

The Role of Extraversion and Introversion

on a Singer's Voice

by

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## ABSTRACT

The notion that a singer's voice is an expression of their personality serves as the catalyst for an examination of the relationship between the continuum of introversion and extraversion, and the pathologies of muscle tension dysphonia, vocal nodules, and performance anxiety. This paper begins with a brief introduction defining extraversion and introversion, followed by a review of personality studies identifying opera singers as primarily extraverted. Definitions of vocal nodules and muscle tension dysphonia are then given along with a list of recommended therapies. These elements tie in with two studies in speech pathology that suggest that behaviors of extraversion contribute to the development of vocal nodules, and behaviors of introversion contribute to muscle tension dysphonia and a higher laryngeal placement. Performance anxiety is shown to compound the behaviors that lead to vocal pathologies in singers. Additional therapies are recommended to address anxiety management in vocal lessons. Finally, since personality factors that contribute to vocal pathology are psychological, it is recommended that voice teachers refer their students to a psychotherapist for proper treatment.

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## TABLE OF CONTENTS

	Page
LIST OF TABLES.....	iv
LIST OF FIGURES .....	v
INTRODUCTION .....	1
EXTRAVERSION/INTROVERSION.....	3
PERSONALITY OF OPERA SINGERS .....	12
VOCAL PATHOLOGY .....	16
PERSONALITY CONSIDERATIONS .....	20
ANXIETY CONSIDERATIONS.....	25
COMMUNICATION WITH MEDICAL PROFESSIONALS .....	28
CONCLUSION.....	32
SUGGESTED RESEARCH.....	33
BIBLIOGRAPHY.....	35
BIOGRAPHICAL SKETCH .....	39

LIST OF TABLES

Table	Page
1. Raymond Cattel’s contributing factors of introversion and extraversion in adults. Adapted from Boxes 2.1-2.5 in Kemp, <i>The Musical Temperament: Psychology and Personality of Musicians</i> , 36-39 .....	4
2. McCrea and Costa’s Five-Factor Model. Table 1 in McCrea and John, “An Introduction to the Five-Factor Model and Its Applications,” 178-79 .....	4
3. Selected summary of self-ratings and peer-ratings. Adapted from tables 1-3 found in Wilson’s “The Personality of Opera Singers,” 196-198.....	13

## LIST OF FIGURES

Figure	Page
1. Eysenck’s two-dimensional model of personality. Figure 2 in Kemp, <i>The Musical Temperament: Psychology and Personality of Musicians</i> , 9 .....	7
2. The three higher-order personality dimensions of the MPQ. Adapted from Figure 1 in Roy et al, “Personality and Voice Disorders: A Multitrait-Multidisorder Analysis,” 527.....	20
3. Professional disciplines and their relation to voice. Adapted from figure 1.1 in Titze and Abbott, <i>Vocology: The Science and Practice of Voice Habilitation</i> , 13 .....	27

## Introduction

Clifton Ware, noted voice pedagogue and author, states that singers must think of their voices as complete instruments, and emphasizes that voice production should be consistent throughout the speaking and singing range.<sup>1</sup> In many cases, however, vocalists are unaware of the connection between singing and speaking. Even those who show an interest in speech-language pathology (SLP), know very little about it, as results from a 2009 survey indicate.<sup>2</sup> In another study, Castelblanco and others found that the majority of participating professional and semi-professional singers suffered varying degrees of vocal pathologies, though they stated that they were vocally healthy.<sup>3</sup> These and other studies confirm that, while professional singers and their teachers spend a great deal of time focusing on the singing voice, they neglect the importance of the spoken voice on overall vocal health. Relevant research on voice production, found in speech related publications, is largely overlooked by singing professionals.

My own lack of awareness about my speaking voice prompted this research. I began my DMA with vocal issues stemming from behaviors of inhibition in my speech. I worked with a speech-language pathologist to establish healthier speaking habits. Part of my therapy was directed at discovering the psychological factors that were causing

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<sup>1</sup> Clifton Ware, "From Speech to Singing: The Voice as a Single Instrument," *Opera Journal* 34, no. 3 (September 2001): 66-67, accessed October 5, 2014, <http://search.proquest.com/docview/1158926?accountid=4485>.

<sup>2</sup> Colleen Braun-Janzen and Lina Zeine, "Singers' Interest and Knowledge Levels of Vocal Function and Dysfunction: Survey Findings," *Journal of Voice* 23, no. 4 (July 2009): 470, accessed October 5, 2014, <http://www.sciencedirect.com/science/article/pii/S0892199708000027>.

<sup>3</sup> Liliana Castelblanco et al., "Singing Voice Handicap and Videostrobolaryngoscopy in Healthy Professional Singers," *Journal of Voice* 28, no. 5 (September 2014): 608-13, accessed October 6, 2014, <http://www.sciencedirect.com.ezproxy1.lib.asu.edu/science/article/pii/S0892199714000538>.

inhibitive behaviors. I realized that my personality was at the center of my behavior, and I was motivated to look further into how personality might affect the voice.

