

## Between the Looking Glasses: opera performance and the problem of self-improvement

By Philippe Castagner

One can hardly imagine a javelin thrower failing to qualify because her *javelin* got nervous and was unable to maintain its texture and shape. Or a teacher unable to teach a lesson, and the students unable to learn it - because the letters of the alphabet have been broken for three months. If the reader can imagine the scenarios above, and how they might react to performing any of the roles in them, that is only one of the interesting conceptual problems that opera performers must solve. These scenarios are absurd, but they help illustrate a particular point: we can see that both the performance of the both the sport of javelin throwing and the business of educating and learning depend on the existence real or imagined instruments. The teacher expresses himself through language, and the thrower acts on her javelin to make it soar. We can also see that the independence of instruments from the immediate state (or existence) of the performer helps organize our thoughts in real time about what is being attempted and why it is or is not worth pursuing. We know throwing a javelin tests athletic prowess, for instance, and that the results of a given throw of the same javelin in the same conditions vary based on the performance of the thrower and not the instrument. On the surface, there is no special reason to single out opera performance for being substantially different from “human performance in everyday life ... to achieve specific goals such as winning a competition in sports, music, or the arts, improving, stabilizing, or re-establishing performance when preparing for such events that are important and meaningful for a group or an individual”<sup>1</sup>. One could say the lack of instruments sets it apart, but then what of the competitive runner? Neither the runner nor the opera singer use instruments to accomplish their performance, but for the runner this fact is self-evident. Of all the domains of human performance not dependent on an instrument, classical singing is one of very few such domains in which the vast majority of participants at all levels approach the use of the voice as if it were.

The physical performance prerequisites for performing opera differ from those needed in other domains of human performance in perhaps unexpected ways. The opera singer does not jump or run particularly fast or far like the athlete, nor does she express the full range of human movement and speech like the dancer and the dramatist. Although many opera roles contain virtuosic music, the relative technical demands and standards in opera are generally much higher for the members of the orchestra than the singers on the stage<sup>2</sup>. In her performance, the opera singer may very well run or dance, and she does use elements of speech and human movement to achieve a performance

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<sup>1</sup>Raab, M., Lobinger, B., Hoffmann, S., Pizzera, A., Laborde, S., & ScienceDirect (Online service). (2015). *Performance psychology: Perception, action, cognition, and emotion*. London; San Diego, CA: Academic Press is an imprint of Elsevier. Retrieved from [http://ubc.summon.serialssolutions.com/2.0.0/link/0/eLvHCXMwV09T8MwED1BWbpBoJC2SjnyCknsxMdK1dKRgYXJisEeQwVBgn-PL3Gcj3a07-L4Eunu2b53BmDpfbwa-YQitzhe6TxB5ImJU5MiZjxNtOaCaWVGqTot2aRN5hnx7Q4KJllyposYTSSofbzreSC4SpVkyRfHjAkhTu0iTVAC2075rduRlc5ms7ZvFeOuYWGUq9fjRxm0H-mChMOjzgGHaYBieyx\\_CmXbczjTxG-4gBNdBjD1DvAvgKDDkNFdVN9\\_\\_n0Js5eOWxDtVfoVzLeb1\\_VuZV8g3SaQxlyAjGAzmJSf6BSONMgqEPzDOjel4G0bxrhUVaZCZWoghh2Vgj903dCzkw1or7NnoITmeNiCf66GAfLNdK-UhLEa56rfqSaP2E8l6fJejKjdpaz90cMQyO59-b3t2JxEtpmJ8fvShBUwtAHJbKkuYVF8\\_-rb-M\\_80t8ll](http://ubc.summon.serialssolutions.com/2.0.0/link/0/eLvHCXMwV09T8MwED1BWbpBoJC2SjnyCknsxMdK1dKRgYXJisEeQwVBgn-PL3Gcj3a07-L4Eunu2b53BmDpfbwa-YQitzhe6TxB5ImJU5MiZjxNtOaCaWVGqTot2aRN5hnx7Q4KJllyposYTSSofbzreSC4SpVkyRfHjAkhTu0iTVAC2075rduRlc5ms7ZvFeOuYWGUq9fjRxm0H-mChMOjzgGHaYBieyx_CmXbczjTxG-4gBNdBjD1DvAvgKDDkNFdVN9__n0Js5eOWxDtVfoVzLeb1_VuZV8g3SaQxlyAjGAzmJSf6BSONMgqEPzDOjel4G0bxrhUVaZCZWoghh2Vgj903dCzkw1or7NnoITmeNiCf66GAfLNdK-UhLEa56rfqSaP2E8l6fJejKjdpaz90cMQyO59-b3t2JxEtpmJ8fvShBUwtAHJbKkuYVF8_-rb-M_80t8ll)

<sup>2</sup> One can imagine believing rumors of an opera singer who can't read musical notation, but not rumors of a similarly deficient concert master.

both meaningful and rare, for these elements are woven around and into the simultaneous expert performance of demanding vocal music, which is in and of itself a performance domain of the same class. If we think of it in this way, consistently achieving good results in this domain is a feat of assimilation rather than specialization.

At the same time, the opera performer is a specialist, in the sense that she employs skills from diverse performance domains that are interwoven not only as elements of the performance but as a collective substrate in which each skill is individually expressed; perhaps within a narrow range of human potential compared to the more specialized domains, but extremely precisely within that range nonetheless, so that it can be coordinated with the others. These complex interactions can be managed in reductive terms or as an emergent system inextricable from the organism as a whole, and sharing its general properties. The aim of this work is to offer an introductory examination of such an “organic” approach to voice culture and opera performance from a theoretical and practical perspective, as well as to offer some examples of how diverse perspectives can be integrated into the larger project of performance readiness. It is a necessarily incomplete description, not only because of limitations in scope, but also because this work is an attempt to approximate in some way the intellectual habits of the proposed method. Chief among these is the habit of deliberately imposing a diversity of views, not only in the sense of seeking a multi-disciplinary understanding of one’s own discipline, but also in the variation of other aspects of one’s gaze, such as the level of detail studied, and especially, whether one is looking inwards towards the self or out into the world.

