instead of looking

down at her. Boxes of various heights that sit by the window are placed under the music stand so that her taller students do not need to look down at their sheet music. These are two examples of simple tools Victoria uses in voice lessons that are influenced by her Alexander practice.

Victoria only explicitly mentions the Alexander Technique to the students with whom she has worked in both voice and Alexander lesson contexts. Victoria describes this overlap as relatively commonplace in her practice:

> The voice students who come in, because they're here for voice lessons; they're not here for an Alexander lesson. Most of my adults…come in with Alexander [lessons] first, then they branch out to voice, or they ask me if I can please work with both because they've seen me in both settings. (Interview, 7/18/17)

The table below presents the students observed during my time with Victoria, including whether they have taken Alexander lessons in addition to voice lessons.

Table 1

Student Characteristics at Site AT

Label & Pseudonym	AT Lessons	Occupation	Physical Description
Student AT 1: Rochelle	No	Undergrad music therapy major, flute primary, voice secondary	Caucasian, petite, full-figured, with dark curly hair in a tight bun on the back of her head. Wears thick black plastic-framed glasses, thin tattoo-style choker, a long-sleeved purple cardigan and knee-length black dress.
Student AT 2: Natalie	Yes	Undergrad music major, clarinet primary, voice secondary	Caucasian, average height and build, with dark brown, chin-length curly hair. Wears maroon glasses, a white, pink and blue plaid button-down shirt and jeans.
Student AT 3: Jessica[a]	Yes	Retired secretary	Caucasian, tall, fit, with short dark hair cut short on the sides with longer, spikey blond hair on top. Wears a fitted, sleeveless black blouse, green cargo pants, large silver hoop earrings, and sometimes a pair of hot-pink reading glasses.
Student AT 4: Elizabeth	No	Engineer	Caucasian, tall, with shoulder-length, gray hair parted on the side, with a hair clip keeping the long side off her face. Wears wire-rimmed glasses and a knee-length, pink floral sleeveless dress over a short-sleeve white cotton blouse.

[a]Participated in an interview

Natalie and Jessica each took Alexander lessons with Victoria prior to taking voice lessons with her, while Rochelle and Elizabeth have come to Victoria solely for voice lessons. Jessica continues to alternate weekly between taking voice and Alexander lessons with Victoria, whereas Natalie's voice lessons have become a hybrid format in which Victoria brings tactile and kinesthetic aids from the Alexander room into the music studio to help build Natalie's proprioceptive abilities.

The two main ways Victoria's practice exemplifies Alexander Technique are: 1) that she prioritizes the relationship between head, neck and upper back, which Alexander teachers call the primary control, and 2) her use of guiding orders, which Alexander teachers use as the means-whereby their students overcome habits or poor voice/whole-body use, replacing these habits with reliable, coordinated patterns. Almost every element—the photos on the wall, the boxes underneath music stands, the way Victoria uses her hands to cue breaths, the way she directs students' attention, and the content of her verbal feedback—is designed, essentially, to keep students' heads up and torsos tall and energized.

Use, Voice, and the Primary Control

Victoria employs the approaches above to cultivate overall good use in her students, while singing and performing daily activities. Use, in Alexander Technique, refers to the way the human instrument is coordinated in performing any particular action. When F. M. Alexander's doctor found nothing pathologically abnormal about his vocal folds, Alexander realized that the way he used himself while speaking was causing his chronic laryngitis. In the process of exploring his habit of pulling his head backward and downward and sucking in air, he realized that allowing his head to move forward and

upward instead unlocked a mechanism through which breathing, phonation, and all human activity can be made more efficient—what he called the "primary control"—which refers to the dynamic relationship between the head, neck, and upper back.

Singing sets up good use. Victoria, a longtime teacher of singing and Alexander Technique, has discovered that the habits of good use she learned from singing specifically reinforce her use generally. In fact, she finds it helpful to start her day with a singing vocal warm-up routine even on days she plans to teach only Alexander lessons. Victoria explains that this is because singing improves her awareness of her primary control, in which the coordination of the head, neck, and upper back initiates efficient movement:

> My Alexander teaching and my awareness of my head-neck relationship is heightened because of my singing. So, […] before I teach an Alexander lesson, I try to vocalize for 10-15 minutes […], because it gives me a way to tell what's going on in my use […] better than anything else. And that awareness stays with me then, usually, during the morning when […] I'll have three or four Alexander students without anybody singing, but my warm-up for myself is vocalizing through that 15 minutes. Because in our work, it's all about freedom in the head and neck. And in the voice, it's all about freedom in the head and neck, so I find that my singing really sets up my stage for Alexander teaching. (Interview, 8/8/17)

Victoria's awareness of her primary control is activated by integrated singing patterns, which continuously inform her instruction as she attempts to build those patterns in her students. According to Victoria, when the primary control is working properly, singing, along with all other movements, is made more efficient.

> We already have the head-neck relationship established the second I go to sing something, […] even when I'm teaching a voice student, I can loosen my back easier. I can get the rest of my nervous system going easier from addressing it from the standpoint of singing, whether or not it's going into an Alexander lesson or going into a voice lesson. […] Working with someone in that sense so that I'm automatically addressing, for example, "what are my feet doing?" "What are my legs doing?" (Interview, 8/8/17)

Some of the above questions that Victoria asks herself, such as "what are my feet doing," are similar to questions she asks of her voice students during lessons, such as "Where's your head?" Wording her feedback in the form of questions like these places the responsibility on the student to feel what is going on instead of being told what seems to be going on—essentially, it directs awareness to the primary control and trains students to notice habitual patterns without fixating on how they sound.

Coaching on use, not sound. While Victoria came to study the Alexander Technique because of vocal difficulties, she also had a history of pain while playing piano. During her Alexander training, Victoria studied with two Alexander teachers who worked with her on her use while she played piano. One of these Alexander teachers was also a musician; the other was not. Victoria described difference between studying piano with an Alexander teacher who was not a music teacher and studying with an Alexander teacher who was.

> …I'm glad I took the "somebody who wasn't" first because it didn't matter how I played. The self-judgment was much less. The musicians would know what I was up to musically, so they would also approach things from a musical standpoint, which I don't think I would have been ready to manage if I had done that first. […] So they don't have to tell you what the outcome should be, which is not what the Technique is anyway. It's all process. (Interview, 7/18/17)

Victoria found it useful to study with an Alexander teacher who, although she saw Victoria play piano, was not a musician herself, because it allowed Victoria to be less self-critical and worry less about being corrected on technique so that she was more receptive to physical feedback. She knew the teacher did not have a known musical outcome in mind, and simply met her where her use was during that particular session. Victoria's description of her own approach to teaching, even though she is both an

Alexander Technique teacher and musician, reflects the use-based approach she once found helpful as a student:

> I don't really say "sound like this or that." […] I don't really tell them, I don't use myself of an example of tone. […] I'll sing something back to them and if they can't find it, I'll try to mimic two different qualities for them. (Interview, 7/18/17)

What Victoria does instead of modeling tone is teach students how to improve their use while singing by giving them tools that resemble the Alexander Technique concepts called the means-whereby and guiding orders.

The Means-whereby: Guiding Orders, Cues and Movements

Alexander's guiding orders relate to Victoria's instructions during voice lessons because they promote the optimal functioning of the primary control, when she iterates and reiterates instructions to students between each exercise or between the phrases of a song. This feedback is ongoing, such that Victoria keeps playing the piano while her students try out the instructions and feel the difference as they make the adjustments to their bodies while singing. Guiding orders, or sending directions, are the means-whereby the primary control is activated, and are used regularly in Victoria's voice practice.

Verbally cued "means-whereby." Victoria's most commonly used instructions, though related to the head and neck relationship like Alexander's guiding orders, have been modified into her own words. These include "put your head on," "release tall," and "head's up," and may also be presented in the form of guiding questions such as "is your head balanced at the top of your spine? Are you leaning to one side? Is your chin in the air? Are the eyes on the back of your head looking at the ground?" These questions align with one of Alexander's main guiding orders, to "allow the head move forward and up," an action dependent on his two other guiding orders: "let the neck be free" and "allow the back to lengthen and widen."

Changes in the alignment of the neck and position of the head directly affect the configuration of the vocal tract, so the activities and feedback Victoria crafts prioritize these conditions. For example, Victoria connects Jessica's Alexander lessons to her voice lesson on the day I observe when she instructs her to allow her head to move while singing. Jessica slowly turns her head from side to side. Victoria explains the reference at a subsequent interview:

> I had her in an Alexander lesson about two weeks ago, and I said, "well, we're gonna work with your head turning on top of your spine, but you're gonna sing while you do it." So we sing at the Alexander lesson every once in a while, too. (Interview, 7/24/17)

Jessica found that by giving her head permission to move atop her spine, muscles on the anterior of her neck released, integrating into a pattern of natural inhalation (what Victoria calls a "reflex breath") and easy onset. Jessica's account below is an example of how, during a voice lesson with Victoria, she is able to describe what she feels when enabling a natural breath, how she reacts habitually to the feeling of less control, and how she applies an action she tried in her Alexander lesson to integrate a sense of freedom during singing:

> But there were moments, I could tell, when I let the breath come in, and just let that happen. Then it works so easily, and my brain was going, "alright, I can tell things are just getting a little," she gestures with tense splayed hands, fingers doubly bent into claws, "you know, just try not doing that and see what happens"…because the nervous system is going, "if you let go of all that stuff, you're not going to be able to sing!" But then I just moved my head a little and said "just try letting go" and then it works. (Interview, 7/18/17)

Victoria asks students to maintain freedom in the muscles of their necks (relating to the order "let the neck be free"), a sense of "growing taller" through the top of their heads (related to the order: "allow the head to move forward and up"), and an easing upward to lengthen the spine cued by phrases such as "release tall." A distinctive theme in Victoria's process is the way she encourages support and alignment using energy and

muscle tone. Muscle "tone" refers to a passive state of constant partial contraction of postural muscles that enable us to stay upright against gravity. In Rochelle's lesson, Victoria coaches her to stay tall and to engage her "abs" and back muscles without contracting surrounding muscles:[2]

> **Victoria:** "Good, but are your abs still staying toned toward the top note?"
> *Rochelle nods.*
> **Victoria:** "Cool."
> *Rochelle continues singing the warm-up exercise while Victoria coaches between repetitions:*
> **Victoria:** "That's a girl. Breathe tall."
> *Rochelle sings three repetitions.*
> **Victoria:** "Up on your toes, use the music stand if you need for balance. And, releasing in your seat," *she points to own glutes*, "and in your hamstrings." *As she plays the next chord, Rochelle comes down off her toes.*
> **Victoria:** "Oh no, stay there for a second."
> *Rochelle sings two repetitions on her toes.*
> **Victoria:** "Now, do you have a sense of tone in your spine?"
> **Rochelle:** "Mm-hmm."
> **Victoria:** "Lower your heels, keep the tone in your back." (Voice lesson, 7/18/17)

By having Rochelle come up from singing with feet flat on the floor to singing on her toes, Victoria facilitates the forward and up direction of the primary control with a balancing task that enables continuous engagement of the desired muscles. Her verbal cues "keep the tone in your back" and "breathe tall" are associated with the sensations of this activity, enabling energy, direction, and support—Alexander concepts which are evident in her gesture as well.

Gestural cues of the "means-whereby." Victoria's versions of Alexander's guiding orders are not only delivered verbally; they are also cued gesturally to provide a functional image of the internal structures of use at work. The two most commonly used gestures in Victoria's studio fall under the themes evident in her verbal feedback: head

[2] All data presented in script form is taken from transcriptions of the video collected during the voice lesson observations. Bold names will indicate the speaker and italics will indicate action. Quotation marks will be used to indicate dialogue, but all text is directly quoted from the transcripts.

direction and height. Both of these gestures involved her raised left hand, held out to her side toward her students as she sat at the piano. One of these gestures she called her "soft palate hand signal," naming it as such in Rochelle's lesson and lifting it to cue many of her breaths. The gesture is formed by floating her left arm upward such that her wrist is suspended in a downward facing dome-shape, fingers hanging. Her second hand gesture was a circle formed between her left thumb and index finger, its imaginary surface lying horizontally, which she also held with an extended left arm and raised during a breath cue. Victoria explains:

> The soft palate is right at the top of your spine. So it's to maintain head direction: to not let your head come [down and] forward, because the top of your spine is right above the soft palate. So sometimes I'll keep my arm extended, I'll grow it taller, you know, that kind of thing. (Interview, 7/24/17)

The soft palate reminder gesture also cues what Victoria and her students refer to as "back space," which Victoria instructs them to monitor, maintain and describe what happens to it in various singing tasks. The gestural cue brings students' awareness to their back space at key moments so that they can notice and debrief with Victoria about what they noticed. For example, in Rochelle's lesson, Victoria relates this concept to Rochelle's ability to maintain her head direction, and mitigates some of the collapsing patterns using her lifted soft palate reminder gesture.

Victoria's third most commonly used gesture is the backs of her hands above the iliac crests on either side of the torso, below the eleventh ribs. Victoria explains why the oblique abdominis muscles are the loci to which she most often refers:

> **Victoria:** The rectus abdominis is responsive to the obliques. If the obliques don't initiate the motion, you're in trouble. The rectus does not initiate the motion. That can cause so much confusion and trouble for so many years. The rectus does move, but it doesn't move by itself, and I think a lot of people aren't aware of that. […] The initiation of the motion is your obliques…Sometimes I use, "expansion," I'll say, "muscle tone."

> **Researcher:** When I was watching Jessica's [lesson], she tended to point to the anterior portion of her obliques, […] but she wasn't copying the way you were feeling that on your own body.
> **Victoria:** Yes, because the obliques are that big. I'll tell them, "you may find that you may feel them here, or here, or here," front, side, or back. Because if one part of them is working, the whole part is working, but where they sense, that is their perception. (Interview, 7/24/17)

Based on her most frequently used gestures and the verbal cues Victoria employs to promote the means-whereby her students sing with energy and efficiency, Victoria's practice may indicate possible singing-specific additions to Alexander's guiding orders for general use (such as let the neck be free, let the head move forward and up, and let the upper back lengthen and widen). Victoria's guiding orders for singing may include *maintain energy in the abdominis* (especially the oblique abdominis) and *allow "back space" in the pharynx*. Like Alexander's instructions, these are characterized by indirect control, the opposite to the habit-triggering approach he called "end-gaining."

End-gaining

One Alexander concept that justifies a process-focused approach is that of end-gaining, in which the desire to meet an end triggers a habitual rather than conscious manner of use. Students focused on trying to be correct or who have a preconceived notion of what their voice should sound like are fixated on the future product rather than the current process. Before studying with Victoria, it never even occurred to Jessica to sing during a voice lesson without worrying about how she sounds or whether she is singing something correctly. Jessica explained in our interview that letting go of the pressure to sound "good" right away has been particularly helpful to her:

> I don't feel anxious when I come here because I know we're just gonna work through it. I didn't know; it's embarrassing to say at my age, I did not understand the exercises and the practice. I wanted everything to sound good from the get-go because that's all I was ever taught. And it's so different to come somewhere that it feels safe to be able to explore and to let sounds come out. I'm not 100%, but for someone to say to me,

> "that's okay. This is an exercise. That's all this is. It's not *supposed* to sound good." I literally did not know that. That's crazy. (Interview, 7/18/17)

In Victoria's lessons, she steers students' language toward specific descriptions of their actions and sensations, turning frustration into discovery as she did in Elizabeth's lesson when she sang the line, "Und dennoch ruht im Reime" from Brahms' *Wie Melodien*.:

> **Elizabeth:** "It's not *rich*."
> **Victoria:** "That's what we're working towards. I know you hear that. That's what I'm going for, that's why I want the rolled r into the '\u\.'" *She sings to demonstrate*. "\u\ can be very handy. It can feel pinchy, but when the back space is right, it's completely helpful." *Elizabeth sings descending line again, but each note is flat*. "Okay so, on one of those syllables, before you get to 'ruht,' there's a narrowing of the back space, and I wanna see if you can figure out which—"
> **Elizabeth:** "Den."
> **Victoria:** "Yeah!" (Voice lesson, 7/18/17)

Victoria explains that Elizabeth's previous teacher had her focusing on the shapes of her vowels by monitoring her lips, as these she could see in a mirror. Elizabeth's habitual fixation on shaping her lips (and, whether or not the shaping produces her desired "end") has become counterproductive because it compromises her awareness of her overall use. Now that Elizabeth is studying with Victoria, Victoria is gently moving her towards sensing what else is happening while she sings—and where—in an effort to integrate her entire instrument (body) and engage her in the process of changing patterns. Victoria guides Elizabeth to notice the how it feels, for example, when she singing out of tune, to help her with the frustration that the sound is not what she would like it to be. While Elizabeth was listening to her sound and worrying that it was not as "rich" as she wanted it to be, she was not fully present to the "means-whereby" that Alexander used to overcome his own end-gaining. However, when Victoria redirected Elizabeth's attention to the moment at which she felt a narrowing of her "back space," she was able to identify

the exact syllable that was causing issue. In Elizabeth's case, worrying about the product disengages her from the process. Victoria explains why she thinks this may be so:

> …she is someone who would be fine in short spurts of the lesson, but when you go back to integrate it, and again, she gets very flustered, I think she doesn't know what to think first. She's an engineer, and her spontaneity, her ability to let stuff flow; it's very challenging for her. […] So you have to let her go back and do it a bunch of times. (Interview, 7/24/17)

The way to reframe an end-gaining approach to singing is to identify and inhibit the habitual pattern triggered by the end-gaining attitude, and to focus on the means-whereby healthy singing happens. In order to reinforce the means-whereby Elizabeth can let go of lip-shaping and rely instead on support and resonance, Victoria provides continuous reminders and reinforcement of maintaining back space, energy through the oblique abdominis, and energy upward through the top of the head.

Victoria's work with her students is about coordination, re-coordination, and integration. Coordination of the relationship between the head, neck, and upper back, what Alexander called the "primary control," is a fundamental tool for overall use and functioning. Victoria helps shift her students' focus from end-gaining, which causes frustration and habitual movement, to present-moment sensations as they learn practice new guiding orders. By reinforcing the means-whereby the primary control and awareness of use is facilitated, Victoria trains her students to improve their singing. Victoria recognizes that her own use is vital to her ability to teach students how to best use themselves while singing.

> I am more convinced how important it is to include that information in my teaching, and how important it is for me to continue *my* thought process of Alexander Technique in my own voice practice. Because it's hitting a reset button, that when difficulties come up, it gives us a tool to find how to get the sound we want or how to change a coordination, that can become clear with practice […], but there are benefits to this work in the whole self as you work through your musical process. I find that

> practicing and teaching with Alexander gives me a very calm pace for my day. Things in my normal life […] that tend to excite the nervous system in a way that can shut it down and make it tense, […] when I come to approach my own musical process and my teaching, my Alexander work helps […] put my difficulties at bay and be able to function better myself and with my students. (Interview, 8/8/17)

Feldenkrais Method: Mary's Practice

Mary has been teaching voice for 40 years and the Feldenkrais Method for 26 years. She found her way to Feldenkrais after her voice teacher implored her to seek help, in this case, for pervasive chronic tension:

> I started in Feldenkrais because of my voice teacher saying, "you have to do something," because I was so tight. And, even before that, most of my issues around nerves came with breath getting stuck, but that breath getting stuck was part of a bigger pattern of everything being fixed [immovable]. At that point I started with Feldenkrais to help my singing, but it wasn't very long before it […] became clear that that was more my path. […] (Mary, interview, 8/28/17)

Mary buzzes me into her brownstone on a warm, rainy afternoon in late August. On this first of three days I visit to observe her teaching, she is wearing hot pink Teva velcro sandals that match her hot pink plastic eyeglasses and beaded earrings, along with loose-fitting black lounge pants, a fitted black T-shirt, and an unbuttoned pale blue linen blouse. A large silver-toned pendant necklace catches the light against the black backdrop of her top, and matches her short curly hair. She invites me in to her living room, which doubles (or triples) as her Feldenkrais and voice-teaching space.

During the lessons I observe, Mary mainly works from three locations in the room: the sofa to my immediate left, the upright piano past the sofa, and a red-topped, cushioned worktable in the center of the room. The short height of Mary's Feldenkrais work table (which resembles a low, wide massage table) enables her to situate her students on the table so that she can sit across from them at eye-level on the sofa or at the piano. Mary only uses the piano during the first lesson I observe, and since she did not

accompany that particular lesson, sat sideways so that she could face her student while playing an exercise. The Feldenkrais worktable is the clear focal point of the room, which reflects the central role Feldenkrais plays in Mary's practice, whether or not she is working with singers. Instead of learning vocal technique through the preparation and performance of repertoire, students discover what patterns may be hampering their ability to sing, and what other ways of singing they can discover that enable them to sing with greater ease and efficiency.

Since Mary's setup and lesson content place Feldenkrais at the center, students may use Mary's Feldenkrais lessons to supplement more traditional voice training with another teacher. Miles is one such student, who sees a different teacher for voice lessons and works with Mary in lessons that may or may not include singing. Miles came to study with Mary while preparing for a cabaret performance, because, "I had some physical habits that were demonstrating themselves more and more in my voice lessons, […] and I thought, 'well, maybe I won't necessarily reach these without some additional work'" (Interview, 8/31/17). Miles' observed voice lesson primarily consisted of tablework, but this varied from student to student. The table below identifies each of the students observed, the primary mode of instruction, and students' personal characteristics.

Table 2

Student Characteristics at Site FM

Label & Pseudonym	Primary Modality	Occupation	Physical Description
Student FM 1: Brenda	Hands-off seated work	Student, singer	Asian, petite, 20s, with long, dark hair pulled up into a bun on top of her head. Wears a black sweater over a high-necked, sleeveless black crop top, high-waisted, flowing black pants, and gold, high-top sneakers.
Student FM 2: Miles[a]	Hands-on tablework	Writer, trustee of charitable foundation, singer	Caucasian, tall, fit, mid-60s, with straight, salt-and-pepper hair. Wears a long-sleeved gray and white-striped polo shirt, gray jeans and gray socks.
Student FM 3: John	Hands-on tablework	College professor, singer	Black, tall, slender, early 30s, with short black hair a beard. Wears glasses, a red T-shirt and black gym shorts.
Student FM 4: Ari	Hands-off seated work	Businesswoman, amateur singer	Caucasian, average build, early 30s, brown wavy hair in a messy bun on the back of her head. Wears an ivory sleeveless blouse, ivory linen shorts, and sandals.

[a]Participated in an interview.

Whether or not her students take voice lessons with other teachers, Mary finds that her singing clientele seek her out because she offers something more than they have been able to obtain from "regular" voice lessons alone:

> The people that have come to me are the ones that get stuck at some stage: either they're stuck with nerves, or they're stuck with some technical issue that just doesn't ever get better. […] And some of them I suppose one could call it in the direction of therapy, but I really see it as just the emotional version of the learning that one does in Feldenkrais, because, you're all one system. And so, that kind of basic concept of quieting an older pattern enough that you can actually even feel the possibility of another option or another response or another choice or another physical organization is all under the same umbrella. (Interview, 8/28/17)

Mary conceives of her practice as one of inseparable emotional/movement work, and through this work she helps students to access new options for their voices. There are three major areas that Mary addresses in her work that enable students to eventually reintegrate the emotional and physical components of their singing: 1) connecting to the body's "wisdom" 2) establishing conditions for receptivity 3) and using the imagination

as a safe exploratory medium for motor learning. Mary describes why singing, as a whole-body communicative action, was one of the primary activities through which these skills were acquired:

> Singing is as good as anything else as being the topic or the context for becoming a better learner. And for becoming more connected to the part of you that knows a lot […] that never gets consulted, or gets ignored or overridden. (Interview, 8/28/17)

Connecting to "The Part of You That Knows"

Mary's voice lessons were difficult to classify within Feldenkrais' two approaches to instruction: Functional Integration (delivered as a one-on-one session, typically on the table or other comfortable surface, using hands-on instruction) or Awareness Through Movement (often taught verbally to a class of students who lie on the floor). All four voice lessons were one-on-one, but while the first and fourth lessons were verbally instructed and hands-off, the second and third lessons involved mostly tablework and hands-on instruction (which, Mary explains, often varies lesson to lesson). Despite this overlap, Mary describes the observed lessons as "Functional Integration" because of the way she connects to or communicates with her students' nervous systems:

> A lot of the process of giving a lesson (called Functional Integration in Feldenkrais) involves joining with or connecting with the student so that I use myself in a way that helps their nervous system to happen upon a new possibility of action or acting. (Interview, 9/27/17)

Connecting nervous systems. Mary links with students in a hands-off session by moving with them, which enables her to more readily identify with any patterns she senses from them. During Brenda's lesson, Mary and Brenda spent several minutes reaching forward while rocking on their seats, saying little and staying synchronized without watching each other. Mary explained that in instances like this, even when her hands are not on a student, they are still connected:

> I could do the movement or just guide her verbally but sometimes I do it to link us—not really to have her copy me. […] I might have done it partly to bring her attention to me rather than you, particularly with her old habits […] that were rather about "leaving herself" to please the teacher. (Interview, 9/27/17)

By linking her own nervous system to Brenda's and moving simultaneously, Mary felt she was helping her to find a new way of feeling and doing instead of copying and following.

Mary established another level of connection when she sang with Miles during his hands-on tablework, continuing to apply gentle manual pressure to his chest and ribs, which she later explained was intended to simulate the sensation of exhalation with resistance. First, Mary sang on text while Miles imagined singing but instead simply exhaled on \s\.

> When I sang with Miles it changed the way he "rode" the breath. The whole skill there whether it was the [s] or my singing with him were to help him experience what support feels like when you really ride the wave of the breath. (Interview, 9/27/17)

Since he was "singing" on \s\, with Mary singing the song on text, she helped Miles sing the song in his imagination while focusing on feeling the resistance of his exhalation, unencumbered by other singing variables.

Substituted effort. Mary's approach involves connecting to her students by moving and/or singing with them, bolstering their awareness with her own simultaneous experience. She also lends support in a Feldenkrais activity known as substituted effort. As mentioned in Chapter II, teachers use substituted effort to provide students with sensory information from movements before they learn to perform them themselves, giving them a head start on learning new voluntary motor patterns (Hanna, 1993, pp. 197-198). Mary describes the way she uses this technique:

> I'm […] taking over the work for them so they get to experience something different than what they've done. Sometimes I start off that way [moving for them] and then I

> use words, for some people, their ability or challenge is in following directions. So, it's a back and forth thing, where I give them the experience and then they can start to put words to it or they start to hear words. (Interview, 9/27/17)

Mary's way of "taking over the work" of her students' motor systems may precede, work in combination with, or alternate with verbal instruction, depending on what is necessary to provide experiential learning opportunities. For example, Miles feels that he is able to feel the work of his body in a different way when Mary moves it for him:

> I would say that […] the giving over of an arm or a leg to her to move through space so I can feel my body working without my trying to control anything, and seeing how that affects other parts of me, is always very helpful. (Interview, 8/31/17)

Miles found he was able to feel the working of his soma when he relinquished control of the movement. Some students were better able to stay present to those sensations than others. Mary's student John, a voice teacher himself, was fascinated by their work in the lesson I observed, but repeatedly fell into the trap of attempting to codify experiences on an intellectual level, preventing him from feeling the answers he sought on a physical level.

Feeling knowledge. When Mary works with John, she suspects he is thinking about what to do instead of sensing what it feels like. Mary asserted that John's verbal reminders to himself, such as "legs away," and "anus back," reflected his conceptual understanding, not a connection to his embodied knowledge. Mary shares how she identifies with the way John tries to think his way through singing, as she once did, but eventually became aware that a different part of her knew how to move:

> I didn't know it theoretically, which [my teacher] really was asking you in the training, to let go of all that conceptual thinking and really learn to feel the bones talking to the bones and feeling anatomy instead of learning it from a book. And so I had all those lessons and they were all there in my nervous system and I somehow knew how to do things! (Interview, 8/28/17)

To help pull John back into his sensations, Mary instructs John to try out actions that will enable him to move with intention and discover how his body organizes itself to move in those activities:

> **Mary:** "Now take a look at me, and I'm down here. So what is your chest gonna do so that you can look down at me […]? Yes, your chest would give. Now if you wanted to look out there up at the balcony […], then what would your chest do?" *John gazes upward, his sternum lifting.* "It would follow the head up." (Voice lesson, 9/10/17)

Feldenkrais believed that clarity of intention translates to clarity of movement. Conversely, an unclear movement may reflect a lack of felt anatomy. When Mary asks John to notice what his hips would do if he were to look down at her rug, as if to pick something up, his movement becomes hesitant and halting. He asks, "What *should* they do? I don't know about my hips, my hips are so confused." Mary responds in keeping with her training, saying: "Follow the bones," but John becomes stuck as he tries to form his body into the shape of a squatting person instead of holding the intention of picking something up, along with an awareness of his felt anatomy while doing so. Mary comments, "that's thinking it, right? You've got all of your 'anus back' and all these other ideas there in your head." Finally, she reaches up from her seat on the couch to take both of John's hands, guiding him through the process of noticing the interactions of his various body parts—"bones talking to bones"—during squats:

> **Mary:** "Let go of the chest. It doesn't have to stay like a board." *John appears to bow, keeping his legs still while bending at his waist.* "Let go of the knees […]. Everything's gonna move a little. The knees are gonna bend, if you have to lift your heels, go ahead and do that, but nothing is fixed. The back, the chest, the knees, that's about where you go comfortably, right? Now what you did the first time was you kept an idea that your head should be like this," *Mary tilts her face upward,* "and your anus should be back, but it is divorced from the signals you were actually getting from the body in the moment. […] It really isn't about what the perfect squat would be, as how can you bring *your* body to squat as well as it can? […] Does that make sense?"
> **John:** "It does. But yeah, it's—" *John looks at the floor and takes a few steps as he turns around.*
> **Mary:** "There you go. Now. There. Do you feel what you just did, without really

> thinking about it, and your chest changed a little bit, your arms changed a little bit, your head changed a little bit?" *John starts walking around the room again*. "The chest is really meant to be a responder, not the engine. And so it does different things depending on what your head is doing, […] where you're going in space. […] Because otherwise, when your head goes up like that, it starts to pull the chest up, then it pulls you up and off your feet a little bit." (Voice lesson, 9/10/17)

"Without really thinking about it," John's coordination shifted. When he sang immediately after this conversation, his tone was the richest it had been during that lesson, and his breath appeared more natural, his body less braced. When John let go of conceptual knowledge, he did not need to construct the ideal posture for singing; he felt what it was for his body to organize itself to sing.

Mary's connection with students in the voice lessons observed had an intimate, almost telepathic quality that the most careful observer could not fully understand from the outside in. She describes these interactions as "communicating with a part of them that knows," a kind of "conversation between two nervous systems" (Mary, interview, 8/28/17). This conversation depends on students' receptivity to experiencing movement in new ways.

Creating Conditions for Receptivity

A basic tenet of the Feldenkrais Method is that students who are in distress will have more difficulty sensing. In Mary's practice, her goal is to find ways to remove these barriers to give her students the best chance of sensing how they are moving:

> I'm attempting to create the conditions where people feel what they feel so that they come into their bodies in some way that allows them to actually be aware and engaged and engrossed, so that they can feel the reality of how they're doing what they're doing. (Interview, 9/27/17)

The various patterns that interfere with students' ability to engage with themselves in this manner come from sources such as anxiety-induced reactions, responses based on past

trauma, and other habits. The table below describes portions of Mary's process as she addresses some of the manifestations of her students' patterns.

Table 3

Mary's Approach to Students' Challenges

Student	Challenge	Lesson Focus	Example
Brenda	Anxiety: singing in front of people	Articulation without interference	Mary helps Brenda quiet her anxiety pattern by setting the intention of listening to "a sound from far away," a Qigong technique. Brenda and Mary "play" melisma on top of their legs as if playing piano, without singing, while imagining singing, while mouthing, while singing on vowels, then on text. Mary redirects Brenda's attention from worrying about fingerings to movement/sensations in her fingers, wrist, elbow, shoulder, chest, and pelvis until she allows her entire body to "play" the exercise. Mary takes over playing the exercise while Brenda continues the connected movement/singing.
Miles	Trauma: Resists being moved in reaction to recent car accident	Allowing movement through the torso	Mary rocks Miles from the feet, then from either side of his sternum, gives the image of the ribcage being made of silicone, and asks what he feels on one side while she works on the other. Mary provides images and gentle touch feedback to indicate he will be supported when he lets go. Comparison work continues during singing, noticing differences in breath sensations. Miles imagines singing while exhaling on \s\, Mary reinforces input of movement around sternum, clavicle, and scapula using touch feedback from rocking chest and rotating the head, sings with him while continuing to reinforce movement and "ride the breath."
John	Habit: Holds head too far back when singing	Natural breathing, sense head position	Mary asks John to stand as if he were about to sing, then has him lie down on his back without pillows to approximate the same alignment. She adds pillows to bring him into an alignment that he finds more comfortable and connected to the breath. He stands again and Mary moves his head with her hands, bringing his awareness to the difference between breathing/singing with the head balanced on top of his spine with the way he habitually sets himself up to sing.
Ari	Habit/trauma: Freezes when unsure, face injury from car accident	Ease and coordination of onset	Ari and Mary tilt forward and backward from their Sitz bones, Ari rolling a tennis ball atop her leg as smoothly as possible, noticing where she gets "stuck." Once the ball rolls smoothly, small sighs are added and the movement becomes jerky. Mary has Ari imagine her pelvis is frozen and Ari finds she can no longer tilt. When unfrozen, she tilts smoothly again, and Mary has her imagine adding singing, only telling her to sing once she can imagine and realize smoothness in the movement. The sighs gradually increase in range and duration to the extent that smoothness of motion is maintained.