Personality research in speech pathology suggests that individuals exhibiting primarily introverted traits, such as inhibition, appear to be more susceptible to muscle tension dysphonia and inefficient vocal function. Individuals exhibiting primarily extraverted traits, such as over-socialization, are at risk of developing vocal nodules. This paper utilizes a 2000 article by Roy and others, as well as a 2012 article by Dietrich and Abbott to begin an examination of the relationship between three pathologies (muscle tension dysphonia, vocal nodules, and performance anxiety), and the personality continuum of introversion and extraversion.<sup>4</sup> The goal is to contextualize this important area for singers and simultaneously introduce vocal performers to the types of beneficial research currently available in other disciplines. When singers are better informed, their recognition of pathologies, understanding of therapeutic options, and communication with medical professionals is vastly improved. Ultimately, the most complete pedagogy for vocal health and longevity must take speech and behavioral science into account.

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<sup>4</sup>The common spelling of extraversion is extro-version; however, scientific articles prefer the original spelling of extra-version, as it more accurately reflects the Latin extra, meaning outside; Maria Dietrich and Katherine Verdolini Abbott, "Vocal Function in Introverts and Extraverts During a Psychological Stress Reactivity Protocol," *Journal of Speech, Language, and Hearing Research* 55, no. 3 (June 2012): 973, accessed October 5, 2014, <http://search.proquest.com/docview/1039034573?accountid=4485>.; Nelson Roy, Diane M. Bless, and Dennis Heisey, "Personality and Voice Disorders: A Multitrait-Multidisorder Analysis," *Journal of Voice* 14, no. 4 (December 2000): 521-48, accessed October 5, 2014, [http://dx.doi.org/10.1016/S0892-1997\(00\)80009-0](http://dx.doi.org/10.1016/S0892-1997(00)80009-0).



## Extraversion/Introversion

Psychometry, the scientific study of personality, became an area of research beginning in the 1880s when Sir Frances Galton (1822-1911) theorized that the observable traits of an individual's personality could be explained using language (lexical approach). Galton studied *Roget's Thesaurus* and identified a large number of terms associated with personality.<sup>5</sup> His work would be supplemented in the next century with the work of Gordon Allport (1897-1967) and Henry Odbert (1909-1995). They conducted a "psycho-lexical" study in 1936 using Webster's *New International Dictionary* (1925, first edition) and identified nearly 18,000 individual terms that described personality.<sup>6</sup> Warren Norman later surveyed the work of Allport and Odbert and reduced the number of relevant descriptors to under 3,000. He was also the first psychologist to suggest that most of the identified traits could be grouped into five simpler categories.<sup>7</sup>

The lexical approach to identifying personality traits and their analysis further advanced with the work of Raymond Cattell. In 1949, he developed a questionnaire which separated personality into sixteen bipolar factors.<sup>8</sup> Later referred to as the *Sixteen Personality Factor Questionnaire*, or 16PF, it consists of 164 self-reporting prompts with which the participant can agree, slightly agree, slightly disagree, and disagree. Among

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<sup>5</sup> Anthony E. Kemp, *The Musical Temperament: Psychology and Personality of Musicians* (New York: Oxford University Press, 1996), 1.

<sup>6</sup> Gordon W. Allport and Henry S. Odbert, "Trait-names: A Psycho-Lexical Study," *Psychological Monographs* 41, no. 1 (1936): 22-24, accessed February 14, 2017, <http://dx.doi.org.ezproxy1.lib.asu.edu/10.1037/h0093360>.

<sup>7</sup> Kemp, *The Musical Temperament: Psychology and Personality of Musicians*, 16.

<sup>8</sup> Here, bipolar factor indicates a continuum known by its two extremes. What today is known as bipolar disorder is not relevant in this discussion.

the sixteen bipolar factors, ten are still considered important determiners for introversion and extraversion (Table 1).

**Table 1.** Raymond Cattell’s contributing factors of introversion and extraversion in adults (1949). Adapted from Boxes 2.1-2.5 in Kemp, *The Musical Temperament: Psychology and Personality of Musicians*, 36-39.