To understand how the singer’s performance is complicated by an additional and exceptional performance challenge, we must first begin by understanding those elements that all human performance have in common with each other. It is useful to “use psychology as a starting point to understand performance because [much of the relevant research]... uses psychology as the discipline to drive their basic and applied research interests that are transferred to various domains such as sport, music, or other performance domains.”<sup>3</sup> Aspiring and practicing singers of all kinds stand to benefit from psychology as both a medium for interaction with other domains, and by direct contact with it as a valid approach for understanding one’s own practice. As Taylor states: “True, the use of the voice is a muscular operation, and a knowledge of the muscular structure of the vocal organs is necessary to an understanding of the voice. But this knowledge alone is not sufficient. Like every other voluntary muscular operation, tone-production is subject to the psychological laws of control and guidance. Psychology is therefore of equal importance with anatomy and acoustics as an element of Vocal Science”.<sup>4</sup> Although the author agrees wholeheartedly with Taylor’s premise, attempts to follow its development into the modern era are frustrated by a lack of evolution; the same debates popular in Taylor’s day still seem to dominate

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<sup>3</sup> Ibid

<sup>4</sup> Taylor, D. C. (2007). *Psychology of singing : A rational method of voice culture based on a scientific analysis of all systems, ancient and modern*. online: Project Gutenberg. Retrieved from <http://www.gutenberg.org/ebooks/21957>

vocal pedagogy today, and the field of psychology seems to have lost interest.<sup>5</sup> A total solution to this situation is, quite obviously, beyond the scope of this work. But since it is preferable to offer something rather than nothing, we can at least continue here with some new or insufficiently examined questions, starting with an exploration of how the singing differs from playing the piano or violin at a fundamental level.

Imagine two individuals: one has recently chosen to learn how to sing in the Western classical style, the other has just decided to play the trumpet. In their first lesson together, the new trumpeter and her teacher will begin with an introduction to the instrument, how it functions, and they will begin the process of establishing a relationship with the instrument. The new opera singer will have similar conversations, and will also begin to build a technical foundation. He will also begin to develop a relationship to his instrument conceived along these same lines. It is at this point that the two stories have diverged in fact but not in narrative: the trumpeter is learning to play an instrument that can be proven to exist, using methods proven effective. The singer is attempting to do the same, but his instrument is conceptual, because it's the same voice he's been using his whole life, doing more or less the same actions in a special conceptual context so that he's now "singing". His "voice", as such, is whatever parts of his self contribute to the performance of sung music, *and not the other ones*. Even the most introspective of literature tends to overlook this basic conceit, even while nearly brushing up against it. According to one typical self-help style article, "we have a vocal instrument that follows physiological rules, but which is controlled by a brain that follows emotional ones. As the singer is both the instrument and player, we need to make sure that both are ready to work."<sup>6</sup>

Why the need to complicate things in this way? Perhaps because it's unavoidable. Much of the technical language surrounding the playing of musical instruments can be easily adapted to that which surrounds the act of singing using this sort of formulation, and it is generally accepted practice to conceive of "the voice" as an instrument. In the author's experience it is worthwhile to question this relationship at any time, and as we shall see later, it is crucial to both answer it as one sees fit, and to leave open the possibility of changing or retracting the answer. In any case, it will always be more useful to approach resources with good questions in hand, and a core of arbitrary interest lurks beneath all the layers of human curiosity ever since our species was first possessed by it.

If we imagine, as the singer does during her training, that the player is distinct and independent from the instrument that produces the voice, we might marvel at the aggravated feedback loops that *seem* to form between the two, just as we would scratch our heads wondering what a javelin might be nervous about in the first place. Singers often make progress and sing well for a time, then suddenly experience inability to maintain their performance level, despite following the same procedures they used to establish it. Often the symptoms consist of corrupted versions of movements that were previously executed without little or no effort. This experience mirrors that

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<sup>5</sup> Although this can be characterized as a subjective impression, I invite readers in the academic setting to conduct a brief research session, first on psychology and running, and then on singing.

<sup>6</sup> Stuart Barr, "Singing Warm-Ups: Physiology, Psychology, Or Placebo?" *Logopedics Phoniatrics Vocology* 34, no. 3 (January 1, 2009), 142-144. doi:10.1080/14015430902942500. <https://www.tandfonline.com.ezproxy.library.ubc.ca/doi/full/10.1080/14015430902942500>.

of the Javelin thrower perfectly thus far. But if we return to their narrative after some time has passed we might find that the Javelin thrower has either overcome her technical problem and the javelin now reaches distances commensurate with her skill level, or she has not and it falls short.

Consider this situation from the point of view of the singer. He is throwing a sad, floppy javelin, and all the techniques for throwing javelins are made to work with happy javelins. Before he even has a chance to interact with the instrument with which he will act on his environment, its texture has been corrupted and no longer responds in the same way when force is applied to it. This in turn causes the performance to drop further, which causes the instrument itself to degrade further. Since it's factually true that no instruments are involved in vocalization, a deep-seated belief that the voice is an instrument can be thought sort of as a sort of helpful delusion that may be beneficial but is perhaps not without costs. Every perceived failure of performance in opera is a failure involving the same human faculties of speech and, therefore, all the psycho-social effects associated with acquired problems of the voice. The author's admittedly subjective impression of this relationship is that in order to create the impression of separation between self and voice, one's consciousness is carefully folded like a tent, and when one looks at one wall, one's back is turned to one of the others. Since this is only an illusion and the entire self is just one self, a poke on one side of the boundary is felt on the other – and often the cause can be easily discerned using one discipline when it is obscured from the perspective of another.

Since the only possible understanding of producing a “voice” as the word is used here is empirical<sup>7</sup>, there can be no *proof* that the “instrumentalization” of the voice can cause peculiar problems to arise. But its inherent predictions are certainly consistent with a scenario in which difficulties arise, at least in part, from internal conflicts and errors of perception because the self can't actually be split into independent elements we usually call “singer” and “voice”. Faults in the relationship between the two cannot occur except in the imagination, but they can nonetheless affect real performances.

Necessary efforts of concentration on the vocal mechanism and its associated organs, then, can be balanced with broader observation of the self. When work on one of the more intricate details of the system must be done, we do “...not wish to press the analogy between the human mind and servo-mechanisms to the point of saying that the mind-body is “nothing but” an extremely complicated automaton. . . . Mechanism and organism seem ... to be different in principle—that is, in their actual functioning—since the one is made and the other grown. The fact that one can translate some organic processes into mechanical terms no more implies that organism is mechanism than the translation of commerce into arithmetical terms implies that commerce is arithmetic.”<sup>8</sup> Deliberately setting aside the concept of a separate instrument and performer

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<sup>7</sup> This is demonstrably true: many speakers do not recognize themselves when first introduced to recordings of their own voices, but have no such reaction to recordings of the voices of others.