Supported positioning. One way that Mary minimizes discomfort is through the Feldenkrais concept of supported positioning, in which she uses foam rolls, pillows, and tablework to bring students into positions that require the least effort for them to maintain. This minimizes the interference of excess effort and pain on sensing new patterns. To reference an example in the table above, when Mary brought John, (supported on the table with a roll under his knees and ankles), to the alignment that matched that which he used in standing, John could notice the difference without having to do, adjust, or maintain a pose or posture. By simply adding pillows underneath his head, Mary set up a basis for comparison that John did not need to negotiate himself. This setup also brought John into a position (lying down) he does not readily associate with singing as he does while standing up, bypassing his intellectualized ideal posture for singing. When he stood and set up to sing again at the end of his lesson, Mary manually brought John's head to where it had been before (retracted, or without pillows when lying on the table) and then where it was balanced (as it was when she replaced the pillows under his head). She then asked John to sing from this position so he could sense how this natural balance prepared him for less pressurized, manufactured singing than came from his overly-erect posture at the beginning of the lesson.

Listening to a sound from far away. In addition to increasing receptivity by situating students in supported positions, Mary sets students' anxiety at ease to help them be present. She explains that some students are so anxious that she must: "calm them down enough that they can then know what it is to either do something vocally or do a movement, when it isn't from a place of over-excitation" (Interview, 9/27/17). Mary has recently incorporated an activity from Qigong into her instruction to help calm students'

"overexcited" nervous systems, which she describes as "listening to a sound from 2,000 miles away":

> […] it's a little bit like looking out at the ocean, where you're not looking for anything so […] it's almost like you are looking beyond what you're seeing. And, in this case, you're using your ears, you're not thinking of what you're gonna hear, you're actually 2,000 miles away. And in doing that, you expand your awareness, […] what I find is my chest starts to settle down, and my breathing calms, and there's a centeredness, and that's why I've been using it with singers, many of whom have nerves, […] and also, to settle the person into themselves. (Interview, 9/27/17)

Mary referenced "the sound from far away" most often in Brenda's lesson to help her tune out the external stimuli that make her fearful so she could focus inward on what she was sensing from within. Once Brenda felt she could hear "the sound" toward the beginning of her lesson, Mary asked her to stay with it and, once ready, add variations such as singing an exercise while varying the direction of her gaze. Brenda then reported feeling less anxious and more connected to the warm-up. Mary explained why that may have been the case: "when you [got] to the point where you can listen to the sound from 2,000 miles away, oddly enough, you were also so in your body at that moment, that's where you're living" (Voice lesson, 8/29/17). By using the Qigong exercise to set an intention of being present to her sensations, Brenda worried less about the external stressor of being observed, increasing her receptivity and decreasing her anxiety. However, for students whose anxiety stems from movement, due to past trauma or the avoidance of pain, Mary utilizes a different approach to creating the conditions for receptivity.

Finding the stability in letting go. Easing anxiety-inducing movement patterns in singing involves helping students become aware that they are safe and supported—even without holding on muscularly. One way that Mary brought Miles' to a state from which he could sing was to help him discover "the safety in letting go." A previous

shoulder injury and recent car accident reactivated Miles' habitual gripping around his shoulders and drawing inward of his extremities. As Mary began to rock Miles from the shoulder, she used slow and gentle movement, feeling the support of her hands and the table beneath him so that he could observe what it felt like to let go without bracing for further trauma. Mary reminded Miles not to attempt to anticipate or assist the rippling effects (which were growing outward from wherever her hands were placed), but to instead set his intention to noticing the way more and more of his body organized and supported itself as he accepted the rocking motion:

> **Mary:** "Now don't move your head unless it gets moved. Trust. We're gonna go slower. That's it. Feel the difference."
> **Miles:** "It's funny you should [say] that because I was aware of my head and I was sort of […] thinking 'oh, there's the ripple, I've got my head moving…'"
> **Mary:** "Right." *Mary changes to a very slow rocking motion that seems to allow the upper body to drift from one side to the other, including the head.* "Because when you allow it this way, you're actually gonna feel your skeleton, which is of some support to you in life, right?"
> **Miles:** "You think?" *They laugh.*
> **Mary:** "It's—that's it." *The ripples move outward as Miles' lets go.* "—because as you want to kind of remember that there's safety in letting go as well…"
> **Miles:** "Well, that's interesting. Yes."
> **Mary:** "…then you have to feel the connection, the support that's there when you let go." (Voice lesson, 8/29/17)

Miles began to sing shortly after this exchange, during which time Mary continued hands-on work and eventually started lifting and rotating Miles' legs. As she did so, Mary later lead Miles to the discovery that he could allow his weight to shift without falling. Mary advised him to "feel both what you can let go and what's there to catch you," a statement that encapsulates supported singing without excess tension (Voice lesson, 8/29/17).

Another student experiencing the effects of a traumatic car accident and former injury was Ari, for whom Mary created conditions in which she could safely explore the

triggers for her habitual "freeze" pattern—a pattern Ari described as a "shield" (Voice lesson, 9/20/17). The pattern included wide eyes, tight lips, a tense tongue, raised larynx, retracted head, held breath, and hyperextended back, as if Ari was startled. In one instance, tilting forward and backward from the pelvis made Ari feel unstable, causing her freeze pattern to activate. Mary explained, "There is a point where these have to engage," she points down in between her legs in the lowermost abdominal region and pelvic floor area, "or you fall." Mary then asks Ari to feel her seat and then tilt forward and backward to find "the moment when you cross this certain place where all of a sudden your belly can let go. […] you'll know it because you'll be able to breathe really easily low." Leading up to the repertoire component of the lesson, Mary and Ari deconstructed the many component parts involved in her freezing habit, tried on what they felt like in singing, and then built a new organization having felt each difference. In discovering an awareness of her pelvic floor and Sitz bones as they related to moving with less fear, the stability Ari found translated into more confident, supported singing.

Imagination

The "sound from far away" activity described in the section above is one of many examples of Mary's use of imagination, which had such an important place in her practice that its utility went beyond creating conditions for receptivity into a modality unto itself. Mary's style of instruction engaged the imagination of her students as its own experiential medium. Mary explained the role of imagination in her work:

> […] a fundamental thing in Feldenkrais is that imagining a movement or an action is the same brain activity as doing it, and in fact it's a higher level of thinking because the very lack of movement helps you either become aware of what you would normally do to get in the way of things, or to be able to try on something new that would improve the coordination. And it is one of the biggest skills you can learn, […]

> but particularly […] for things like voice where everything is so internal and so subtle and you can't see it. (Interview, 9/27/17)

Imagination as a step of the process. One of the ways Mary lead her students to use their imaginations was to provide a step between repeating a coordinated movement and repeating said movement with the addition of singing—at times taking over the singing so that students could keep their awareness trained on the sensations of the experience. For example, when Miles imagined he was singing (although he was actually only exhaling on \s\) while Mary sang on his behalf and pressed on his chest, he could sense the resistance of the breath without worrying about his sound. Similarly, when Brenda was having difficulty articulating a melismatic vocal line without extrinsic muscular tension, Mary played the melody on the piano so that Brenda was free to imagine singing it while representing the articulated pitches by playing along with a hand on her lap. It is important to note that, before exploring articulation in this way, Mary guided Brenda in hearing the sound from far away and established she could hear the scale in her imagination, removing those variables so that Brenda's imagination and proprioception was available to the activity.

Mary designed a sequential activity in which Brenda could imagine singing smoothly while "playing" the pitches smoothly on her lap like a piano, which gave her a visual, tactile, and kinesthetic way to track the changing pitches. Brenda initially struggled with playing the passage without hammering or "poking" the notes with her fingers, and was not permitting the rest of her body to participate in the movement while she fixated on whether she was using her fingers "correctly." When Mary redirected Brenda's intention to noticing how smoothly she could play while imagining singing (instead of worrying about whether she was using the correct fingering) she was able to

establish a full-body connection to her breath. Then, once Brenda was able to play fluidly with her whole body (as evidenced by allowing rotation throughout her arm, movement throughout her trunk, and shifting initiated from the pelvis), inhale without compromising that fluidity, and explore variations in fingering and direction-shifting without disrupting that smoothness, she switched from imagining singing while performing the piano-playing movement to actually singing while imagining playing the piano. The result was smooth vocal dexterity, increased pitch accuracy, and a consistently lower breath.

Ari also worked on connecting to a lower breath. In her case, in the way that Mary sang for Miles while he exhaled, Mary whistled the melody of Ari's song so that Ari could attend to maintaining her newfound connection to her pelvic floor. She could then gradually work her way up to singing herself without the temptation to sound like Mary's voice. First, Mary whistled the melody to point out a pitch Ari sang out of tune, and asked Ari to whistle it herself to check whether or not she could hear it without simultaneously singing. Since Ari was unable to make a clear tone while whistling (of particular interest given her work on relaxing her lips), Mary explained her intonation in terms of the physical connection and inner hearing Ari must hold in her imagination:

> […] if you're really connected physically, and you're hearing it, it will be there. But if you're a little mushy with the connection physically, and you're a little mushy with the connection in listening, you get a little bit fuzzy. Fuzzy as in neither here nor there. (Voice lesson, 9/20/17)

Next, Mary asked whether Ari could hear the melody when Mary whistled it (she could) and if she could still hear it in her imagination without Mary whistling it (she could), at which point Mary tells Ari to sing it herself. Once Ari could hear the melody (without text or tone to imitate directly) in her imagination while attending to her physical connection, she was ready for the next step: to sing it in tune. Ari also imagined singing

while she tilted herself on her Sitz bones to see whether she could retain the smoothness of the movement and connection throughout the body before singing aloud. Mary instructed her: "Could you imagine making a sound on that? So when you can imagine it, let it happen," so that Ari could gauge her own readiness to add voice to the pattern (Voice lesson, 9/20/17).

Imagination as a habit-detector. Another way Mary used imagination in the observed lessons was to examine unintentional movements, such as Ari's raised larynx. After bringing Ari's awareness to sensations of the range of movement of her larynx while swallowing and yawning, and having her exercise volition to pause at the high and low points of those actions, Mary connected the actions to the sighs on \u\ on which she and Ari vocalized earlier: first by instructing Ari to imagine singing \u\ while reestablishing the low larynx in a yawn, then by asking her whether or not imagining the pitch gave her larynx the "inclination" to move (it had not). Mary then explained how to build in the imagined pitch:

> **Mary:** "So what you want to do is, you get in the position and you stay there, and then you add the element," *she yawns and floats her left hand up to eye-level, palm facing down and fingers dangling as she had before to represent the palate,* "of imagining the pitch to see [if you] can add that without changing this position," *indicating her right hand in front of her lower abdomen, palm facing up, her left hand palm-down to represent the diaphragm.* (Voice lesson, 9/20/17)

Mary also used imagination to clarify a pattern in which Brenda lost the connection to her body when singing certain vowels in a passage of her song (especially \a\). After Mary had Brenda sing the passage on variations such as a tongue trill and then a lip trill with the tip of her tongue behind her teeth, Mary asked, "Can you do that and imagine the words?" After Brenda sang on lip trill, Mary asked, "Does anything want to change? When you imagine the words, do you feel, 'whoops!' Suddenly the tongue pulls

back, or the—" Brenda said "yes," gesturing with her hands by pulling back and down from the front of her mouth into her throat. Through this imagination exercise they isolated the fact that singing on text triggered a habitual pulling back of the tongue, and Mary was able to construct a series of similar tasks to give Brenda other imagined choices to try on.

Imagination as a substitute for doing. For John and Miles, imagination functioned as a substitute for making something happen through excessive muscular exertion. Mary encouraged John to imagine the lift of his palate, or inner smile, before speaking and singing a line of his song. By reminding him to make sure he found the "inner smile" in his imagination before singing, and to remain aware of it for the duration of the vocal line, Mary helped John sing with a clearer, more resonant tone.

By encouraging Miles to pretend areas of his body took on imaginary properties such as the pliability of a torso made of silicone, or the capability of his ribcage to swing open, or that his scapulae were attached with rubber bands, Mary was able to prepare in Miles' soma a willingness to be moved and a readiness to allow movement during singing. These imagined physical qualities are opposite the characteristics Miles described following his recent car accident, which had left him feeling rigid in the upper body, withdrawn at his pelvic floor and anus, and retracted where his limbs met his trunk. In this way, Mary communicated images of flexibility and openness in conjunction with her gentle, differentiated touch, helping to make Miles' soma more available for fuller breathing and smoother, more integrated singing.

While the nature of Feldenkrais involves noticing differences facilitated by infinite variations, there were several recurring themes in Mary's instruction in the voice

lessons observed. Mary created the conditions in which she could help students reconnect their physical level of knowledge, help them break through emotional/physical/mental blocks to become receptive to their sensations, and help them use their imaginations to discover a repertoire of intentional movement choices for singing. Mary's practice is characterized by the way she makes connections. Through Feldenkrais, Mary has learned to reconnect with herself, connect with other somas, and bring her students to the sensations of connected learning and singing.

> I would say that the theme of my life with Feldenkrais has been, in many cases, reconnecting to myself, and connecting the dots in terms of how I use myself that so that I'm much more coherent in how I move. But then the bigger theme from that is both in my teaching and in my interacting that the theme is looking for points of connection with different kinds of people, and helping people to see how they can connect again as opposed to the polarization that's been building. So I guess there is a part of me that feels I have a role to play […], of some sort, in society remembering that the body (she laughs) has a wisdom of its own. The body, in some ways, holds the heart, which holds the key to being able to meet people that may be very different and still finding something that you can connect with in a place of mutual respect as human beings. (Interview, 10/9/17)

Hanna Somatic Education: Caitlyn's Practice

Caitlyn began teaching voice lessons 28 years ago as an undergraduate student, and has been a certified Hanna Somatic Exercise coach for three years. Caitlyn found Somatics while searching for "help to heal [her] lower back injury" (Interview, 9/21/17). While she was not seeking out a solution to an explicitly vocal problem, Caitlyn felt a connection to her singing voice from her first Somatics session:

> After my very first session of being on the table, […] I felt this incredible urge to go home and sing. And, because I had been singing with pain and tightness, […] and I felt my whole torso being open, […] I just wanted to go home and sing. And so, as soon as that happened, I went "oh my gosh, there is something here." […] So, it was from then on that I kept finding ways to see how Hanna Somatics could help my singing […]. I started using Somatics on my voice students […] and it just became a way of life. (Interview, 9/21/17)

On the sunny first day of autumn, Caitlyn picks me up at my hotel on her way to work at a state university in the Midwest. She is wearing navy blue sandals and cropped slacks, a sleeveless blue and green striped blouse, and black plastic-framed eyeglasses surrounded by her long, dark, curly hair. After a short drive, we park and then walk to the building that houses her studio, passing music-themed sculptures and shady trees on the lawn.

Caitlyn's studio is tranquil and inviting, insulated from outside noise and decorated in soft green. Her desk sits a few feet from the entryway, facing a large window that spans the length of Caitlyn's piano and frames view of trees swaying outside in the breeze. A music stand at the crook of the piano sits in front of a large full-length mirror. Caitlyn sits on a plastic posture corrector seat atop her adjustable piano bench in the first half of each lesson, and once the accompanist arrives, she moves over to an high-backed black and white floral-print chair, within reach of a turquoise end-table where she sets her teacup next to an aromatherapy diffuser.

Caitlyn's university voice studio is used only for teaching her voice lessons, not her Hanna Somatics Exercise coaching clients. However, Caitlyn uses some of Hanna's Somatic Exercises in university voice lessons when she feels the exercises may help address a habit that is interfering with a student's singing. Since today is only one month into Caitlyn's second academic year at this university, she is seeing her students for their fourth of 15 voice lessons in this semester. Students' majors and descriptions are included in the table below.

Table 4

Student characteristics at Site HSE

Label & Pseudonym	Year	Major	Physical Description
Student HSE 1: Sam	1st-year junior; transfer	Music ed, voice perf	Caucasian, average height and build, with long wavy red hair. Wears a short-sleeved midi-dress, pearl choker, and black flat dress shoes.
Student HSE 2: Joel	2nd-year sophomore	Music ed, voice/tuba	Caucasian, tall, average build, with light brown hair cut short on the sides and longer on top. Wears thick black plastic eyeglasses, dark jeans, white Velcro sneakers, and a red baseball t-shirt with short navy-blue sleeves.
Student HSE 3: Eva[a]	2nd-year senior; transfer	Special music ed	Caucasian, petite, slender, with collarbone-length auburn hair. Wears white canvas sneakers, pink ankle socks, and a hot pink midi skirt, with a chambray short-sleeved button-down blouse.
Student HSE 4: Kevin	1st-year junior; transfer	Music ed	Caucasian, above-average height, slender, with light brown hair styled in spikes on top of his head. Has a hearing aid on his left ear. Wears tan leather sneakers, black socks, khaki cargo shorts, and a gray and black zip-up hooded sweatshirt.

[a]Participated in an interview.

Caitlyn's separate Hanna Somatic Exercise coaching practice has taken different forms since she moved from the East Coast to the Midwest two years ago. Since arriving in the area, Caitlyn has given a few private Hanna Somatics Exercise lessons at her home to clientele referred by the teacher who led her HSE training. Hanna Somatic Exercise coaching is typically delivered in a class format, so in one-on-one situations, Caitlyn takes an individual student through the same sequence she would a class, with the addition of more personalized feedback. She has also had a few opportunities to teach Hanna Somatic Exercises in group settings such as a multi-studio class for voice majors on campus, as well as a class at a local music education convention and another with a school choir. While singing did not occur in these classes, Caitlyn encouraged the participants to sing afterwards and compare what it felt like compared to their usual singing experiences.

Hanna Somatic Exercise coaches use verbal instruction (with occasional evaluative touch), often in a group setting, to guide a series of movement exercises on the floor. Caitlyn explains to me that Clinical Somatic Education, which requires a different training process to serve people with serious movement deficits, is hands-on and involves tablework. This is an important distinction for Caitlyn, who came to Hanna Somatic Education in pursuit of healing her own injury. Caitlyn believes that learning the hands-off approach of Hanna Somatic Exercise coaching has shaped her approach to voice instruction and teaching in general, because it has taught her how to instruct students so that they can discover efficient movement both in her studio and on their own. In order to teach her students how to sing efficiently, Caitlyn helps them 1) connect their awareness to internal aspects of singing, 2) understand how movement patterns develop, 3) communicate what they are feeling while singing, and 4) build the component layers of new patterns. All these skills are intended to give students the tools to learn how to improve by moving themselves so they can, like Caitlyn, make efficient movement "a way of life."

Awareness of the Internal Movements of Singing

One of the defining characteristics of Caitlyn's practice is the way she helps students sense what is happening inside of them when singing is efficient, how they can either get out of the way of those internal movements or work to promote their functioning, and movements that will help their soma-instruments to take on those singing-enabling properties. Unlike teaching Hanna Somatics Exercises, in which Caitlyn brings students to the experience of the same basic voluntary movements, her task while

teaching singing entails finding experiences to bring students' awareness to internal processes, many of which are not directly controlled or sensed as readily:

> My method is pretty much the same, it's just in a Hanna Somatics session, there are movements that are concrete: […] set movements that everybody gets to try on, so I can use those things that are tangible for them. A singing lesson is different because obviously I can't reach down somebody's throat and tell them to move something. It's not as tangible for singers in a voice lesson. (Interview, 10/11/17)

Compared to the internal processes of singing, there is a great deal of accessible information for students and teachers during the Somatic Exercises. The exercises involve visible, full-body movements performed slowly enough for the student to notice sensations in each moment of the process, supported by the floor beneath them and guided by a teacher who can watch students and adjust subsequent feedback accordingly. Voice teachers need to somehow make the sensations of the internal processes of singing more accessible, because they are, in Caitlyn's words, less "tangible."

One of the reasons Caitlyn utilized Hanna Somatic Exercises in the voice lessons I observed was to address a specific singing challenge for which awareness of what was happening inside the body was insufficient for students to move the way they wished. For example, the Somatic Exercise in the table below was used in Sam's voice lesson when she became frustrated that she could neither feel nor maintain resonance space while singing a high descending melody. Caitlyn found this exercise when working on her own TMJ pain.

Table 5

Connecting HSE Jaw Exercise to Singing Space (Caitlyn, Sam's voice lesson, 9/22/17)

Sequence of Exercise	Teacher Instruction
Step-by-step guided exercise with teacher mirroring	"…your thumbs are at the base of your skull, your index fingers behind your ears, middle fingers at your temples […]. Press into your head and lift up as if you're taking off a really tight hat. Really feel that inside. […] Drop your jaw; let it sling down."
Self-sensing check-in (no singing): lifting skull and lowering jaw	"What do you feel inside?"
Step-by-step guided variations: lift the head only, drop the jaw only, both, both with singing	"Keep your mouth shut, and then just do […] the head part," *mimes taking off hat*, "Now, don't do the head part, just drop your jaw. Now do both […]. Do both at the same time while you're singing."
Self-sensing (singing): perform exercise while singing	"What do you feel? I know you could hear something differently because your hands are in front of your ears, but I don't want to know what you heard, I want to know what you felt."
Transfer of external to internal sensing: sing and "stay with" sensations	"Can you try now, without the hands, to mimic the work that your hands were doing by lifting and recreating that?"
Compare before and after sensations	"Yes. Do you feel that?"

When Caitlyn sees a somatic issue such as a chronic tension pattern, she takes advantage of her Somatic Exercise training because "if I see that there's something I can latch onto then I'm going to stop the singing part and hone in on the physical" (Interview, 9/21/17). However, if she senses more singing-specific challenges, she facilitates movement experiences to help students access that knowledge.

Finding the onset. One of the movement experiences that connects directly to vocalizing was a gentle and repetitive cough observed in Joel's lesson. Caitlyn explains its purpose:

> I was trying to get him to feel the laryngeal tilt, and so I had him put his fingers on his larynx and do little slight coughs, so he could feel the larynx go down and forward gently, and […] allow that to stay tilted and stretched. […] So that he could just feel the action that the larynx makes naturally. (Interview, 9/29/17)

After Caitlyn explains how Joel can locate a sense of his onset when preparing to sing, she asks him to try the coughs alone before embedding them into the first onset of his song:

> **Caitlyn:** "Make sure that when you're taking your breath that you know where your onset is at all times. So […] if that means thinking about…" *she coughs gently, her larynx dropping down and her neck appearing to widen at the base.*
> **Joel:** "It's generally, I go," *Joel makes the cough-sound several times.*
> **Caitlyn:** "So, […] have it feel more gentle than," *she knocks her fist in the air while coughing harshly several times,* "I don't want it to be…"
> *Joel's neck bulges slightly as he performs the cough more softly, then sings the first syllable of the song.*
> **Caitlyn:** "Right! All of the notes come from that place." (Voice lesson, 9/22/17)

This experience was intended to help Joel gauge how little effort was required of the slight cough so that he could feel a clean and easy onset, having a sense of what the surrounding structures felt like when he did so and sensing more specifically the internal action of the vocal folds upon phonation.

Connecting tone to support. Another internal process Caitlyn illustrates with movement is a revving sound activity, which represents the connection between tone and support. The repeated, sliding revving sounds may occur on a number of phonemes such as a hum, \v\, or various vowels. The loudest portion of each rev is accompanied by an inward pulse of the lower abdominis. Caitlyn demonstrates the pulsing, allowing her body to bounce from the abdominal contractions, and illustrating her sensations of each one by pulsating her arms in a rounded shape outward from her sides as an expanding image to counter any tendency to squeeze at the throat as the abs pull inward and upward.

In Joel's lesson, Caitlyn explains that the role of the revving was "to get […] his tone and his body going at the same time, because he has a tendency to shut down on his support" (Interview, 9/29/17). In Kevin's lesson, Caitlyn used revving to direct his energy away from "working hard" in tension, because "even though he was turning on

his support muscles, it wasn't connected. So he was just stiff and tight" (Caitlyn, interview, 9/29/17).

Enabling the open throat. While the intended use of the revving is to establish the connection between the body and the sound, Caitlyn's student Kevin falls into the trap of trying to push out the revving sound from his throat. She references the feeling of vomiting so that he can simultaneously feel an [involuntary] opening, rather than a squeeze, while working with the rest of his body, explaining that "'Vomiting the tone' is about just allowing the feeling of an open-throat, it feels like when you're about to throw up" (Interview, 9/29/17).

> *Caitlyn stops Kevin and revs on "vuh!" He echoes.*
> **Caitlyn:** "It's almost like you're going to throw up […] It's the same muscles that are used." *He sings the exercise again, more resonant on the top* \vʌ\ *of the arpeggio.*
> **Kevin:** "Better?"
> **Caitlyn:** "Yes." *They laugh.*
> **Kevin:** "That felt a lot better!"
> **Caitlyn:** "So, I mean the Italians actually talk about vomiting the tone. It is that kind of feeling." *She points to her abdomen, revs on* \vʌ\ *and circles her hand forward.*
> **Kevin:** "Okay."
> *Caitlyn plays the chord, nods at Kevin to try again, and he sings with less strain.*
> **Caitlyn:** "Yes!" […] "It's working!"
> **Kevin:** (*Laughing, shaking his head*) "Yeah! It's just like, 'think about throwing up!'"
> **Caitlyn:** "I know!" (Voice lesson, 9/22/17)

While Caitlyn does not take credit for this idea, she applies it in Kevin's lesson by relating a familiar and involuntary, internal anatomical opening action (much in the way that yawning is used to invoke the feeling of a raised soft palate), to the activity of singing.

Sensing the "lean and stretch." Caitlyn's most frequently used illustration of an internal process pertains to a specific gesture she used multiple times in every lesson observed. She uses her hands to represent the simultaneous movements of the "lean" action of support muscles and the "stretch" of the expansive resonating space of the vocal

tract. For the lean, Caitlyn begins with the back of one hand on one side of her clavicle; elbow bent, and then extends the arm forward, palm facing down. To create the stretch and represent the resonating space, she extends her other arm and then draws the hand on that side backward, forming a forward-facing dome that expands as it travels on a diagonal upward and backward path past her zygomatic bone, her ear, and then behind and above the side of her skull. Caitlyn often uses this gesture while students are singing as a way of reminding them what is going on in real time, or has students do the gesture while singing as a way of representing what they are sensing inside. Caitlyn's ability to use activities through which her students discover internal sensations, along with her illustrative gestural communication, helps her students come to understand what they are sensing during singing.

Understanding Existing Patterns

Caitlyn applies her Somatics training when she notices patterns of tension in her voice students and gives them the tools to address it:

> We learned the reasons why behind certain poses, we touched upon […] which movements helped which reflex, […] then went through those movements, and then we guided each other, […] and then [in] the last couple classes, we would have people from the outside come that we had just met, and we'd have just a few moments to assess them by looking at their backs and talking to them and looking at how they're holding their bodies and to get a prescription of what movements would be best for them right off the bat. (Interview, 9/21/17)

One of the reflexes, the "red light reflex," is a characteristic response to stress involving chronic contraction of the muscles on the anterior portion of the body, causing a hunched-over posture in students such as Kevin. Caitlyn teaches Kevin a Hanna Somatic Exercise that he can use at the beginning of a practice session (as they do at the beginning of the observed lesson) to set him up for attentive, rather than reactive, engagement in learning.

Habituated stress patterns. Caitlyn noticed that Kevin's stress pattern pulls him inward across the chest and down and forward at the neck and shoulders. When Kevin told Caitlyn that he begins practice sessions by lying on his back to align and relax him, she showed him the "flower," an exercise so named because it involves opening (as if blooming) the anterior of the body, as a more active and functional alternative than lying flat on the floor in a manner that does not prime singing sensations:

> "That is good for opening up, because if you have a tendency to collapse in the front," *she places her left hand on her abdomen and right hand on her sternum, contracting slightly in a movement that resembles a crunch,* "this opens it up," *she brings her arms out to the side in an A shape,* "and if you have jaw and neck issues, and shoulder issues, this will open that up." *She draws her hands from above the center of her clavicle outward to the shoulders.* […] "That is something that you can do before you sing. There are many other movements that go along with this practice, but that one really just is the first one to do." (Voice lesson, 9/22/17)

As with the voice components of her lessons, in addition to giving verbal instructions, Caitlyn went through each step of this exercise, simultaneously describing her own sensations and directing Kevin's awareness to his own moment to moment.

Sensory Motor Amnesia. Caitlyn teaches her voice students that chronic tension or interfering habits are movement patterns that can be changed by learning other movements. In Hanna Somatic Education, the persistent patterns may be attributed to Sensory Motor Amnesia, in which chronically contracted muscles lead to a lack of sensation and volitional control over an immobilized region. Caitlyn recalls experiencing Sensory Motor Amnesia herself during a session in which her mentor coached her through one of the Hanna Somatic Exercises that focused on articulation through the spine. In her case, SMA resulted from a lower back injury:

> And that was the one thing that I noticed when I met with [her] for the first time and she was working with me on the table, I would say to her, because we were working on the chronic tension, "I feel like I'm trying to move a muscle I've never moved before […]. I feel dumb, like my brain, it feels dumb!" (Interview, 9/21/17)

This experience helps Caitlyn empathize with Sam when she became frustrated about her own loss of volition over a pattern of lip-spreading. Although she intended to follow Caitlyn's directions and sing without pulling back at the corners of her mouth, she can feel her lips and cheeks resisting. When she tries the exaggerated opposite—extending and rounding her lips—she finds it both easier to sing (albeit an example and not a permanent solution) and more obvious when she felt the muscles trying to engage in her former habitual way. Caitlyn explains how this works:

> From a Somatics standpoint, we have brain patterns. […] But you have patterned your singing structure to be a certain way, and now I'm trying to shift that pattern. So the only way to do that is to sense it so that you can change it, and so now you can feel differences. […] So people who have had an injury, and even though the doctors say they're healed, they're still not moving the same way they used to. […] The brain has repatterned. It got used to that chronic tension. And the only way to release it—that's why we do exaggeration games—is so that you can really feel it go into the brain pattern that you want to do. That's why I had you go to the extreme, so you can really feel those muscles, and you can connect back into those muscles. (Voice lesson, 9/22/17)

Caitlyn's description of how she facilitates shifting a singing-related pattern by helping Sam to sense chronically tight muscles, change the pattern, and help Sam to feel the difference reflects the connection she feels between her Hanna Somatic Education background and approach to teaching voice.

Pandiculation. Another way Caitlyn teaches her students to repattern habits that interfere with their singing is Hanna's approach called pandiculation. Thomas Hanna used the process of pandiculation to help students exert control over muscles that have, through Sensory Motor Amnesia, "forgotten" how to move. Caitlyn taught Kevin how to use pandiculation as an alternative tool to address and become more mindful of his chronic neck tension. After several minutes of vocal warmups, Caitlyn noticed that Kevin was continually stretching and pulling on his neck. She explained that overstretching can

lead to spasm, and that using conscious contraction can help the muscles release naturally. She teaches Kevin a Somatic Exercise that he can use to release the areas about which he seems most concerned. They sit across from each other as Caitlyn guides him with verbal instructions, and performs the movement herself. Repeating several times on each side, Caitlyn and Kevin inhale while lifting a shoulder up, bringing the ear on the same side down to the shoulder, squeezing the muscles in between, then exhale while their shoulders melt back down and their heads return to upright positions. They then return to the vocal warm-up he was singing, with Caitlyn directing Kevin's attention to the length between each ear and shoulder, which they released on either side, as he continues to sing. Kevin happily reports that his sound "feels freer."

Unintentional movement. In Eva's lesson, Caitlyn tried to get her to minimize her nervous habit of moving her arms by getting her to use that energy to work from the inside. Eva waves her arm each time she sings, stopping when she stops singing.

> **Caitlyn:** "So the pulsing that you want to do with your arm, put it in your body."
> **Eva:** "*In* my body. Yeah. Okay."
> **Caitlyn:** (*Pointing to her lower abdominis with both hands*.) "Put it in here in your driver's seat."
> **Eva:** "Okay." *While Eva repeats the warm-up, she holds her arms out to the side on the high note.*
> **Caitlyn:** "So whatever this is for you," *Caitlyn mirrors the arms, then points to her abs again,* "*this* has to take over." […] *Eva sings again.* "How does that feel?"
> **Eva:** "Better. Yeah […], once this stops," *she flaps her right wrist,* "this is more focused." *She draws a vertical line from her solar plexus up to her throat.*
> **Caitlyn:** "Right."
> **Eva:** "It's in here."
> **Caitlyn:** "Exactly. This is a reflection of what you want your body to be doing, this arm over here, is saying, 'come on brain, turn your body on,' instead of just saying, telling your brain, 'alright, ditch the arm, let's get to work.' And you're just gonna have to say that to yourself, 'ditch the arm,' till the body gets to work." (Voice lesson, 9/22/17)

Caitlyn acknowledges that Eva is progressing because she treats the habit as evidence the bodymind knows something should be happening. Eva noticed the reallocation of energy and awareness of the habit clarified Eva's connection to her support.

Caitlyn employs her Hanna Somatic Education perspective to notice characteristic habituated stress reflexes in her students, which she can address with the appropriate Hanna Somatic Exercise. She can use this general concept to design an opposite activity that exaggerates two extremes of the same movement, such as singing through fluted lips when the tendency is to spread. In cases of Sensory Motor Amnesia, Caitlyn also relates back to Hanna Somatics to help students purposefully contract chronically tight muscles so that they can learn to release them. Or, in the case of unconscious movements, she assists students like Eva in tapping into the energy behind that habit in a more productive way. After using these tools, the way is paved for learning a new pattern.