<b>Introverted Traits:</b>	<b>Extraverted Traits:</b>
<b>Aloofness(A-):</b> Reserved, detached, cold, critical, stands by own ideas, cool, precise, objective distrustful, skeptical, rigid and prone to sulk. finding little reward in human relations, and favoring logic and order. – one of the largest traits in personality factoring.	<b>Outgoing(A+):</b> Participating, warmhearted, easygoing, ready to co-operate, attentive to people, soft-hearted, casual, trustful, adaptable, careless, laughs readily.
<b>Desugency (F-):</b> Associated with deep creativity, sober, serious, silent/introspective, full of cares, uncommunicative, slow, cautious.	<b>Surgency (F+):</b> Enthusiastic, happy-go-lucky, talkative, cheerful, expressive, quick, alert.
<b>Shyness (H-):</b> Timid, restrained, withdrawn, low libido, emotionally cautious, embittered, rule-bound, careful	<b>Adventurous (H+):</b> Thick-skinned, socially bold, likes meeting people, active libido, responsive, friendly, impulsive, emotional and artistic interests, carefree.
<b>Self-sufficient (Q2+):</b> not sociable, a loner, makes own decisions, resourceful.	<b>Group Dependent (Q2-):</b> Sociable, a joiner, sound follower, conventional, inner strength.
<b>Circumspect (J+):</b> Acts individualistically, guarded, wrapped up in self, fatigued, evaluates objectively	<b>Zestful (J-):</b> likes group action, likes attention, vigorous, accepts common standards

Factor analysis using personalized questionnaires continued and would eventually lead to the description of five primary dimensions of personality, first articulated in 1985 by Robert McCrae and Paul Costa (Table 2).<sup>9</sup> Unlike Cattell’s earlier work, the five-factor model identifies extraversion as a primary dimension of personality. The

<sup>9</sup> Robert R. McCrae and Oliver P. John, “An Introduction to the Five-Factor Model and Its Applications,” *Journal of Personality* 60, no. 2 (1992): 178-179, accessed January 29, 2017, <http://search.ebscohost.com.ezproxy1.lib.asu.edu/login.aspx?direct=true&db=sih&AN=9208170743&site=ehost-live>.

underlying descriptions of both extraversion and neuroticism will become important as the discussion focuses on singers' personalities.

**Table 2.** McCrea and Costa's Five-Factor Model (1985). Table 1 in McCrea and John, "An Introduction to the Five-Factor Model and Its Applications," 178-79.

<b>Openness</b>	<b>Conscientiousness</b>	<b>Extraversion</b>	<b>Agreeableness</b>	<b>Neuroticism</b>
Wide interests	Organized	Talkative	Sympathetic	Tense
Imaginative	Thorough	Assertive	Kind	Anxious
Intelligent	Efficient	Active	Appreciative	Nervous
Original	Competence	Energetic	Affectionate	Moody
Fantasy	Order	Warmth	Trust	Angry hostility
Aesthetics	Dutifulness	Gregariousness	Altruism	Depression
Feelings	Achievement	Reward seeking	Compliance	Vulnerability

While Cattell, McCrea, and Costa focused on trait analysis, an adjacent theory was developed by C. G. Jung (1875-1961), and later by Isabel Myers (1897-1980) and Mary McCaulley (1920-2003). Their research centered around personality types, rather than dimensions. Jung, in fact, was the first scientist to popularize the terms extraversion and introversion when describing personality.<sup>10</sup> His theory of extraversion, developed in the 1920s, dealt mainly with the expression of the libido and summarized that "extraverts were more focused on the outer world and introverts on their own inner mentality."<sup>11</sup> Jung's theory also associated hysterical disorders (e.g. hypochondria and schizoid personality disorder) with extraversion, and mood disorders (e.g. depression and anxiety)

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<sup>10</sup> Mark R. Leary and Rick H. Hoyle, eds., *Handbook of Individual Differences in Social Behavior* (New York: Guilford Press, 2009), 28, accessed January 29, 2017, <http://www.myilibrary.com?id=231930&ref=toc>.

<sup>11</sup> Ibid

with introversion.<sup>12</sup> Unlike trait analysis, which establishes dimensions of personality under specific categories, Jung's model identified a person as either wholly introverted or extraverted, thus demonstrating a personality type. His theory also identified attitudes within extraversion and introversion:

1. Information Processing: Sensing or Intuition. Sensing individuals prefer to be hands-on and experience their environment physically, relying on their five senses, while intuitive individuals prefer to theorize, relying on their impressions and thoughts
2. Decision Making: Thinking or Feeling. Thinking individuals prefer finding the simplest form of the argument using facts and logic. Feeling individuals rely on values of harmony and fairness, and consider each person's needs when making a decision.
3. Lifestyle: Judging or Perceiving. A judging individual prefers to be in control of their life and prefers things to be organized and planned. A perceiving individual is flexible and spontaneous, and prefers to stay open to new experiences.<sup>13</sup>

Jung's research was further developed by Isabel Myers and Mary McCaulley, culminating in the *Myers-Briggs Type Indicator* (1940s). The *Myers-Briggs Type Indicator*, familiar to many veterans of psychology classes and marriage counseling, separates individuals into sixteen personality types and remains popular in the fields of education and religion.<sup>14</sup>

Gerard Heymann (1857-1930) also identified extraversion, but with a perspective that is more universally accepted today. He believed that extraversion was expressed as a dimension of personality rather than a type, and therefore could be explained with a

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<sup>12</sup> Robert M Stelmack, ed., *On the Psychobiology of Personality: Essays in Honor of Marvin Zuckerman* (Amsterdam: Elsevier, 2004), 409-27, accessed March 11, 2017, <http://dx.doi.org.ezproxy1.lib.asu.edu/10.1016/B978-008044209-9/50022-1>.