<sup>8</sup> Watts, A. (1957). *The way of zen*. New York: Pantheon. Retrieved from [http://ubc.summon.serialssolutions.com/2.0.0/link/0/eLvHCXMwY2AwNtlz0EUrE5INge16E4MUwyRgBWEM7MCZGyWaJqJmJRlaWBgaJCUSXKqDvtUO--yMhTGw\\_WHKzMBsYmIKuc0AZTc9qMpwE2RgAW0jEGJgSs0TZuCARfwVYeADRoxCeWKlQn6aQlRqniidIJtriLOHLI B\\_PHQsJR5qg5EYAwuud54qwaBgZJyYnJqclmhmam5skgxq3VsmmZpZmINOsQEW9WmSDMJYDJBkkEEWhfkI3ghUlxuYSWHVJM3AZWhpag4ZAJBhYE0DJtBUWbAHAdZdY7U](http://ubc.summon.serialssolutions.com/2.0.0/link/0/eLvHCXMwY2AwNtlz0EUrE5INge16E4MUwyRgBWEM7MCZGyWaJqJmJRlaWBgaJCUSXKqDvtUO--yMhTGw_WHKzMBsYmIKuc0AZTc9qMpwE2RgAW0jEGJgSs0TZuCARfwVYeADRoxCeWKlQn6aQlRqniidIJtriLOHLI B_PHQsJR5qg5EYAwuud54qwaBgZJyYnJqclmhmam5skgxq3VsmmZpZmINOsQEW9WmSDMJYDJBkkEEWhfkI3ghUlxuYSWHVJM3AZWhpag4ZAJBhYE0DJtBUWbAHAdZdY7U)

reframes one's interpretations of empirical knowledge of the voice<sup>9</sup>, resulting in a markedly different sense of what is actually expressed by the human voice. Changes to one's intuitive sense of how to culture the voice follow as well. But the resulting structural vacuum must be filled. Even though "an overemphasis on reductionism through mechanistic imagery in scientific language obscures the holistic and organismic qualities of humanity..."<sup>10</sup>, a complete lack of structure is equally undesirable – the mother of the reductive view of the voice was most likely some sort of necessity. For any performer experiencing the frustration of an instrument that does not seem to respond in predictable ways, the need for some sort of change is self-evident. An effective method for operating even partially under a more organic paradigm is not so self-evident.

An organic view of the singer essentially implies a musician with no instrument, or music directly produced, which necessarily implies the focus of the performer's actions is external, rather than internal. The proposed approach does not do away with the "feel" of acting on an instrument, it merely moves "voice" from the category of object of one's agency to that of agent, and steadfastly avoids mixing the two. Rather than acting on the voice so that it acts on the audience, the intent is to simply act on the audience. It's easy to understand this point intuitively by asking if a boxer acts on his fists or if he punches his opponent. In this way of thinking the tongue or the larynx are comparable not to parts of the piano, but to the body parts of the pianist. In the place of the keys of the piano, there is the external environment and everything in it. Vocal technique in this sense can be conceived and executed as actions with external rather than internal goals. A pianist might undertake to train the strength of a particular finger across a certain range of motion, but he will always do so with the intention of acting on a piano key. In a reductionist view, the conscious performance objectives of the singer are directly related to position or texture of the emitter and resonators, or to sensations and visualizations related to them. An organic view, on the other hand, might instead conceive of vocal performance as the most basic expression of the emotional, physical, and mental state of the person. Problems of improvement or maintenance can be framed within the totality of a singer's existence so that they can be addressed using the safest and most efficient methods available.

"Cognitive work ... can be off-loaded to the body and to the environment in service of action, tool use, group cognition, and social coordination. This can blur the boundaries between brain areas, brain and body, and body and environment"<sup>11</sup>. Mental imagery makes use of this same capacity to off-load cognitive work onto imaginary tools, and is a very effective tool in athletics, dance, and music. By discarding the concept of the voice as instrument, we do not lose the benefit of precision from using the language of instruments, we have simply revised it with an emphasis on the action of the organism on *something other than the organism*. From the point of view of the (now unified) voice/self., we can adopt this notion of an "extended cognitive system" and apply it to the actual experience of coordinating one's performance of a role with a new conductor in a new theatre or

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<sup>9</sup> Empirical in the sense that it is direct. When one speaks or sings, the sensations and other elements of the experience are a form of empirical knowledge impossible for anyone but the speaker to possess.

<sup>10</sup> Columbus, P. J., & Rice, D. L. (2012). *Alan Watts—Here and now: Contributions to psychology, philosophy, and religion*. New York: State University of New York Press. Retrieved from <https://muse-jhu-edu.ezproxy.library.ubc.ca/book/26341/>

<sup>11</sup> John A. Teske, "From Embodied to Extended Cognition," *Zygon* 48, no. 3 (September, 2013), 759-787.

with a new orchestra, unexpected technical problems become more predictable (or at the very least, not so unexplained). Viewed through this lens, a singer experiencing difficulty maintaining her level of performance during a transition from the academy to the professional stage might be encouraged to explore whether or not she's effectively adapting to the unfamiliar sensory and social environments in which her first professional performances unfold<sup>12</sup>.

One way to understand this organic concept of singer and voice in a more specific manner is by seeing how it can be applied. Using his own journal entries, the author identified an extended episode of persistent and recalcitrant "leaning forward" obvious to outside observers, but seemingly imperceptible and incorrigible from the point of view of the performer. The issue began after rehearsal of a new production was transferred from a rehearsal room setting to the main stage of the theater<sup>13</sup>. An actor whose gaze is cast downwards has his face in a position that obscures his facial expressions from the point of view of the audience – and thus his ability to communicate. Staff may complain that he appears "cut off", "not expressive", or in extreme cases, "as if about to dive into a pool". From the point of view of the staff observing the scene, the problem is obvious, but its full extent is better understood via the experience of multiple failed attempts by the performer to address the problem. If a persistent problem is resistant to all attempts to solve it, it generally indicates a failure of substance, technique, or execution. Since this case involves a failure to maintain performance standards very recently demonstrated, failures of substance can be set aside as possible culprit, leaving problems of proper technique or their execution as suspects. The technical objectives in this case are imposed, narrow, and non-controversial: the audience cannot see the performer's face, and for some reason the performer seems unable to correct the fault.

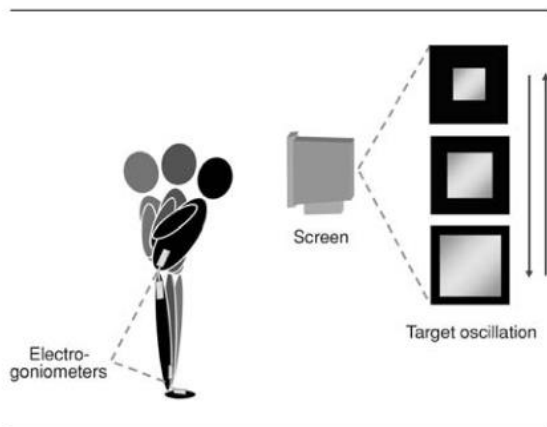
"Patterns observed during standing are emergent properties of the interaction between the natural tendencies of the postural systems and the external and internal constraints that shape coordination dynamics"<sup>14</sup>. Operas are rehearsed by performers tracking visual targets (the conductor in particular) which will shift to the bottom of the field of vision in the late stages of rehearsal and in public performance. The problem of "leaning forward" is in this sense a failure of execution resulting from disorientation caused by the change in visual field.