Finding Words

Another connection between Caitlyn's Hanna Somatic Exercise coaching and voice teaching is her ability to communicate the tools her students need to understand their sensations so that they can practice efficiently on their own:

> And it doesn't matter if I'm teaching singing […] or teaching Hanna Somatics; just my years being a teacher […] has helped me zero in on the language that I'm using so that I'm not confusing, […] we're working smarter, not harder. (Interview, 10/11/17)

Caitlyn has had to "zero in" on the language of her instructions because Hanna Somatic Exercise coaches are to instruct only verbally when teaching exercises to students. She explains, "it's all speech: how to lead it in a way that guides the breath and guides the movement" (Caitlyn, interview, 9/21/17). The challenge of Caitlyn's training in that arena was finding the words to help people access areas they had difficulty sensing and

moving, without modeling or using her own hands to guide them:

> […] when you sense somebody struggling you want to sort of jump in and help them, and when you're teaching Somatics, you really need to let them figure it out. You can coach them with your words, and you can say "I'm getting the sense that this is not registering in your brain yet; let me help with some other words," but you can't move them or say, "okay stop, watch me do it." […] And that triggers back into my voice teaching at the same time. Sometimes you've just got to let them have some time to digest, whether you want to help them or not. (Interview, 9/30/17)

Caitlyn's instruction involves finding ways to communicate so that her voice students can "figure it out" for themselves. Caitlyn encourages her students to "own their progress" and "sense it" when they make a change, making a point to ask them to describe what that is. In this way, her task is also to help them to find a way of communicating back to her.

Reframing students' language. Caitlyn's practice of reframing her voice students' use of language was especially apparent in Kevin's lesson, because his frantic fix-it attitude disconnected him from the process of sensing and changing patterns in his singing. One of Caitlyn's solutions was answering his product-focused questions by either posing process-focused questions or redirecting him to recall or try a physical activity with which he could discover the answer to his own question. This exchange could be as simple as answering "was that better" with "did it feel better," but was often more specific, compelling Kevin to articulate what he was sensing when he did not receive the approval he sought from an external source.

Kevin thought he followed Caitlyn's directions when she told him to let go of his jaw instead of using muscles to open it: he massaged his masseter muscles, wiggled his chin, stretched and cracked his neck. When the resultant sound did not improve, he assumed he had not relaxed enough. Caitlyn told him the opposite was the case, and he asked why he should not strive to be as loose as possible. Her "answer" was to ask Kevin

where he was doing "the work" of his singing, reminding him of an activity in which he sang by pushing down the mandible and then sang the same passage while lifting through the palate and allowing the mandible to drop.

After another attempt at the same passage, when Kevin asks if she stopped because he was "a little flat," Caitlyn asks Kevin whether he continued to focus on "the lift and the space inside," and then rephrases her feedback into another way he can keep track of his resonance space: by maintaining the space of \a\ and pretending there is no r or no other syllable after it. When she stops him after his next try (this time on \ŋ\ to remove the familiar text he may be anticipating), he asks, "What? What am I not doing?" Caitlyn replies "you can remind yourself inside that you can still create the '\a\' while you're on the 'n g.'"

Describing her own experience. Sometimes Caitlyn is able to derive helpful wording to "feel for" by performing a movement herself and describing what *she* is feeling, inviting the student to compare his experience with hers. After practicing a revving sound together to connect the work of the abdominis to the tone, Caitlyn relates what she is hearing Kevin do to what it feels like for her: "I'm hearing a little extra air come out with your consonants. It more feels like 'uuuhhh,' 'uuuhhh,'" her body rebounds up from the abdominis pulsing inward, the arms and ribcage appearing to expand from the bounce, "than 'hhhuuuh,' hhhuuh'" she launches the sound out with a forceful sound and jerking motion as if receiving the Heimlich maneuver. Kevin asks which one he is doing "wrong," and again, Caitlyn replies with what the less optimal sound feels like (not by confirming which was correct): "The one that wants to come up and forward." When Caitlyn and Kevin perform a related movement together, this time

pulsing on \v\, she points backwards next to her face and tells him she feels the vibrations falling in that direction (instead of answering him as to whether he was sounding "better"). For the first time, Kevin participates in this dialogue with greater specificity, describing the sensations as though the sound was still "oscillating" back when he opened his mouth to sing. Caitlyn responds using his words, "yeah, like oscillating back through you." After articulating the concept in his own words, Kevin starts to sing with greater resonance and freedom, and Caitlyn guides Kevin in describing the steps they took, the sensations he felt, and the process he will use to practice on his own.

> I want you to be a little more holistic about it. And if it's not feeling right, decipher *what* is not feeling right. […] If it's a crowded neck thing, it's a crowded neck thing and we'll keep working at it. If it's because you're taking your breath and it's not being useful, we'll keep working on that. But if you can write it out and label those, […] 'oh, this is a pattern,' and then we can change it. (Voice lesson, 9/22/17)

Helping students find their words. While finding the words for instruction during lessons is an essential aspect of Hanna Somatic Exercise coaching, Caitlyn is aware her voice students may struggle with putting their own experiences into words. She has found that voice students have difficulty verbalizing what they are sensing and where, because once they let go of interfering patterns, they no longer feel as though they are holding on or working. For example, when asking Sam about a change she sensed after singing a passage a different way, Sam stated that she did not feel like she was "doing as much," after which Caitlyn explained, "Yes. It's not as tangible" (Voice lesson, 9/22/17). One of Caitlyn's solutions when students have difficulty finding words to describe changes is, after several repetitions of a new experience, to give them the option of showing her what they sense by drawing on an outline of a human body "while they're singing" so that she "can see how the brain is working" in real time (Interview, 9/21/17).

Caitlyn's use of language to illustrate internal concepts, identify existing patterns, reference familiar movements, and model descriptions of first-person sensations, is inextricably linked to the way she builds the foundation and subsequent layers of optimal singing patterns.

Building Layers of a Pattern

Caitlyn does not always employ a specific Hanna Somatic Exercise into every voice lesson, but she notes its influence in her multi-layered approach voice instruction:

> The Hanna Somatics side of me in teaching a voice lesson can recognize what might be a chronically inherent tension in somebody, let's say a jaw, […] but I may not be able to address it at that very lesson that I am sensing [it]. […] Because other layers may not be in place yet for them to really work with the chronic stuff. (Interview, 10/11/17)

The Hanna Somatic Exercises address the functioning of the integrated, coordinated soma by combining sequential whole-body movement with sensation instructions at moment-to-moment. Since singing involves multiple simultaneous processes, Caitlyn directs her students to sense each singing-specific skill, or layer, until they integrate into a coordinated pattern. These skills include a low inhalation that sets up an open throat, support and energy to regulate the breath, a deep connection to the onset, and an appropriate resonance space. More specialized singing tasks are not piled on until all layers are reliably employed together.

While Caitlyn does not advise her students to perform Hanna Somatic Exercises while singing, she may use exercises to provide a foundational somatic "layer" upon which they can build singing-specific layers. The table below provides an example from Eva's lesson, in which Caitlyn leads her through a Hanna Somatic Exercise, identifies the layers she already has in place, adds onto these while reminding her of what to maintain and sense, and provides feedback at every step.

Table 6

Caitlyn's Multi-layered Approach: Eva, Voice Lesson, 9/22/17

Layer	Teacher Action
Maintain: Ease, connected body, onset	**Caitlyn:** "Now see if […] as you do the legato line, that it just really feels easy. Just be simple about it, obviously your body is connected, your onset's there, everything's there, just go ahead and let it fly." *Sam sings.*
Add: "Stretch" of vocal tract	**Caitlyn:** "Add in a little bit more […] tube" *she makes a C-shape with her hand and draws it behind her head. Sam sings.*
Add: Allow neck muscles to release	**Caitlyn:** "Good, now add in another layer. […] just allow everything to just drop underneath." *Caitlyn pets the front of her neck, takes a yawn-breath, sings pitch.*
Add: Coordinate breath w/sense of smooth jaw movement **Maintain:** alignment	*Caitlyn leads Eva in pattern: inhale, lowering mandible with thumbs applying pressure under chin; exhale, using thumbs and index fingers to close mouth. She asks Eva if it feels smooth or jittery on the opening or closing. Eva indicates it feels jittery on the close.* **Caitlyn:** "It's like, 'k-chug, k-chug, k-chug?'" *she moves her hands jerkily up and down a few centimeters. Eva confirms.*
Add: Watch smoothness of movement in mirror	**Caitlyn:** "Go in the mirror; maybe that'll […] smooth out the motion a little bit." *Caitlyn stands with Eva, facing mirror.* "So inhale, really let it drop, […] now slowly close it. Okay, so what's your sense while you're doing that?" **Eva:** "Looking in the mirror helps, because last 'k-chug, k-chug, k-chug,' closing," *head-banging on each sound,* "I think just getting that drop," *she drags her palms from her temples down her cheeks, jaw dropping,* "easily, is not all the way there yet. […] I'm still like 'and now I need to lower it a little more.'"
Add: Feeling of heaviness, sense memory of yawn	**Caitlyn:** "So […] just let it unhinge. If you allow it to just be heavy and not use muscle to make it drop, it might be easier." *Eva inhales and drops her jaw.* "Like a yawn, right?" *Eva closes her mouth and exhales.*
Add: Lift inside	**Caitlyn:** "I want you to add in the singing space, so lift inside at the same time."
Add: Inner sense/image of abs as "anchor," and sense of "stretch" in the vocal tract	**Caitlyn:** "So try not to feel like you have to drive the legato line with anything holding here," *she places her fingertips on her TMJ,* "this is what does the work," *points to her lower abdomen. Eva sings.* "What do you feel?" **Eva:** "It feels smoother. I feel I can stretch and I'm visualizing that tube and connecting it more […]. I think I can still get a little more."
Add: Energize body by singing on \v\, notice difference in where she feels resonance	**Caitlyn:** "So let's go back and energize the rest of your body under that, because now you're so focused on the stretch on 'durch,'" *she sings, pulling one thumb back and up, the other forward and down,* "instead of moving your throat." **Eva:** "I could feel it going…" *she bends her knees as if sinking toward the floor.* **Caitlyn:** "It's starting to sag a little. Can we do 'v?'?" *Eva sings on* \v\. "What does that do for you?" **Eva:** "I feel […] when it's going," *she sings while pressing palms down from her forehead,* "versus," *she sings, floating hands upward overhead,* "staying up here."
Add: Sense of singing on vowel **Maintain:** anchor, stretch, ease in jaw	**Caitlyn:** "Okay, so would you agree […] that the 'br' of 'Brust' is bringing everything down?" *Eva agrees.* "So again," *she thrusts her thumb over her shoulder past the back of her head, dropping her jaw as she sings* "Brust. Go right into that \u\."

During the process of building brain patterns for optimal singing, Caitlyn advises her students to practice with every "layer" they have learned in place.

Caitlyn values the way her Hanna Somatic Exercises became a practice in her life in the sense that it empowered her to help herself. She emphasizes this point as the major distinguishing factor between Hanna Somatic Education and other disciplines in which the teacher or practitioner moves the student.

> The difference of that is that somebody's moving you, and so, there's that piece missing again, because if you're moving yourself, then you can fix it. Now [my teacher], when she worked with me, […] she would be making me move and she would be guiding, but I was really still doing the work, and then […] she could feel when I would go "cha-gung, cha-gung, cha-gung" [Caitlyn twists haltingly as if getting stuck repeatedly] she would say, "okay, come back, do it again" and then I would slow up, but she wasn't moving me, she was just reminding me of being aware. (Interview, 9/21/17)

Conclusion

This chapter described the within-case themes that surrounded each teacher's practice. Victoria taught her students the means whereby they could initiate sound from an activated instrument, lead from the head by the primary control. Mary taught her students to expand their self-images by incorporating their imaginations as a realm for exploring singing and awareness. Caitlyn takes pride, in both her Hanna Somatic Education and voice-teaching contexts, in giving students the tools to help themselves, be they Somatic Exercises or an awareness-driven inventory of necessary layers in integrated singing.

Given that F.M. Alexander and Moshe Feldenkrais developed techniques as a result of their own injuries, it is noteworthy that Victoria, Mary, and Caitlyn came to their respective somatic education disciplines while in search of solutions for their own tension-related pain and dysfunction. All three teachers found in their own somatic education a style of learning and an opportunity for improvement that they wanted to recreate for their students. They expressed a desire to bring transformative change to their

students' singing and overall functioning, in ways that, although similar, show discipline-specific elements. The next chapter presents cross-case themes as they emerged from analysis across the three participants.

Chapter V: CROSS-CASE FINDINGS

The previous chapter presented an introduction to the participant teachers and their teaching settings, along with a discussion of within-case themes that emerged from each of the three individual cases. This chapter will discuss the findings resulting from cross-case analysis. Those themes that emerged across all three sites are discussed below.

Directing awareness is an overarching cross-case theme that is an umbrella under which all other themes fall. What is most meaningful from the cross-case analysis is that the voice teachers, regardless of somatic training, emphasized directing awareness as the aspect of their practice from which other elements were derived. The teachers in this study, by directing their students' awareness, engaged them in "targeted sensing" of specific regions of their bodies in movement, in the sensations of "allowing" movements without making them happen, in "observing these movements nonjudgmentally," in "experiencing the movements somatically" (by noticing the involvement of their thoughts, emotions, and bodies in their movements), in "experimenting with new movements in the safety of their studios," in "sensing differences" between how new movements felt compared to others, in "slowing down and pausing" to make sure each action was fully sensed and processed, and in "self-monitoring" strategies to practice efficiently and notice patterns on their own.

By training students to tap into their awareness during movement, the teachers and students in this study were able to identify movement patterns that were impeding vocal progress and work together to change them. For that reason, the cross-case themes in Table 7 are paired with responses to a general awareness-directing prompt to begin to

demonstrate the interaction between "directing awareness" and other prominent themes in the context of voice lessons.

Table 7

Cross-Case Themes

Cross-Case Theme	**Directing Awareness** Notice what you are sensing/doing…
Targeted Sensing	…from the inside, outside, and/or in movement
Allowing	…without making something move or happen
Observing Nonjudgmentally	…without judgment
Experiencing Somatically	…in relation to emotions, thoughts, and the body as a whole
Experimenting in Safety	…in an exploratory process without a set outcome
Sensing Differences	…compared to other ways of performing the task
Slowing & Pausing	…by moving slowly and taking time to process sensations
Self-Monitoring	…while monitoring components of old and new patterns

Given that each soma is "the body as perceived from within by first-person perception" (Hanna, 1986, p. 4), somatic educators have the difficult task of teaching students how to notice that sensory information and become aware users of their own bodies. "Directing awareness," therefore, is the thread that ties somatic education practices such as Alexander Technique, The Feldenkrais Method, and Hanna Somatic Education together. As a consequence, it is also what Victoria's, Mary's, and Caitlyn's practices have in common. These three teachers trained their students to notice what they were sensing while singing and during other movements used as a means to improve overall functioning. Awareness-directing language and activities are inextricably intertwined with the other cross-case themes presented in this chapter.

Targeted Sensing

One subset of "directing awareness" is "targeted sensing," which describes incidents in which the three participant teachers asked their students to sense a specific region of their bodies while singing, preparing to sing, or in performing a related movement. For example, Victoria brought Rochelle's attention to notice where the tip of her tongue resided while she sang sustained notes (Voice lesson, 7/18/17), Mary helped Brenda notice the initiation from and activity around her pelvis while rocking forward and backward, (Voice lesson, 8/29/17), and Caitlyn instructed Sam to notice the elongation of the space between her lips and the back of her throat (Voice lesson, 9/22/17). Generally, the teachers in this study brought students' attention to targeted areas of the body or movements of the body during singing, promoting the integration of intellectual and physical knowledge.

When Victoria, Mary, and Caitlyn asked student participants to notice a specific area of their bodies, there was often a movement response due to the reciprocity of sensing and moving. In this way, students were reminded to reintegrate a bodily region into the new movement patterns they were learning. For example, when Victoria asked Elizabeth what her soft palate was "up to," Elizabeth realized it was not raised, and restored its domed shape (Voice lesson, 7/18/17). While she had learned when she ought to raise her soft palate, she still needed a reminder to sense whether she was doing so. Mary asked her students similar questions, like when she asked Ari "what's your pelvis doing?" while walking, and when she asked John "where's your head" when he stood up from tablework (Voice lesson, 9/20/17; 9/10/17). These questions helped Ari realize that she was not letting her hips drop as her knees bent while walking, leading her to release

her pelvis and walk more efficiently (Voice lesson, 9/20/17). The questions helped John notice his head was tilted to the side so that he could rebalance it. Similarly, when Caitlyn asked Sam what her lips were doing, Sam realized her habit of pulling back and spreading her lips had resurfaced. While initially frustrated by this, Sam soon discovered that the lip-spreading was contributing to tension in the sides of her neck, a discovery that gave her a more complete sense of a habitual pattern and another indicator to notice its presence. When the teachers in this study directed students' awareness to sensations in a targeted region of the body, they found a piece of the full somatic puzzle—the beginning of understanding the larger movement pattern in the physical, emotional and mental aspects of the soma.

Allowing

"Allowing" refers to another application of "directing awareness" in which the participant teachers instructed their students to notice the sensations of a movement without making the movement happen. "Allowing" is a way of experiencing movement without attempting to control it or apply effort, a significant somatic activity given the inverse relationship between sensitivity and effort (Gilman, 2014). For example, if a student is asked to notice her breathing, she can pay attention to the sensations of breath-related movement throughout her body without sucking in air, drawing in her abdominal wall, pushing out her ribcage, or any other overt actions. If, however, she is able to notice how her body is moving without deliberate participation (or interference), she can establish a baseline of what it feels like to allow her breathing to happen automatically. She can then explore how much additional effort, if any, needs to be applied should she choose to breathe before singing a passage of music, or what, if anything, needs to

change about the way she is moving when she inhales to sing a passage and exhales to phonate. These were the sorts of explorations the teachers in this study used to help their students minimize excess exertion, tension, and extraneous movement so that they could "get out of their own way" and sing more efficiently. The teacher participants taught students how to "allow" movements by wording their instructions to promote passive or indirect control during aware movement, and by showing students it is possible to sing—and sense oneself during singing—without holding on or "doing" something muscularly.

"Allowing" Instructions

The teachers in this study worded their instructions so that students would notice how areas of their bodies coordinated during singing without "help" or interference. For example, instead of wording directions as calls to action, such as "relax your face when you breathe," "make reverberations in your whole body" or "lean on your larynx to make it tilt," the students in this study were guided to observe the process, with instructions such as "notice the tone in your lips and your cheeks letting go to breathe" (Victoria, voice lesson, 7/18/17) or "if you let yourself really feel the truth […] notice if you feel any extra reverberations [elsewhere in the body when rocking is initiated at a specific location on the body]" (Mary, voice lesson, 8/29/17) or "have a sense the laryngeal tilt is happening, so you're just leaning" (Caitlyn, voice lesson, 9/22/17). "Allowing" instructional language was particularly prominent in Caitlyn's practice because, as discussed previously, she frequently gave her students imagery to guide them towards awareness of the internal movements of singing. For example, Caitlyn told Joel to "add in the idea" that his sternocleidomastoid muscles would drop when he breathed (instead of telling him to drop them or telling him not to tighten them), and told Eva to remain aware

of her jaw as it "slings back" during the internal work of stretching through the vocal tract so that she did not add interfering tension in trying to forcibly move her jaw to a different position (Voice lesson, 9/22/17).

The way the three participant teachers worded their instructions directed students' awareness to what was happening in their own bodies so that they could begin to trust that excessive effort or concentration was not required. The surprising result of these simple awareness-directing ideas and questions was the observable changes that followed without students being told to *do* anything. As Victoria explained to Rochelle when she was having difficulty putting a sensation into words, "now that you're noticing it, it'll change" (Voice lesson, 7/18/17).

Indirect Control

One of the terms describing the mechanism by which students can notice and allow the movements of singing without needing to carry out each component task directly is aptly called "indirect control." Maladaptive habits in singing often arise from muscular movements that interfere with, rather than enable, the efficient functioning of the larynx, respiratory system, vocal tract, and the body's optimal alignment. Conversely, although the coordination and energy involved in singing without interference feels less involved (when, in fact it is simply more efficient), the body is still able to "control" singing. This description explains why "allowing" relates to the concepts of "indirect control" or "nondoing" in Alexander Technique and "passive control" in the Feldenkrais Method (and, since Hanna was a student of Feldenkrais, in Hanna Somatic Education as well). The relationship between "directing awareness" to a process without exerting control over that process is prevalent throughout somatic education, in part because

imagining an action (as discussed in Mary's within-case theme of "Imagination") can provide a sufficient sensory-motor blueprint for the action to occur.

Mary's approach to teaching Miles passive control was imaginative, as she prompted him to "just wonder what could let go a little more" in his right shoulder, and as that released, she continued, "and that extends around the shoulder blade" (Voice lesson, 8/29/17). With John, Mary's approach to facilitating passive control was more practical, as she reminded him that he could find his diaphragmatic support by simply noticing its automaticity: "In other words, the exhale sets up the inhale, riding the whole wave, [which] is how you're gonna […] find that easy support of the diaphragm without it being manipulated," or by being acted upon directly (Voice lesson, 9/10/17).

Victoria's instructions for "indirect control" operated on a similar premise, that students can "notice and think" rather than "muscularly do" many of the tasks she assigns, "observing [them] happening without making [them] happen," as she encouraged Elizabeth to do by thinking about her airflow targeting the alveolar ridge instead of trying to shape the vowels from the outside (Voice lesson, 7/18/17). Caitlyn's instructions to Kevin to "let [his] head just be right on top," and for Eva to let her jaw "unhinge" instead of using muscular effort to open it were similar (Voice lesson, 9/22/17), because her process of giving students "layers" of technique to maintain in their awareness while singing can be likened to the way students of the Alexander Technique are given guiding orders to remind them of the essential components of their means-whereby.

Accepting Intangibility

"Allowing" involves releasing interfering muscular effort and control, a step that requires "accepting the intangibility" of free singing. "Allowing," therefore, involves a

disconcerting loss of sensation—the inability to "hold on" or detect one's involvement—in areas such as the extrinsic musculature around the larynx that students are accustomed to engaging when singing. This part of the learning process—the unlearning of habitual tension—required Victoria, Mary, and Caitlyn to direct students awareness to reassure them that the "work" of singing was still taking place, only differently.

In addition to their use of "allowing" instructions to guide students' awareness in action, the teachers in this study promoted more coordinated and less effortful movements to emerge. Victoria, Mary, and Caitlyn helped their students remove any excessive tension they came to associate with singing, acknowledging that a loss of tension—perceived as a loss of tangibility—made letting go feel like more of a risk. For example, Victoria repeatedly reminded Rochelle to keep her lips "neutral" while imagining the backspace of \u\ and singing \i\. When Rochelle's vowel was less manufactured, Victoria asked her whether she felt she was not "doing it as much," and Rochelle confirmed that was the case. Despite subsequent reminders, Rochelle's lips started to round again, and Victoria explained there was no need for Rochelle to "work so hard" in an exercise that did not necessitate shaping (Voice lessons, 7/18/17).

Just as Victoria noted that Rochelle could expect to feel as if she was doing less once she curbed her excessive lip-shaping, Caitlyn warned Joel that removing effort from his singing would feel less involved:

> You can't feel your way; you can't feel the walls as you travel up there. It's just, "go!" So if you're looking for anything feeling tangible from the lower note to the upper note [there are] no steps! It's a leap of faith. (Voice lesson, 9/22/17)

Brenda needed to take a "leap of faith" when Mary asked her to "play" her vocal line with her fingers on her lap as if it was a piano, and concentrating so hard on performing the task that only her fingers were involved in the movement. Mary explained that in only

allowing her fingers to move, Brenda was restricting the connection between her fingers, hand, wrist, forearm, elbow—the involvement of which would enable the smoothness she was after in her vocal articulation. "If you do it this way," Mary explains, playing with a level wrist and curved fingers so that her thumb can tuck underneath in a continuous scale, "you're going to allow rotation" (Voice lesson, 8/29/17). "Holding on," or, as Caitlyn warned Joel, trying to "feel the walls," can prevent parts of the body from working together, and by allowing release instead, these parts can more evenly distribute the work.

Victoria, Mary, and Caitlyn helped students sing more efficiently by "directing [their] awareness" to the sensations of "allowing" movement to happen without excessive effort or tension. During the observed voice lessons, these teachers instructed their students to notice how they were moving while singing, including how they were *already* moving, in a way that promoted efficient singing—so that they could begin to trust their physical knowledge. However, in order to help their students fully understand (and eventually change) problematic movement patterns, the three teachers also taught their students to stay present and nonjudgmental in their self-observation so that they could stay connected to what their bodies "knew" and aware of the emotional and mental aspects of their habits.

Observing Nonjudgmentally

The participant teachers lead students in the practice of "observing nonjudgmentally" by "directing awareness" toward *how* they were moving in singing, without fixating on how *well* students thought they were singing. The teachers in this study taught their students to observe themselves nonjudgmentally so that they could

learn to use sensory information to understand habitual or interfering patterns and create new ones. Nonjudgmental observations were elicited when Victoria, Mary, and Caitlyn reassured their students that their singing was neither "right" nor "wrong" but simply changing, and modeled the use of descriptive rather than judgmental language to teach them how to report their sensations as specifically (and productively) as possible.

The three teachers set a non-corrective, supportive tone for their studio spaces to help their students stay present to the process of sensing what they were doing and feeling. When Victoria, Mary, and Caitlyn encouraged their students to observe sensations nonjudgmentally, they often used similar language to do so. For example, Victoria advised Jessica: "Don't panic, and let it be what it is. It doesn't matter; it's a warm-up" (Voice lesson, 7/18/17), Mary told John, "So now, just let it be what it is. Breathe" (Voice lesson, 9/10/17), and Caitlyn cautioned Joel, "when you get to the upper note, try not to monitor it while you're up there, just keep that alive and keep stretching around it" (Voice lesson, 9/22/17). In these instances, the teachers explained that behaviors such as filtering or self-evaluating one's sound are counterproductive because they disconnect singers from their sensations of movement, preventing them from discerning and building more helpful patterns.

In order to help those students who were prone to self-judgment, the teachers in this study reminded them that their struggles are a normal stage of learning new patterns. They gave students permission to fail by steering them away from the notion of "correct" responses, reinforcing their courage and patience by specifying when they were working in a low-risk process-focused mode. For example, Caitlyn helped Sam reframe the notion

that there is a right and a wrong way to sing by pointing out that Sam was in a normal, transitional phase of unlearning one of her singing habits:

> **Sam:** "It just drives me crazy because I know like, it's just like me fighting myself all the time […], so like, 'I know I'm doing it wrong but' like, I keep going back to the other way, so it's like…" *Caitlyn upon hearing the word,* "wrong," *makes a T-shaped time-out signal with her hands.*
> **Caitlyn:** "Let's not label it as 'wrong' or 'right,' but let's label it as 'something that is in a shift.' You're shifting into a new pattern. So what you're doing before isn't wrong, it just isn't the most optimal." (Voice lesson, 9/22/17)

Victoria attempted to keep Jessica's observations nonjudgmental by explaining why she could expect her attention and patterns to shift—or even temporarily regress—depending on the focus of the activity:

> **Victoria:** "Now since those two sections are going to be different, […] we're just kind of letting yourself go through it for some notes, not paying particular attention to anything. Sometimes that's okay. There's nothing wrong with doing that. Okay? What are you sensing on this?"
> **Jessica:** "[…] It felt a little…not as free?"
> **Victoria:** "Yes, yes. And it wouldn't be; we didn't sing it through for that purpose. Right? So, it's the mindset that we bring to it that changes the sound. And when the concern goes to notes or words, there's very often times not room for much else, and that's fine." *She smiles.* "So not to get judgmental—not that you would ever do that," *Victoria laughs as Jessica cuts her off.*
> **Jessica:** (*Sarcastically*.) "Never!" *She laughs.*
> **Victoria:** "—when you go through something for the first time that day."
> **Jessica:** "I mean, it wasn't *horrible*."
> **Victoria:** "No, no, no!"
> **Jessica:** "It just didn't feel quite as easy as it did" (Voice lesson, 7/18/17).

In addition to giving Jessica permission to sing through new material without expecting the notes and technique to be perfect at the outset, Victoria pointed out to Elizabeth that, although she was upset by her tone quality on one of the higher notes of her piece, the "problem" was that she was bravely trying to incorporate previous feedback into a passage that required slightly different technique. Victoria explained that while Elizabeth enabled more backspace, the influence of her lip-shaping habit was causing a tug-of-war between both old muscle memory and a new opposing pattern:

> "How about that? That's a new problem for you! Too MUCH space with your jaw. That's actually a good thing, because for so long, your back space wasn't big enough. And now that you've got the back space better, you don't need to do so much," *she waves a hand over her face,* "all the time with that" (Voice lesson, 7/18/17).

Victoria's kind smile and lightheartedness while giving Elizabeth this feedback signaled that she was offering praise and not correction. She framed problematic movement (over-opening of the jaw) as a sign of progress—as evidence of a new adjustment that demonstrated Elizabeth's ability to change. In this way, Victoria modeled "observing nonjudgmentally" by noting that Elizabeth performed a movement differently, using a specificity of feedback that taught Elizabeth when and when not to replicate the same degree of backspace appropriately.

In a similarly positive exchange, Mary treated the identification of Ari's habitual pattern as a useful point of departure for learning. Mary cultivated a rapport with Ari in which they were able to smile or laugh when they noticed components or total manifestations of Ari's habitual stress pattern—as opposed to noticing it judgmentally as a sign she was not improving or trying her best. As they "played" with different variations of the movement, the triggered habit was treated as a welcome source of new information that helped them determine to which part of the body Ari was anchored and to what area Mary could direct her awareness to best support her singing:

> **Mary:** "Try it again." *Once again, Ari tilts forward from her Sitz bones while rolling the ball atop her thighs.* "It's better, right? It's *less* jumpy, but there's still that little nubbin of…" *Mary suddenly jerks forward, hands up and out as if she was startled,* "falling into it instead of…" *she now eases forward, and Ari continues.*
> **Ari:** "Mm-hmm. Yeah."
> **Mary:** "Now, let's see what happens if you try to do this and freeze your pelvis." *Ari smiles and hesitates, seemingly unsure how to start. The jerkiness from her earlier movements was most pronounced during this repetition as she attempts to tilt forward and roll the ball atop her thighs without moving her pelvis. They laugh.* "Yup! The whole thing, the whole pattern was there, right?" *After adding back the movement, as if rolling the ball directly from the Sitz bones, Ari is soon ready to add voice.* (Voice lesson, 9/20/17)

In this context, finding the full expression of a pattern was almost celebrated, rather than judged to be incorrect or as an instance of failure. The activity directed Ari's awareness to the function of her pelvis, its inaction in her habitual pattern, and how to reintegrate it into a new pattern of breath and phonation.

Mary also fosters nonjudgmental observation in the way she gives her students "the permission for them to be who they truly are" (Interview, 9/27/17). She applied this concept when she directed Ari's awareness to finding a neutral ground between her frozen, retracted grin and the other extreme with rounded, extended lips. As Ari struggled to find a neutral position from which to breathe and sing, Mary rephrased her instructions, asking her to find "neutral" by approaching the breath from a nonjudgmental sense of self, telling Ari to "take a second to go into the feeling of your being fine as you are" (Voice lesson, 9/20/17). Unlike the previous attempt, in which Ari continued moving her face as she hesitantly inhaled to sing, this time her lips neither pulled back nor puckered forward, and she allowed her breath to drop in instead of sucking it back. Mary gave Ari permission to be herself, not her pattern, directing her awareness in a way that enabled her to suspend self-judgment and access natural movements.

Experiencing Somatically

"Experiencing somatically" involves noticing sensations of movement from within, and in relation to emotions, thoughts, and the body as a whole. The most common reason the participant teachers directed awareness to the somatic experience in voice lessons was to address interfering thoughts or emotional states that blocked the participant students' access to their own physical sensations. By "directing [their students'] awareness" to the ways in which their somas' emotional, mental, and physical

aspects manifested in their singing or singing-related habits, Victoria, Mary, and Caitlyn helped them to recognize patterns so that they could notice, predict, and eventually preempt interfering somatic reactions stemming from the most commonly observed emotional obstacles: frustration and fear.

Caitlyn helped Kevin to recognize the pattern of behavior in which his frustration with his sound, with repeating a mistake, or (ironically) with his recurring neck and shoulder tension was blocking the very somatic awareness he needed to improve his overall singing:

> **Caitlyn:** "[…] I want you to sense what your body is doing now while you're correcting yourself."
> **Kevin:** "Yeah."
> **Caitlyn:** "Do you feel it get…?" *she shrugs and rounds forward her shoulders, collapsing her chest, and making a fist right in front of her larynx.*
> **Kevin:** "Less so than before. […] just because I've—when I mess up, I go back to the beginning…"
> **Caitlyn:** "I'm just saying that, just in your realization that the notes weren't right," *she quickly closes her hand into a fist,* "and you wanna fix it, your body completely changed," *she squeezes her limbs inward and collapses her torso, shortening her neck and bringing her head and shoulders down and forward.*
> **Kevin:** "Ohhhh, yeah!"
> **Caitlyn:** "In that stress of wanting to fix it."
> **Kevin:** "Yeah. Okay." (Voice lesson, 9/22/17)

In a similar way to when Caitlyn directed Kevin's awareness to his somatic pattern of frustration, Victoria helped Jessica recognize the physical changes that coincided with her frustration, although in her case, a different pattern was observed. To better understand what took place, it may be helpful to note that Jessica was interested in participating in this study because she felt that having her lesson observed (and being interviewed about it) would help her make something productive out of her performance anxiety. With this attitude in mind, Jessica made more of an effort than usual to keep from losing her temper during her observed voice lesson. After running through her song,

Victoria pointed out that in not letting herself "go to a judgmental place," as she might have done had there not been an observer, Jessica kept her "busy brain" from dropping into a downward spiral of negativity—which opened up her sound (Voice lesson, 7/18/17). Victoria had been working with Jessica on "growing her sound," which became "bigger" than it had been in previous voice lessons. Victoria attributed this to the somatic effects stemming from Jessica's maintenance of poise and composure in moments that normally would have thrown her off:

> **Jessica:** (*As soon as the song is over*) "I'll resist slamming my water down."
> **Victoria:** "You resisted slamming your water down?"
> **Jessica:** "Because that's my habit, but it's a lot better than it used to be."
> **Victoria:** "THANK you. Oh, man! I'm sitting here thinking, 'if she didn't have another person in the room,' that would have sent you so over the top. You would've gone under the piano at that point. I mean…the difference in your ability to control your responses to all those things that fly around your head makes this SO much bigger than it used to be! This is such a good experience for you right now with [the researcher] here doing what we're doing, oh my gosh! I'm so pleased for you!" *They smile and laugh.* (Voice lesson, 7/18/17)

In Jessica's case, her habit was responding to a sound she did not like with a demonstrative emotional outburst; and by inhibiting the outburst (in the Alexander sense of the word), Jessica's energy and awareness was channeled somatically from the inside-out, improving her sound. In this way, Victoria was able to teach Jessica how the physical actions of her soma influence the emotional component of her somatic experience, not just the other way around.