<sup>13</sup> "Mbti Basics," The Myers & Briggs Foundation, accessed March 13, 2017, <http://www.myersbriggs.org/my-mbti-personality-type/mbti-basics/>.

<sup>14</sup> Kemp, *The Musical Temperament: Psychology and Personality of Musicians*, 12.

continuum or spectrum.<sup>15</sup> Building upon this theory, Hans Eysenck (1916-1997) developed his own ideas of introversion and extraversion. While Jung focused on perception and expression of a person's libido, Eysenck focused more on the aspect of sociability and excitability. Eysenck and his wife Sybil developed the *Eysenck Inventory* (EPI, 1964), which measured two central dimensions, extraversion-introversion and neuroticism (emotional stability). The *Eysenck Questionnaire* (EPQ, 1975) later added a third dimension of psychoticism. The revised Eysenck Questionnaire (EPQR, 1985) remains the most frequently used measurement tool for introversion/extraversion.<sup>16</sup> Information from their questionnaire supported the development of a fourfold typology that plotted individuals on a spectrum from stable extravert, unstable extravert, stable introvert, and unstable introvert (Figure 1).<sup>17</sup>

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<sup>15</sup> Leary and Hoyle, *Handbook of Individual Differences in Social Behavior*, 29.

<sup>16</sup> Robert M Stelmack, ed., *On the Psychobiology of Personality: Essays in Honor of Marvin Zuckerman* (Amsterdam: Elsevier, 2004), 154, accessed March 11, 2017.

<sup>17</sup> Kemp, *The Musical Temperament: Psychology and Personality of Musicians*, 9.



**Figure 1.** Eysenck’s two-dimensional model of personality. Figure 2 in Kemp, *The Musical Temperament: Psychology and Personality of Musicians*, 9.

Eysenck’s typology was adapted from earlier writings by German philosophers Immanuel Kant (1724-1804) and Wilhelm Wundt (1832-1920). They developed their own fourfold typologies based on the “four humors.” Before modern medical science, the prevailing theory of health and wellness centered around the “four humors” or four temperaments (Hippocrates, 460-377 BCE). The four humors were classified by the Roman physician Galen (c130-c200 CE) as *chore* (bile), *melancholic* (black bile), *sanguis* (blood), and *flegma* (phlegm).<sup>18</sup> Disease was thought to be caused by an

<sup>18</sup> Robert M Stelmack, ed., *On the Psychobiology of Personality*, 151.

imbalance of these humors. Treatments to balance one's humors included leaching, blood-letting, and cupping.<sup>19</sup>

An individual's personality was also thought to be derived from their "blend" of humors. "Steadiness and solidarity was thought to depend on black bile, whereas simple mindedness came from blood."<sup>20</sup> Using the four humors, Immanuel Kant based his theory of personality on expressions of feelings and activity. For example, sanguine or choleric individuals experience intense but brief feelings and activities. Melancholic or phlegmatic individuals experience weak but enduring feelings and activities. Kant believed that a person could be one of the four categories. Wilhelm Wundt furthered this theory, but replaced feeling and activity with emotion and changeability. He also replaced the four-type model with a two-dimensional model. This model serves as the foundation for Eysenck's two-dimensional model, with the emphasis shifting from emotion and changeability to extraversion and neuroticism. The model itself, still includes the four humors from previous versions of its development and displays the advancement in medical thought.

Along with the factor and type theories in personality, advancements in technology, including the mapping of the human genome, brain imaging, and other scientific breakthroughs have lead psychometry into new avenues of biological and environmental factors of influence on an individual's personality. Gene studies have shown the correlation between genetic markers and personality traits, while brain imaging studies

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<sup>19</sup> Kay Norton, *Singing and Wellbeing: Ancient Wisdom, Modern Proof* (New York, NY: Routledge, Taylor & Francis Group, 2016), 178-179, Amazon Kindle Edition.

<sup>20</sup> Robert M Stelmack, ed., *On the Psychobiology of Personality*, 151.

have established physiological correlations with three of the five main factors of personality: extraversion, agreeableness and neuroticism.<sup>21</sup> This research hearkens back to Eysenck, who believed that personality had a foundation in biology, however he did not have the scientific means to prove it in his lifetime.