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<sup>12</sup> The author considers the word "professional" to encompass all performances in the professional sphere, not only those with audiences. Auditions, rehearsal, and even solitary practice involve performance and necessarily happen in the professional sphere if they are carried out in relation to a professional career.

<sup>13</sup> It is standard practice in many European theatres to develop the basic movement and intentional patterns of an Opera for several weeks, then adapting the resulting staging to the set used in public performance. In smaller houses, the rehearsal stage is often not to scale. Movement to the main stage also coincides with a period of scrutiny by the directing team for final casting decisions regarding the first public performance (*premiere*) of the production. The first performance of a production is generally considered to be a matter of prestige in European culture.

<sup>14</sup> Ibid 86

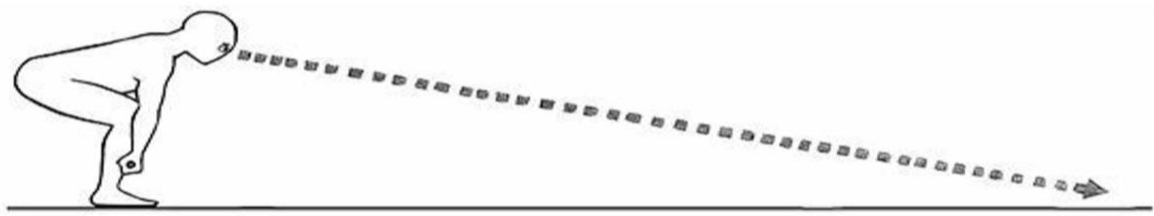


(Latash 2006)

The most obvious way to frame the problem of “not leaning forward” is physical, and so a domain specialized in human movement might be a good source of training. Both athletics and dance drive general improvement in and demonstration of coordination and balance. By selecting an athletic discipline centered on posture, one can be reasonably confident of finding a rich source of practical resources, written in layman’s terms. By continuing with the theme of vision and posture, we can also generate an opportunity to change disciplines. Barbell training is an unexpectedly well-suited candidate in this regard and provides us with an opportunity to deepen our understanding of this problem to a degree not possible by practicing opera performance to any extent humanly possible. In this case, both disciplines require precise control of the posture, but the performance of barbell lifts demands that same precision while the performer’s cognitive abilities are being seriously taxed by management of a single but heavy and potentially dangerous load, and it does so over a much wider (but more predictable) range of motion. In weight lifting, “The functions of correct eye gaze direction are to keep the neck in a safe, useful position during the movement, to aid in placing the back at the correct angle for the mechanics of the lift, and to provide a visual reference for balance purposes.”<sup>15</sup>

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<sup>15</sup> Mark Rippetoe and Lon Kilgore, *Starting Strength: Basic Barbell Training* (Wichita Falls, TX: Aasgaard Co., 2011), 347.



(Rippetoe and Kilgore 2011)

In a single book on barbell lifting, the search term “back angle” returns 154 unique hits<sup>16</sup>, with discussions taking on a specificity and complexity that may seem at first quite technical to a student of singing and unexpectedly detailed for an exploration of an organic approach to voice-culture. Take, for instance, the following key passage leading to a discussion on how to avoid the same sort of problem during the squat:

“It doesn’t take much of an imbalance for the leverage to increase to the point where the rep is missed. Imagine the bar on your back in a position 12 inches in front of the mid-foot as you try to squat; this is an awkward position with even 30% of your 1RM (1 rep max), and the heavier the weight gets, the smaller the imbalance you can deal with. You can easily see that this continuum ends up with essentially zero amount of deviation tolerable at 1RM loads. This concept applies to every barbell exercise where the load must be balanced. So, “good technique” in barbell training is easily and understandably defined as the ability of the lifter to keep the bar vertically aligned with the balance point. The ability to maintain this balanced relationship between the bar and the ground is one of the many things trained with barbells that are not trained in other exercise methods. Since balance is an important characteristic of most human physical endeavors, this is one more reason to base your training on barbell exercises.”<sup>17</sup>

The author is encouraging the reader to accomplish postural objectives (“good technique”) by relating information about their body and its mechanisms to external objects, real or imagined. Aside from literal instruction regarding posture in general<sup>18</sup>, we should note at this point that Mr. Rippetoe’s approach also displays a healthy pattern of habitually alternating approaches. Unlike in singing though, weightlifters conform to a standard described along independently verifiable external markers<sup>19</sup>. But like singers, they do so using only sensory information that is available to the performer in the moment, which does not necessarily conform to the impressions of observers. It’s quite interesting that in the case of both lifting a heavy weight, and in the case of singing opera with no weight at all, the amount of tolerable deviation in the posture is near zero. This is yet another way in which a multi-disciplinary approach is useful; although it’s for different reasons

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<sup>16</sup> Ibid.

<sup>17</sup> Ibid

<sup>18</sup> Especially useful is the idea of “amount of deviation tolerable” as a function of how difficult the performance is.

<sup>19</sup> In the case of the squat, for instance, the hip is required to be parallel or below the knee at some point in the lift to be considered valid in a competition setting.



entirely, movement patterns in both disciplines evolved convergently, as if the organization of movement is organized along a general set of rules.

#### STARTING STRENGTH



figure 2-6. The mid-foot balance point is the position favored by the body for balance. The point of rotation at the bottom of the leg—the ankle—does not function as the last piece of the kinetic chain due to the stability provided by the anchoring system of the lower leg, calf muscles, and foot; this system maintains the tibial angle and transfers force to the sole of the foot. (Rippetoe and Kilgore 2011)

Considering the system this way allows us to calculate balance from the mid-foot position, the point of greatest stability against the floor. Consider the unloaded lifter: if you stand up straight with your hands on your hips and lean forward, even a little, you can feel the weight shift to the balls of your feet and feel the increased tension in your calves as you apply some force to the mass of your body above your feet to keep from falling forward. If you lean back, you can feel the shift onto your heels—lean back far enough, and you will have to actually hold your arms out in front of you to change your center of mass so that you don't fall back. (Our bodies have evolved to move forward, and forward imbalances are more naturally handled by our anatomy.) You settle into a position of balance when the greatest amount of force is needed to perturb the position, or when the least amount of force is needed to maintain the position. When you stand, this position is where your [center of mass] is over the mid-foot, and when you squat down and stand back up, your body's [center of mass] is in balance when it travels in a vertical line directly over this point. Since you will do most barbell exercises (except the bench press) while standing on your feet, this mid-foot balance point becomes a critically important concept in the analysis of good exercise technique.<sup>20</sup>