Although Mary delved into the connection between the emotions and sensation in the somatic experience as well, one of the more interesting of such patterns did not have the same triggers as those reported from Victoria's and Caitlyn's studios. Mary was surprised to see Ari's habitual fear response when it surfaced mid-conversation, since Ari was neither engaged in singing nor in performing a specific movement at the time, and

directed her awareness to her emotional or mental state at that moment in an attempt to further understand the pattern. Ari shared that the thought/emotion linked to her physical pattern during their conversation was simply her anticipation of "what was next" in the lesson. Mary referenced the Qigong "sound from far away" once again as she unpacked Ari's fear response in the context of her somatic experience in the lesson:

> So what would it be like to be curious about what comes next without getting frozen […] at the physical level? […] When you think of listening to a sound from far away, and we're talking 2,000 miles—right, we're not expecting to hear anything; it's just sending our attention out there—do you give it lots of line? Like […] if that were a balloon, and you were sending up 2,000 miles, you wouldn't have your string tied to you tightly, right? […] So when you think of listening to a sound from far away, what's the physical sensation? It's expansive. […] *that's* the place your curiosity can go. "I *wonder* what's next?" But it'll only go there if there's no worry about failing at whatever that's coming next. So what if you do? You know, it's kind of like, "okay if that's something brand new…" (Voice lesson, 9/20/17)

Mary pointed out that shifting one's intention from trying to please the teacher to wondering about new possibilities had a physical corollary: the former closes one off, physically and emotionally; the latter opens the soma up to new possibilities. In deconstructing her somatic experience of anticipating the next activity, Mary directed Ari's awareness to the idea that trying on a new habit of mind (curiosity about unknown movements and sensations) could help counteract the habit in which she physically braced herself for failure or trauma.

Just as Mary connected the somatic experience of openness to help Ari feel less closed off or fearful about trying something new, Mary also helped Miles realize that his self-imposed limitations about what he could and could not do (especially what he could not sing or how, due to certain injuries, he could not move) prevented him from being present and held back his body and voice. While moving Miles on the table, Mary

explained that learning to let go of these thoughts and doubts, and directing his awareness to his entire somatic experience, could have vocal and physical benefits:

> […] something we were talking about in your singing […] was how much was actually letting go of, whether it was, ideas about *you*, or more staying mostly in the head, it changes the voice! But if you're *here*, you just feel like, "Oh yeah," as I'm moving the bones of the arm in a way, it's asking the shoulder blade to do little things and then those gradually start to talk to maybe ribs. (Voice lesson, 8/29/17)

As Miles let go of parts of his body and allowed Mary to move that which he had been holding, Mary directed his awareness to the fact that more and more of his body was coordinating in the movement, allowing him to breathe more fully and move more smoothly. Soon, he was ready to incorporate singing into the tablework. As Mary continued to move Miles, and explore how his imagination could suspend his self-described "immobility," the "wooden" quality of his singing (about which he complained when describing his at-home practice over the weekend), began to shift as well. Directing awareness to the interaction of parts of the body to each other, and aspects of the soma to each other, affected Miles' somatic experience as a whole.

The teachers in this study provided a learning environment conducive to somatic experiencing by encouraging students to stay present to their sensations instead of ruminating over past singing or worrying about future singing, and to trust that their studios are safe spaces in which students can try new ways of singing. They also directed students' awareness to the relationship between these facets to help them understand the complex nature of their habits. Victoria, Mary, and Caitlyn instilled in their students an openness to novel sensation: a mental, physical, and emotional precondition for experimenting with and changing the voice.

Experimenting in Safety

In the context of this study, "experimenting in safety" refers to the process of trying out a movement with an unknown outcome (singing or non-singing), trying on variations of that movement, and "directing awareness" toward the sensations of those new movements in a supportive, risk-taking environment. The three teacher participants showed their students how to experiment with their voices, encouraging them to stay present to the sensations of the learning process rather than worrying about the product so that they could give themselves permission to truly break out of familiar and/or habitual patterns.

In order to foster a studio environment conducive to experimentation, the teachers in this study encouraged risk-taking in the learning process, expressing their own curiosity and interest in the unknown outcomes of new singing/movement options. These attitudes were shared by the interviewed students at each site. For example, Jessica described how she came to view her voice lessons as opportunities for discovery:

> Now, the voice lessons are becoming so interesting to me: we're discovering things. […] I get to sing [at a gig] Thursday and […] I was like, "oh, I can do a voice lesson." I *want* to come in and see what's happening with the voice! That just in the last few months, […] the voice is becoming interesting to me and something not so much to "work" on, […] it's becoming a practice […] about letting go of things, and there's a calm and a peacefulness. And then everything else becomes possible. (Interview, 7/18/17)

As mentioned in Mary's case description (Chapter IV), Miles found the movement interactions between parts of his body to be related in "interesting" ways. Mary facilitated exploration of these relationships by taking over the work of initiating movement so that Miles' sensitivity was unencumbered by effort. During his lesson, Mary used hands-on work to direct Miles' awareness of how pliable and articulated his trunk could be when not held tightly together, asking him to hold and then release an area

purposely to observe its effects on others. Mary employed the instructions below to guide this process, which Miles described in his interview:

> **Mary:** "So here, pushing through bones, and then you can discover what the other side has to do with it. Shoulder blade into collarbone into sternum, with a bunch of ribs in there, and another shoulder blade. And just for a second, can you lock your right shoulder…" *she leans in, pushing at his left shoulder and grasping his left wrist,* "and feel what happens? And then unlock the right shoulder…" *she leans in, rocking him while Miles' head shakes lightly side to side.* (Voice lesson, 8/29/17)
>
> **Miles:** "If I find something works, I stay there until I'm absolutely convinced it can work again. If I'm convinced […], then I'll move, and [Mary]'s really a believer in […] if the hand is on your chin, maybe bring your hand over to your shoulder, letting your hand move; there's […] a thoughtfulness about it and it's funny how that does make me more present [...]. Just, "you know? I'm going to move this way right now," and I move that way, and then I'm back in the moment again. […] Or, "you know what? I'm going to put my hand right over here on my left arm for a moment." And, boom, I'm back in the moment again. (Interview, 8/31/17)

By directing Miles' awareness verbally while moving him from various points of his body, Mary was able to keep Miles present to how his body organized itself to move, experimenting with coordinated movement without the interference of habit. Mary showed Miles movement options by moving *him*, enabling him to explore beyond what he knew how to facilitate on his own.

Eva shared a similar interested, curious attitude toward her voice lessons when interviewed, and linked it directly to her enjoyment of her voice lessons with Caitlyn. She also explained why, conversely, she did not enjoy lessons in the past when she was worried about whether she was singing well enough or showing sufficient progress. It was not until she and Caitlyn discussed the role of experimentation in her studio that Eva's attitude about her lessons shifted from dread to excitement:

> We just talked about […] my background and my experiences with anxiety […] and she was like, "Hey. I wanna see you succeed, and I want you to come in here and feel like you can experiment with things and feel comfortable, and I'm not sitting here like, 'wow, you sound really bad' or 'wow, you sound really good.' I'm here to help you grow and improve." And I think it's crazy but just even after having that

> conversation with her […] my view on even having my lessons just changed and I'm excited to go in there and play around with stuff and discover different things about my voice and how it works. (Interview, 9/29/17)

Caitlyn's affinity for experimentation was also evident in her pre-lesson conversation with Sam, in which she set the tone for the lesson by asking, "What have you been playing with this week?" (Voice lesson, 9/22/17). Similarly, to begin Ari's lesson Mary asked her what "discoveries" she made while experimenting with her tight-lipped habit, and, to begin Brenda's lesson, Mary asked her to describe and then show her what she had been working on since last they met (Voice lesson, 9/20/17; 8/29/17). Brenda's response reflected the experimental somatic viewpoint evident throughout her lesson. Brenda's description of "playing with" a vocal exercise to discover alternative movement is, like the observed teachers' practices, process-driven:

> "To start singing, I've been working with," *pinching her nostrils closed,* "[singing] in the nose, out of the nose," and the last time we did that, […] it was in the nose but not, like, *all* the way in the nose," *she draws a path in the air with her finger from her nose up into a forward arc,* "so I've been playing with, like, 'well, what is that?' and 'how can I do that without like any kind of thrusting?' or," *she brings the fingertips of her right hand up to her throat*, "or, my pharyngeal thing," *she turns her right palm up, shrugs her right shoulder, and hoists the hand from the level of her clavicle to a position in front of her chin.* (Voice lesson, 8/29/17)

Victoria tried brand new warm-ups with Rochelle and Jessica even though she was being observed, which speaks to her own attitudes with students when they sing something in an "interesting" way. In Rochelle's voice lesson, Victoria initiated a varying sequence of warm-ups to help her explore her resonating space which, to Rochelle's frustration, kept collapsing. However, the feedback and instructions Victoria infused into this process were entirely geared toward Rochelle's sensations rather than her sound, giving Rochelle the space to be aware without having to reach a predetermined objective.

> **Victoria:** "I'm not going to do the thing I normally do with you, because the back space on the z can close, so we're going to go from the \u\ into the z…I've never done

this before so this is our maiden voyage on this."

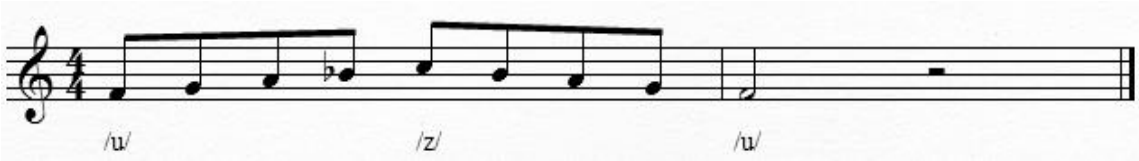

Figure 1. Victoria introduces new vocal warm-up exercise to Rochelle.

The next iteration of the exercise built off the back space Rochelle felt on the /u/ to a sound Victoria used to help her students connect to the action of her oblique abdominis.

Victoria: "See if you can maintain your back space when you phonate the z; that you sense on the \u\. Okay?" *Rochelle nods and sings one repetition.*
Victoria: "Now do..." *She sings variation of exercise, switching /u/ with /z/.*

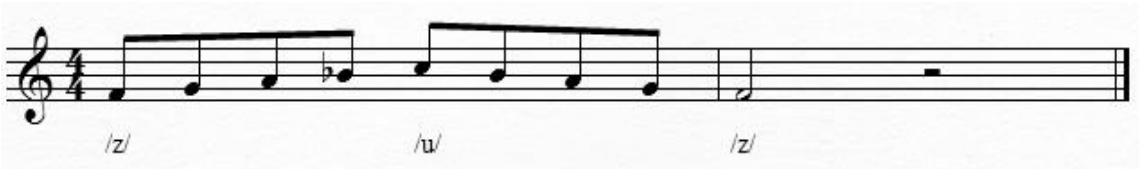

Figure 2. Victoria teaches variation of warm-up, reversing vowel sounds.

After trying the second exercise, Rochelle sensed she was able to maintain back space better when she started on the vowel, so Victoria modeled using that information to choose to "keep" the version that was most reliable for her.

Rochelle sings one repetition.
Victoria: "Which one's easier to keep the back space on?"
Rochelle: "The first one?"
Victoria: "Then let's keep that one."
Rochelle sings several more repetitions.

Victoria, after Rochelle found a consistent approach to the backspace, directed Rochelle's awareness to the sensations from and function of the /z/:

Victoria: "Now, […] what are we […] paying attention to [as you get to that z]? Besides your back space, besides your soft palate?" *Rochelle spreads the fingers of both hands and opens them over her ribs, pulling her palms outward from her center.* "Aha! Okay." *Victoria plays the next chord, points to her own ribs, cues the breath*

with her soft-palate hand signal, and adds, "You don't have to help it; just observe it." *Rochelle sings one repetition.*

After redirecting Rochelle's focus from the back space to the oblique abdominis and ribs, Victoria reminded her to check back in to make sure she has maintained it. She left it to Rochelle to sense her internal sensations and neither agreed or disagreed with Rochelle's assessment. However, since Rochelle does not respond decisively, Victoria gave her another opportunity to notice how her back space was moving.

Victoria: "How's your back space?"
Rochelle: "I think it's okay…"
Victoria: "Okay…one more, do it again. […] That's it." *Victoria plays the next chord and sings a new variation on the exercise, adding back /i/.*

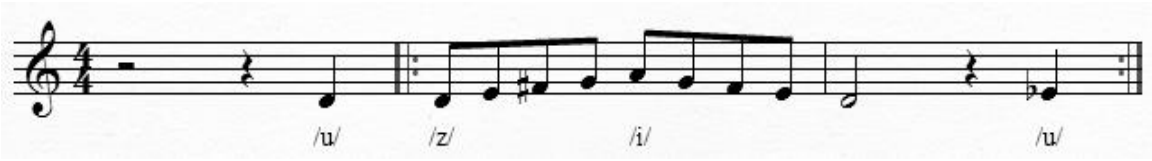

Figure 3. Victoria teaches variation of warm-up, adding a vowel sound.

Victoria and Rochelle's next frontier was the incorporation of another vowel sound and its effect on her back space, again, directing her awareness to her space as the primary objective.

Victoria: "And you're going to maintain the back space during your z."
Rochelle sings one repetition
Victoria: "How does that feel? It sounds great." *Smiles.*
Rochelle: (*Smiling and nodding*) "Better, yeah."
Victoria: "[…] Now, see if you can get your abs to stay toned when you go to that \i\." *Victoria points to own rectus abdominis and then places backs of hands on own oblique abdominis. Rochelle sings one repetition.* "Better tone quality. Change that top vowel to an \a\."*Rochelle sings several repetitions.* "[…] Thank you for experimenting. I really have never tried that before I didn't know what was going to happen with it but okay, that's part of what we do when we teach, right?"
Rochelle: (*Smiling*) "Mm-hmm." (Victoria & Rochelle, voice lesson, 7/18/17)

At the end of the series of warm-up exercises, Victoria explained to Rochelle how she could continue experimenting on her own, using her own directed awareness as a guide:

> "…when you have time to practice, that reflex inhale in between the phrases on your \u\ vowel first" *she shows expansion between hands, fingers spread to make a ball with two hands that pulls apart and grows quickly and smoothly*, "because that's your easiest back space" *her right hand makes dome shape with top of dome next to mouth, hand tilted so that dome opening points forward*, "\u\ to \i\ to \a\, and you can change those combinations in any way you feel that would fit you better." (Rochelle's voice lesson, 7/18/17)

Mary facilitated "safe" or low-risk experimentation with her students as well. In John's lesson, for example, Mary's wording was open-ended and gave him the freedom to get out of his head (to find the right answers) and back into his soma (to sense how he was moving). Her guiding instructions prompted physical exploration rather than verbal answers, with open-ended questions beginning with phrases such as "what would happen if," and initiated by casual propositions such as "just for the heck of it," which lowered the stakes so that John could try making an adjustment for no other reason but to see what happened. Mary directed John's awareness of this activity to their previous work by mentioning "given the shift" or "given the change" so that John maintained in his experimental process a sense of what he had discovered up till that point, enabling them to build on the new pattern.

> **Mary:** "…given the shift in your chest, then you have to renegotiate a little bit where the head sits on the top of that." *John appears to be nodding, but his head is pulled back so much that it appears he is retracting his chin into his neck, creating the double-chin effect.* "Does your head need to be as high given the change? What would happen if you let your head come a little bit downward and forward? Yeah. And can you go there and you can still have your eyes on the horizon? That's not so easy for you, is it? Can you, just for the heck of it, bring it a little even more forward and down? That's it, be right there. Now, what does that feel like?"
> **John:** "It feels nice. Um, I feel very constricted in my pelvis right now," *John says while moving his hands from his iliac crest downward on a diagonal line a few inches in front of the hip joints.* "It's funny, when I stand like this I feel pigeon-toed, but…"

> **Mary:** "There you go. You just let something go as you were talking."
> **John:** "Part of me just wants to go like," *John allows his chest to soften.*
> **Mary:** "Yes!" (Voice lesson, 9/10/17)

Movements initiated by phrases such as "just for the heck of it" gently nudged John past what he previously felt to be normal by, in this case, framing the head movement forward and downward as something to try rather than a directive or correction. Mary could have told John his head was too far back, which it was, but by having him feel his way to a different balance relative to the rest of his body, Mary enabled him to feel first rather than think first. Mary directed John's awareness to "be right there," present to what he was sensing, which gave him a moment for the shift in head position to register before she pointed out that his gaze did not need to be lowered along with his head. Once he began to describe his sensations, John was able to use awareness (not intellectual understanding) to rebalance himself and let his pelvis and chest settle into his alignment instead of moving them into place and holding them there. The balance of the head became more natural after discovering this new configuration.

The teachers in this study mitigated students' anxiety—often stemming from worry about the product or about the unknown outcome—by shifting students' focus (or "directing awareness") to the sensations of an experimental learning process, in which they could try new ways of moving/singing in a safe and supportive environment. In these contexts, Victoria, Mary, and Caitlyn encouraged students to notice and express how a new singing or movement experience felt without worrying about how it was *supposed* to feel or sound. The most common vehicle for expressing the sensations of a singing experience often presented in activities in which the participant teachers invited their students to sense the difference between one way of singing and another.

Sensing Differences

The three teachers frequently directed their students' awareness to "sensing differences" between one way of singing and another. Victoria, Mary, and Caitlyn provided opportunities for their students to sense the differences between habitual and unfamiliar patterns, between efficient and inefficient patterns, and, throughout the experimental process, between various newly-discovered patterns of singing/movement. These opportunities to sense differences presented the students in this study with choices—agency over how they sang and moved.

One of the ways Victoria, Mary, and Caitlyn directed their students' awareness to sense differences was by designing variations of a singing-related movement from which to draw comparisons throughout the length of the voice lesson. For example, Victoria brought Rochelle to notice the different sensations of singing various vowels so that she could refine her sense of the internal changes in her vocal tract. The difference in sensing \u\ and \i\ was an ongoing experimental process throughout Rochelle's lesson. After exploring variations on new warm-ups involving Rochelle's sense of these vowels, Victoria returned to the comparison to check Rochelle's understanding of the experience and to inform the course of their subsequent exploratory work:

> **Victoria:** "How would you describe, in your own inner sense, the difference between your \u\ and your \i\ vowel?"
> **Rochelle:** "The [u] has more back space."
> **Victoria:** (*Nodding*) "The [u] has more back space. A lot of times, we match the \u\ to the \i\. I want you to match the \i\ to the \u\ […]."
> *After Victoria explains how she will use her soft-palate hand signal to remind Rochelle to* "check out what [her] soft palate is up to when [she] first starts," *Victoria introduces a vocal exercise in which Rochelle sings* \i\, *ascending and descending, then* \u\.
> **Victoria:** "…so did you notice there was a difference in your [i]?"
> **Rochelle:** "Mm-hmm."
> **Victoria:** "How is it different?"

> **Rochelle:** (*Using both hands to replicate Victoria's soft-palate signal*) "More back space." (Voice lesson, 7/18/17)

Victoria's main focus throughout Rochelle's lesson was clarifying the sensory-motor recognition of the rear pharyngeal wall (or, "backspace"): how it felt, how it changed, and how Rochelle could use that awareness to, for example, tap into the sounds that facilitated her "easiest backspace" as a bridge to more challenging sounds. The process of sensing the differences in the movement of her pharynx functioned as a way of vividly drawing, or redrawing, Rochelle's inner movement map of this newly explored region of her vocal tract.

While Victoria and Rochelle explored her backspace, they engaged in a dialogue about sensing the difference between vowels and then experimented with them in different combinations. However, since Victoria knew Jessica had a "busy brain," which often distracted her from sensing somatically, she facilitated a sensory experience which, while Jessica was able to sense a difference in the ease of her singing, was not explained until after the fact:

> **Victoria:** "Now, at the word 'through,' okay, on the word 'through' you're gonna come up on your toes," *she stands and demonstrates, rising up onto the balls of her feet,* "breathe, and then you're gonna sing 'like rosy blooms.' Don't change anything." *Jessica kicks off her shoes.* "You're just gonna arise on 'through.'"
> **Jessica:** (*After singing the phrase in question*) "That was easier!"
> **Victoria:** "That gives you something else to do."
> **Jessica:** (*Surprised*) "That's all?!"
> **Victoria:** "Yeah." *They laugh.* "It engages the back differently than it might have in that moment than it might have been engaging before. Notice I said that it 'might,' and wherever your mind goes sometimes, because I know that you get very distracted with your low back and your legs. So I thought, 'let's just do that; see what happens.'" (Voice lesson, 7/18/17)

This variation in movement, even the simple modification of rising up onto her toes, was enough for Jessica to tune into the differing proportions of muscular involvement in her support, which helped her sing more freely. Interestingly, a possible explanation comes

from Feldenkrais (although Victoria is the Alexander practitioner), who emphasized the importance of ongoing variation to keep sensations within the scope of conscious awareness.

Feldenkrais' assertion that variation is necessary to notice differences may explain why Mary incorporated subtle variations in both hands-on and verbally-guided movement activities in the lessons observed. Mary designed variations on activities so that her students could fully experience the possible permutations of new movement patterns—especially useful when their sense of "normal" had previously been determined by habit. For example, Mary used hands-on and verbally-guided movement to help John feel the difference between hyperextended posture and more balanced alignment, first in non-singing movements and then with a before-and-after singing comparison. Mary and John both mentioned his "hyper-erectness" or "overcorrected" posture during his lesson, which included a lifted chest and pulled-back head (Voice lesson, 9/10/17). John felt, once he first experienced balanced alignment in standing, as if his head and shoulders were being pulled down and forward in a "kyphotic" hunch-backed posture. This is because his habitual pattern caused him to overcompensate, drawing his head back and causing a "sway back."

Mary responded to this disparity between John's perception of his alignment and his actual alignment by manipulating his neck, shoulders, chest, and other parts of his body so he could integrate the alignment into his self-image (in the Feldenkrais sense of the term, referring to our awareness of ourselves in movement). She then talked John through the coordination of his body in the act of squatting and other intentional movements until he became familiar with how his head participated with or responded to

changes to other parts of his body. Once John was able to articulate the difference between what he felt he was doing and what he was really doing, Mary asked John to sing from the "different" option. John was able to begin singing without adopting the hyperextended posture he exhibited at the beginning of the lesson when Mary asked him to show her what he does when about to sing, his tone richer and freer than at any other point in his lesson.

Mary's incorporation of variations on movements is one of the major concepts of the Feldenkrais Method. Feldenkrais emphasized that variation keeps activities novel, so that they remain at the forefront of awareness.

> […] the brain learns by noticing differences, and so you want to create variations, and allow the person to kind of engage in trial and error. So rather than doing inherently the same scale, like typically you do those same scale patterns or arpeggio patterns or, you know, whatever, where you're doing many repetitions, there would be things that you would do, like, not just a tongue trill but maybe a tongue trill where you trill to the right and you trill to the left with the tongue in your mouth, or you trill with your tongue farther back or you...I sometimes even use double trills like tongue and lip, and sometimes triple trills where you, and this basically sounds like a washing machine, where you do palate, tongue, lips […] (Interview, 8/28/17)

Mary varied her students' exploratory activities not just by type of movement but by degree, training finer and finer discernment (a Feldenkrais skill) by exploring the slightest manifestations of a pattern to see how small a difference in activation could be and still register in students' perception. Since Ari's fear response included so many components, this process helped reduce the wide variety of similar experiences with which she could become confused, such as smiling naturally instead of with a frozen grin. The vocal component of this experiment was spoken and sung text from a piece Ari is learning for a cabaret.

> **Mary:** "Now, go into the place where there's even an iota of," *makes the frozen face/pose. Ari pulls her head back*. "Just an iota […], because you don't usually do

that much." *Ari laughs.* "Right? We want the real thing." *Ari draws her head back only slightly this time.* "Yes."
Ari: "Mm-hmm."
Mary: (*Imitating her head/neck position, and using a strangled voice*) "What happens to the space in there?" *She drops her hand and allows her neck to lengthen, and Ari follows suit. Mary has Ari echo,* "listen to me," "listen to me, I have," *and then the whole line.* "You don't even have to smile the whole time!"
Ari: (*With a large, frozen grin*) "Alright." *Mary laughs.* "That's hard."
Mary: "I mean, smiling is great, but, before when you were talking to me, you were expressive! That was it! You don't have to do more than that."
Ari: "Alright."
Mary: (*Speaking Ari's song text*) "Listen to me, I have *beautiful* tales I can spin you!" *Ari repeats*. "And what happened to your voice?" *Ari freezes, her neck tightening as her shoulders rise.* "Right there. You're just the tube. […]"
Ari: "Right." *While reciting the line, Ari drops her shoulders and facial-freeze.*
Mary: "That was *better*. Already better. What did you do that was different?"
Ari: (*Drawing her fingers from her mandible to her shoulders*) "I relaxed here."
Mary: "YES!"
Ari: (*Laughing*) "Yeah." *Her smile and speaking voice are more natural.*
Mary: "That's it! That was it in the vocal; you can tell that it popped right there!"
Ari: "Yeah. Yeah!"
Mary: "Now, see if you can sing it to me that way." *Ari sings the line.* "Better. Go ahead." *Ari sings the next two lines.* "So what did you change on the whole thing?"
Ari: "The tension."
Mary: "Yeah, but you gave up the," *she holds her hands on either side of her face and opens her eyes wide, lifts her eyebrows, and stretches her lips into a mask-like smile.* "And your face still had smile-ish, right? But it wasn't this," *she forms her lips into a smile using her fingers, freezing them in place.*
Ari: (*Petting the sides of her neck*) "Wow, I just felt it all let go." (Voice lesson, 9/20/17)

By exploring the differences between Ari's natural smile and the frozen smile, which is a symptom of the pattern triggered by (according to Mary) Ari's desire to please her teacher and fear of the unknown, Mary helped Ari to feel the vocal difference as well.

Mary: "Now say this. 'Listen.'" Ari repeats. "Listen to me!" Ari echoes. "I have beautiful tales." Ari repeats, by now her eyebrows are raised. "What is different about the way you're talking right now?"
Ari: (*Widening her eyes*) "It is very easy."
Mary: "Yes. You're just communicating. You aren't pleasing me. Like, you don't have to go inside and make me anything. You're just communicating it." (Voice lesson, 9/20/17)

When Ari began to communicate the text from a genuinely expressive place, her body and voice followed suit.

Given that in Hanna Somatic Education, students move themselves, it is not surprising that one of the main ways in which Caitlyn facilitated students' recognition of different sensations was through the use of Hanna Somatic Exercises and other guided movements. For example, Caitlyn incorporated one of Hanna's exercises—pandiculation—so that Kevin could feel what it was like to voluntarily contract his habitually tightened upper trapezius muscles (surpassing their chronic level of tension) so that, when he let go, the sensations of full release would register. Kevin sensed a difference in how his singing felt following these exercises, and in the process learned a movement that he could use to rediscover these sensations in the future.

Caitlyn also used movements outside of her Hanna Somatic Exercise playbook to help her students feel differences between habitual and new approaches. In "exaggeration games," she presented the extreme forms of a habitual movement and its opposite so that students who had difficulty detecting subtle manifestations of their habits had a way to feel movement in the involved areas. Caitlyn used an "exaggeration game" to help Sam clearly differentiate between the sensations of her habitual lip-spreading and its opposite: lip extension.

> **Caitlyn:** "So we'll do," *she smiles with teeth together, then sings* "\i\" *for a few seconds. Sam joins in. Caitlyn starts the same way, then brings her lips to a rounded and fluted shape while sustaining the* \i\. *When Sam attempts to follow, she seemingly becomes stuck in the smile, needing Caitlyn to signal by drawing her own lips forward with her hands to move to the rounded, fluted position.*
> **Caitlyn:** "What do you sense?"
> **Sam:** "I feel like here," *smiling and pointing just outside the corners of her mouth on her cheeks,* "it's a lot harder, and I can't control it as much."
> **Caitlyn:** "Right. So what else might happen if you're," *stretching her lips into a wide smile, and pointing to the corners with her right thumb and index finger*, "like this?"

> *Caitlyn draws her thumb and forefinger down her throat on either side of the larynx, along the muscles that are protruding as she maintains the smile.* "What do you feel happens here?"
> **Sam:** "Oh, yeah, I tighten."
> **Caitlyn:** "Yeah! So, now, have your mouth as if it was more like an \u\ shape," *Drawing a round shape over her lips with her index finger*, "very oval in the front." *she then slides her fingers down the sides of her neck again.* "Now feel what happens under here."
> **Sam:** "More relaxed."
> **Caitlyn:** (*Again drawing her hands down the front of her neck on either side of the larynx*) "Long, right?" *She points to the attachments at the clavicle.* "So these muscles need to be long. Okay? They become more important, as you get higher, to have that length." (Voice lesson, 9/22/17)

Caitlyn's "exaggeration game" helped Sam feel a difference beyond the sensations of her lip movement—the corresponding effect on the muscles in the neck that caused constriction in her sound. Experimenting with an exaggerated version of the habit made noticeable that which Sam had unwittingly been reinforcing every time she sang. She could revisit this activity to help her find a neutral ground between the extremes that caused a minimum of interference to her singing.

The teachers in this study taught their students to notice differences, requiring them to first sense what they were doing before and then establishing an alternative as a basis for comparison. They instructed their students to vary singing and other movement activities by switching sides, reversing direction, changing vowels, experiencing extremes, and detecting slight changes. A major component of this process involved applying the "directed awareness" and other themes such as "observing nonjudgmentally" and "experiencing somatically" to explore and experiment with the voice, to discover the differences between ways of singing, and ultimately make choices based on this information.

Slowing and Pausing

The theme "slowing and pausing" describes instances in which the three teachers told their students to either take their time while moving/sensing or to insert time between one movement and another. The students in this study were told to slow down or pause in combination with instructions "directing [their] awareness" to what they were sensing while singing. The kind of somatic learning that took place in the observed voice practices demanded a slow pace for two main reasons. First, Victoria, Mary, and Caitlyn used a slower approach so as not to trigger anxiety-induced, compulsive, or disconnected movement that would reinforce the counterproductive habits they were trying to help their students unlearn. Instead, they taught their students to take the time to calm their own nervous systems in preparation for aware and intentional action. Secondly, the teacher participants taught their students to pause so that they could process a new experience and integrate its new sensations before trying again or moving on to something else. The participant teachers made sure their students moved slowly enough and paused frequently enough to process how they were singing.

Setting a Slower Pace

In order to counteract reactive, less sensitive movement, the three teachers in this study gave their students opportunities to work outside of the temporal bounds of an in-tempo accompanied song or warm-up, thus slowing the generally accepted pace in order to gain awareness. In Jessica's warm-ups, Victoria built in such opportunities by cueing her with a chord but not doubling the vocal line while she sang. This enabled Jessica to set the pace, beginning when she felt ready instead of on a dictated beat, and often slowing down as if each vocal exercise ended with a ritardando. Victoria explained this

strategy as her way of working with Jessica without triggering her reflexive fear responses:

> Her nervous system is very fast, so if we slow things down for her a little bit, she gets more return on what we're doing. If you go too fast with her, her whole throat locks up. […] Her startle reflex is really fast. And that's […] just brain wiring, especially when she's in a judgmental place. So, I tend to take time with her. (Interview, 7/24/17)

In an effort to cue students' voices and movements instead of their anxiety, some of Mary's vocal exercises were singing-like sounds instead of fixed sequences of pitches and rhythms, which did not rely on use of the piano or a beat. In Ari's lesson, simple sighs on /u/ were used in combination with the Qigong "sound from far away" practice so that Ari could take her time and begin when somatically ready—not just because it was time to start:

> "…you want to give yourself as much time as," *pointing to both her ears, a reference to listening for the sound from far away,* "conceptually, so that you feel like you can just," *her hands float out from her ears and her head and torso start to drift to the right, hands slowly spreading,* "do that, rather than the 'jump stop and hop.' […] So again, feel the lowered larynx," *Mary hoots a sigh and Ari echoes.* "Right, take your time. 'Cause you gotta feel the larynx. […] *She pauses*. "Let's try again. We're gonna do it a little higher, but you're going to take all the time you need to remind yourself of the physical sensation of the," she yawns, "[low] larynx." (Voice lesson, 9/20/17)

The "sound from far away" exercise is an example of the ways in which Mary encouraged her students to take their time—another application of "directing their awareness"—to give themselves a chance to connect to the sensations discovered so far in the lesson sequence. When used in combination with a simple, untimed vocal exercise, this approach helped Ari diffuse her anxiety and sing from a calm, receptive state.