Another advancement in the study of personality has come in the form of behavior genetic studies. These studies compare the personality traits of people with extremely close genetic relationships, such as fraternal or identical twins (“twin studies”), and allows determinations to be made on the degree of influence genes play in an individual’s personality. It also allows researchers to look into other environmental variables. Researchers observe subjects longitudinally or over an extended period. These studies showed that personality remains relatively constant over time.<sup>22</sup> Many of these studies have been conducted and have concluded that roughly 50% of all personality characteristics are inherited, while the remaining characteristics can be traced to environmental influences. Twins separated at birth through adoption or other factors have contributed significantly to these findings. Thomson and Jaque explain that psychological consensus separates the terms temperament and personality, with

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<sup>21</sup> Brent W. Roberts and Joshua J. Jackson, “Sociogenomic Personality Psychology,” *Journal of Personality* 76, no. 6 (December 2008): 1523-44, accessed January 29, 2017, <http://dx.doi.org/10.1111/j.1467-6494.2008.00530.x>.

<sup>22</sup> Jaap Denissen et al., “The Behavioural Genetics of Personality Development in Adulthood-Classic, Contemporary, and Future Trends,” *European Journal of Personality* 28, no. 3 (May 2014): 244, accessed December 19, 2016, <http://dx.doi.org/10.1002/per.v28.3>.



temperament referring to the inherited traits and personality referring to the psychogenic factors.<sup>23</sup>

The above information can be summarized in the statement that individuals displaying primarily introverted traits can be described as directing their thoughts and emotions inward, are less social and more independent, and are cautious and less excitable. On the other hand, individuals displaying primarily extraverted traits can be described as directing their thoughts and emotions outward, are very social and group-dependent, and are impulsive and more excitable. Depending on the method of measurement, extraversion and introversion can either be understood as a type or as a dimension of personality, though the latter is more accurate. Furthermore, psychogenic research has established that half of the traits that affect personality are, in fact, inherited, while the other half are determined by our environment. The trait and type theories presented here are up-to-date; however, psychogenic research is proving conventional personality research insufficient. A modern theory of personality is not complete without including influences of heredity, the limbic system, and established dimensions of personality.<sup>24</sup> While personality remains constant over time, it should be stated that observable personality dimensions fluctuate depending on the situation. For example, while a singer may identify him/herself as primarily extraverted, there are times when it is beneficial for introverted traits to be dominant (while practicing, when receiving criticism, traveling for auditions, etc.).

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<sup>23</sup> Paula Thomson and Victoria S. Jaque, "Personality," in *Creativity and the Performing Artist: Behind the Mask*, Explorations in Creativity Research (London: Elsevier, 2017), Amazon Kindle edition.

<sup>24</sup> Robert M Stelmack, ed., *On the Psychobiology of Personality*, 158-9.

## Personality of Opera Singers

Studies concerning the personalities of opera singers have been scarce in comparison to the amount of information collected in personality research as a whole. In 1979, Laryngologist Norman Pun essentialized all actors and singers as excitable, neurotic, volatile, temperamental, changeable, moody, intemperate, vain, and unstable, saying that “if actors and singers were dull, phlegmatic, placid people, no one would go to the trouble of listening to them.”<sup>25</sup> He offered no scientific reference to support these stereotypical descriptions; however, the research below demonstrates that his observations were essentially correct.

Anthony Kemp states that a “singer’s instrument is personal, invisible, and very complex, and in a performance, it is the vocalist’s personality that is presented, together with any vocal defects that are perceived as belonging directly to him or her.”<sup>26</sup> In a study conducted in 1980, Kemp provided an adapted version of Cattell’s 16PF and administered it to 688 full-time college music students from Great Britain. Among the musicians studied, fifty-five of them were singers. A control group of non-musicians was used to establish notable differences. The results of the questionnaire established that singers are primarily extraverted, exhibiting high levels of outgoingness, surgency, adventurousness, and group dependency (refer to table 2 above for detailed descriptions

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<sup>25</sup> Norman A. Punt, *The Singer's and Actor's Throat: The Vocal Mechanism of the Professional Voice User and Its Care in Health and Disease*, 3rd ed. (London: W. Heinemann Medical Books, 1979), 1.

<sup>26</sup> Kemp, *The Musical Temperament: Psychology and Personality of Musicians*, 6.

of each trait).<sup>27</sup> Kemp's findings were reinforced by a study conducted by Glenn Wilson in 1984.