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<sup>20</sup> Ibid

Singing opera is not an exception to the rule that “any complex performance will be better understood from an exchange between the disciplines”<sup>21</sup>. Consider the following statement: “Properly performed, full-range-of-motion barbell exercises are essentially the functional expression of human skeletal and muscular anatomy under a load”<sup>22</sup>. It can be lightly edited to read “properly performed, full-range-of-motion singing is essentially the functional expression of human skeletal and muscular<sup>23</sup> anatomy”. Laws governing the two disciplines are also mutual<sup>24</sup>, letting Mr. Rippetoe speak to us as if he were talking about voice culture instead of strength culture. “The human body functions as a complete system – it works that way, and it likes to be trained that way. The general pattern of [skill] acquisition must be the same as that in which it is used... the nervous system controls the muscles, and the relationship between them is referred to as ‘neuromuscular’... Neuromuscular specificity is an unfortunate reality, and exercise programs must respect this principle in the same way they respect the Law of Gravity.”<sup>25</sup> For the problem of leaning forward as a result of adapting a previously rehearsed scene to a new environment, an interesting line of inquiry now arises. A thorough discussion of every detail involved in achieving and maintaining various degrees of uprightness is beyond the scope of this paper. The author can offer the following summary: the posture achieved during the performance of both an opera scene and a squat depend on coordination of the major joints and their relative angles in a pre-planned movement of the body through space that depends, among other elements, on sensory information obtained from the body itself (proprioception), the feel of the floor and the trajectory of the bar, the sense of balance generated in the middle ear, and visual input<sup>26</sup>. The relative angle of the back during all phases of any movement, including the fully extended, or “standing” position, is a result of coordination in a group of muscles called the posterior chain.

The term “posterior chain” obviously refers to the anatomical position of these muscular components. It also indicates the nature of the problems most people experience under the bar, trying to improve their efficiency while squatting. Humans are bipedal creatures with prehensile hands and opposable thumbs, a configuration that has profoundly affected our perception as well as our posture. We are used to doing things with our hands in a position where our eyes can see them, and we are therefore set up to think about things done with our hands. We are not used to thinking about our nether regions, at least those unrelated to toilet functions. The backside of your head, torso, and legs are seldom the focus of your attention unless they hurt, and they remain visually unobservable even with a mirror. The parts you can see in the mirror –the arms, chest, and abs, and the quads and calves if you’re wearing shorts –always end up being the favorite things for most people to train. They

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<sup>21</sup> Raab, M., Lobinger, B., Hoffmann, S., Pizzera, A., Laborde, S., & ScienceDirect (Online service). (2015). *Performance psychology: Perception, action, cognition, and emotion*. London; San Diego, CA: Academic Press is an imprint of Elsevier. Retrieved from [http://ubc.summon.serialssolutions.com/2.0.0/link/0/eLvHCXMwbV09T8MwED1BWbpBoJC2SjNkYCKnsxMdK1dKRgYXJisEeQwVBgn-PL3Gcj3a07-L4Eunu2b53BmDpfbwa-YQitzhe6TxB5ImJU5MiZjxNtOaCaWVGqTot2aRN5hhx7Q4KJllyposYTSSofbzreSC4SpVkyRfHjAkhTu0iTVAC2O75rduRlc5ms7ZvFeOuYWGUGu9fjRxmOH-mChMOjzgGHaYBieyx\\_CmXbczjTxG-4gBNdBjD1DvAvgKDDkNFdVN9\\_\\_n0Js5eOWxDtvfoVzLeb1\\_VuZv8g3SaQxlyAjGAzmJSfpb6BSOnMgqEPzD0jeI4G0bxrhUVaZCZWoghgh2Vgj903dCzkw1or7NnolTmeNiCfc66GAfLNdK-UhLEaS6rfqSaP2E8l6fJekJdPaz9OcMQyO59-b3t2JxEtpmJ8fvShBUwtAHJbKkuYVF8\\_-rb-M\\_80t8ll](http://ubc.summon.serialssolutions.com/2.0.0/link/0/eLvHCXMwbV09T8MwED1BWbpBoJC2SjNkYCKnsxMdK1dKRgYXJisEeQwVBgn-PL3Gcj3a07-L4Eunu2b53BmDpfbwa-YQitzhe6TxB5ImJU5MiZjxNtOaCaWVGqTot2aRN5hhx7Q4KJllyposYTSSofbzreSC4SpVkyRfHjAkhTu0iTVAC2O75rduRlc5ms7ZvFeOuYWGUGu9fjRxmOH-mChMOjzgGHaYBieyx_CmXbczjTxG-4gBNdBjD1DvAvgKDDkNFdVN9__n0Js5eOWxDtvfoVzLeb1_VuZv8g3SaQxlyAjGAzmJSfpb6BSOnMgqEPzD0jeI4G0bxrhUVaZCZWoghgh2Vgj903dCzkw1or7NnolTmeNiCfc66GAfLNdK-UhLEaS6rfqSaP2E8l6fJekJdPaz9OcMQyO59-b3t2JxEtpmJ8fvShBUwtAHJbKkuYVF8_-rb-M_80t8ll)

<sup>22</sup> Ibid.

<sup>23</sup> And mucosa and cartilage, of course.

<sup>24</sup> Evidence of this phenomenon to follow.

<sup>25</sup> Ibid

<sup>26</sup> This is meant in the sense of the entirety of the field of view.

are also the easiest parts to learn how to train because they involve or are facilitated by the use of our hands, and we are very “handsy” creatures.<sup>27</sup>

At this point our exploration of opera performance through the lens of barbell training can be said to have yielded some very important and interesting clues regarding general problems of technique and execution. We also find an apparent total technical solution of the problem of establishing a desired position on the stage, in the form of a visualization technique with a special function:

The Master Cue There is an important mental trick that you can use to fix most things wrong with the bar path in the squat and all the resultant errors made by the body. The trick is amazingly simple, and it corrects a wide variety of technique problems, from knees to back angle, from air under the heels to a wobbly bar path. This trick is simply keeping the barbell over the mid-foot by thinking about doing so. The case for barbell training was built around the idea of balance by observing that the most efficient form to use was that which keeps the bar in a vertical relationship with the middle of the foot. If you do this, the back angle will be determined by the position of the bar on the back. Furthermore, if you keep your spine rigid, and the bar travels up and down in the imaginary slot directly above the mid-foot, then the knees, hips, and ankles will do what they must do to maintain this vertical relationship, and the body will solve all the problems associated with doing so at a level beneath any requirement for micromanagement. In a similar fashion, if you make the bar path vertical when you are deadlifting, the biomechanics of the pull will be correct because the task of making the path vertical causes you to solve the problem with your “body,” not your “brain.” This concept is an example of a bar cue, which enables the body itself to sort out complex motor problems by jumping past the analysis to the result. You have been solving movement problems your whole life, and if you’re a natural athlete, you’ve been doing it well. By giving the body a general task instead of a specific one, you move your brain out of the way and allow your accumulated motor skills to solve the problem. If you command the bar to move in a vertical line, it will do so, and you will move your back, thighs, and shins in a way that makes it do so without your having to analyze the exact problem. For the squat, you do this by constructing a mental image of an actual slot in the air for the bar to travel within. Visualize this narrow slot over the mid-foot, extending up into the air above you. Then visualize the bar traveling within this slot. An amazing thing then happens: it does. With varying degrees of precision based on your visualization skills, the bar will tend to line up vertically with the balance point because your knees and hips will have done the things needed to make it happen. And your visualization skills are just as trainable as everything else. This trick is a useful tool for all the pulls from the floor and for the press because the mechanics of balance and bar path are the same.<sup>28</sup>