Before incorporating singing into the slowed-down experience, Caitlyn's approach with Eva was to move more slowly overall so that her anxiety did not disconnect her from the sensations of the new patterns she was acquiring. Caitlyn used a

Hanna Somatic Exercise, decontextualized from the rhythm and tempo of her repertoire (and the pressure to sing it well), so that Eva could take her time to isolate and experience the movement of her jaw without worrying about anything else. Knowing Eva's struggles with anxiety, Caitlyn guided her to go more slowly than may have come naturally to her, making sure she stayed connected to her entire soma as she integrated new sensations of a novel jaw movement into her awareness:

> I want you to feel the motion so slowly that you have complete awareness of how it's opening and how it's shutting. So slow it up. Make sure your body is still with the rest of its alignment. Yes. So very slowly inhale and drop…and exhale. (Voice lesson, 9/22/17)

Pausing to Process

Victoria, Mary, and Caitlyn all stopped students who "jumped the gun" by beginning to sing before they were connected to their sensations, and inserted pauses into the process so that they could direct students' awareness and thereby preempt habitual responding. These pauses reinforced new patterns of singing by giving students in this study a chance to sense the new patterns ahead of time, and gave them the time to reflect and process the singing experience before beginning another attempt. Sometimes, the pause functioned like a reset button, bringing students back into themselves in case they were "stuck" in a habit they associated with singing. For example, when Victoria asked Natalie to resume singing after they stopped to review diction, Natalie started so soon after the request that she did not seem to take a breath before she began. Victoria said only "wait, wait," and Natalie visibly relaxed while simultaneously growing taller. Victoria acknowledged the adjustment and explained the concept from her Alexander perspective:

> Good, good. Think first. You know in Alexander Technique, that whole thing, "Thinking First" is his point of awareness, right? Inhibit what you would normally

> do—don't go right into what you would normally do. Take a second, breathe, lift your head up, it's so worth it. (Voice lesson, 7/18/17)

Victoria "caught" Natalie starting to sing before taking the time to make sure she was not moving in her habitual way (her spine was compressing downward rather than lengthening upward, her weight precariously carried at her pelvis instead of being evenly distributed) and that she had a sense of the new pattern they were cultivating (a sense of growing taller through the top of her head). Victoria, knowing Natalie's diagnosed proprioceptive difficulties, took care to make sure Natalie gave herself a chance to remind herself of what was happening while she sang, and guided her to where she could direct her awareness in the most beneficial way for the task at hand.

In terms of addressing rushed entrances, Mary had a similar interaction with Brenda as Victoria did with Natalie. Brenda, not expecting Mary to cue another repetition of an exercise, let the hands she had been using to "play" her vocal line fall to her side. Upon hearing the starting pitch cue, Brenda flung her hands back up as she gasped a quick inhalation. Mary stopped her after the first few pitches to point out that Brenda was no longer organized to initiate from her seat (from which they had been gradually building a pattern of whole-body participation):

> "Take your time. Don't cut off your torso from your fingers." *Brenda sings one repetition*. "Good. That wasn't as accurate, so we'll go slower." *Mary plays the same starting pitch as before the previous repetition.* "And I feel like somehow this," *pointing to her chest and mimicking the position of Brenda's right arm,* "had just gotten divorced from…" *she turns jerkily has if her torso and arm were stuck.* (Voice lesson, 8/29/17)

Mary stopped Brenda at that moment because—in her haste to prepare her fingers for the playing activity—Brenda was not yet connected to the rest of her body. By getting Brenda to pause and take time to tap into her entire instrument, Mary helped to reinforce a pattern that brought Brenda to vocalizing from a state of awareness. Furthermore, by

advising Brenda to reconnect with herself, Mary disconnected her impulse to sing from a knee-jerk, anxious reaction that characterized her most problematic habitual patterns.

During John's lesson, Mary inserted pauses to embed time in which he could sense what was happening with his breathing, after noting his tendency to proceed as quickly as his mind could go without first getting in touch with his sensations:

> **Mary:** "[…] could you just sing the first line?"
> **John:** "Sure." *He immediately takes a large breath as if about to blow out candles on a birthday cake.*
> **Mary:** "Now, pause it." *John exhales.* "How much would you really need to breathe for this? […] this isn't a big hall; you just kinda want it to, almost arise naturally." *John inhales imperceptibly this time and begins to sing as soon as Mary finishes her sentence. He sounds like he needs to clear his throat.*
> **Mary:** "Okay. Now: can you do it and imagine, before you do it, the lift of the palate, which is the inner smile, then, 'THERE.'" *He repeats, speaking the first word,* "There." *He sings the line again, his voice eventually stabilizing into a clearer and richer tone after an initially abrupt start (as if catching him by surprise).*
> **Mary:** "Now pause. Now, could you feel […] the moments where it came into the clearing, as it were?" *She laughs.* "Now can we do it again? 'THERE.' And you're gonna think the inner smile, and just an easy, it doesn't have to be a big breath, but it's gotta be […] the whole cylinder." *He sings the first line.* "There you go." (Voice lesson, 9/10/17)

In Caitlyn's studio, the student who most needed to be given time for "pausing to process" was Kevin, whose tendency was to immediately start over after perceiving an error—but before the sensations of his new pattern were in place and before he had a chance to process what was happening. After watching Kevin repeatedly attempt to start over, without taking time between the mistake and the reattempt, Caitlyn talked him through the reason why taking a moment's pause to notice his sensations can help him detect the pattern behind the "mistake":

> I've been watching you, in how you like to fix things, and you don't pause, you don't take a pause in between your realization that it didn't go well to the fix, and there isn't a moment in between where you go, "okay, that didn't go well, why?" […] And "what can I do?" (Voice lesson, 9/22/17)

As previously mentioned, Caitlyn directed Kevin's awareness to the physical component of his emotional reaction. The rush to fix his mistakes bypasses this mind–body connection, and underscores another reason the teachers in this study insisted that their students move slowly and take their time: to avoid triggering anxiety at the expense of sensitivity. Later in the lesson, Caitlyn talked Kevin through the addition of pauses to his practice routine, into which he can insert a thought process to help him deconstruct his habitual response when it surfaces instead of reacting to it with panic or frustration. Ultimately, he can use pausing to learn *faster* as his practice becomes more productive and less punitive. Toward the end of the lesson, Kevin was able to laugh at his habit when given a pause in which to recognized it begin to apply the new pattern to his repertoire:

> **Kevin:** "Wait, wait, wait, one more time!" *He attempts to start again right away.*
> **Caitlyn:** "Wait. Wait. Wait."
> **Kevin:** "I already breathed…yeah."
> **Caitlyn:** "Wait…Wait. But what *happened*?"
> **Kevin:** "I tensed."
> **Caitlyn:** "But what happened with your *breath*?"
> **Kevin:** "It went…wrong?" *They laugh.* "It was…it felt shallow." *He points to his sternum.* "Because I was trying to rush into it instead of…" *He nods.*
> **Caitlyn:** "And what do you think is the one thing that wanted to take over?…'Che!'" *She says "che" again, pointing upward while singing with a taller vowel and fuller sound. Kevin echoes.* "So that's what starts your sound," *she scoops her right hand down her lower abdomen, then forward and up as if ascending a ramp, singing "che" in context.*
> **Kevin:** "Okay."
> **Caitlyn:** "So feel it. Feel it in its totality before you even sing." *She takes a deep breath and then says, "che."* "Go for it." *Kevin takes a deeper breath and begins, his onset stronger.* (Voice lesson, 9/22/17)

The teachers in this study encouraged their students to take their time, moving slowly to fully sense a movement and pausing to process and integrate those sensations. Instead of waiting for an entire section of a song or exercise to end before giving feedback after the fact, Victoria, Mary, and Caitlyn told students to pause or slow down

in-process to direct their awareness to what they were feeling and doing at critical moments. In this way, they gave their students the chance to practice setting themselves up with new patterns instead of habitual ones, and to notice changes or shifts that were either unintentional (giving them the opportunity to examine what they felt and choose to move differently) or intentional (giving them the opportunity to examine what they felt so they could practice and replicate an optimal movement).

When their students struggled to sing, the participant teachers guided them to pause and/or slow down so that they could make specific observations about their habitual singing such as where, and under what circumstances, they felt unintentional movement or tension. This is one of several skills the teachers in this study advocated so that their students can continue to reinforce functional singing patterns while they practice, understanding frustration and the somatic patterns of tension that stem from those emotions. Another of such skills, discussed in the next section, is self-monitoring.

Self-Monitoring

"Self-monitoring" refers to a way of "directing awareness" that the participant teachers encouraged students to practice on their own. The strategy of "self-monitoring" was observed when participant teachers explained how students could replicate techniques or activities from their voice lessons during independent practice, and/or when they taught their students how to use their own hands or other external referents (or "props") to direct and supplement their awareness of internal and external movements related to singing. Since problematic habits often arise from a disparity between what students think they are doing and what they are doing, the teachers in this study modeled self-monitoring techniques to provide a more reliable way for their students to reinforce

the sensations and movements they learned to access in the studio—a self-directed form of directed awareness. The teachers in this study taught self-monitoring as a means for their students to verify that the way they were singing on their own replicated a functional pattern learned in voice lessons.

Manual Self-Monitoring

The most readily observable instances were manual self-monitoring strategies, such as those described in Table 8 below, in which students used their own hands to feel how they were moving from another sensory input source. It should be noted that since Miles' and John's lessons were largely comprised of hands-on tablework, Mary did not ask them to self-monitor using their own hands. She did ask Brenda and Ari to do so, since she was not guiding their movement awareness with her own touch.

Table 8

Manual self-monitoring

AT Voice Lesson Victoria & Rochelle, 7/18/17	FM Voice Lesson Mary & Ari, 9/20/17	HSE Voice Lesson Caitlyn & Eva, 9/22/17
Victoria: (*Putting her thumb under her chin at the tongue root)* "What don't we want pushing down too much?" *Instead of answering verbally, Rochelle places her own thumb underneath her chin. She sings one repetition* **Victoria:** "Now where's your head going as you go up to the top note?" *Rochelle looks up, her eyes scanning the ceiling.* "Is that a good question?" **Rochelle:** (*Smiles*) "Yes." *She sings one repetition.* **Victoria:** "Right, because our stamina's gonna come from here," *she points to her sides,* "breathe…" *Rochelle sings.* **Victoria:** "That's it…" *Rochelle sings one repetition.* **Victoria:** "Right, now put your hand on the back of your head here," *Victoria turns around to show Rochelle where she is placing her own hand on her own head,* "and say \i a\" **Rochelle:** "\i a\" **Victoria:** "Notice that your head's not moving." *Rochelle says it a few more times and then nods.* "So when you get to 'ee AH,'" *she mirrors what Rochelle has been doing, pushing her chin down and shortening the back of her neck,* "we want just that jaw hinge moving by your ears." **Rochelle:** "Okay." *Rochelle puts her hand back, with her thumb underneath and behind her chin.*	**Mary:** "So put your fingers really lightly on your larynx. Not pressing at all." *They both place an index finger on either side of their larynges.* "And swallow, and follow what the larynx does." **Ari:** "Mm-hmm." **Mary:** "At one point it goes high, right?" **Ari:** "Mm-hmm." **Mary:** "Now could you go," *she swallows*, "and pause at the high point of the swallow?" **Ari:** (*Swallowing.*) "Oh, that's terrible!" *They laugh.* **Mary:** (*Nodding.*) "Is it familiar?" **Ari:** (*Grinning.*) "Yeah!" **Mary:** "Now leave your fingers there and yawn, and stay at the *low* point of the yawn." *They yawn and sigh on a low-pitched neutral vowel.* "[…] That's the opposite extreme." *They yawn and sigh.* "That's basically the lowered larynx, right?" **Ari:** "Uh-huh." *Mary sighs on* \u\. *Ari echoes, leaving her fingers on either side of her larynx.* **Mary:** "Yes. Is that clearer in feeling now?" **Ari:** "Mm-hmm." **Mary:** "Because, once you have the feeling, it'll be much easier to be more accurate with practice. Now when you think of doing, '\u\,' can you sustain the feeling of the low," *she yawns,* "larynx?" *She sighs on* \u\. "There, I'm in the lowered larynx, I'm imagining the pitch."	**Caitlyn:** "So let's try something. We've done this before. So we're going to use your thumbs for touch feedback, okay?" **Eva:** "Oh yeah." **Caitlyn:** "Because the jaw wants to be tight, I want you to purposely open with feeling a slight pressure with your thumbs on your inhale." *Caitlyn places both of her hands, palms inward and fingers up, on either side of her own cheeks, the top of both thumbs underneath and behind the chin. She lowers her jaw on the inhale, then takes hold of her chin with her fingers, closing on the exhale.* "And I want you to feel the motion so slowly that you have complete awareness of how it's opening and how it's shutting. So slow it up. Make sure your body is still with the rest of its alignment. Yes. So very slowly inhale and drop…and exhale." **Caitlyn:** "So inhale, really let it drop […], now slowly close it." *They inhale and exhale, thumb in position, for two repetitions*. "[…] what's your sense while you're doing that?" **Eva:** "I think just," *she drops her jaw,* "getting that drop easily," *she places her palms on her temples and drags them down her cheeks, jaw dropping on the way down,* "is not all the way there yet. It still feels like […] 'and now I need to lower it a little more. […]'" **Caitlyn:** "[…] If you allow it to just be heavy and not use muscle to make it drop, it might be easier." **Eva:** "Okay." *She inhales and drops her jaw.* **Caitlyn:** "Like a yawn, right?" *Eva closes her mouth and exhales.* "Now […] add in the singing space, so lift inside at the same time." **Eva:** "Okay." *As Eva inhales, Caitlyn does her lean and stretch gesture.* **Caitlyn:** "Good." **Eva:** "Yeah, that helped."

External Props

In addition to modeling how their students could use their hands for added feedback, all three teachers in this study also used external props, such as a piece of fabric, a ball, and bracelets, to augment the sensations of which their students most needed to be aware. Victoria and Caitlyn used these props in a similar fashion: as reminders to direct their awareness to an area with tactile stimuli. By placing a piece of fabric on Natalie's head, Victoria taught Natalie a way of reminding herself to maintain a sense of height through the top of her head (and, because of Natalie's proprioceptive challenges, supplemental sensory feedback was especially useful). Victoria also suggested Natalie use a prop that was hands-free so that she could reinforce her breath control in both singing and in playing her various wind instruments. At the observed lesson, she showed Natalie how to tie a yoga band around her torso to assist in self-monitoring the movements of her breathing:

> **Victoria:** "Can you feel that against your breath?" *The duration of exhalation increases, and Natalie's throat* "softens" *during inhalation*. "As you get the strength in the right place, the tension will disappear from the wrong place."
> **Natalie:** "Cool."
> **Victoria:** "So what's partly going on here is that as your nervous system measures […] 'I'm out of air, and I don't have enough energy,' it will get it any place it can. And it'll get it right here," *touching both sides of larynx*, "and right here" *pointing to jaw hinge*. "It's not anything wrong with you. Let's try again without that and keep your focus on your torso." *Natalie tries again.* "Yeah, I think that's a thing to think about and work on. So find something, just tie it around you," *points to middle of her ribcage,* "if you can't tell. A lot of us don't know what's going on when we think we know what's going on." (Voice lesson, 7/18/17)

Victoria's use of the yoga band helped Natalie to apply "strength in the right place," whereas Caitlyn's prop was utilized to help a student self-monitor excess energy in the wrong (or less functional) place. Caitlyn lent Eva her bracelets as an external reminder to channel her nervous energy (which she was using in the activity of flapping

her right arm) back inside her so that she could generate and support her sound from what Caitlyn called her "driver's seat" instead (Voice lesson, 9/22/17). The bracelets served as an accessible self-monitoring tool, easily replicated in Eva's home practice sessions, because they gave her a way to direct her awareness to her arm movement without a Caitlyn there in the room to do so. In her interview, Eva explained how this self-monitoring strategy came about as a way to notice both physical and emotional components in her singing habits:

> I've always had a nervous habit when I sing; […] I always want to move my right arm, and it's kind of like it has a mind of its own. […] Last year, I was about to sing my jury […], so I was like, "Oh, I'm going to be so nervous and my hand is gonna be moving," and we found that when my hand is moving like that, it doesn't feel like […] it's taking a lot of energy or thought to do it, it's just happening. But when I actually stop moving my hand, I realize, 'wow, I'm focusing so much more on how I'm singing and how I'm breathing and I'm actually focusing a lot on the movement of my hand […],' and so […] around my jury time, I jokingly said […] "I just need to weigh my arm down with a ton of bracelets," and [Caitlyn] was like, "Do that! Try it!" And so I tried it […], and it kind of worked! […] It's just a weight on my arm, a different sensation for my hand so that I don't feel like I have to constantly be lifting it." (Interview, 9/29/17)

Although Mary's prop, like Victoria's and Caitlyn's, provided tactile feedback (and, in Caitlyn's case, visual feedback as well), the primary purpose of the prop observed in Mary's practice was to illustrate the smoothness of a movement she related to the internal sensations of easy vocal onset, stability, and support. By giving Ari a tennis ball to watch and roll atop her lap, Mary helped Ari to see and feel the initiation of the action without it catching her by surprise. It also helped her to discover a balance between support (the necessary muscular engagement required to tilt forward without activating her fear response) and the freedom required to roll the ball continuously, breathe, and vocalize with smoothness and coordination. The ball provided visual and tactile feedback and a way of self-monitoring the stability and flow of Ari's movement,

which, once Mary guided her to rock from her Sitz bones and feel she could trust that she would not fall, gave her a low connection to her support that translated directly to the equally smooth sighs and, later in the lesson, transferred to singing repertoire.

The teachers in this study promoted self-monitoring as both a learning tool in the studio (to sense how they are singing during a lesson) and a practice tool outside of the studio (to recreate what went well during the lesson and report any new observations at the next one). In this way, Victoria, Mary, and Caitlyn set their students up to practice productively, directing their own awareness so they could build on their progress between lessons.

Conclusion

Victoria, Mary, and Caitlyn facilitated guided exploration of new singing-related movement choices by continually directing students' use of awareness—a theme that permeates the others that emerged from the cross-case data analysis. All three teachers in this study encouraged students to sense, allow, and explore movements of singing, to observe differences and changes to their singing nonjudgmentally, to recognize the multifaceted nature of their somatic experiences, and to practice patience with a slow-paced learning process. The teachers in this study gave students the tools to continue processing, monitoring, and experimenting on their own, empowering them to take risks in the safe, supportive spaces of their respective studios or practice rooms.

Although Victoria, Mary, and Caitlyn displayed distinct teaching styles, their approach to directing students' awareness of themselves in the movements of singing suggests their common ancestry in the general principles of somatic education (as introduced in Chapter I). The next chapter revisits these principles, relates them to the

findings of this study, and answers the research question as to the ways these voice teachers/somatic educators applied somatic education principles to the teaching of voice lessons.

Chapter VI: DISCUSSION

The purpose of this study was to examine the ways in which principles of somatic education may be applied to voice pedagogy, specifically within the three disciplines of the Alexander Technique, the Feldenkrais Method and Hanna Somatic Education. This chapter will discuss these applications from several vantage points. First, I will align the overarching theme of "directed awareness" and the cross-case themes presented in Chapter V with the general principles of somatic education (see Chapter I), and provide examples of the ways in which the themes were applied in the voice studios of Victoria, Mary, and Caitlyn. I will then further clarify the ways in which each participant teacher's approach, though unified by these aligned principles and themes, incorporated discipline-specific strategies as they addressed a common singing challenge—jaw tension—when teaching voice lessons; comparing their observed approaches to the literature-based predictions hypothesized in the invented scenario, "Juli's Jaw Tension" (see Chapter I). Finally, I will synthesize the *general* somatic education principles with the themes that emerged from the voice teaching practices of Victoria, Mary, and Caitlyn, in order to propose applications of modified principles I will call "Somatic Education Principles for Voice Pedagogy."

Four General Principles of Somatic Education

This study was conducted to answer the question: In what ways do professional voice teachers who are certified in the somatic disciplines of the Alexander Technique, Feldenkrais Method, or Hanna Somatic Education incorporate somatic principles into their pedagogical approaches? As a reminder, the four general principles of somatic education identified in Chapter I were:

1) Sensitivity and awareness improve with practice.
2) Learning is physical, emotional, and mental.
3) Habits are changeable.
4) Students can be taught to self-improve.

It is important to note that these four general principles often intertwine or overlap; and in many instances do not comprise a discreet sequence of steps. When students practice sensitivity and awareness, they do so in the inseparable process of moving and sensing, which is also the platform for discovering alternatives for habitual behavior in the voice studio and practice room. "Directing Awareness"—the overarching theme that connects the teacher-participants' practices, cross-case themes, and the four general principles of somatic education to each other—is also an answer to the research question: The way the teachers in this study applied somatic education principles to their approaches to voice pedagogy was by directing students' awareness of themselves—their entire somas—in the movements of singing.

The approaches of Victoria, Mary, and Caitlyn to teaching voice, while characterized by discipline-specific techniques drawn from their particular somatic traditions, had in common the use of awareness-driven instruction that empowered their students to overcome obstacles to sensing and barriers to learning new possibilities for their voices. Table 9 illustrates how the overarching "directing awareness" theme extends to the four principles of somatic education.

Table 9

Principles of Somatic Education and Related Cross-Case Themes

Principles of Somatic Education	**Cross-Case Themes**	**Directing Awareness** *Notice what you are sensing/doing:*
1: Sensitivity/awareness improve with practice	1.1 Targeted Sensing 1.2 Allowing	In a specific part/parts from inside/outside Without making something move or happen
2: Learning is physical, emotional, & mental	2.1 Observing Nonjudgmentally 2.2 Experiencing Somatically	By observing how, not how well, you sing In relation to emotions, thoughts, & sensations
3: Habits are changeable	3.1 Experimenting in Safety 3.2 Sensing Differences	In an exploratory process of singing/moving Compared to other ways of singing/moving
4: Students can be taught to self-improve	4.1 Slowing & Pausing 4.2 Self-Monitoring	Moving slowly, pausing to prepare & process While monitoring old and new patterns

More specifically, because Principle 1: "sensitivity and awareness improve with practice" is so closely related to the overarching theme of "directing awareness," the ways in which Victoria, Mary, and Caitlyn applied the principles of somatic education is also answered by the other three principles. These teachers "improved" students' "sensitivity and awareness" (Principle 1) by directing them to notice the inseparable physical, emotional, and mental facets of somatic learning (Principle 2), to change singing habits by being aware of habitual patterns and choosing new options (Principle 3), and to continue to use awareness to reinforce new functional patterns and "self-improve" their singing (Principle 4). Examples of the ways in which teachers in this study applied these principles are provided in Table 10 below, along with corresponding cross-case themes.

Table 10

Applications of somatic education principles to voice pedagogy

Principles	Cross-Case Themes	Examples of the ways Victoria (V), Mary (M), & Caitlyn (C) Directed Students' Awareness
1: Sensitivity & Awareness Improve with Practice	1.1 Targeted Sensing	**V:** Reminded Natalie to put her head on before singing **M:** Asked Ari what her pelvis was doing while walking & rocking **C:** Asked Sam what her lips were doing during \i\ vowel
	1.2 Allowing	**V:** Taught Jessica to feel the potential of her head to move **M:** Helped Miles sense the path of a natural breath **C:** Helped Kevin sense his head balanced on top
2: Learning is physical, emotional, & mental	2.1 Observing Nonjudgmentally	**V:** Helped Jessica let go of self-judgment, sensing open throat **M:** Reframed Ari's "neutral" larynx as accepting herself as she is **C:** Redirected Joel to stay with the "stretch" rather than sound
	2.2 Experiencing Somatically	**V:** Redirected Rochelle's defeated collapse with upward energy **M:** Taught Ari to be "curious" rather than brace herself for unknown **C:** Brought Kevin's awareness to his clenching when frustrated
3: Habits can be changed	3.1Experimenting in Safety	**V:** Tried new alternating vowel exercises to maintain back space **M:** Moved Miles' body as he froze various parts to notice effects **C:** Showed Kevin the effect of voluntary contraction on tension
	3.2 Sensing Differences	**V:** Sent Jessica up on toes, engaging back to feel ease in throat **M:** Compared John's initial singing posture to lying on table **C:** Played exaggeration game with Sam to feel extremes of habit
4: Students can be taught to self-improve	4.1 Slowing & Pausing	**V:** Taught Rochelle to inhibit habit by pausing within wide interval **M:** Inserted pauses between John's phrases to notice his breathing **C:** Slowed Eva's jaw exercise to reduce anxiety/increase sensitivity
	4.2 Self-monitoring	**V:** Placed Natalie's own hands on jaw hinge to track movement **M:** Let Ari roll a ball smoothly to sense smooth breath and onset **C:** Told Eva to put on bracelets to redirect energy from arm habit

Due to the integrated nature of these four principles of somatic education, bound by the unifying theme of directed awareness, the applications of somatic education principles to voice pedagogy will appear in the context of integrated examples from the data in the next section, showing how they were synthesized and applied by the teachers in this study. The numbering in Table 10 above will be referenced as general somatic education principles 1-4, with cross-case themes—now functioning as subdivisions of said principles—numbered according to their corresponding principle.

Juli's Jaw Tension Revisited

In order to clarify how each of the four general principles of somatic education were applied by practitioners of the Alexander Technique, Feldenkrais Method, and Hanna Somatic Education, I will return to an invented scenario that was included in Chapter I. Using existing pedagogical literature, the section predicted ways in which voice-teaching somatic educators in the three disciplines represented in this study might apply the principles to assist a hypothetical singer, "Juli," with her habitual jaw tension. Since I had not gone back to read the section "Juli's Jaw Tension" since before data collection procedures began, it was interesting to look at the way the three participant teachers in this study actually dealt with their students' jaw tension in relation to my prior assumptions and predictions. However, the experience further evidenced the complex intermingling of these four principles, because they do not appear mutually exclusive in the data—again suggesting the influence of the overarching theme of directed awareness. This section will provide observed examples as to the ways in which Victoria, Mary, and Caitlyn—though using discipline-specific strategies from the Alexander Technique, Feldenkrais Method, or Hanna Somatic Education, respectively—applied the four general principles of somatic education in the context of voice lessons. The numbering system from Table 10 will be referenced to illustrate commonalities in the form of the cross-case themes.

Victoria. Alexander's process for breaking habits involved becoming aware of the habit, inhibiting it, and replacing it with the "means-whereby," such as the primary control—a process readily applicable to most skilled action. Based on pedagogical literature (de Alcantara, 1997; Head, 1996, Heirich, 2011; Hensel, 2013; Hudson, 2002a;

Jones, 1972), my assumptions regarding how a voice teacher/Alexander Technique teacher would address Juli's jaw tension was that she would bring the habit to her attention, teach her how to inhibit her habitual clenching, facilitate sensations of head balance atop her spine to permit free jaw movement, and to implant the means-whereby Juli could incorporate these sensations into her preparation for singing.

From Victoria's practice, I learned that teaching students to implement certain "means-whereby" behaviors can indirectly yet effectively improve habitual or inefficient movement in singing, a recognized approach used in the Alexander Technique (de Alcantara, 1997). For example, Victoria's frequently used directions such as "put your head on" or "head's up" are not specific commands directed at the muscles near the jaw, but encourage an adjustment to head position that enabled functional jaw movement. The significance of this observation is that voice teachers should not interpret visible tension and assume that a student is clenching his jaw, but they should consider that the entire body's alignment may not be allowing release. This confirms my hypothesis proposed in "Juli's Jaw Tension," because these means-whereby functioned as the replacement behaviors for the clenching habit.

This concept also supports the overarching idea of directed awareness under the premise that by directing students' awareness to the sensations of habitual jaw clenching, and then to comparing these to the sensations of singing with a functional primary control (or other means-whereby), students can deploy awareness of this difference in a manner that indirectly promotes more efficient use. Table 11 illustrates the ways Victoria addressed jaw tension during Natalie's voice lesson, in which she directed Natalie's awareness to sensing restricted movement at her temporomandibular joint and the

habitual tension in her cheeks, before and after adjusting her head balance, enabling her to sense that freedom in the jaw was possible when the primary control was activated.

Table 11

Applications of the Alexander Technique to Jaw Tension in Singing

Predicted Applications	Example Applications from Victoria's Practice
Decontextualized awareness activity • Student senses head balance (facilitated by teacher, tactile feedback) & natural release of jaw once head is balanced • Stretches habitually contracted muscles • Student senses released jaw at rest, in speech, and in guided singing Reintroduce context of song, inhibiting habit • Student watches herself in the mirror prior to entrance, inhaling w/o going on to sing • Replaces inhibited response (singing) with exhalation • Teacher inserts directions prior to entrance, reminding student to allow the new pattern (without singing) • Student repeats directions to herself, inhaling as if about to sing, then exhales • In an "inhibition game," teacher stops student if jaw clenches until she notices & refuses Pattern replaced with process-oriented thoughts to prepare free singing.	**Victoria:** "Here's the base of your skull right under your ears," *she points to her own,* "and your jaw moves from slightly higher up." *She models hinge movement, opening and closing her mouth.* (**1.1**) "So, with your own hands, I want to encourage you..." *places Natalie's hands on her own hinge while Natalie opens and closes her mouth.* (**4.2**) **Natalie:** "Oh!" (**3.2**) **Victoria:** "Yes! Because, if on your '\a\' you're moving your whole head instead of your jaw, we know that for you that—yes, you just fixed it—that's going to send your balance down. […] touch the top of your ears, now pull up on your ears...there you go!" *They laugh.* "[…] I'm trying to give you different ways to work on this." (**4.2**) *Victoria sings a descending 5-note exercise on* "blah." *Natalie echoes.* (**3.1**) "There's your moving jaw!" (**1.1, 2.1**) **Natalie:** (*Giggling*) "There it is!" **Victoria:** "Can you tell how different that is? When you did your' \i\' to '\a\,' it was literally," *she sings with Natalie's frozen smile,* (**2.1**) "and there was no movement here at all," *pointing to her own hinge.* (**3.2**) *Natalie nods.* **Victoria:** "Just use the one hand now and see what you can do with just noticing it." (**1.1, 2.1, 3.1, 3.2, 4.2**) "You don't have to do anything special with it." (**1.2**) *Natalie sings.* "[…] Change hands for a minute." *Natalie sings.* "Head's up to the kitty!" (**1.1, 3.1**) *Natalie sings.* "Good." […] *Victoria sings new pattern on "blue" and "blah." Natalie echoes. "*Do that again." *Victoria holds Natalie's head in forward-up alignment while she sings again.* (**1.1, 4.2**) **Victoria:** "That was different, wasn't it?" (**3.2**) **Natalie:** (*Grinning*) "Yeah!" *Both laugh.* **Victoria:** "So what can YOU do?" *She sings with her hands on her cheeks, guiding Natalie's hands to the same position on her own face.* "[…] right there, because that's jaw MUSCLE […] not the jaw. The jaw doesn't have a life of its own. […] give yourself a very light touch, […] because maybe you can tell what it's doing." (**4.2**) *Natalie sings.* "[…] So say '\i\.'" *Natalie grins and echoes. Victoria mirrors Natalie's pulled-back grin.* "We don't need that*," she relaxes her face and adds,* "so if you just go '\a i\…'" *Natalie echoes.* "Yeah, […] Go like this." *Victoria grins widely and says*, "\i\," *Natalie mirrors and echoes.* "Now, can you feel your cheeks? Now say '\a i\.'" (**1.1, 3.1, 3.2**) *She does. Victoria pulls back her own cheeks.* "Can you feel yourself doing that?" *She can.* "Good! We don't need to pull cheek muscles really at all in this area of…" *she pinches her cheeks in between her rows of teeth.,* "'\a i a i\ […]" **Natalie:** "And these muscles," *pointing to her cheeks,* "are overdeveloped." **Victoria:** "Uh huh. So we're going to start letting go." (**1.2**) **Natalie:** "Yeah!" *Both laugh.* **Victoria:** "[…] From your \a\ to your \i\, see if you sense whether or not you're moving these a lot," *pointing to her cheeks.* (**1.1, 3.2**) "See if you can tell, okay? '\i\' first." *Natalie sings.* "And release the cheeks." *Natalie's face relaxes.* "GOOD! Yeah, you can let your mouth close, you can let your lips close," (**1.2**) "but I want you to start to sense the tone that you feel here." (**1.1**)

Because of Natalie's diagnosed proprioceptive dysfunction, the majority of her work with Victoria centered around accessing the sensations of her jaw movements. For this reason, Victoria's use of hands-on instruction and external monitoring was more prominent in this lesson than others. However, it made the process by which she trains students' awareness more apparent to an observer. Victoria helped direct Natalie's awareness by showing her where to place her hands to monitor her jaw movement, how to place her hands to monitor activity in her cheeks, and, later in the lesson, how to use external props to remind herself to allow the lift of her head, engaging the primary control without the assistance of Victoria's hands. This approach helped Natalie to access sensations of what she was doing while she sang, so that Victoria could link her means-whereby directions to those sensations, and equip Natalie to practice employing more efficient, coordinated use of her jaw and entire instrument.

Mary. Feldenkrais teachers use movement to train finer and finer discrimination between sensations and to enable students to choose how they wish to move instead of moving compulsively. A Feldenkrais/voice teacher might interpret a student's jaw tension as part of a compulsive pattern she uses in singing. Based on pedagogical literature (Gilman, 2014; Nelson & Blades-Zeller, 2002; Vittucci, 2002), I predicted that a Feldenkrais/voice teacher's approach to a student's jaw tension would involve a manually and verbally-guided exploration the sensations of jaw movement, first without singing and later with singing incorporated. This prediction was confirmed during Mary's lesson with Miles, who explained in his interview that since breaking his jaw years earlier, the only way he knew to open his mouth was to compulsively push down his chin.