Wilson provided ninety-one London-based opera singers (forty-three sopranos, twelve mezzos, two contraltos, thirteen tenors, three bass/baritones, and five basses) with a specialized questionnaire and survey. The singers were asked their age, weight, voice-type, and level of experience, followed by twelve questions regarding their behavior and self-perceptions as a singer. At the end of the questionnaire, they were asked to rate themselves using twelve bipolar personality factors on a scale from one to ten. The singers then filled out the same personality survey for another singer of each voice-type whom they knew well.<sup>28</sup>

Self-perceptions held true to previous research and showed that singers viewed themselves as primarily extraverted, with higher levels of emotionality and egotism. Tenors and sopranos rated themselves as more emotional, more feminine, and possessing a less-active libido than their lower-voiced colleagues. These findings correlate roughly with Wilson's hypothesis that hormones, which during adolescence play a large role in determining a person's voice type, influence aspects of a person's personality. Sopranos and tenors were rated by their peers as being more conceited and difficult. Tenors self-reported missing more stage cues than their peers, while they also felt that their talents were undervalued. Baritones and mezzo-sopranos were self-reported as more masculine

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<sup>27</sup>Anthony E. Kemp, "Personality Differences between the Players of String, Woodwind, Brass and Keyboardinstruments, and Singers," *Bulletin of the Council for Research in Music Education* 66, no. 67 (Spring - Summer, 1981): 33-38, accessed January 29, 2017, <http://www.jstor.org/stable/40317663>.

<sup>28</sup>Susan E. Marchant-Haycox and Glenn D. Wilson, "Personality and stress in performing artists," *Personality and Individual Differences* 13, no. 10 (October 1992): 1061-68, accessed January 06, 2017, [http://dx.doi.org/10.1016/0191-8869\(92\)90021-G](http://dx.doi.org/10.1016/0191-8869(92)90021-G).

and exhibiting higher rates for libido and promiscuity. A synthesis of Wilson’s findings has been compiled in (Table 3). His study demonstrates the significance of perception in personality measurement.

**Table 3.** Selected summary of self-ratings and peer-ratings. Adapted from tables 1-3 found in Wilson’s “The Personality of Opera Singers,” 196-198.

	Characteristics (Self-Reported, compared to other singers)	Personality (Self-Rating compared to other singers)	Personality (Peer-Rating compared to other singers )
Soprano	<ul style="list-style-type: none"> <li>• Higher reports of stage fright</li> <li>• Highest self-opinion</li> </ul>	<ul style="list-style-type: none"> <li>• Emotional,</li> <li>• low libido</li> <li>• Most Aggressive</li> </ul>	<ul style="list-style-type: none"> <li>• Emotional</li> <li>• High libido</li> <li>• Most Aggressive</li> <li>• Conceited</li> <li>• Unreliable</li> </ul>
Alto	<ul style="list-style-type: none"> <li>• Avg. 3 inches taller than sopranos</li> <li>• Higher reports of stage fright</li> </ul>	<ul style="list-style-type: none"> <li>• Least emotional</li> <li>• Aggressive</li> <li>• High libido</li> </ul>	<ul style="list-style-type: none"> <li>• Emotional</li> <li>• Aggressive</li> <li>• High Libido</li> </ul>
Tenor	<ul style="list-style-type: none"> <li>• Most overweight (14lbs), tend to be short</li> <li>• Miss more cues than others</li> <li>• Talents are underrated</li> </ul>	<ul style="list-style-type: none"> <li>• Passive, low libido</li> <li>• Conceited</li> <li>• Most introverted</li> <li>• Most Unreliable</li> </ul>	<ul style="list-style-type: none"> <li>• More Aggressive</li> <li>• Emotional</li> <li>• Highest libido</li> <li>• Most Conceited</li> <li>• Most Unreliable</li> </ul>
Bass	<ul style="list-style-type: none"> <li>• Avg. 1 ½ inches taller than tenors</li> <li>• Argumentative</li> </ul>	<ul style="list-style-type: none"> <li>• Aggressive</li> <li>• High libido</li> <li>• Unfaithful</li> </ul>	<ul style="list-style-type: none"> <li>• Less aggressive</li> <li>• Lower libido</li> <li>• Unfaithful</li> </ul>

More recently, a 1992 study by Susan Haycox and Glenn Wilson provided 162 performing artists the *Eysenck Personality Profiler* (EPP) and a tailor-made health survey questionnaire. Among the participants were thirty-three actors, twenty-six dancers, sixty-five instrumentalists, and thirty-eight singers. Actors were found to be the most extraverted, while instrumentalists were found to be the most introverted and prone to emotional instability. Singers’ ratings fell between those of actors and instrumentalists. Haycox and Wilson wisely observed that since opera singers require the skills of both actors and instrumentalists, their personalities would naturally fall between the two

groups. Female participants reported higher levels of anxiety, dependency, unhappiness, and low self-esteem. Male participants reported higher levels of tough mindedness and dominance. The study also asked participants to rate their anxiety levels. Thirty-eight percent of singers reported having performance anxiety.<sup>29</sup>

Since opera singers are often engaged in role playing, it is relevant to account for possible influence of a character on an actor's personality. A study conducted in 1994 by Hannah and others attempted to explain this relationship. Fourteen student-actors were given personality assessments four times during their performance period: before rehearsals began, once during the rehearsal, once during the performance period, and once a month after the performances had ended. Results from the study showed that the actors believed that their personalities aligned with those of their characters during the rehearsal and performance process, but in reality, their personality profiles did not change. Their change in self-perception, however, does pose a dilemma. As Paula Thomson and Victoria Jaque write “[actors are] vulnerable to blurring their personality with that of their character during rehearsals and performances... [which] increases potential emotional distress and can contribute to actors' feeling that their personality is less stable.”<sup>30</sup> Their book, *Creativity and the Performing Artist: Behind the Mask*, features chapters on the motivations, moods, and personalities of performing artists.