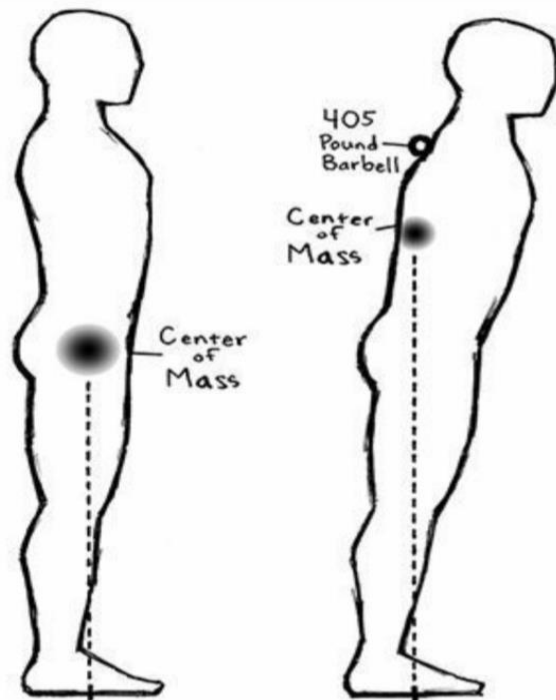
Applying a similar cue to opera performance might result in a more stable<sup>29</sup> posture. The visual information a performer receives on the stage does not always include cues regarding the horizon and zenith, or if it does, they differ from the visual cues offered by the rehearsal room. Mr. Rippetoe advises barbell lifters to develop an awareness of their center of mass, and to simply allow the mind and body to adapt to the new information:

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<sup>27</sup> Ibid

<sup>28</sup> Ibid

<sup>29</sup> Two meanings of the word “stable” both apply equally here: not changing significantly from one performance to the next, and also stable in the immediate sense of requiring little effort to stay balanced.



**Figure 2-4.** The COM of the barbell-lifter system shifts up toward the bar. As the mass of the barbell increases, the COM of the system more closely approximates the position of the bar.

Notice that in [Figure 2-5](#), a dashed line illustrates a vertical relationship between the barbell on the back and the middle of the foot against the floor. It should be intuitively obvious that the lifter/barbell system will be in balance when it is directly over the middle of the foot, with the *mid-foot* position – right under the arch of the foot – being the point of interaction with the ground that is the farthest away from both the forward and rearward edges of contact. Very simply, the mid-foot is exactly halfway between either end of the sole of the shoe. It is therefore the most stable position, the one which would take the most movement to disrupt, and therefore the one naturally favored by the body, loaded or not. The heavier the weight on the bar, the more precisely the bar position calibrates to the mid-foot. In other words, at light weights, where the mass is primarily that of the body itself, the bar may be forward of the mid-foot in a position of stability, and as the weight increases, the bar comes into balance more directly over the mid-foot.

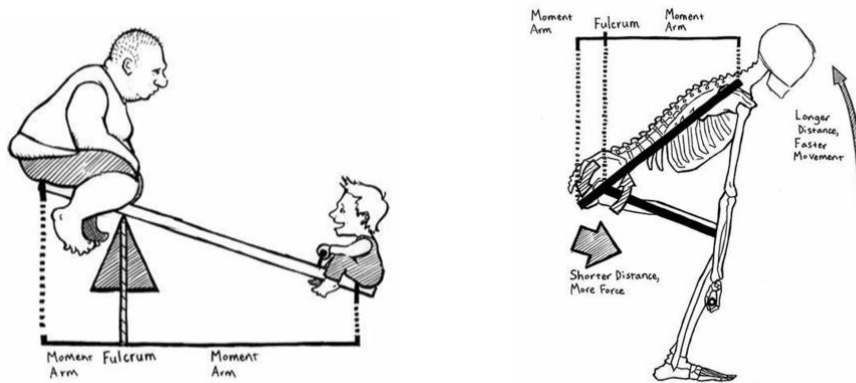
(Rippetoe and Kilgore 2011)

“Many patterns of ankle-hip coordination will maintain the center of mass above the feet, but only a few of these are effective across a broad range of situations. Functionality depends in part on the task in which the person is engaged. For example, some coordination patterns that prevent falling may be avoided because they hamper the realization of other, simultaneous goals, such as maintaining gaze, or manual contact with an object.”<sup>30</sup> It might be helpful, then, to practice consciously focusing on the sensory information from the feet and middle ear whenever engaged in practice or rehearsal. Training methods can perhaps be learned or devised to improve the performer’s ability to isolate the musical information derived from the movements of the conductor from now separate stream of information used to manage the particulars of the upright posture.

In the author’s experience, the forward leaning position is rather reminiscent of the low back angle that is natural when standing upright with a heavy weight (see diagram above). The forward lean

<sup>30</sup> Latash, M. L. (2006). *Motor control and learning* Springer. 79

creates a type of force acting on the trunk that is once again best explained with visual aids from Mr. Rippetoe's book<sup>31</sup>:



The moment force generated by the weight of the head is awkward for the body when there is no heavy weight to balance. Leaning forward is therefore not only a dramatic problem, it also creates force that must be dealt with by a now rigid trunk with conflicting roles in vocalization. The body's reaction to this position uncovers a further point of intersection between weight lifting and opera performance: the deliberate enhancement of natural breathing patterns. Interestingly, the performance objectives for the two are almost complete opposites: in singing, "good technique" generally means low pressure below the glottis and an "easy" breath – but in weight lifting the breath is deliberately held so that as much pressure as possible fills the lungs to help cushion the spine. This procedure is called the Valsalva maneuver, which is undoubtedly familiar to the reader from its use in everyday life. In both disciplines, deep exploration reveals a complex set of interdependencies between breath and posture. This particular point of intersection happens to connect various fields including, among others: speech pathology, cardiology, airplane piloting, and midwifery.