From Mary's practice, I learned that symptoms in one part of the body, such as the jaw, reflect a full-soma pattern and not a dysfunction in the jaw alone. While Mary's approach confirmed the exploratory aspect of my hypothesis, it also clarified that the movement of the jaw is a piece of a larger somatic puzzle and, therefore, a larger and more gradual process. Once Mary brought Miles to the sensations of the way his body moved by initiating rocking movements from various points, she and he could sense where he was allowing the reverberations to travel and where he was holding still. Mary then zeroed in with her hands and her words to direct Miles to notice that his trunk, held rigid since his recent car accident, was pliable and contained many articulating and differentiated regions—including the independent movement of the mandible.

Mary's tablework with Miles supports the overarching somatic education idea of directing awareness in the way that she brought Miles to the sensations of tension/holding throughout his entire body so that he could choose to let go—sensations to which she bridged breath control, phonation, and *then* the movement of the jaw. Her sequence started with breaking down Miles' protective shielding so that he could be at once maximally receptive and maximally movable, continued on to exploring the sensations of supported breath, and then proceeded to singing. Table 12 illustrates the subsequent steps, in which Mary directed Miles' awareness to his jaw-forcing habit, followed by the exploration of other movement choices as they related to the breath and overall functioning.

Table 12

Applications of the Feldenkrais Method to Jaw Tension in Singing

Predicted Applications	Example Application from Mary's Practice
Lead student in gradual process of discriminating sensations during: • Manually-guided awareness activity to demonstrate possibilities for movement • Verbally-guided exploration of movements in the jaw and surrounding structures • Direct student to imagine jaw hanging freely, noting before-and-after differences in sensation, pausing for rest periods to stay attentive and to promote sensory-motor integration • Delay singing until movement choices have been explored and integrated Or, teach student to move only what he wants by deconstructing component actions of pattern: • Preparation for singing • Onset of singing • Differentiation between independent body parts in sequenced movement	*Miles sings*, "at the cry of the first bird, they began to crucify thee." *After the second syllable of* "began," (*on which he pushed his chin down*) *Mary watches his mouth and massages his masseter muscles. Miles' mouth opens and closes slightly in response. She applies pressure to alternating sides with the fingertips of each hand, causing his head to tilt side to side as he sang the next line.* **Mary:** "What was the difference in your jaw?" **Miles:** "It felt heavier, like I let something go." **Mary:** "Yes, you did." *Mary moves her fingertips incrementally outward from the jaw to the posterior of Miles' neck below his skull, turnings his head side to side, then places one hand on his sternum and the other to his right shoulder (which, previously injured, Miles said was stiff while he sang at home).* **Mary:** "We're moving slowly, remember?" (**4.1**) *Mary puts both palms on Miles' chest, on either side of his sternum, leaning into her hands in pulses that again rock his body.* **Mary:** "Feel both what can let go and what's there to catch you." [**2.2**] "Which should be the way that your weight will shift just a little bit." *Mary moves Miles' leg toward his chest.* "Now imagine that my moving this leg and pelvis is doing the [musical] line. You can do it the easy way; […] you don't have to make it big." (**1.1, 1.2, 3.1**) *Miles sings the first phrase while Mary rotates his right leg at the hip. Mary gives feedback on his movement, not sound.* (**2.1**) **Mary:** "[…] How much do you have to do with your jaw to make 'cry?'" (**1.2, 3.1**) *Miles repeats the phrase, stopping on* "cry." *Mary asks*, "Remember when we worked a lot on letting the jaw be less […] muscle-y? What if didn't open your mouth that much?" (**1.2, 3.1**) *Miles sings again. Mary continues* "doing the musical line" *by leaning into Miles' bent leg.* **Mary:** "Now, the first line you had it, […] when the jaw stopped working so hard, then the breath actually started to support the sound." (**1.1, 1.2, 2.1**) "And that goes for […] the initial breath. You can take as big a breath or as small a breath as you want with the jaw just open a little bit, right? Try it again." (**3.1, 3.2**) *He sings, Mary tilting his right leg toward and away from her, his left leg and hip along for the ride.* **Mary:** "Because somewhere you lose air." (**1.1, 3.1**) *Miles sings again without a catch breath, with more consistent vibrato.* "Yes!" *Mary stops tilting the legs.* "What was different?" (**3.2**) **Miles:** "[…] when I'm on my back and we're doing this, I have to concentrate because I feel like a big sigh […] just like it's flowin' out of me […] This time was a little more…ssss…compressed feeling." (**1.1, 2.1, 3.2**) **Mary:** "What you were was riding on air pressure…" **Miles:** "Yeah, that's what I'm trying to say." *Mary tilts his right leg farther to the right; the left leg, hip, and lower back now following into a twist as he lets go.* (**1.2**) **Mary:** "[…] There's something about what you do with your jaw part of the time that changes the breath you take […]. How much do you need to open up to have air coming in and out? It's coming in and out right now, right? And it's barely open." (**1.1, 1.2, 3.2**) "The *throat* can be open." (**1.1, 3.2**) *She takes hold of Miles' chin with her fingertips.* "Now try it." *Miles sings again, Mary demonstrating a self-monitoring strategy he can later use on himself* (**4.2**).

The way Mary addressed Miles' jaw during singing was not in isolated work, but was incorporated into her facilitation of the full-body balance of release, differentiation, and support. Mary's use of awareness-directing questions, manual feedback, and substituted effort supported discoveries such the necessary degree of exertion and range of motion in the jaw necessary for what Miles was singing, and showed that a complaint of pain and holding in one part of the body—like Miles' shoulder—can manifest in the jaw without being the source of the dysfunction. The implication of this observation is that voice teachers must see dysfunction in a part of the body as a symptom of a larger pattern, not solely a problem unto itself that needs to be fixed. Although Mary's explorations with her students were slow and gradual, the part-to-whole and whole-to-part aspect of her practice had a payoff in the long run: integrated coordination of the soma—calmed from the effects of trauma, eased systemically, and receptive to learning—promoting greater efficiency in singing.

Caitlyn. Practitioners of Hanna Somatic Education look for full-body habituated stress reflex patterns. In the absence of singing-specific pedagogical literature on applying Hanna Somatic Education, I used Hanna's accounts of working with instrumental musicians to predict the ways a Hanna Somatic Exercise coach/voice teacher would interpret and then address jaw tension during singing. I predicted that the teacher would look for connections between the jaw and to other parts of the body to determine whether the tightness was part of a whole-body habituated stress reflex, noting that the restricted jaw may be affected by Sensory Motor Amnesia.

From Caitlyn's practice, I discovered that teachers can use a non-singing exercise to bring students' somas to the sensations of more efficient use—sensations that can then

be applied to singing—providing the student with a sensory-motor blueprint to "feel for" rather than an action to figure out or a sound to create. This supports the overarching idea that somatic education involves directing awareness. One example is presented in Table 13, in which Caitlyn taught Sam the "lifting of the tight hat" exercise by directing Sam's awareness to the internal sensations of lift and differentiation between the movements of her jaw and skull, which she could then maintain when she incorporated singing. This confirms my hypothesis about how Hanna Somatic Education may be applied to "Juli's jaw tension" because it involved a guided non-singing exercise, included sequential immobilization to draw awareness to the interaction of the body parts in the exercise, and then related sensations of this experience to singing.

Table 13

Applications of Hanna Somatic Education to Jaw Tension in Singing

Predicted Applications	Example Applications from Caitlyn's Practice
• Teacher looks for other elements of the pattern other than jaw clenching, such as underutilization of other areas, which causes the muscles around the jaw to overcompensate or the opposite: rigidity throughout soma that prevents coordinated support in singing • Teacher alternately immobilizes parts overused body parts so student feels involvement of other parts, or mobilizes parts away from the localized pain region until the entire body can join in the movement; compares • Student is guided through Somatic exercises for use on their own to improve sensing and full-body coordination during singing • Can incorporate phonation on expiratory phase of exercises	**Caitlyn:** "This is actually a Somatic move that I learned […] about the jaw, head, and skull. […] your thumbs are at the base of your skull, your index fingers behind your ears, middle fingers at your temples and then your other fingers can just be next to your middle fingers. […] press into your head and lift up as if you're taking off a really tight hat, okay? So really feel that inside […] Drop your jaw; let it sling down. (**1.2**) What do you feel inside?" (**1.1**) **Sam:** "Really open!" **Caitlyn:** "[…] So now, keep your mouth shut, and then […]," *Caitlyn mimes lifting off a hat,* "just the head part. […] Now, don't do the head part, just drop your jaw. Now do both at the same time. […] So let's do both at the same time while you're singing n-g into [a]." (**3.1**) *Sam asks whether to do the exercise on the top note or slowly over the entire exercise.* **Caitlyn:** "Slowly let the crest of the work be on the top note, and then don't let that go on the way down." […] (**1.1, 4.1**) *Sam sings.* "What do you feel?" (**1.1, 4.2**) **Sam:** "[…] it just felt like I wasn't trying as much? Like it just was a lot more free […]" (**3.2**) **Caitlyn:** "You were lifting muscles inside, right?" (**1.1**) **Sam:** "Yeah." **Caitlyn:** "[…] try now without the hands to mimic the work that your hands were doing by lifting and recreating that?" *Sam sings, blooming top* [a]. "Yes. Do you feel that?" (**3.1**) **Sam:** "Oh, yes!" **Caitlyn:** "So one thing that I did notice was that you were kind of testing the waters, on where your jaw's supposed to go on top." (**1.1, 2.2**) **Sam:** "Yeah, yeah." **Caitlyn:** "So do you think that's trying to help you support your tone, or did you use your jaw at some point in supporting?" **Sam:** "Like, not dropping it?" **Caitlyn:** "Yeah, or is it helping you hear?" **Sam:** "[…] I feel like I'm trying to support my tone by doing that (**1.1, 2.1**). […] I think it's probably the same reason I spread," *she points to her mouth,* "[…] because I'm scared so I need to kind of like, control it." (**2.2**) **Caitlyn:** "Well, can you now trust that you don't need those things the same way?" (**2.2**) **Sam:** "Yeah."

Once Sam felt the difference in her internal space without singing, and was able to maintain this sensation while slowly continuing the movement with awareness and manual feedback, she completed the process by recalling the internal sensation of the movement without the need for using her hands. Hanna's exercises are designed to align stages of a movement with inhalation, exhalation, and a guided sensory focus. I

predicted, therefore, that singing would be inserted in place of the exhalation phase. The way Caitlyn utilized exercises in her lessons was not to build singing into an exercise, but to draw from her knowledge of the exercises to identify what the student needs to be able to sense and move for the singing task at hand.

Somatics, in Caitlyn's voice practice, prepares the soma for singing as one of many tools in her toolbox. This differs from the cases of the two musicians Hanna (1993) described, most likely because his clients came to him for help with severe chronic pain and immobility. These cases worked with Hanna in Clinical Somatic Education sessions, not music lessons. Therefore, the emphasis of Hanna's lessons was to restore sensation and movement throughout his students' entire somas after deconstructing the injurious playing-related patterns they exhibited. In comparison, students like Sam come to Caitlyn for voice lessons. In Caitlyn's capacity as a voice professor, her job is to build more optimal patterns of singing in students who are still able to sing but learning to refine those skills; an educative rather than a rehabilitative role. The principles of Hanna Somatic Exercise coaching help Caitlyn teach students ways they can use self-guided movement to sense what is involved in more "optimal" singing patterns and what is not, so that they can learn how to work "smarter, not harder" (Interview, 10/11/17).

Takeaways from Juli's Jaw Tension

The answer to the question of how the somatic educators in this study would address Juli's jaw tension is "that's a trick question." The premise of such a hypothesis was that there was a jaw problem, not a somatic problem. As I reviewed my data, excited that the initial search in my lesson observation data for the word "jaw" produced 121 matches, I tried to find an example in which each teacher "focused" on a student's jaw.

While the teachers directed students' awareness to their jaw tension, their teaching processes addressed movements on a systemic, somatic level. The "real" answer to the research question in this context is that the three teachers applied the unifying principle of directed awareness to students' identification, understanding, and reeducation of their inefficient jaw movements in singing.

Victoria, Mary and Caitlyn directed students' awareness in order to understand and reeducate their patterns of singing-related jaw tension (Principle 1). First, they sought to understand the origin of the habitual patterns of which their students' jaw tension was an indicator. Contributing factors included a lack of awareness of natural jaw movement and function during singing (as in Natalie's case), compromised awareness/function due past injury (as in Miles' case), and habitual tension in response to stress (as in Sam's case). The next step of the process was to uncover the specific singing-induced triggers, such as Natalie's mismapping of her skull's involvement in changing vowel space from \i\ to \a\, Miles' forceful larynx-depressing frontal opening of his mouth during inhalation and on the sung word "cry," or Sam's attempt to control her sound by clenching the muscles around her jaw (Principle 2). Once the pattern was identified in context, the participant teachers deconstructed the components of each: in Natalie's case, the pattern was characterized by an unmoving smile, compression of her lower spine, sinking into her pelvis, swaying in her legs, compensatory upper body tension, and an unstable tone; in Miles' case, a forcefully depressed jaw upon inhalation and when singing certain syllables, unnecessary forced expansion and "tanking" of breath in a rigid torso when breathing, a lack of release/expansion through the lower abdominal and pelvic regions, and pressurized phonation; and in Sam's case, tightening of muscles in the cheeks and

sides of her neck, collapsed pharyngeal space, limbs pulled inward, shallow and rushed inhalation, and a lack of vibrancy in her tone.

The participant teachers also helped students explore new organizations of the soma to foster the sensations of other patterns, as well as the awareness of the ongoing changes during the exploration of the newly-mobilized regions (Principle 3). Finally, they gave them the tools to monitor their movements externally until their awareness alone was sufficient to inhibit the former habit and attend to the new, more functional use of the jaw in singing (Principle 4).

Overall, the ways that teachers in this study applied somatic education principles to assist their students with jaw tension in singing aligned with pedagogical suggestions in the literature; if not in the lessons referenced in the tables above, in other lessons observed. This may indicate that pedagogical texts that offer guided movement explorations for singers based on The Alexander Technique (de Alcantara, 1997; Heirich, 2011) and Feldenkrais Method (Gilman, 2014; Nelson & Blades-Zeller, 2002), though not a substitute for work with professionals, can serve as valuable tools for voice teachers to explore. Furthermore, while pedagogical literature connecting Hanna Somatic Education to voice pedagogy is not yet available, Hanna's Somatic Exercises are intended for independent use to improve overall functioning and awareness—an underlying purpose shared by the other two somatic education disciplines in this study—that may indirectly improve students' use of themselves in singing.

The most striking takeaway from comparing the Alexander Technique, Feldenkrais Method, and Hanna Somatic Education literature alongside the teaching practices of Victoria, Mary, and Caitlyn was that, while the activities described in Tables

11-13 looked and sounded very different from one another, all three teachers viewed a common singing challenge in the context of students' somas, approaching the challenge by directing students' awareness in a dynamic process of self-improvement.

Applications of Somatic Education Principles for Voice Pedagogy

Based on the findings of this study, I posit that directed awareness is a significant unifying principle for somatic education in the Alexander, Feldenkrais, and Hanna Somatic Education disciplines. This principle of directed awareness is critical to the teaching of somatic education by the three participant-teachers in this study, because it is with directed awareness that the teachers fully engaged their students' somas in the process of growth and change. The four general principles of somatic education identified at the beginning of this study fall underneath the overarching concept of directed awareness. Once again, these four general principles of somatic education are:

1) Sensitivity and awareness improve with practice.
2) Learning is physical, emotional, and mental.
3) Habits are changeable.
4) Students can be taught to self-improve.

As discussed at the beginning of this chapter, I suggest directed awareness as a unifying somatic principle that guides somatic education in the Alexander Technique, Feldenkrais Method, and Hanna Somatic Education traditions. Directed awareness was illustrated in Victoria, Mary, and Caitlyn's practices as the primary mode of learning through which 1) sensitivity and awareness improved with practice, 2) physical, emotional, and mental elements of learning were recognized, 3) movement habits were changed, and 4) students learned to self-improve.

While the teachers in this study were informed by their extensive training in specific somatic education disciplines, I argue that the general principles, overarching

concept of directed awareness, and cross-case themes from the analysis suggest broad applications from which voice teachers without somatic education backgrounds can draw to enhance their instruction. The way voice teachers can apply the principle "sensitivity and awareness improve with practice" to their practice is by teaching from the somatic viewpoint: using their own experiences with directed awareness as well as pedagogical knowledge to teach their students what to "feel for" as they sing. The principle "learning is physical, emotional, and mental" can be applied by considering the ways in which the soma's integrated facets affect the voice, noticing the ways that thoughts, emotions, and physical sensations are all brought to bear during singing. The principle "habits are changeable" can be applied by making the voice studio a safe and comfortable learning environment, so that students can be as receptive and free as possible to experiment with their voices without fear of failure or judgment. Lastly, the principle "students can be taught to self-improve" can be realized by teaching students to practice functional singing using *self*-directed awareness.

Based on the principles described above, and in light of the ways in which the teachers in this study applied general somatic education principles to voice pedagogy in their studios, I suggest a modified set of somatic education principles for voice teachers:

1) To teach singing somatically is to teach from one's somatic viewpoint
2) Singing is affected by changes in sensations, thoughts, and emotions
3) Singing habits can be changed when the soma feels safe and comfortable
4) Students' ability to practice functional singing requires self-directed awareness

In the following sections, applications of these modified principles will be presented, including teaching from the somatic viewpoint, considering the soma and its integrated facets, creating a safe studio space for exploring the voice, and giving students reliable tools for aware and productive practice based on teachers' own learning. These

applications also support the use of the unifying principle of directed awareness to enhance the instruction of any voice teacher.

Applications of Principle 1: Teaching Voice from the Somatic Viewpoint

The teachers in this study taught from the somatic viewpoint, using their own experiences with directed awareness as well as their pedagogical knowledge to teach their students to access the sensations of free and efficient singing. They taught their students how to connect their internal and external sensations of singing to their understanding of how singing works. By helping their students understand what to "feel for," the teachers in this study enabled their students to be aware of how they were singing and moving so that they could continually access that information and improve.

As discussed previously in Chapter III, the challenge of teaching and researching from the somatic viewpoint is how to transmit one's own first-person experience and understand that of someone else. Hanna (1977) resolved this issue in his claim that teachers can adopt a bimodal perspective, enabling them to function "both a first-person observer of ourselves and a third-person observer of everyone else's 'bodies'" (p. 52). It is by tapping into their own somatic perspectives, as well as their experience learning how to sing and perform other movements, that teachers can better sense what their students are experiencing and what they need, a practice Cheever (2000) called "somatic empathy" (p. 6). Joly (2004) reconciled the third-person/first-person dilemma by explaining the nature of somatic educators' training:

> This teacher will have undergone extensive training aimed at acquiring "objective" knowledge of the moving body, as perceived in third person mode (anatomy of movement, physiology, biomechanics, bodily functions). At the same time, if not primarily, such a teacher will have submitted to a rigorous process of subjective movement exploration as experienced in first person mode. This rehabilitation of educated subjectivity in professional practice constitutes the unique characteristic of

> somatic education as a discipline. In order to gain professional competence the teacher-practitioner has to rely on her or his own experience or personal understanding and knowledge, acquired through actual experimentation. (p. 4)

For those teachers who have not received formal somatic education training, the findings and literature point to a viable step in the right direction: to perform the actions we ask of our students, bridging awareness of our own sensations of movement, so that we can both rediscover and freshly impart how to improve those movements on an ongoing basis.

An important application of directed awareness that teachers can communicate from the somatic viewpoint is sharing how they interpret sensory information from within, and how that information relates to other sensations from without. Research in motor learning, in combination with somatic education literature, indicates ways that teachers can help students understand and apply sensory information inside and out, including that which occurs automatically or by volitional control.

At first glance, the concept of external focus in motor learning appears to contradict somatic educators such as Alexander, who, literally, wrote the book on *Constructive Conscious Control of the Individual* (1985), and argued that our awareness of how we move is the first step to improving how we move. Grant (2014) distinguished Alexander's process of "conscious re-directing" during a task from Feldenkrais' process of "developing a more refined kinesthetic sense" during that task by describing the former as an exercise in concentrating on voluntary movements and the latter as learning movement variations as a function of voluntary muscular movement. These perspectives need not conflict, however. Voluntary control, in somatic education, is not an exercise of effort, but an act of choice—a choice such as refusing to respond habitually or choosing to explore options that are intentional and not compulsive.

Alexander cautioned against outcome-focus or external focus, what he called end-gaining, because those who were trying to change habitual movements were likely to be triggered by the desire to meet that end (and may interfere with effort at the expense of awareness). Once the means-whereby are established, a soma can meet its end without harm. Feldenkrais, in contrast, did not define intentional (as opposed to compulsive) movements specifically, without set guiding orders (e.g. "Let the neck be free"), and believed there were unlimited ways to perform each action. While Feldenkrais' movement explorations, from a motor-learning standpoint, may rely on external focus as a measure of whether the intention is met, the process is unlikely to be as problematic as end-gaining because the process is designed to be ongoing—even if an efficient way of performing an action is discovered, Feldenkrais argued that the exploration should continue ad infinitum.

The difference to which Grant (2014) was referring was evidenced by the language the three teachers used in the voice lessons observed. Victoria's approach during voice lessons incorporated the means-whereby students promote good "use," inserted as directions to guide their awareness as they prepared to sing and in the act of singing. For example, Victoria reminded students to "release tall," "breathe tall," "stay tall," "stay poised," or prompted them to use indirect control to "give [them] back [their] height" (Voice lesson, 7/18/17). This set students up to sing with their coordinated movement, facilitated by the primary control mechanism, which allowed them to release habitual tension and be attentive to whether they were following their directions or slipping into their habits.

Mary's approach to this process encouraged intentional movement with questions that began with an intentional premise and then highlighted a coordinated movement in the body. For example, she asked, "if you wanted to come forward without arching, where is the actual activity going?" or "in order to have your hands be free [when sliding your hands forward on your lap from hips to knees], you can't be leaning on them […], so where *are* you supported?" or "If you wanted to look out there up at the balcony in that building, then what would your chest do?" (Voice lessons, 8/29/17; 9/10/17). In these particular cases, the intentional movement may have had an external focus, but Mary's questioning helped students understand the pattern underneath.

An internal focus does not necessarily result in overthinking. In singing, the preparation for singing may set the student up with for good use at the outset, with the teacher there as a "spotter" in case it is not maintained. The set-up can be classified as a motor program, "an organized set of motor commands that are typically specified before movement initiation" (Bergan, 2010, p. 458), not unlike Alexander's guiding orders or sending directions, like that Victoria used when she asked Natalie to "think first" and inhibit her habit before she began (Voice lesson, 7/18/17), which is similar to the way Caitlyn encouraged Sam, Joel, and Kevin to make sure their "layers" were in place as they "set up to work" (Voice lessons, 9/22/17). These layers included the dropping in of breath, the connection to the muscles of support, and a sense of the internal location of the onset upon phonation and the stretch of the resonating space. Nisbet explained where to draw the line—the point at which the internal focus becomes less productive for performance:

> To prepare to sing, a performer needs to engage some cognitive processes to set up the action—the unconscious element of this engagement gradually develops towards a

> desirable automaticity. However, if a singer continues to consciously draw on preparation thoughts as concurrent instruction during a performance, the motor program is likely to be disrupted. (Nisbet, 2010, p. 114)

The theme of "allowing," which was present as the teachers in this study taught their students to let a process occur, can help fortify the dividing line between being mentally fixated and being present and aware. Guiding orders are worded carefully in language that takes singers out of their own way, which being excessively cognitive would not. "Let the neck be free" is not the same as "My neck is tight. I have to let go of it. I have to relax." The sort of "thinking first" exemplified by the somatic educators in this study, who encouraged students to take time to prepare, helped students set up the most efficient movement patterns they were able to do at that moment. Ultimately, the difference between teaching students how and what they move when singing, at least at the stage of learning a skill for the first time or relearning a more functional pattern, is a matter of being present to how singing feels:

> A teacher's task is to employ instructional language and behavior that most effectively assists the sensory information that affects "what is," but does not draw attention to the process. Knowledge of how the bodymind and voice works is useful, but only as a foundation to support a performer's first goal of establishing the implicit/procedural knowledge that is vocal technique. Attention to sensory information without intentional "doing" supports the singing process. (Nisbet, 2010, p. 116)

The literature also suggests that when teachers give feedback that directs students' awareness to what they sense, it empowers them to be more independent learners. Teachers need to clarify that their descriptions of what is happening—what students can "feel for"—are not misconstrued as instructions or commands to *make* something happen.

> For a novice, stimulus cues, which collect as rich internal representations of how things are working, are more valuable than an extrinsic knowledge base. A novice singer should be encouraged to recognize kinesthetic messages that align with the teacher's description of events. (Nisbet, 2010, p. 115)

The takeaway from the data and literature pertaining to training awareness of inner sensations is that voice teachers can reference their own experience of singing to lead students to recognize the inner sensations of singing so they know what to "feel for" in a variety of singing tasks. When students know those processes that are best allowed by getting out of the way, and in what ways they can enact an expressive intention with energy rather than interference, they can maximize the efficiency with which they sing. What this requires is for teachers to identify what they sense and do when performing, for example, singing a crescendo, and communicate those sensations when directing students' awareness.

To summarize, voice teachers can begin to integrate "teaching from the somatic viewpoint" into their practices by becoming somatically reacquainted with the learning experiences they are already including in their instruction. To cultivate somatic empathy for the act of learning to sing, teachers can practice directing their own awareness while singing the warm-ups, exercises, and even the repertoire they most often assign so that they have a better sense of what their students are experiencing.

Applications of Principle 2: Considering the Soma and its Integrated Facets

The teachers in this study engaged with students as somas, considering their integrated facets as they helped students understand the origins, triggers, and effects of singing habits so that they could come to understand the ways their voices are affected by their physical/mental/emotional states. Somatic educators understand that change in one aspect of the soma impacts the functioning of the soma as a whole; there are no purely physical, mental, or emotional habits. This means, however, that it is possible to affect one's physical experience with a new attitude or idea, and that it is possible to change

one's mind and emotional responses by making physical changes. Since singing is a whole-body, whole-soma activity, the applications of this concept are as useful as they are varied.

The reality of the functional unity of the soma is that finely-honed and directed awareness of these patterns leads to greater agency over our experience while learning the movements of singing. Victoria, Mary, and Caitlyn were well-acquainted with the ways their students responded to stress in voice lessons, and assisted them in staying present by directing their awareness to notice interfering thoughts and behaviors nonjudgmentally. They could then choose other ways of thinking about and attending to their learning processes. The teachers in this study applied their understanding of the physical-mental-emotional unity of the soma by facilitating physical changes that affected the emotional/mental aspects of the soma, as well as emotional/mental changes that affected the physical aspect of the soma.

Emotional reactions in voice lessons, such as frustration over a mistake or worry about an upcoming singing challenge, are counterproductive to the activity of directed awareness. Gilman (2014) asserted that there is an inverse relationship between effort and sensitivity, which for conscientious stress-out students, means the harder they work, the less successful they will be at remaining aware of how they are moving. Mary described the way well-intentioned students, herself included, fall into traps of overthinking and overworking at the expense of awareness:

> So I look at somebody that comes in and, like I did, gets in their own way because they're trying so hard, they're thinking so hard […] and the places where they're stuck […]—whether it's an early-learned habit of how you stand, how you hold yourself erect, or how you apply yourself to something that you really want to learn—that really is the arena that can allow you to take off, or not take off, in whatever you're doing. (Interview, 8/7/17)

When awareness becomes deadlocked in frustration or overthinking in the manner Mary describes, the teachers in this study counter the physical manifestations of these behaviors by changing students' movement. For example, Victoria responded to Rochelle's defeated slumping after her voice cracked by redirecting her to move in the opposite way, telling her to rise up on the balls of her feet and maintain energy up through her torso. Similarly, Victoria preempted Jessica's bracing behavior in anticipation of an intimidating entrance by instructing her to gently turn her head on the top of her spine—reassuring her of the sensations of ease that eventually lead her to accept that balanced onsets were "possible" for her (Voice lesson, 7/18/17). Mary and Caitlyn responded similarly when they sensed emotional states that might interfere with their students' ability to sing with awareness, and introduced them to movements that brought them back.

The significance of these examples is that changing the state of the body affects the state of mind and emotional state. This assertion is not new. Adopting a "superhero stance" has been shown to increase feelings of confidence, and the act of smiling has been shown to be a mood-elevator (Carney, Cuddy, & Yap, 2010; Lane, 2000). With this knowledge, voice teachers can address students' habitual somatic patterns by altering their movement. For example, given Hanna's Somatic Exercises were designed to address the effects of stress on the body, Caitlyn's choice to teach Kevin the "flowering" (lying on the back and unfurling the body in a manner that allows the extremities to bloom) for use at the beginning of the lesson and to start his practice sessions on his own is doubly beneficial: when Kevin got frustrated while singing, he contracted the anterior portion of his body, worsening the strain in his voice and perpetuating a somatic cycle. If

Kevin practices opening up the anterior portion of his body, his ability to be receptive and aware can be restored. Voice teachers without knowledge of Hanna Somatic Exercises can still capitalize on this concept by observing the physicality associated with students' unproductive behaviors and give them other ways to move instead. Eventually, students can recognize these somatic patterns and, as Brenda did when she recognized the warning-sign physical changes that manifest when she sings in front of others, "choose something else" (Voice lesson, 8/29/17).

The participant teachers also prompted physical and emotional responses such as release and relief by reframing students' ideas about their bodies and voices. By reframing how Miles thought about his physical condition at the time of his lesson, Mary helped him to discover body physical effects and therefore vocal change. For example, Mary encouraged Miles to try on images that promoted a more efficient quality of movement (similar to when she created smooth movements for Brenda and Ari to connect to their singing). By imagining his torso was made of silicone and that his shoulders were attached to his body with rubber bands, Miles' sense that he was "immovable" in his torso, retracted in his limbs, and "wooden" sounding when he sang, was challenged (Voice lesson, 8/29/17). Miles' "silicone" ribcage became compliant to Mary's hands, and he allowed more expansion throughout his torso when breathing. The "rubber bands" attaching Miles' scapulae helped him release his retracted arms as Mary stretched and rotated them. When Miles sensed that he was allowing movement through his chest and shoulders again, he was able to sense his breath and feel the ripples of movement throughout his body as Mary rocked him on the table. Once Miles' mind enabled freer movement, Mary helped him access sensations of freer, less "wooden"

singing as well. As the trauma of the car accident was an emotionally charged experience, Mary continually reminded Miles of the stability and safety his skeleton, her hands, and the table beneath him so his soma stayed integrated.

As discussed in the previous section, an important application of awareness is the knowledge of what to "feel for," especially in terms of what students engage actively or allow passively. Since the soma is interconnected, the idea of "allowing" or letting go is an emotionally laden concept. It involves trust in the new pattern (difficult when unfamiliar and hard to sense when less active than an overdoing pattern), trust in oneself, and trust in the teacher. The mindset and emotional state determine the quality of the movement to be performed. Jessica was surprised—repeatedly in her lesson—that singing did not need to feel like hard work. More significant, perhaps, is what the ability to let go represents to Jessica on a personal level:

> I'm also in a 12-step program—[…] that is all about letting go […] of stuff that's unnecessary […]. And Alexander, to me, is the physical manifestation of that. […] And sometimes, it helps me to think when my back hurts and my neck, that […] you know what? It was just me tightening up stuff. […] Same with my thinking, or my co-dependence with other people, it's just a bad habit. I'm not a bad person; I can change a bad habit. I can let some stuff go. […] This is what I was telling [Victoria] when she talked about you—between the Alexander and [singing], for me, it's not even about a physical thing and it's not about singing, it's about, "can I go out into the world and let people see me, and let go a little bit," and you know what? It works better that way. It's scary sometimes, but […] hanging on so tightly to my beliefs […] all of that […] is just a habit and I can change a habit. Wow. That's powerful stuff for me. (Interview, 7/18/17)

Jessica's experience exemplifies the far-reaching implications of the somatic experience, in that the practice of letting go, being willing to be vulnerable to the unfamiliar, and the belief that it is possible to change habits and continue to self-improve has changed her life—not just her singing. It also underscores the importance of considering all the facets of the soma when teaching students how to unlearn problematic habits.

What voice teachers can take away from the principle that singing is affected by changes in sensations, thoughts, and emotions, is that even an accurate mechanical understanding of what is happening for voice students may be insufficient for learning and change to take place. Students' ideas and feelings are inextricably linked in a way that can be useful if taken into consideration and counterproductive if ignored. The unifying principle of directed awareness can be applied by simply bringing these connections to students' attention so that they can choose to explore other attitudes, ideas, and ways of moving that serve them better in singing.

In any voice lesson, the concepts above can be applied by asking students "what does that do for you?" or "what's behind this?" in regards to their habitual patterns. When Caitlyn asked Eva what her habit "did for her," they discovered she was pulsing her arm to channel energy from her anxiety instead of using that energy more productively as the driving force to support her voice—and that when the pulsing stopped, her anxiety decreased. When Mary asked Ari what was "behind" her freeze pattern, they noticed that Ari was approaching each new movement with that habitual tension, and decided to try on the feeling of being curious about what came next, literally opening herself up to the unknown. Teachers can also encourage students to think about the activities of the voice lesson differently, letting them know when, as Victoria did Jessica, a warm-up is not meant to "sound good." A somatic background is not necessary to teach students the power they have to change the way they think, try on a different mood, or move in a new way. Any one of these actions affects the entire soma, and therefore has the potential to evoke a new way of singing.

Applications of Principle 3: Creating a Safe Studio Space for Exploring the Voice

The teachers in this study set the stage for changing habits by creating safe studio spaces in which their students felt they could experiment with their singing. They dedicated time for exploring unfamiliar vocal techniques or movements in a low-risk environment, encouraged students for trying a new option even if the outcome did not *sound* optimal, and helped them to recognize and direct their awareness at changes and differences so that they could choose from options that *felt* more optimal. While two out of the three teachers observed for this study were not grading their students, all three gave their students permission to experiment, assuring them that their willingness to let go and try something—though it may have felt and sounded strange—would pay off in the long run.