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<sup>29</sup> Haycox and Wilson, “Personality and stress in performing artists,” 1066.

<sup>30</sup> Thomson and Jaque, “Personality,” *Creativity and the Performing Artist*.

## Vocal Pathology

“Voice production plays a critical role in self-expression, well-being, and functional daily living. A disordered voice can negatively affect personal development, employment, and productivity. The effective treatment of voice disorders can positively affect quality of life in society.”<sup>31</sup> It is estimated that between 10 and 20% of classically trained singers experience some form of chronic vocal disorder during their careers. The most often reported problem is the dreaded vocal fold lesion, or vocal nodule.<sup>32</sup> A vocal nodule, or growth, is the result of muscle tension induced trauma, usually bilateral (meaning occurring on both folds), and accounts for about 4% of an otolaryngologist’s caseload.<sup>33</sup> Vocal nodules most often occur in socially aggressive, talkative, and highly tense or neurotic individuals.<sup>34</sup> Muscle tension produces atypically inflexible vocal folds and can lead to incomplete closure of the glottis. In order to compensate for the faulty closure, speakers often increase pressure, resulting in greater vocal fold collision forces. Once a nodule has developed, the cycle of compensation continues as speakers increase pressure

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<sup>31</sup>Lorraine Olson Ramig and Katherine Verdolini, “Treatment Efficacy: Voice Disorders,” *Journal of Speech, Language, and Hearing Research* 41, no. 1 (February 1998): 101-16, accessed November 11, 2014, <http://search.ebscohost.com.ezproxy1.lib.asu.edu/login.aspx?direct=true&db=rzh&AN=1998069556&site=ehost-live>.

<sup>32</sup> Amanda Brunk, “The Private Studio: Managing Voice Problems in the Private Studio,” *Journal of Singing* 64, no. 5 (May 2008): 615-17, accessed November 10, 2014, <http://search.proquest.com.ezproxy1.lib.asu.edu/docview/1402668?accountid=4485>.

<sup>33</sup> Roy, Bless, and Heisey, *Personality and Voice Disorders*, 522.

<sup>34</sup> Joseph C. Stemple, Nelson Roy, and Bernice Klaben, *Clinical Voice Pathology: Theory and Management*, fifth ed. (San Diego, CA: Plural Publishing, 2014), 80.

again to combat their often weak and breathy voices.<sup>35</sup> A singer experiencing vocal nodules can present a variety of symptoms, depending on the specific nature of the lesion. Common symptoms include loss of higher and lower registers, breathy tone quality due to improper glottal closure, and a diminished capacity to sustain stable phonation.<sup>36</sup> The primary treatment of vocal nodules is aimed at reducing muscle tension and optimizing vocal behavior to prevent further trauma. Surgery may be required if the vocal nodule is too large for therapy to be effective. Therapeutic treatment consists of four components:

1. Vocal hygiene: singers are educated on vocal production, voice and non-voice related vocal abuses, and vocal abuse reduction.
2. Direct facilitation: recording devices are used to establish appropriate loudness levels to reduce a singer's vocal effort, and yawn-sigh exercises are used to reduce extrinsic muscle tension.
3. Relaxation: Progressive and differential relaxation techniques are introduced, along with stress management techniques to reduce muscle tension. (Stress management techniques will be discussed below).
4. Respiration: Breathing exercises are introduced, emphasizing easy, relaxed breathing.<sup>37</sup>

Another disorder among singers, though not as often reported, is muscle tension dysphonia. Normal phonation depends on a smooth, synchronized movement of the vocal folds. Intrinsic muscles of the larynx are responsible for vocal fold adduction (movement together), abduction (movement apart), and tension, while extrinsic muscles surrounding the larynx work to maintain the larynx in a stable and natural position.<sup>38</sup> In

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<sup>35</sup> Eva B. Holmberg et al., "Efficacy of a Behaviorally Based Voice Therapy Protocol for Vocal Nodules," *Journal of Voice* 15, no. 3 (September 2001): 395-412, accessed November 10, 2014, <http://www.sciencedirect.com.ezproxy1.lib.asu.edu/science/article/pii/S0892199701000418>.

<sup>36</sup> Stemple, Roy, and Klaben, *Clinical Voice Pathology: Theory and Management*, 330.