As explained by a speech pathologist who uses the detection of Valsalva maneuvers to help treat patients who stutter,

the Valsalva mechanism includes the larynx in the throat and various muscles in the chest and abdomen. These are neurologically coordinated to perform Valsalva maneuvers by simultaneously squeezing to build up air pressure in the lungs. In a normal Valsalva maneuver, you hold your breath by closing your larynx tightly (a function called effort closure). Meanwhile, your abdominal and chest muscles squeeze to increase the air pressure. The more these muscles squeeze, the tighter your larynx closes to resist the increasing air pressure. The purpose is to make the trunk of the body rigid, so that effort can be exerted more efficiently. Valsalva maneuvers are normally used to help us lift, push, or pull heavy objects, or to force things out of the body (such as bowel movements). The Valsalva maneuver is also associated with the "fight or flight" response to danger.<sup>32</sup>

Leaning forward on the stage is associated with high pressure in the lungs produced in a way that matches Parry's description rather well. Thus far, we've framed "leaning forward" as a problem caused by inadequate coordination between the hips and the eyes. Two

<sup>31</sup>Mark Rippetoe and Lon Kilgore, *Starting Strength: Basic Barbell Training*, 2nd, rev. ed. (Wichita Falls, TX: Aasgaard Co, 2007). figures 4-17 and 4-18.

<sup>32</sup> "Valsalva Control Stuttering Therapy: A Brief Introduction," accessed April 24, 2018, <http://www.stutteringtherapist.com/valsalvacontrol.htm>.

details regarding the nature of the Valsalva mechanism give us further possibilities : higher pressure allows one to exert effort more efficiently, and also has an association with the “fight or flight” response to danger. On the first point, we now have to ask if the performer is persistently leaning forward in order to help generate a stronger Valsalva reaction when singing, or if perhaps excess pressure is forcing the performer to lean forward, and how one would ever know the difference. The second point adds further interest. Using the “physical” approach to the problem, we framed the elements of posture as results of mental commands to the body which are carried out, failed, or omitted in the service of general human movement. But by following the physical study into the medical realm, we’ve discovered that one of the major mechanisms governing breathing is responsive to the mind’s perception of danger.

“Stuttering blocks usually occur when the person who stutters (PWS) feels the urge to use extra effort in speaking – usually in response to anxiety or because he or she anticipates that saying a word will be difficult.”<sup>33</sup> Parry’s stuttering blocks are remarkably similar to many vocal problems in terms of their physical and emotional associations. Viewed from this angle, the problem of leaning forward can be explained through its emotional associations. When rehearsal moves from the room to the stage, it’s not only the view that is changing, it’s also the social significance of each rehearsal as the premiere approaches. Expectations grow at a very fast pace as the time to unveil a finished product grows closer. This, of course, causes a further wrinkle. If the performer’s breath is responding to performance pressure by compromising performance, the performer can find himself at the beginning of a vicious cycle reminiscent of the floppy javelin: efforts to overcome the forward lean result in more forward lean, and with every performance the effort required seems greater and the performer’s power diminished, requiring more forward lean. Attempts to do nothing, meanwhile, also result in more forward lean. According to conductor Norbert Baxa, it is these sort of “mental problems” that pose the greatest challenges for opera performers initiating and sustaining a career.<sup>34</sup> In the author’s opinion, they are the puzzles that make it worth the trouble. It’s worth remembering at this point that a person’s voice contains information about their emotional and physical health – the “instrument” may not be working from the point of view of the performer, but it’s in fact doing its natural job perfectly.

There are various reputable approaches to the general problem of confidence in all realms of human performance. Athletics, dance, or the martial arts are commonly regarded as ways to “build confidence” in both children and adults. And yet, training in these domains is obviously designed to drive achievement in the performance of physical movements, not emotional ones. However, from a certain point of view the entire performance is based on emotion. Audiences enjoy sporting events in part because there is always a chance an elite athlete will perform very well in practice, only to fall apart completely on the day of the big game. In a competitive domain such as sports, these sorts of failures are a point of interest,

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<sup>33</sup> Ibid.

<sup>34</sup> Philippe Castagner and Norbert Baxa, "Personal Interview with Norbert Baxa" Pilsen, 2018).

rather than a flaw in the system. But opera performance is a cooperative by nature, rather than competitive. The level of confidence on the part of individual players contributes to the performance capabilities of the group.

What is confidence? In the author's opinion it is impossible to define, but it is certainly possible to infer some characteristics by looking closely at concepts that are not confidence. Self-esteem is often thought of as almost interchangeable with confidence, but we need only examine this idea from a rational perspective to see it is quite preposterous. Self-esteem is an assessment like any other, and all assessments are made *with a certain degree of confidence*. Most of us have a sense of the effects of confidence – if two conflicting measurements are equally plausible, but we are more confident in one than the other, we will keep that one and discard the other. And when two otherwise equally matched people negotiate terms or contest a boxing match, we believe the more confident one will probably win. One can have very low self-esteem, but still be very confident of that opinion.

There is a popular saying regarding confidence that goes: “dance like nobody's watching”. What, though, does it mean to perform as if one has no audience? The audience, after all, is what defines a performance as a performance – even if the only audience is the performer herself. We might imagine the way in which a certain child might perform a favorite song for herself, then one day is caught in the act, singing beautifully without any care whatsoever for goals or objectives, and how the audience might be deeply moved by the spontaneous beauty and power of it all. She never took lessons or made plans about singing. She just does it. After she finishes her song, the parents express their joy and surprise and she is showered with praise. The child responds by repeating the behavior, and the family gladly reinforces it with yet more praise. She has begun a lifetime of trying to be spontaneous on purpose. If she continues on this path and happens to choose opera performance as her domain, she can continue to elicit surprise and delight with advances in tone production, agility, and artistic refinement – which she will now also try to do while trying to be spontaneous. As a student, she does very well and is cast in all the best parts. She perhaps comes to secretly believe something essential about her in combination with her technical advancements are the source of her seemingly vast power. But as she enters the professional world she discovers she is only a drop in what seems like an ocean of competitors with the same story. She is forced to think about herself and her place in the world in different, less exceptional terms.

Ostensibly, when we say someone is self-conscious, we mean that if they dance, they dance as if another is watching, rather than as if no one is watching. But what does it mean to watch a dance, or any other performance, and why would it affect the dancer? Just as the audience becomes a component of the performer's extended cognition, “... while observing someone perform an action, observers can recruit some of their own sensorimotor resources as if they were performing the action themselves ... eventually leading to

empathetic responses between the observer and the performer".<sup>35</sup> It is more than understandable that a performer who experiences such a strong empathetic response with audiences would seek to replicate it in perpetuity, and in any case, audiences demand it and the Artist is well-compensated with income and respectability. Audiences benefit from these moments of mutual reflection by essentially acquiring knowledge of how their internal selves would feel while performing the same feats as the performer. At first, the performer's reflective gaze is cast outwards, towards the audience directly and without effort. But eventually, through the process of attempting to maintain and establish a consistently high level of performance, the performer develops a feeling of pressure to do so, and some anxiety over the possibility of failure and the loss of love<sup>36</sup>. Anxiety, of course, comes with the Valsalva mechanism mentioned earlier. From the point of view of a speaker or singer, this interferes with the functioning of the voice<sup>37</sup>, and so the performer is perhaps curious enough to investigate. In this moment the performer sees her own anxiety, and that it interferes with her instrument, and that in order to return to normal functioning she must conquer her anxiety. But this in turn makes her anxious, which interferes with her instrument.