In order for voice students to give themselves permission to experiment, they need to be secure in the knowledge of what is at stake, or at what point they should prioritize their product over the process. Gerbi (2017) suggests that voice teachers designate time in which there is a mutual understanding that students are in lab-mode or process-focus-mode so that they feel free to explore unknown vocal outcomes. Then, teachers should set aside other times wherein students synthesize their experimental discoveries and, with the acknowledgement that this represents a moment in their overall development and training, perform. The teachers in this study communicated the low-risk levels of their studios in different ways. Victoria reassured Jessica that she knew some of the newfound freedom in her neck would regress when they were singing through a new section of a piece, and that they could go back later to work in a different manner (Voice lesson, 7/18/17). Since Mary's instruction involved near-constant variation, her language

was intentionally casual when focusing on experimentation, such as when she told Miles he could let go in whatever area he wanted to try first, saying "you don't know where, I don't know where," telling him he could start his song "just in any key," and easing him into the singing portion of his lesson by asking him to "remind [her] how that starts" when he told her the song he been working on (Voice lesson, 8/29/17). Caitlyn has noticed the atmosphere she has tried to foster in her studio over the past two years has been received the way she intended, as reflected by responses from students (including Eva, whose attitude towards lessons changed after they talked about experimenting in lessons):

> I'd like to think that my students, I know many of them have […] come up to me now this past week and said, "I've had these breakthroughs, and I'm so excited," and that just that makes me so excited for them. But I'd like to think that it's not just because what I'm telling them technically; it's because they feel like they can explore and be safe and that's really important to me, that there is a safe place where they can come and work and make progress. (Interview, 9/30/17)

Another way the teachers in this study established their studios as safe spaces to explore the voice was by giving their students permission to fail, convincing them it was worthwhile to try the unknown. The teacher participants often framed the subject of their feedback to changes in movement (either assumed by somatic empathy or observed externally) rather than sound, or praised a student for trying something new, even if the result seemed less optimal that the previous attempt. For example, Victoria praised Elizabeth for no longer holding on at the anterior of her neck to resist or control the transition between registers, saying: "Good for you. Can you tell you're letting your voice shift?" (Voice lesson, 7/18/17) Mary pointed out to Ari when she let go of her shoulders and enabled natural resonance (Voice lesson, 9/20/17), as she did John when she noted "something let go," or when his resonance "popped into place" when he spoke

without using an unnatural stage voice. Caitlyn congratulated Eva on "freeing up a lot" before exploring how the decreased restriction interacted with her airflow (Voice lesson, 9/22/17). While the *sound* was breathy, Caitlyn gave Eva feedback to reinforce that she had taken a critical step in unlearning a habitual pattern. Given Nisbet's (2010) claim that when students must direct their awareness to the details of new actions, their singing becomes "temporarily worse," the importance of establishing a safe space for changing vocal habits is clear (p. 115).

While the idea of an error-free zone may set students at ease, it is true that learning to sing for performance, from a professional and a motor learning standpoint, is best learned errorlessly rather than errorfully. While Bergan (2010) argued that novices should learn certain new skills errorlessly, her description does not contradict the assertion that experimentation is a beneficial step in cultivating new movement patterns:

> Perhaps the best type of learning or recall is task-specific; for example, the execution of an accurate rendition of the musical score itself needs by virtue to be "errorless" (using implicit memory), while the execution of a recently acquired specific vocal technique may benefit most from "errorful" learning (using explicit memory) and will most likely be more "errorful" in production. (p. 465)

Bergan's recommendations clarify one way voice teachers can designate time for experimentation or "errorful" singing: scores should be prepared and performed errorlessly; but the sensations of boundless possibilities for the voice can be played with, especially decontextualized from repertoire.

The creation of a "safe space" for experimentation necessitates replacing the pursuit of "good sounds" with a process of seeking new options. Experimentation, trial-and-error, and exploration were the primary modes of discovering these new possibilities, by their very nature bypassing hang-ups such as a fear of failure or anticipation of a known outcome. Greene (1995) connected this idea back to directed awareness, stating,

"Somatic practitioners do not mandate behavior or outcome; rather, individuals are encouraged to find in themselves, inside their own bodies, what is best." (p. 137). This relates to the concept of intrinsic versus extrinsic feedback.

The participant teachers enabled students to change their habits by creating an environment that supported risk-taking, encouraged trying new things, and emphasized sensation over sound in the initial stages of trying on new patterns. In a safe studio space in which students know the "terms" in which they can expect to experiment without fear of failure or anxiety over a set outcome, students' unrestricted awareness maximizes their ability to sense their habits, open themselves to new possibilities, and sense the differences between options so that they can select what works best for them.

Singing habits can be changed when the soma feels safe and comfortable. Applications of this principle are easily replicated elsewhere because they do not depend on teachers' somatic education training. However, somatic education presents paths to experimentation and discovery that direct awareness and involve interesting avenues to arriving at new ways of singing. It is recommended that voice teachers define the parameters of an experimental mode of instruction so that they know what is expected and how they are being assessed, giving feedback that aligns with those parameters. For example, after asking that a student direct awareness to letting his or her head turn as smoothly as possible while singing a scale, without worrying about how the scale should sound, initial feedback should center on how smoothly the student's head was turning and *not* how the scale sounded—asking the student whether the neck felt stuck at any point, or noting what the neck looked like from the outside and asking what that felt like on the inside, and other guiding questions.

While the somatic educators/voice teachers in this study drew from their training to provide sequential, efficient, and relevant movement variations to guide the exploration, voice teachers without somatic education expertise can still facilitate the experimental process. In the activity above, variations may be as simple as repeating the activity and asking a student to see whether they can allow the movement to feel even smoother, to notice what happens to the movement if they begin to move before they start to sing, the difference between the movement with and without singing, whether the student can maintain the feeling of ease without turning his or her head, and many more possibilities. What makes the process experimental, after all, is the idea of being curious about how changes throughout the soma, as directed by awareness, affect students' experiences while singing. What makes the studio safe for experimentation is the clearly communicated contract that, during experimental time, students can attend to their somatic experience without worrying about "sounding good," being corrected, or pleasing the teacher.

Applications of Principle 4: Giving Students Somatic Tools for Practice

It has been shown that the teachers in this study directed students' awareness of themselves in singing; however, in order for students to apply this principle while singing on their own, they had to learn how to exercise *self*-directed awareness in their practice sessions. Alexander, Feldenkrais, and Hanna believed that the goal of somatic education was that students would learn to improve themselves while receiving verbal and/or manual guidance from their teachers (Allison, 1999; Cheever, 2000). Victoria, Mary, and Caitlyn, applied this goal to their voice teaching practices when they guided their students verbally, posing questions to help them learn to self-direct their own awareness outside

the studio, and when they showed students how to use their own hands as tools to manually guide themselves while singing. The applications discussed in this section may be familiar, because I assert that the best way of giving students the tools to practice singing somatically is for them to be able to facilitate for themselves experiences that resemble those facilitated by their voice teachers. Therefore, the applications of the fourth somatic education principle for voice pedagogy (stating students' ability to practice functional singing requires self-directed awareness) involves students' application of the first three, such that they 1) teach themselves from their somatic viewpoints, 2) consider their sensations, thoughts, and emotions while they practice singing, and 3) give themselves permission to fail and not "sound good" during the process of trying unfamiliar ways of singing. The best way, therefore, for voice teachers to help student access these applications is by "apprenticing them" during their voice lessons, teaching them how they can direct their own awareness as productively as possible.

Joly (2004) explained that the discipline of somatic education focuses on "the living body's subjectively experienced capacity for self-education." Victoria, Mary, and Caitlyn taught their students that which they first learned to do for themselves: how to inform and improve their singing with what they sensed in movement. Voice teachers without somatic education backgrounds can engage students in learning from the somatic viewpoint by asking questions that bring them into their present-moment sensations of singing. Questions could be general, such as asking "What do you sense?" They can be simple and specific, such as a quick, "Where's your head?" between repetitions of a warm-up, or complex and rhetorical, posed as an idea to try on while singing a passage of a song, such as "What happens for you when you imagine those neck muscles staying

very long throughout that phrase?" The questions need not adopt discipline-specific jargon; they need only direct the student to sense what is happening. Then, to promote transfer, simply remind students of the questions they should ask themselves in the practice room.

Another important reason to use this questioning while voice teachers guide their students in how to practice is to verify whether a particular activity is *ready* for independent practice. If students cannot reliably sense whether they are responding habitually, or do not yet understand how to "feel" for an internal process, or do not know how to recreate a particularly effective singing event, it is more productive for them to explore these ideas with the guidance of a teacher than to reinforce the suboptimal patterns at home. Behnke (1995) explains why students who are still acquiring the skills of singing or working on unlearning a habit need feedback from the outside-in:

> [My] sense for what feels *right* and what feels *wrong* may not be trustworthy, for what feels right to me is likely to be some version of the same age old pattern I thought I was learning to change. What this all adds up to is that there are indeed times when self-help does not get to the root of the problem; we may genuinely need the other person to help. (pp. 327–328)

If, however, students can feel the difference between their habitual way and the new way, and have a reliable mechanism for monitoring those sensations, they have the tools to solidify the new pattern. Or, if the inner sense is not yet reliable, but students are able to utilize an external referent to bring themselves to the same pattern (which is one of the functions of the voice teacher), they, too, have the tools to proceed on their own.

The simplest external self-monitoring tool students can be trained to use in practice is the mirror. Hanna (1988) recommended sitting, eyes closed, leaning as far forward and back as possible, stopping at the upright position, and then looking in the mirror to gauge whether a student's sense of upright is skewed forward or backward.

Alexander (1984) described how he practiced in front of a mirror so that he could, without looking, find what he thought was a balanced head position and then look to see whether he had released his head forward and up or retracted backward and down in his habitual way. The mirror allows voice students to at least monitor the outward manifestations of their habitual patterns while singing, but is only productive to the extent that the voice teacher has worked with the student to establish what the habitual pattern and optimal pattern look like and feel like—and, more importantly, whether they can be meaningfully observed from the outside. If so, the voice teacher should 1) ask the student to recreate the habitual way and the optimal way in the mirror, adding singing if it was previously removed 2) guide the student to compare the sensations and appearance of the old and the new way in movement and/or singing 3) revisit the activity at random intervals throughout the lesson for the student to practice finding the patterns again. From this process, even if the "new way" feels wrong or feels strange, the student can now accept and trust the fact that, to construct a hypothetical first-person example: *When it feels to me like my head is balanced over my shoulders, I tend to actually be pulling it backward and downward. So, while I am in the practice room without my teacher reminding me, I understand that when my head is balanced, it will feel to me as though it is too far forward. I will look in the mirror regularly, adjust, and try to notice what differences I sense.* Recalling the soma-in-the-mirror, the use of visual and external feedback simply adds to the ways students can self-direct their awareness. In brief, when students have the tools to view their somas objectively, they can continue to trust in their third-person perspective until their first-person sensations agree.

Self-monitoring techniques bolster students' awareness by providing external referents for the internal processes they are learning. This explains why the strategies Victoria, Mary, and Caitlyn taught their students to use in the studio involved external props or external feedback from their own hands. However, since Hanna (1986) described the soma as "the body as perceived from within by first-person sensation" (p. 4), which exists in a constant state of reciprocal sensing through movement, the application of exteroception (external sensing) may seem less relevant to a somatic approach to voice pedagogy than proprioception (sensations of movement) and interoception (inner sensing). However, the soma can view itself both externally and internally as well. Hanna (1986) offered an explanation that sheds light on how 1) teachers can train students from a third-person standpoint that which they learned in first-person and 2) how it is possible for students to take in this information by *simultaneously* perceiving themselves from *both* perspectives:

> When a human soma looks at itself in a mirror, it sees a body—a third-person, objective structure. But what is this same body when looked at from an internal, somatic perspective? It is the unified experience of self-sensing and self-moving. From the mode of first-person perception, the soma's "body" is a body of functions. (p. 5)

In order for teachers and students to capitalize on these multiple modes of experiencing in the voice lesson, it may be useful to think of them as ways to fill in the gaps—to give students something to look for, feel for, touch, etc.—when they are having difficulty sensing meaningfully while singing. Eventually, as students gain more awareness through movement, the teacher can guide them in phasing out the externalized movements. For example, in Victoria's studio, Natalie practiced singing an exercise with both hands on her jaw hinge, one hand, and then no hands, and Jessica imagined her head retained the potential to move after she no longer turned it gently from side to side. In

Mary's practice, Brenda continued to imagine playing smoothly articulated pitches as if on a piano while she sang, and Ari maintained the sense of easy initiation (of body and vocal onset) as if falling into the momentum of the rolling ball on her lap. In Caitlyn's practice, Sam lifted the tight imaginary hat off first with her mouth open, then with the external lift of her hands with her mouth closed, then without the lift of the head but her mouth open, and finally with neither the external lift nor the open mouth, with the intention of retaining her sense of *internal* lift. These are examples of the ways in which teachers enabled students to self-improve with a movement or idea that helped them to access *inner* sensations they could monitor externally, gradually decreasing the external movements as they learned to sense internal ones. This provides a template for how, as students progress, they can choose to move away from self-monitoring, depending on what they are able to feel from the inside.

Among the most important assumptions underlying the application of somatic tools for voice practice is that "dual talent" each soma has to "sense its own individual functions via first-person perception, and […] sense external structures and objective situations via third-person perception" (Hanna, 1986, p. 5). These two simultaneous perceptual modes hold the key to the human capacity for self-education: we see can experience ourselves in singing as the singer-object and singing-process, objectively and subjectively, exteroceptively, interoceptively, and proprioceptively. In that respect, somatically aware voice teachers exist simultaneously as students of their own singing, and somatically aware voice students exist as their own teachers of singing.

Voice teachers can apprentice their students in the application of self-directed awareness by using questioning strategies throughout the lesson to simply bring them to

the sensations of singing in the present moment, and to illustrate that in their own practice, posing these questions to themselves is a technique to stay connected to their somas. Another tool voice teachers, with or without somatic education backgrounds, can pass on is to move step by step through a process of self-monitoring, incorporating visual information such as the use of a mirror, external props, and movements guided by students' hands as a regular activity in the lesson itself—asking students to notice when in their lessons this practice feels most needed or most helpful so that they consider how it may be applied elsewhere in their practice sessions.

The teachers in this study gave their students agency over the way they used themselves during guided practice by encouraging them to take the time to direct their awareness to the sensations and patterns of how they were moving. This practice placed the responsibility for regulating the experience on the student, giving the Victoria, Mary, and Caitlyn a chance to observe how students used themselves in the work. For example, Mary reminded John to pause to sense his inhalation growing out of the end of his previous exhalation (Voice lesson, 9/10/17), Victoria allowed Jessica to set the tempo of her vocal exercises so that she did not feel rushed and react with tension (Voice lesson, 7/18/17), and Caitlyn told Kevin to wait to sing until he could recall the sensation of onset with an open throat (Voice lesson, 9/22/17). The significance of these moments of the voice lessons is the idea that the teachers in this study were not merely telling their students to sing whenever they were ready; more specifically, they were guiding them to notice what they sensed that let them know they were ready to sing. The question "what will you sense that lets you know you are ready to sing," asked in a voice lesson, has everything to do with the way a student sets the tone for his or her practice session and

his or her voice lesson.

The most distinctively somatic approach to teaching students how to practice, once again, does not require certification in a somatic discipline. It involves giving students the tools to create an environment in which to practice that feels as safe and nonjudgmental as the voice studio should. The three participant teachers also continued to promote the application of directed awareness as a tool for analyzing areas of difficulty productively rather than judgmentally. This application was modeled when the participant teachers gave feedback based on what students changed, or when they helped students to deconstruct what was happening so they could pinpoint where their awareness may have been blocked. For example, Caitlyn encouraged Kevin, who tended to get frustrated and increasingly tense, to practice with the goal of *understanding* (not necessarily "fixing") any challenges, sensing patterns that came up for him so they could continue exploring them together:

> […] if it's not feeling right, decipher *what* is not feeling right. Write it down if you have to. If it's a crowded neck thing, it's a crowded neck thing and we'll keep working at it. If it's because you're taking your breath and it's not being useful, we'll keep working on that. But if you can write it out and label those things you can […] know, "oh, this is a pattern," and then we can change it." (Voice lesson, 9/22/17)

Simply taking the time to notice and stay present to the *sensations* of singing when an inefficient pattern surfaces helps students to understand and use that information to report back what "didn't work" to their teachers, (which helps the teachers, in turn, to bring students back to the movement sensations they had difficulty recreating on their own). Voice teachers can encourage productive practice attitudes by inviting students to try on the objective mode, describing "what happened" in detail, the subjective mode, describing what they were thinking and feeling at the time, and, as Caitlyn did, make it clear that students can and should share these descriptions from the practice room in the

studio. If they do not know how to describe a singing challenge they experienced, teachers can let them send a video. What students do in the practice room, after all, comes with them into the voice studio at every lesson whether they are conscious of it or not.

For the voice teacher who has students like Kevin, who lose their receptivity and awareness as they begin to tailspin with frustration, it is important to remind students to recognize, as part of their "preflight checklist," what their somas need most. Students and teachers can come up with a trouble-shooting list, based on the challenges and victories they have discovered during lessons, as a personalized go-to practice guide, with items such as:

- "If you are discouraged by your sound, what would it be like to stay with the sensations of your pelvic floor this time, without listening to yourself as you sing?"
- "If you feel your body closing itself off as you work on a section you find intimidating, sing something else that makes you feel open and at ease, even if it isn't a song we are working on together. What was the difference? Is it something you can plug in?"
- "Before you start practicing today, are you holding on to anything that happened so far, or worrying about something coming up later on? If so, sit quietly for a few minutes, breathing comfortably, and scan your body from head to toe, letting go of anything that will not help you practice."
- "If you notice your habit creeping in, place a checkmark in your score each time you notice the sensations of your habit most vividly. Do you see any kind of pattern in the score?"
- "Are you feeling anxious? What does that feel like in your body? Here's what you've found helpful in the past: a brisk walk, a few minutes of meditation, and yoga."
- "Take a few moments to imagine singing what you are about to practice. Can you imagine what it would be like to believe you can enjoy singing the entire song?"
- "Do you believe it is possible for you to sing that section freely? If not, let's put it aside for today."
- "What are some of your favorite warm-ups? Choose some that make you feel how you'd like to feel when singing today. Which would work especially well for the song you would like to practice?
- "Stuck in your head? Listen to a performance of the song you are working on. How does the music make you feel? Follow your physical impulses and move around the room to the music. What would it be like to keep that expressive energy in your body, allowing it to pour out of you in your voice?"

Answers to these questions may be derived from trial and error, depending on the content of each student's lesson. Some voice teachers may not feel comfortable speaking with their students about potentially traumatic, deeply personal experiences that affect the soma and its ability to sing; however, it is not necessary for students to disclose the details of their personal lives as long as teachers help them understand their influence. Voice teachers can design journal prompts in which students keep track of their somatic experiences and explore on their own, choosing to share with the teacher to the extent that they are comfortable, even if they keep the personal aspects of the discoveries private. The somatic voice teacher's role is bringing students' entire somas to the sensations of free and efficient singing. Jessica did not need to share that she was in a 12-step program in our interview, but sensed how pervasive and impactful that non-singing experience was in the way she carried herself, in her self-confidence, and in determining whether or not she felt she deserved to be heard. As long as *she* recognized that connection, which lead her to understand that "letting go" was a fully integrated somatic concept, she was able to carry it with her as she sang and apply the inspiring, non-singing lessons she has learned about the power she has, through her awareness, to change her habits and improve her life.

Students who can reframe their practice sessions with an aim to replicate the movements and sensations they found most useful in the studio, monitor their work with reliable awareness-directing movements, and release that which interferes with their awareness-based purpose by responding to challenges productively and nonjudgmentally, have the tools to tap into their somatic singing potential. When their new patterns occur reliably without the externally guided movement, reminders from their teacher, or the

conscious maintenance of the internal sensations, their unlearning and relearning process for that pattern is complete. Voice teachers who like Victoria, Mary, and Caitlyn teach students to become more independent learners, can do so by tapping into their own sensations of singing. For them, the challenge will lie in noticing singing that has long been automatized by dedicated practice of vocal technique and pedagogy. However, they may find that when they revisit their own learning processes somatically, there are still discoveries to be made. Furthermore, by renewing their first-person perspective of sensing the movements of singing, teachers can co-experience their students' learning and foster somatic empathy. In the cases of Victoria, Mary, and Caitlyn, this way of apprenticing students in their own learning process applied directed awareness to the somatic experience in an exploratory venture of vocal discovery and change, and applied the principles of somatic education to voice pedagogy so that students could continue the journey in their own practice of voice. The principles of somatic education for voice pedagogy, based on the general principles of somatic education and the overarching and cross-case themes that emerged from the data, highlight the aspects of what could be called "somatic voice pedagogy": an approach that is distinctive due to its emphasis on the teacher's first-person mode of experience, the complexity of singing as a process of inseparable moving/sensing in an integrated physical/mental/emotional activity, the freedom of a learning environment that encourages constant exploration of the soma through the voice, and the idea that students can use the tools that reside inside of them to improve between lessons, throughout their careers, and throughout their lives.

Limitations

Since each of the three teachers in this study are certified in one of the somatic education disciplines of Alexander Technique, Feldenkrais Method, and Hanna Somatic Education, the data includes only one case per somatic practice. Therefore, these findings are not representative of other somatic practitioners in any of the three disciplines, and are therefore only relevant to Victoria's, Mary's, and Caitlyn's specific practices. Other limitations of this study included issues of sampling, scheduling, the presence of the observer, as well as the inherent contradictions of studying, observing, and analyzing somatic education data from the outside.

Convenience sampling was used such that the participant teachers recruited student participants, at least in part, based on their availability during the available times for data collection. This did not affect the three cases uniformly because, while data collection at Victoria's and Mary's sites took place in the summer, when many students were on vacation or had deviated from their regularly schedule lesson times, Caitlyn's university lesson schedule was already set by the time she was observed. In Mary's case, student availability extended the intended data collection period for voice lesson observations. Since Mary's students, Brenda and Miles, were observed in August and John and Ari were observed in September, I asked Mary lesson-specific follow-up questions on two separate occasions—after the first two observations and later after the second two observations—so that the time between lessons and follow-up questions was uniform as possible. Selection of student participants was easiest at Caitlyn's site, as the observations were conducted at the end of the September when the academic year had resumed and students were seeing her regularly as part of their required academic

coursework. Since the teachers were selected using convenience sampling as well, issues such as the power differential between student and teacher could not be equalized within or across sites. For example, Victoria grades Rochelle and Natalie in their voice secondary classes during the academic year, but not Jessica and Elizabeth. Since all of Caitlyn's observed students were taking lessons for a grade, it is possible that the underlying notion of being graded influenced the observed behavior in a way that may not have been present in Mary's private studio.

Another limitation of the design of this study was the presence of the observer. While all students consented to having their voice lessons observed and recorded, students like Brenda and Jessica, both of whom struggle with anxiety, explicitly mentioned being nervous because I was in the room. They also mentioned, however, that they were glad to have had the experience. In any case, these two examples indicate that my presence in the studios was not perceived as a "fly on the wall." Furthermore, it is possible that The Observer Effect influenced the data. Since the teacher participants (and student informants) were aware of the topic of my dissertation (as specified in the consent procedures), they may have overrepresented somatic education principles in the lessons observed. However, interview and observational data do not support that concern. In fact, Miles, the student interviewed at Site FM, made it a point to mention that he noticed and curbed the urge to try to sound a certain way since I was in the room:

> "I know that by doing a certain combination of things I can make sound happen that would not be what I'm learning from Mary, but […] there was a time where it would have bothered me, […] I would [have been] really aware that you were in the room, and I'd want you to hear me," *he adopts a booming stage voice*, "SING SAMUEL BARBER!" *We laugh*. "And it really wasn't that. I would be wasting your time and my time if I veered into that, so I was able to resist that." (Interview, 8/31/17)

A concern over a traditional method of inquiry in this context is that the somatic viewpoint, the most authentic lens for understanding somatic knowledge, is experienced in the first-person, but the researcher observed from a third-person perspective. For the researcher to observe and interview other somas, the first-person somatic experience of the participants was removed from its authentic context, experienced by the researcher, and then removed still more from that first-person experience (albeit not in the role of teacher or learner) to be codified and reconstructed. If somatic education is studied within the traditional, dichotomous Western paradigm of mind–body dualism (which seeks to isolate variables and distill down experiences into observable behaviors), does the research still have value? Hanna's (1986) philosophical framing of first-person and third-person experience (as two sides of the same coin or soma) may suggest that, while the observer does not see the big picture when studying someone else's somatic experience, these data are valuable in their own right:

> Somatic data do not need, first, to be mediated and interpreted through a set of universal laws to become factual. First-person observation of the soma is immediately factual. Third-person observation, in contrast, can become factual only by mediation through a set of principles. It should be understood that this difference in data is neither a difference in truthful accuracy nor of intrinsic value. The difference is that the two separate modes of cognition are irreducible. Neither mode is less factual or inferior to the other: they are coequal. (p. 4)

The limitations of studying somatic education objectively placed the researcher in a similar predicament as that experienced by teachers of this field (and their students): how to interpret the somatic experience of someone else and communicate their own. Hanna's assertions suggest that they cannot—at least not in the somatic data's true, original form. However, when voice teachers make sense of their own somatic singing experiences from their unique, subjective points of view, they become better equipped to empathize with what their students may be experiencing while singing. Voice teachers

who are interested in integrating the principles of somatic education may do so by balancing their subjective, somatic knowledge with their objective pedagogical knowledge in their instructional approaches.

Implications for the Field

The study set out to examine the ways in which principles of somatic education may be applied to voice pedagogy, specifically within the three disciplines of the Alexander Technique, the Feldenkrais Method and Hanna Somatic Education. Based on the findings, new somatic education principles for voice pedagogy have been put forth, as well as their applications, to further clarify answers to the research question. The applications of somatic education principles for voice pedagogy are accessible to any voice teacher, not just those who are also certified in Alexander Technique, Feldenkrais Method, and Hanna Somatic Education. While this may bring more voice students and teachers to this mode of inquiry and form of learning, additional considerations for becoming certified in one of the somatic education disciplines will also be discussed.

Answering the Research Question

As a reminder, the research question guiding this study was: in what ways do professional voice teachers who are certified in the somatic education disciplines of the Alexander Technique, Feldenkrais Method, or Hanna Somatic Education incorporate somatic education principles into their pedagogical approaches? The answers to this research question are italicized in the sections below, and refer to the principles as restated above. To clarify, the general somatic education principles are:

1) Sensitivity and awareness improve with practice.
2) Learning is physical, emotional, and mental.
3) Habits are changeable.
4) Students can be taught to self-improve.

One discovery that emerged from the findings of this study was the presence of an overarching theme, "directed awareness," which was present in the all three participants' approaches to teaching voice *and* a common thread through the general principles of somatic education. "Directed awareness" shaped the three participant teachers' instruction, as a primary purpose of teacher–student communication and the primary experiential mode of the students being guided. Directed awareness can be employed by any voice teacher for the purpose of guiding his or her students' sensations of singing so that they can become more proficient users of their somatic instruments. Through this organizing principle, the four general principles of somatic education can be integrated into a summary of this mode of instruction—the first answer to the original research question:

> *These teachers "improved" students' "sensitivity and awareness" (Principle 1) by directing them to notice the inseparable physical, emotional, and mental facets of somatic learning (Principle 2), to change singing habits by being aware of habitual patterns and choosing new options (Principle 3), and to continue to use awareness to reinforce new functional patterns and "self-improve" their singing (Principle 4).*

Another contribution of this study to the field is how it deals with the *present*-tense somatic experience of the soma when described as the *past*. Furthermore, as Hanna (1993) described the soma as a constant moving/sensing process, it made sense to list the cross-case themes of somatic learning in the present-continuous tense (e.g. 1.2 "Allowing" and 4.1 "Slowing and Pausing"). This more accurately represents the somatic nature of the data, presenting the themes in an immediately contextualized manner: simultaneously as themes *and* applications. The general somatic education principles align with the cross-case themes observed in the practices of Victoria, Mary, and Caitlyn (see Table 9), doubling as applications of directed awareness. In that sense, the cross-case themes themselves comprise another set of answers to the original research question, as

do the examples observed in each voice studio (see Table 10):

> *All three teachers in this study applied the principles of somatic education by directing their students' awareness to sensing movement in specific areas of the body without making the movement happen, by noticing—nonjudgmentally—their sensations, thoughts, and emotions when a singing habit surfaces, by observing the differences in sensations while experimenting with the voice and/or movement, and by moving slowly or pausing to fully experience sensations while monitoring old and new movement/singing patterns.*

The findings of this study inspired the refinement of the principles that captured the more characteristically somatic aspects of the participant teachers' approaches to voice pedagogy. To that end, this study proposed the following modified principles, which have been designated as the somatic education principles for voice pedagogy:

1) To teach singing somatically is to teach from one's somatic viewpoint.
2) Singing is affected by changes in sensations, thoughts, and emotions.
3) Singing habits can be changed when the soma feels safe and comfortable.
4) Students' ability to practice functional singing requires self-directed awareness.

In order to use these new principles to satisfy the purpose of this study, a slightly revised research question was posed to include the modified principles: In what ways do these professional voice teachers who are certified in the somatic education disciplines of the Alexander Technique, Feldenkrais Method, or Hanna Somatic Education incorporate somatic principles for voice pedagogy into their instruction? At last, after setting out to find applications of general somatic education principles *to* voice pedagogy, this "answer" to the research question arrives at the applications of somatic education principles *for* voice pedagogy:

> *The participant teachers applied somatic education principles for voice pedagogy by teaching from the somatic viewpoint, considering the soma and its integrated facets, creating a safe studio space for exploring the voice, and by teaching students somatic tools, such as self-directed awareness, to practice on their own.*

Whether or not these new somatic education principles suggest the emergence of a new field of study, perhaps called "somatic voice pedagogy," is not yet indicated by the

findings of this research. What this study *does* contribute to the field of voice pedagogy are ways teachers can foster somatic learning and discovery: by teaching from the somatic viewpoint, considering their students' multifaceted somas, creating safe spaces for movement-based experimentation with the voice, and by taking time during the lesson—based on their own somatic viewpoint—to model ways the teacher-driven instructional theme of directed awareness can be trained inward, so that students can guide their own practice with the tool of self-directed awareness.

Implications of Somatic Education Principles for Voice Pedagogy

Applications of the somatic education principles for voice pedagogy proposed in this study—including teaching from the somatic viewpoint, considering the multifaceted soma, and creating a safe space in which to explore the voice (all of which serve as somatic tools for students to use in the practice room)—have challenging implications for traditional third-person, product-focused models of voice pedagogy. Hanna (1986) defined the field of "Somatics," which he used to classify Alexander Technique, Feldenkrais Method, and Hanna Somatic Education, as "a field of study dealing with somatic phenomena: i.e., the human being as experienced by himself from the inside" (p. 5). Based on the references the participant teachers made in their interviews to their own personal somatic awareness and learning, the extent to which their instruction was based on the first-person experience of singing/moving with their students during voice lessons, and the emphasis on subjective, somatic knowledge in the literature, a major implication of this study is the importance of voice teachers' ability to tap into their own somatic knowledge during instruction.

There are several avenues, aside from certification in a somatic education discipline, through which voice teachers can learn to better sense themselves in the movements of singing. Pedagogical texts that include step-by-step, discipline-specific explorations of sequential movements connected to singing (Heirich, 2011; Gilman, 2014; Nelson & Blades-Zeller, 2002), or that recommend a sequence of awareness-driven movements as a daily non-singing practice (Hanna, 1988), can be used to "try on" the distinctively somatic moving/sensing format of instruction. From there, interested voice teachers can continue to build their arsenal of awareness-building tools as *students*, during private lessons or classes in which they can develop their own somatic viewpoint as a new source of subjective knowledge about their moving bodies. Joly (2004) suggested that somatic educators combine objective knowledge about the way their students move with subjective knowledge of how they would feel/have felt based on their own somatic experience. If mainstream voice teachers, who have not yet received the level of certification as the teacher participants in this study, wish to begin to incorporate somatic education principles as teachers, the first step is to practice directing their own awareness to begin building a cache of somatic, subjective knowledge from which to draw.

Another implication of this study for the field of voice pedagogy is reconciling whether, if at all, a process-based or experimental instructional mode such as somatic education has a place in conservatory-based and/or pre-professional musical training—which promote flawless performances developed in meticulous practice. In this study, Victoria, Mary, and Caitlyn worked to break down barriers to their students' receptivity and awareness, training them to observe themselves nonjudgmentally and to suspend fear

of failure, self-doubt, and the desire to "sound good" for the purpose of discovering alternatives to their problematic singing habits. To accomplish this, as suggested by the third somatic education principle I have proposed for voice pedagogy, these teachers made their studios feel like safe spaces for such experimental learning. This may present a challenge to conservatory-based or pre-professional voice instruction: if students are training to become performers, they must at some point focus on the performance—the product of their efforts. For those students seeking a career in voice performance, performance-based assessments such as studio performance classes, juries, and recitals are an authentic and essential aspect of their training for that field. To resolve the dilemma of how to convince students to take risks in a competitive performance context, Gerbi (2017) proposes an addendum to the typical performance class:

> […] it is essential that at least some of students' performing experiences are nonevaluative and allow opportunities for critical deconstruction. […] I designate particular classes and activities as "workshop" spaces (akin to traditional studio classes) versus "performance" spaces; the former allows for pronounced risk taking with very low potential academic, musical, or social consequence, while the latter allows students to practice the sort of higher stakes singing required for main stage auditions, showcases, or master classes for esteemed guest artists. Most programs offer the latter in abundance […], but rarely designate specific classroom experiences as safe spaces for trial and error in preparation of such make-or-break assessments. (p. 206)

Since Caitlyn's setting *was* a university music department, her practice may serve as a model for consideration: In the past, Caitlyn taught Hanna Somatic Exercises to voice students in a special, multi-studio class presentation. At present, Caitlyn incorporates Hanna Somatic Exercises as needed in her studio voice lessons to help restore sensation and movement for students who are stuck in habitual movement patterns. In the future, Caitlyn hopes to run an elective seminar class for the voice department and conduct research on Hanna Somatic Education in voice lessons. In these

ways, Caitlyn has brought process-focused, exploratory elements of Hanna Somatic Education into her university teaching, while still managing to prepare her students for their juries and recitals.

The Question of Certification

A final consideration for interpreting the findings of this study is that while the discussion section presented ways somatic education principles for voice pedagogy may be applied by any voice teacher, these assertions were not intended to project the idea that certification in a somatic education discipline is superfluous. The applications of somatic education principles for voice pedagogy, for teachers without a background in somatic education, constitute ways they can refine their instructional approaches, they do not specify any discipline-specific diagnostic approaches for interpreting movement patterns, or step-by-step movements for use with specific habits.

The target audience for the applications presented here are voice teachers who may not know about somatic education, but the degree to which voice teachers should pursue somatic education professionally cannot be inferred from these findings. Perhaps the only thematically appropriate way that I, the researcher, can present these findings so that such voice teachers can decide whether to pursue certification in somatic education is by describing how I have come to understand the implications of this study from my own somatic viewpoint.

My research has enhanced the usage and scope of my somatic viewpoint, allowing me to better sense and use myself while singing or teaching singing. Indeed, directed awareness, proposed in this study as an important overarching theme, is a powerful tool in my teaching and learning. However, when I attempt to explore options

outside my habitual patterns, the options I am able to imagine and try are limited to the ways I already know how to move. Without the guidance of a trained somatic educator, when I reach the limit of what I think is possible, or do not know how to address something I am sensing, I do not have someone to guide me with his or her hands or words to make a new movement possible. For this reason, the most captivating aspect of observing Victoria, Mary, and Caitlyn teaching voice was their remarkable repertoire of sensory-motor experiences and helpfully-worded instructions that they seemed to know precisely how to deploy to bring their students to the sensations they needed to learn or reinforce something new. The training for prospective Alexander Technique, Feldenkrais Method, and Hanna Somatic Education practitioners is centered on "the how:" how to bring students (manually, verbally, in movement sequences, in exercises…) to what they need to feel and do, so that they can move how they wish with ease and efficiency.

Returning to the applications for the voice studio, there is still much for the uncertified teacher to apply. Directing awareness is a powerful tool for somatic learning. Adopting the somatic viewpoint is a helpful way to understand students' needs. Considering the interconnected facets of the soma can help teachers better understand students' vocal habits and how to reeducate them. Creating a safe space for exploration and risk-taking is a valuable way to help students become receptive to new learning. Teaching students how to practice with awareness on their own involves helping students to recreate the experiences they found useful in their lessons, letting them know what to "feel for" and how to monitor their movement while they practice singing. All of these applications of somatic education principles for voice pedagogy can be achieved by sensitive voice teachers without certifications in Alexander Technique, Feldenkrais

Method, or Hanna Somatic Education. However, as implied by the principle, "teach from the somatic viewpoint," the more experience voice teachers can acquire in lessons, classes, or training, the more first-person somatic experiences can inform their approaches.

Recommendations for Future Research

This study aimed to contribute to the understanding of the ways somatic education principles may be applied in voice lessons. Gaps in the literature identified in Chapter II include teacher-centered research in somatic education, particularly with respect to the lack of research on the Feldenkrais Method in voice pedagogy and, to an even greater extent, to the Hanna Somatic Education as it relates to voice pedagogy.

In order to confirm, expand upon, and obtain more examples of the applications of discipline-specific somatic education principles, studies of multiple voice teachers with the same somatic education certification should be conducted. For example, a similar multiple case study performed on other Feldenkrais-certified voice teachers like Mary could reveal patterns in the use of hands-on versus hands-off instruction and the use of tablework in voice lessons, and providing greater clarity as to how these teachers conceive of the principles of Awareness Through Movement and Functional Integration in their instruction. It may also provide supplementary data regarding the extent to which additional informants like the students in this study see these lessons in their overall training regimen—the sole source of voice training, a supplement to voice training, a related but separate aspect of their training, and other possibilities. Since no literature was found comparing multiple voice/Alexander teachers, voice/Feldenkrais teachers, or voice/Hanna Somatic Education teachers within their specialties, any of the three would

be a valuable contribution to the knowledge-base of this emerging field.

Since this study identified directed awareness as an overarching theme among the three teacher participants' practices, additional research is warranted to help clarify how directed awareness is processed by students as they sing. Given the challenge of teaching singers to be aware of the many component movements that occur when the soma is coordinated in the task of singing, future studies might investigate the ways in which the motor cortex is activated depending on where students' awareness is directed. For example, in a CT or fMRI or other scanning device, students can engage in singing a familiar song or exercise while instructed on the intercom to sense what their pelvic floor is doing, or to allow the upper back to lengthen and widen, or to notice where "the work" of singing is being done. Studies of this nature might reveal how the cross-case theme of "allowing"—also known as "indirect control" or "passive control" in somatic education—is represented at the cortical level. For example, some of the comparisons between instructional language explored in Chapter V, such as the active "relax your neck" compared to a passive guiding order such as "let the neck be free" may actually work differently in the brain. Similar studies may also illuminate how imagined singing compares to actual singing in the brain, or what changes in the brain take place when a student sings while being moved by somatic educator compared to performing a movement himself or herself. The extent to which changes in thought translate into physical responses is of prime interest to somatic educators and voice teachers, who may actually be able to refine the ways they guide students verbally and manually to sense their somatic experience of singing.

Future researchers might also consider investigating possible commonalities in the instruction of voice teachers/somatic educators in voice lessons compared to somatic education sessions, conducting a more longitudinal study observing each student participant over the course of multiple voice lessons, or studying how group vocal instruction by a voice teacher/somatic educator compares to individual voice instruction, to build upon the work conducted in this study.

Finally, future research in somatic education is necessary as professionals in the field attempt to codify the way of knowing Hanna (1986) insisted could only be experienced by each soma and not communicated directly with words. He compares the ways we view the behavior of others, explaining that the third-person view of human beings is based on "datum that is observable, analyzable, and measurable—as is any other behavioral datum" (p. 5). From the soma's perspective in the first-person, however, "these data are already unified; they have no need to be analyzed, interpreted, and later formulated into a unitary factual statement" (p. 5). When we add our subjective understanding of singing to our objective knowledge of the principles of voice pedagogy and of somatic education, we are as equipped as we can be to engage with students in the voice studio; however, sharing the experience is problematic outside our own somas. To navigate this issue in research, it seems more authentic and appropriate to incorporate self-study into other qualitative research methods to get the fullest possible picture. To navigate the issues of the somatic viewpoint in research, it seems more authentic and appropriate to incorporate self-study into other qualitative research methods to get the fullest possible picture of teaching and learning singing through somatic education. In the literature reviewed for this study, only Head (1996) and Lloyd (1988) approached their

research on somatic education (in their cases, on the Alexander Technique) and voice pedagogy in that manner: by combining self-study of their experience taking Alexander lessons with a multiple case study of other voice students while they were taking Alexander lessons. Similar studies incorporating the Feldenkrais Method and Hanna Somatic Education may provide opportunities for comparison across similar studies in other somatic education disciplines.

Presenting somatic data is problematic and warrants future research. In this study, when describing interactions between the teachers and students during voice lessons, a script format was used. This was meant to document what was said, what was sung, visible changes in movement, and other details to try and capture the ways teachers brought students to sensations I could not feel. To present this data as clearly as possible, the name of the speaker was placed in bold, the dialogue in quotation marks, the actions in italics, the non-speech sounds in the international phonetic alphabet, and musical examples on staves. While this representational system has a logical organization, the amount of text necessary to describe a single moment of the lesson was considerable. This presented the problem of embedding examples into the Findings chapters in a way that displayed the richness of the learning experience; attempting to include sufficient data to convey a meaningful, sufficiently contextualized unit of interaction, without taking up so much space on the page that the narrative became disjointed. Short of multimedia presentation, researchers who study somatic education and voice pedagogy and intend to share their findings on the printed page should consider how to approach this challenge.

Conclusion

The purpose of this study was explore the ways in which professional voice teachers, who held certifications in the somatic education disciplines of Alexander Technique, Feldenkrais Method, or Hanna Somatic Education, applied somatic education principles to voice pedagogy. The findings of this multiple case study suggest that by directing students' awareness to the sensations of singing, teachers and students can engage in a nonjudgmental process of identifying inefficient movement patterns, understanding them on an integrated physical/emotional/intellectual level, experimenting with other ways of singing, and formulating tools students can use to select, replicate, and practice those discovered patterns that best facilitated free singing.

Modified principles of somatic education, called somatic education principles for voice pedagogy, emerged from the findings of this study to better describe most salient commonalities across the three teachers' approaches. The applications of these principles describe each teacher's practice. Victoria, Mary, and Caitlyn 1) taught voice from their somatic viewpoints, 2) considered their students' multifaceted somas, 3) created safe studio spaces in with their students felt comfortable playing or experimenting with their voices and other movements, and 4) they taught their students somatic tools through which they could self-direct their awareness to improve their own singing.

Applying the somatic education principles to voice pedagogy requires a commitment to understanding and sensing oneself in singing, using this knowledge to bridge teachers' and students' somas in a dynamic exchange of sensing and moving. To teach somatically requires that voice teachers know how to *learn* somatically—how to bring themselves to the sensations and skills of singing, however they experience them

personally. The "how" of teachers' own somatic education is the source of the subjective knowledge needed to balance objective pedagogical knowledge, in keeping with the wholeness and interconnectedness of the soma's use in the practice of singing.

It is recommended that teachers who wish to implement somatic education into their instruction first hone their own awareness by trying on somatic education experiences in the role of the student. By using those first-person experiences to cultivate somatic empathy, and by designating nonevaluative instruction time, voice teachers can create safe studio spaces in which students can give themselves permission to be who they are as expressed by singing with their entire somas. Mary's insight into the soma-wide implications of finding one's voice was particularly moving, because it highlighted how important it is for the soma to be able to communicate in a safe space like that which she provides for her students:

> […] the act of finding your true voice, finding your ability to communicate who you really are, would make performances of all kinds more satisfying, more moving, more alive. […] I think that everybody knows those times when you go to some performance and it seems to be transcendent. When there's some element of communication that, for me, makes me stop thinking and stop criticizing, or judging, or analyzing, and I just experience. (Interview, 10/9/17)

The acknowledgement that students-somas, who bring every aspect of their being into learning and into singing, have the capacity to communicate more meaningfully and artistically, implies that beyond creating a safe space in which to fail or make poor sounds, or a space in which perfection in performance is demanded, there is a way of viewing voice pedagogy—somatically—as the means-whereby students find their voices, accept the permission to be themselves, and use their entire being to share music that only they can make.

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APPENDIX A

Glossary

Clavicle. The pair of bones that connect the sternum to the shoulder blades, also known as the collarbone.

Iliac crest. The curved edge at the top of the uppermost and largest bone of the pelvis, the ilium, on either side of the lower torso.

Kyphotic. A term describing a downward, forward position of the head (commonly seen in elderly patients who suffer from osteoporosis) resulting in a hunched posture in the upper back.

Mandible. The bone that comprises the lower jaw.

Masseter. The muscle on the sides of the face in front of the ears responsible for drawing the jaw and, with it, the bottom row of teeth upward toward the top row of teeth during chewing.

Oblique abdominis. Abdominal muscles located on the sides of the torso, also known as "the obliques."

Qigong. "An ancient Chinese healing art involving meditation, controlled breathing, and movement exercises" (Qigong, n.d.).

Rectus abdominis. The set of abdominal muscles on the front of the torso, between the bottom of the sternum and the public bone, also known as the "eight-pack."

Scapula. One of the pair of bones located in the upper back, also known as the shoulder blade.

Sitz bones. The paired protrusions at the bottom of the ischium (the lower posterior bone of the pelvis), so named because they bear the weight of the torso when sitting (or, in German, *Sitzung*), also known as the ischial tuberosity.

Temporomandibular joint. The joint at which the mandible (jaw) and temporal bones (temples) meet, constructed such that the jaw can move upward (closing the mouth), downward (opening the mouth), forward, backward, and side to side.

APPENDIX B

Student Flexible Interview Protocol

Background information from adult students in a university studio setting:

1) What is your major and degree program (BA, BFA, BM, MFA, MA, etc.)?
2) In what year are you in your degree program (freshman, 2nd-year grad student, etc.)?
3) Are voice lessons required or elective for your major?

Background information from adult students in a private studio setting:

1) What is your current occupation?
2) Why are you taking private voice lessons?

Background information for all adult students:

1) What is your age?
2) Is this the first voice teacher you have ever had?
3) How long have you been taking voice lessons?
4) How long have you been taking voice lessons from your current teacher?
5) How did you come to study with your voice teacher?

Questions about voice lessons:

1) In as much detail as possible, describe your experience in the lesson I observed from beginning to end.
2) What is it like taking voice lessons from your current teacher [compared to other voice teachers[1]]?
3) What did the lesson I observed mean to you?

[1] If applicable.

APPENDIX C

Voice Lesson Observation Protocol

Date:	Time:		Site:		
Case:	Teacher AT		Teacher FM		Teacher HSE
Obs. #:	1	2	3	4	

Descriptive notes	Comments and questions

APPENDIX D

Teacher Flexible Interview Protocol

Interview #1: *Approximately one week prior to voice lesson observations*

1) For how long have you been teaching voice lessons?
2) For how long have you been teaching AT/FM/HSE?
3) Tell me about your past experiences that lead you to become a voice teacher.
4) Tell me about your past experiences that lead you to become a/an AT/FM/HSE teacher.
5) Tell me about any other past experiences that brought you to this point in your career.
6) How did you come to teach voice lessons in the context I will be observing?
7) Is there anything else you think I should know to get the most complete sense of your path to this point in your career?

Interview #2: *Approximately one week after voice lesson observations*

1) What is it like being a voice teacher?
2) What is it like being a teacher of AT/FM/HSE?
3) Describe what you experienced in the lessons I observed from beginning to end.
    a) Lesson #1
    b) Lesson #2
    c) Lesson #3
    d) Lesson #4
4) I did not observe you teach an AT/FM/HSE lesson. In as much detail as possible, describe what you experience in one of those lessons from beginning to end.
5) Is there anything else you think I should know to get the most complete sense of your current voice teaching experiences here?

Interview #3: *Approximately one week after transcripts of the interviews/lessons have been emailed*

1) Is there anything you would like to say about the transcripts of our interviews and of the voice lessons I observed?
2) Now that you have reviewed the transcripts so far, how do you understand voice pedagogy and somatic education in your life?
3) Tell me about what being a voice teacher means for you when teaching an AT/FM/HSE lesson.
4) Tell me about what being a/an AT/FM/HSE teacher means for you when teaching a voice lesson.
5) What does it mean to you to be *both* a voice teacher *and* somatic educator?
6) Now that you have told me about your past and present experiences as a voice teacher and somatic educator, tell me about how you envision your future.
7) Is there anything else you would like to add that we have not yet discussed?

APPENDIX E

Teacher Interview Consent Form with Audio/Visual Recording

ATTACHMENT 4c: Interview Consent Form with Audio/Visual Recording
TEACHERS

My name is Alison Mingle, and I am a Doctoral student in the department of Music at Rutgers University. I am conducting interviews and voice lesson observations for my dissertation research. As the principal investigator for this research, I am requesting your participation because I am studying professional voice teachers who are also practitioners of the Alexander Technique, Feldenkrais Method, or Hanna Somatic Education. I will be interviewing three teachers and observing four voice lessons at each of their studios. I am exploring the ways in which somatic education principles may applied in voice lessons.

During my study, I would like to interview you three times over the course of approximately three weeks. I will conduct these interviews in person or via Skype as necessitated by your schedule and location. Each interview will be approximately one hour long. If there are any questions you would rather not answer, or that you do not feel comfortable answering, please say so and I will stop the interview or move on to the next question, whichever you prefer. I will be audio-recording and transcribing the interviews for my later analysis.

The first interview will be about your background in voice pedagogy and somatic education. Between the first and second interviews, I am also requesting to observe you teaching four voice lessons with four different adult students (over 18 years of age). For consistency, I would like to observe all four lessons on the same day, but can do so over multiple days if necessary. I will observe the voice lessons in person, and will be video-recording these lessons for my later analysis.

Our second interview will focus on your experience during the lessons I observe. In order to obtain a student's perspective, I would also like to conduct a voluntary, 30-minute interview with at least one of the students whose lesson I will observe.

Prior to the third interview (approximately one week later), I will email you transcripts of the voice lessons and interviews for you to read. At our third interview, you may clarify any aspects you would like. For the remainder of the third interview, I will ask you to reflect on any issues that emerge as part of the study. As before, I will email you a transcript of this interview approximately one week after it is conducted. If you believe any portion of the transcript at a later point may be hurtful and/or damage your reputation, you can ask that certain text be removed.

My research is confidential, which means that my research records will include some information about you that will be stored in such a manner that some linkage between your identity and the response in the research exists. The information I collect, as stated above, will include information about your training, career, educational background, and voice studio. The data gathered in this study are confidential with respect to your personal identity unless you specify otherwise. Therefore, your background information, along with collected data and recordings, will be stored in a password-protected computer file that I will mark using a label in place of your name.

In the final written report for my study (including my dissertation and any subsequent publications or conference presentations), you and your studio will be given pseudonyms. The location of your studio will be generalized. I, my faculty advisor, and the Institutional Review Board at Rutgers University are the only parties who will be allowed to see the data, except as may be required by law. All study data, including audio and video recordings, will be destroyed upon completion of the study procedures.

There are no foreseeable risks to your participation in this study. Your participation may benefit the field of voice pedagogy by shedding light on ideas teachers can explore in their studios, or by prompting additional research into somatic education and voice pedagogy. However, you may receive no direct benefit from taking part in this study.

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Teacher Interview Consent Form with Audio/Visual Recording (Continued)

ATTACHMENT 4c: Interview Consent Form with Audio/Visual Recording
TEACHERS (continued)

If you have any questions about the study or study procedures, you may contact the principal investigator at:

Alison Mingle
199 Pierce St., Suite 515
Somerset, NJ 08873
Phone: 908-552-8345
Email: alison.mingle@rutgers.edu

You may also contact my faculty advisor at:

Stephanie Cronenberg, PhD
Mason Gross School of the Arts
Rutgers, The State University of New Jersey
81 George Street, Art History 210
New Brunswick, NJ 08901
Phone: 848-932-1781
Email: scronenberg@mgsa.rutgers.edu

If you have any questions about your rights as a research participant, you can contact the Institutional Review Board at Rutgers (which is a committee that reviews research studies in order to protect research participants) at:

Institutional Review Board
Rutgers University, the State University of New Jersey
Liberty Plaza / Suite 3200
335 George Street, 3rd Floor
New Brunswick, NJ 08901
Phone: 732-235-2866
Email: humansubjects@orsp.rutgers.edu

By signing this consent form, you are indicating that you are aware that your participation in these interviews and voice lesson observations is voluntary. You understand the intent and purpose of this research. If, for any reason, at any time, you wish to stop an interview, you may do so without having to give an explanation. Once you have read the above form and, with the understanding that you can withdraw at any time and for whatever reason, please sign below indicating your willingness to participate in this study. You will be given a copy of this consent form to keep for your reference.

Your signature on this form grants the investigator named above permission to record you as described above during participation in the above-referenced study. I, the principal investigator, will not use the recordings for any other reason than those stated in this consent form without your written permission.

Participant Name (Print) _____

Participant Signature _____ Date _____

Principal Investigator Signature _____ Date _____

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APPENDIX F

Student Observation Consent Form with Audio/Visual Recording

ATTACHMENT 4d: OBSERVATION Consent Form with Audio/Visual Recording
STUDENTS

My name is Alison Mingle, and I am a Doctoral student in the department of Music at Rutgers University. I am conducting interviews and voice lesson observations for my dissertation research. As the principal investigator for this research, I am requesting your participation because I would like to observe your voice teacher, and two others like her, while they teach lessons to four different students each. All participants must be aged 18 years or older. I will be interviewing three teachers and observing four voice lessons at each of their studios. I am exploring the ways in which somatic education principles may applied in voice lessons.

VOICE LESSON OBSERVATION AND VIDEO

I would like to observe and video-record one of your voice lessons. I plan to be a "a fly on the wall" so that I can see what a typical voice lesson with your teacher is like. The purpose of the video-recording the entire lesson is so I can go back and review it later during by data analysis.

To keep information about you confidential, such as your email address and educational/professional background, I will store all videos and data in a password-protected computer file. I am asking for your email address so that I can send you the transcript of the video. Only I, my faculty advisor, and the Institutional Review Board at Rutgers University will have access to this information. The videos and data will not be labeled using your name, and you will be given a pseudonym in my final written report. I will delete all video and data about you when I have finished my study procedures.

Since I will be recording your regularly-scheduled voice lesson, this study will not pose an additional time commitment on your part. There are no foreseeable risks to you. While your participation may benefit other voice teachers and students by potentially introducing new ideas for use in their lessons, you may receive no direct benefit from taking part in this study.

I will send you a transcript of your lesson video via email about one week after I observe your lesson. That way, if you believe any portion of the transcript may be hurtful and/or damaging to your reputation, you can ask that certain text be removed.

If you have any questions about the study or study procedures, you may contact the principal investigator at:
Alison Mingle
199 Pierce St., Suite 515
Somerset, NJ 08873
Phone: 908-552-8345
Email: alison.mingle@rutgers.edu

You may also contact my faculty advisor at:
Stephanie Cronenberg, PhD
Mason Gross School of the Arts
Rutgers, The State University of New Jersey
81 George Street, Art History 210
New Brunswick, NJ 08901
Phone: 848-932-1781
Email: scronenberg@mgsa.rutgers.edu

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Student Observation Consent Form with Audio/Visual Recording (Continued)

ATTACHMENT 4d: OBSERVATION Consent Form with Audio/Visual Recording
STUDENTS (continued)

If you have any questions about your rights as a research participant, you can contact the Institutional Review Board at Rutgers (which is a committee that reviews research studies in order to protect research participants) at:

Institutional Review Board
Rutgers University, the State University of New Jersey
Liberty Plaza / Suite 3200
335 George Street, 3rd Floor
New Brunswick, NJ 08901
Phone: 732-235-2866
Email: humansubjects@orsp.rutgers.edu

By signing this consent form, you are indicating that you are aware that your participation in this voice lesson observation is voluntary. You understand the intent and purpose of this research. If, for any reason, at any time, you wish to end the observation, you may do so without having to give an explanation. Once you have read the above form and, with the understanding that you can withdraw at any time and for whatever reason, please sign below indicating your willingness to participate in this study. You will be given a copy of this consent form to keep for your reference.

Your signature on this form grants the investigator named above permission to record you as described above during participation in the above-referenced study. I, the principal investigator, will not use the recordings for any other reason than those stated in this consent form without your written permission.

Participant Name (Print) _____

Participant Signature _____ Date _____

Principal Investigator Signature _____ Date _____

Please proceed to the next page.

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Approved by the Rutgers IRB

IRB Stamp Box

Version Date: v1.0
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APPENDIX G

Student Interview Consent Form with Audio/Visual Recording

ATTACHMENT 4e: INTERVIEW Consent Form with Audio/Visual Recording
STUDENTS

My name is Alison Mingle, and I am a Doctoral student in the department of Music at Rutgers University. I am conducting interviews and voice lesson observations for my dissertation research. As the principal investigator for this research, I am requesting your participation because I would like to observe your voice teacher, and two others like her, while they teach lessons to four different students each. All participants must be aged 18 years or older. I will be interviewing three teachers and observing four voice lessons at each of their studios. I am exploring the ways in which somatic education principles may applied in voice lessons.

POST-LESSON INTERVIEW AND RECORDING

If you are interested and available, I would like you to consider volunteering for a 30-minute interview about the voice lesson I observed and your voice lesson experiences in general. Your perspective will help me obtain a more complete understanding of what it is like to take lessons you're your teacher. We can conduct this interview in-person right after your lesson, or later via Skype (in which case I will need your Skype contact information for the sole purpose of the interview). I would like to interview you before your next lesson so that the lesson I observe is freshest in your mind.

If there are any questions you would rather not answer, or that you do not feel comfortable answering, please say so and I will stop the interview or move on to the next question, whichever you prefer. I will be audio-recording this interview so that I can transcribe it and analyze it later, so I will email the transcript to you about one week later so that you can read it and let me know if you would like me to delete any of the text. As with the video, I will store this recording in a password-protected computer file and will not label it with your name. I will delete it when my study procedures are over.

If you prefer to consent to the observation ONLY, please sign the form on the previous page. You need only sign the form on the next page if you would like to participate in the interview as well.

If you have any questions about the study or study procedures, you may contact the principal investigator at:

Alison Mingle
199 Pierce St., Suite 515
Somerset, NJ 08873
Phone: 908-552-8345
Email: alison.mingle@rutgers.edu

You may also contact my faculty advisor at:

Stephanie Cronenberg, PhD
Mason Gross School of the Arts
Rutgers, The State University of New Jersey
81 George Street, Art History 210
New Brunswick, NJ 08901
Phone: 848-932-1781
Email: scronenberg@mgsa.rutgers.edu

Please proceed to the next page.

Student Interview Consent Form with Audio/Visual Recording (Continued)

ATTACHMENT 4e: INTERVIEW Consent Form with Audio/Visual Recording
STUDENTS (Continued)

If you have any questions about your rights as a research participant, you can contact the Institutional Review Board at Rutgers (which is a committee that reviews research studies in order to protect research participants) at:

Institutional Review Board
Rutgers University, the State University of New Jersey
Liberty Plaza / Suite 3200
335 George Street, 3rd Floor
New Brunswick, NJ 08901
Phone: 732-235-2866
Email: humansubjects@orsp.rutgers.edu

By signing this consent form, you are indicating that you are aware that your participation in this interview is voluntary. You understand the intent and purpose of this research. If, for any reason, at any time, you wish to stop an interview, you may do so without having to give an explanation. Once you have read the above form and, with the understanding that you can withdraw at any time and for whatever reason, please sign below indicating your willingness to participate in this study. You will be given a copy of this consent form to keep for your reference.

Your signature on this form grants the investigator named above permission to record you as described above during participation in the above-referenced study. I, the principal investigator, will not use the recordings for any other reason than those stated in this consent form without your written permission.

Participant Name (Print) _____

Participant Signature _____ Date _____

Principal Investigator Signature _____ Date _____

For IRB Use Only. This Section Must be Included on the Consent Form and Cannot Be Altered Except For Updates to the Version Date.

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JUL 21 2017

Approved by the Rutgers IRB

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Version Date: v1.0
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APPENDIX H

Introductory Email to Teachers

Subject: You are invited to participate.

Dear _____[1],

My name is Alison Mingle, and I am a doctoral student in the music department of Mason Gross School of the Arts at Rutgers University. I am conducting research about principles of somatic education and their possible applications to voice pedagogy. I am contacting you because you are a voice teacher who is certified in _____[2] I would like to interview you about your experience in these areas and also observe you teaching a few voice lessons.

For more information, I have attached an informed consent letter and form that explains my study in greater detail. Please let me know if you have any questions about it.

Now that I have received approval to begin my study, I would like to set up our interviews and the lesson observations as soon as possible so that I can work around your schedule. If you decide to participate after reading the attached letter, please let me know so that we can make arrangements to proceed. If you decide not to participate, kindly reply to this email to let me know at your earliest convenience.

Thank you for your time and I look forward to hearing from you as soon as possible.

Best,
Alison Mingle
Alison Mingle
alison.mingle@rutgers.edu

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APR 18 2017
Approved by the Rutgers IRB

[1] Subject's names are known and will be personalized.
[2] Alexander Technique, Feldenkrais Method, or Hanna Somatic Education inserted for corresponding case.

APPENDIX I

Introductory Email to Students

Subject: You are invited to participate.

Hi _____,

My name is Allson Mingle, and I am a doctoral student in the music department of Mason Gross School of the Arts at Rutgers University. I am researching voice teachers who have a background in somatic education. In fact, I will be interviewing *your* voice teacher and would also like to observe her teach a few lessons—hopefully yours!

That is why I am contacting you today; I would like to observe one of your upcoming voice lessons. Since I will be taking notes on what is happening, I will also be video-recording so that I do not miss anything. I have explained this in greater detail in the attached informed consent letter and form.

After observing your voice lesson, I may have a few questions about what happened from your perspective. For this reason, I ask that you consider participating in a 30-minute interview with me. Please note that it is okay to let me observe your lesson *even if you do not want to be interviewed.* In that case, I'll observe your lesson and that will be all.

Please read the attached letter and form and then kindly reply to this email to let me know if you are interested and available to participate. I would appreciate it if you would let me know either way, so even a simple "no thanks" will do. If you have any questions before you decide, please feel free to ask.

Thank you for your time, and I look forward to hearing from you as soon as possible!

Best,
Alison Mingle
Allson Mingle
alison.mingle@rutgers.edu

APPROVED

APR 18 2017

Approved by the
Rutgers IRB

APPENDIX J

IRB Approval Letter

RUTGERS
THE STATE UNIVERSITY OF NEW JERSEY

Office of Research and Regulatory Affairs
Arts and Sciences IRB
Rutgers, The State University of New Jersey
335 George Street / Liberty Plaza / Suite 3200
New Brunswick, NJ 08901

https://orra.rutgers.edu/hspp

732-235-2866

April 19, 2017

P.I. Name: Mingle
Protocol #: E17-574

Alison Mingle
199 Pierce St
Suite 515
Somerset NJ 08873

Dear Alison Mingle:

This project identified below has been approved for exemption under one of the six categories noted in 45 CFR 46, and as noted below:

Protocol Title: "Applications of Somatic Education Principles to Voice Pedagogy"

Exemption Date: 4/18/2017 **Exempt Category:** 1,2

This exemption is based on the following assumptions:

- **This Approval** - The research will be conducted according to the most recent version of the protocol that was submitted.
- **Reporting** – ORSP must be immediately informed of any injuries to subjects that occur and/or problems that arise, in the course of your research;
- **Modifications** – Any proposed changes MUST be submitted to the IRB as an amendment for review and approval prior to implementation;
- **Consent Form (s)** – Each person who signs a consent document will be given a copy of that document, if you are using such documents in your research. The Principal Investigator must retain all signed documents for at least three years after the conclusion of the research;

Additional Notes: ▪ **None**

Failure to comply with these conditions will result in withdrawal of this approval.
Please note that the IRB has the authority to observe, or have a third party observe, the consent process or the research itself. The Federal-wide Assurance (FWA) number for the Rutgers University IRB is FWA00003913; this number may be requested on funding applications or by collaborators.

Sincerely yours,

Acting For--
Beverly Tepper, Ph.D.
Professor, Department of Food Science
IRB Chair, Arts and Sciences Institutional Review Board
Rutgers, The State University of New Jersey

cc: Stephanie Cronenberg (MW:hb)

APPENDIX K

IRB Amendment Approval Letter

RUTGERS

Office of Research and Regulatory Affairs orra.rutgers.edu/artsci
Arts and Sciences IRB
Rutgers, The State University of New Jersey 732-235-2866
335 George Street / Liberty Plaza / Suite 3200
New Brunswick, NJ 08901

July 21, 2017

P.I. Name: Mingle
Protocol #: E17-574

Alison Mingle
199 Pierce St
Suite 515
Somerset NJ 08873

Dear Alison Mingle:

This project identified below has been approved for exemption under one of the six categories noted in 45 CFR 46, and as noted below:

Protocol Title: "Applications of Somatic Education Principles to Voice Pedagogy"

Amendment Exemption Date: 7/21/2017 **Exempt Category:** 1,2

This exemption is based on the following assumptions:

- **This Approval** - The research will be conducted according to the most recent version of the protocol that was submitted.
- **Reporting** –ORRA/Arts & Sciences IRB must be immediately informed of any injuries to subjects that occur (within 24 hours) and/or problems (e.g., subject complaints) that arise, in the course of your research within a timely manner (within 5 business days). Visit our website for more information on reportable events, https://orra.rutgers.edu/reportable-events; **Modifications** – Any proposed changes MUST be submitted to the IRB as an amendment for review and approval prior to implementation;
- **Consent Form (s)** – Each person who signs a consent document will be given a copy of that document, if you are using such documents in your research. The Principal Investigator must retain all signed documents for at least three years after the conclusion of the research;

Additional Notes:	▪ **Administrative Amendment to Exemption granted on 7.21.17 for (1) increase in number of informants from 12 to 15 based on dissertation committee's suggestion. This changed is reflected in the revised (voice teacher) consent form; and (2) change in observation from via Skype to in-person observation. Consent form and protocol have been modified to reflect this changes.**

Failure to comply with these conditions will result in withdrawal of this approval.
Please note that the IRB has the authority to observe, or have a third party observe, the consent process or the research itself. The Federal-wide Assurance (FWA) number for the Rutgers University IRB is FWA00003913; this number may be requested on funding applications or by collaborators.

Sincerely yours,

Acting For--
Beverly Tepper, Ph.D.
Professor, Department of Food Science
IRB Chair, Arts and Sciences Institutional Review Board
Rutgers, The State University of New Jersey

cc: Stephanie Cronenberg