The image of looking in a mirror held up against another mirror evokes this sort of vicious cycle performance anxiety as a phenomenon. "Most musicians experience some form of musical performance anxiety during their careers"<sup>38</sup>, but singers are the only ones who experience such global effects on their ability to perform. Javelins do not get sad but larynxes cry. Emotional/spiritual health, in other words, is not different from vocal health – at least in the sense that confidence is an essential part of both. By stepping away from the notion that the voice is an instrument, we can see that all attempts to improve the situation through improvement of some technique or capability will cease to be satisfying the moment they have been acquired. It is the turning out to face challenges that is the act of confidence, not the eventual victory over them.

The problem of self-improvement, as described by Alan Watts, begins with a similar vicious cycle: "If I am in need of improvement, the person who is going to do the improving is the one who needs to be improved"<sup>39</sup>. A singer experiencing problems with technical problems resulting from anxiety *about* anxiety knows about the problem, but also knows that he "can neither improve his situation by doing nothing about it, nor by attempting to do anything about it"<sup>40</sup>. Although this sort problem is esoteric and far removed from the problems of

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<sup>35</sup> Markus Raab et al., *Performance Psychology: Perception, Action, Cognition, and Emotion* (London; San Diego, CA: Academic Press is an imprint of Elsevier, 2015), 224.

<sup>36</sup> ("strong empathetic response")

<sup>37</sup> An organic view of the voice takes this as a sign that the voice is working perfectly well as an indicator of emotional state.

<sup>38</sup> Peter Lin et al., "Silent Illumination: A Study on Chan (Zen) Meditation, Anxiety, and Musical Performance Quality," *Psychology of Music* 36, no. 2 (Apr, 2008), 139-155. doi:10.1177/0305735607080840. <http://journals.sagepub.com/doi/full/10.1177/0305735607080840>.

<sup>39</sup> Alan Watts, *Untitled Lecture*.

<sup>40</sup> Ibid.



day-to-day existence for most people, for the opera performer who needs to overcome performance anxiety, which is to say all of them, self-improvement is a matter of fitness for work. There are various methods used for the management of performance anxiety, ranging from the use of prescription beta-blockers to the more reckless coping mechanisms, self-medication, and dangerous vices. Others will consult a therapist, religious institution, or pursue some form of independent spirituality. One can partially obscure this sort of problem, for a time, using a dichotomous concept of voice/singer, but since the separation is only imaginary, so is the insulation it provides. There is no difference between the physical and emotional aspects of a breath except in one's conception of them. Although science can give us helpful information associating anxiety with the Valsalva mechanism, from the perspective of any one mind, one cannot be said to be the cause, and the other an effect. Rather, the two are simply different phenomenal concepts describing the same set of noumena. The problem remains, however: low confidence is associated with performance anxiety, and anxiety is associated with high breath pressure. Therefore, any opera performer who experiences high breath pressure and anxiety on the stage is unlikely to alter the former without building some confidence and learning to get out of her own way.

One practice available to people of any faith or belief system for learning to get out of one's way is meditation. Meditation is a "a disciplined practice that cultivates both concentration and mindfulness"<sup>41</sup>, familiar to most readers as a relaxation technique. One would expect the suggestion here to imply meditation is preventive, or a therapeutic treatment for performance anxiety. Meditation is known in popular culture for its effects against stress and anxiety, well-documented by western science.

When meditation directly before musical performance was tested in a controlled setting, it was associated not with the expected decrease, but rather, with *increased* reported anxiety levels just before the performance. However, "...the [Zen] meditation group... seemed to benefit from the experimental treatment in that performance quality actually increased with increases in reported performance anxiety level".<sup>42</sup> It's important to note that according to the tradition in which Zen meditation was developed and transmitted, one cannot simply think one's way out of the problem, one must practice. One traditional analogy is that hearing about food is not the same as eating it. Nonetheless, it can be helpful to approach a practice like meditation with reasonable expectations. If the goal is to reduce or treat anxiety, psychology and medicine offer the performer other potentially helpful angles of approach. For those willing to invest some effort, an approach that turns anxiety into a source of inspiration is perhaps more sustainable, and in the end more satisfying. After some practice, a performer may find he is more anxious on stage than ever, but that there is no need to lean forward and bear down to brace against the emotional headwinds. But it is not magic and it can't calm the storm.

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<sup>41</sup> Lin et al., "Silent Illumination: A Study on Chan (Zen) Meditation, Anxiety, and Musical Performance Quality," , 139-155

<sup>42</sup> Ibid.

## Concluding Remarks

An alternative or supplementary conception of opera performance as an organic rather than instrumental musical practice must offer some structural replacement for the traditional concepts of voice as musical instrument. It also need not be in conflict with current theories of voice culture, since many of the techniques of training specific vocal effects work very well – the idea is to make the best of them rather than let them get the best of us. The biggest advantage of treating the voice as an instrument is that it helps singers learn new techniques by giving them a shared vocabulary with their teachers. It also offers practitioners a way to observe the functioning of the mechanisms of the voice in response to different commands. But as we have seen, there is an inherent logical contradiction built into this formula – the performer intends to be both agent and object of her actions at the same time. In the practice room, it is appropriate. As a basis for a public performance career, it is quite unreliable. The cognitive framework required to maintain this complex fiction consistently provides incomplete solutions at a progressively higher emotional, physical, and emotional cost.

One could dedicate a lifetime of study to any one of the interesting problems of the mind, body, and spirit mentioned here, but integrating such an exploration into the larger project of opera performance is best suited to the generalist. An organic approach to opera performance need not be structured similarly to the one investigated here, but it does need certain characteristics if we are to use it to achieve anything at all. The idea is not to throw out completely the concept of acting on something, but to hew more closely to it in theory *and* practice. The capabilities of an opera performer are grown rather than constructed. By cultivating them via three separate modes of understanding, and by maintaining a habit of periodically changing modes, steady growth can be achieved in the physical, intellectual, and spiritual capabilities of the performer. By introducing a set of diverse disciplines specialized in each of these three modes, and by learning to observe their relationship to one's own practice, a performer can provide the stimulus needed for optimal growth. Energy formerly used in the management of the instrument can instead be used to *sing*. Regarding the physical mode, we explored the pursuit of an athletic discipline. For matters of spirit we engaged in a subjective exploration of the emotional side of performance. I've done my best to avoid the intellectual approach as much as possible, lest it catch sight of itself.

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