<sup>37</sup> Holberg et al, "Efficacy of Behaviorally Based Voice Therapy."

<sup>38</sup> Evelyne Van Houtte et al., "Pathophysiology and Treatment of Muscle Tension Dysphonia: A Review of the Current Knowledge," *Journal of Voice* 25, no. 2 (March 2011): 202-7, accessed November 10, 2014, <http://www.sciencedirect.com/science/article/pii/S089219970900188X>.

individuals with muscle tension dysphonia, overuse of extrinsic musculature results in a higher position of the larynx. This unnatural position hinders the efficient movements of the cartilaginous structures of the larynx and leads to improper tension of the vocal folds.<sup>39</sup> As this disorder is mostly tension based, the related treatments deal with alleviating extrinsic muscle tension in an effort to return the larynx to normal function. Waiting until maximum relaxation of the laryngeal musculature is achieved allows phonation to be attempted with reduced effort and discomfort. Therapies for muscle tension dysphonia include:<sup>40</sup>

1. Yawn-sigh and vocal glides – often used in vocal studios, it is important for singing teachers to note that these exercises also coincide with accepted therapies.
2. Resonant Voice Therapy (more information below)
3. Visual and electromyographic biofeedback. This allows therapists to identify which muscles may be hyperactive and causing unwanted tension.
4. Progressive relaxation (more information below)
5. Circumlaryngeal massage. First performed under supervision, circumlaryngeal massage involves massaging the extrinsic muscles of the larynx to establish maximum relaxation and mobility.
6. Semi-occluded vocal tract exercises – lip trills, tongue trills, bilabial fricatives, humming, and phonation into tubes or straws (straw phonation). Research has shown the purpose of these exercises is to equalize the supraglottic (above the glottis) and subglottic pressures (below), thus increasing vibratory efficiency and lowering the amount of effort needed to phonate. Singers can sing through material without the fear of injury. This method also helps to release tension that may build during extended periods of speaking or singing.<sup>41</sup>

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<sup>39</sup> Evelyne Van Houtte et al., “Pathophysiology and Treatment of Muscle Tension Dysphonia: A Review of the Current Knowledge,” 202-207

<sup>40</sup> Ibid

<sup>41</sup> Ingo R. Titze, “Voice Training and Therapy with a Semi-Occluded Vocal Tract: Rationale and Scientific Underpinnings,” *Journal of Speech, Language and Hearing Research* 49, no. 2 (2006): 1, accessed January 28, 2017, <http://search.ebscohost.com.ezproxy1.lib.asu.edu/login.aspx?direct=true&db=aph&AN=20727207&site=ehost-live..>



As Clifton Ware proposed, teachers of singing should consider the voice a complete instrument and cultivate optimal function for their students' speaking voices, as well as their singing voices, in order to "minimize the likelihood of injury and maximize the likelihood of vocal health."<sup>42</sup> This objective can be accomplished by practicing Resonant Voice Therapy. RVT was developed by Katherine Verdolini, who drew upon previous work by Aurthur Lessac, and from her practical experiences observing singing teachers and voice coaches.<sup>43</sup> Lessac (1909 – 2011) was a renowned actor and singer, and a Professor Emeritus of Theatre at the State University of New York. He developed a system for singing that requires an "awareness of anatomy and the ability to produce a natural, forward vowel without facial, oral, and neck tension."<sup>44</sup> Lessac encouraged an awareness of vibrations occurring in the "mask," and explained consonants as musical instruments whose vibrations should not be overlooked. Verdolini's Resonant Voice Therapy also emphasizes forward placement and utilizes a variety of nasal consonant exercises to establish awareness of the vibratory sensations in the "mask." Many of the exercises associated Resonant Voice Therapy are already known and used regularly by voice teachers. Adding the remaining elements, which emphasize speech, would not burden studio instruction and would allow Clifton Ware's challenge to be met.

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<sup>42</sup>Karen Salvador and Kelly Strohauer, "From the Voice Studio to the Speech Clinic: Perspectives On Resonance and Resonant Voice Therapy," *Journal of Singing* 67, no. 1 (Sep 2010): 19-25, accessed January 27, 2017, <http://login.ezproxy1.lib.asu.edu/login?url=http://search.proquest.com.ezproxy1.lib.asu.edu/docview/821008284?accountid=4485..>

<sup>43</sup> Ibid

<sup>44</sup> Stemple, Roy, and Klaben, "Clinical Voice Pathology: Theory and Management," 340

Resonant Voice Therapy can be separated into six stages. The first involves a warm-up which relaxes the extrinsic muscles of the larynx and surrounding neck and back muscles. A variety of stretches can be employed, as well massages focusing on the neck, jaw and base of the tongue. After stretching and massage, the singer then executes breathing exercises meant to achieve relaxed and efficient respiration. This is followed by vocal glides on the [m] consonant. Once the appropriate placement is found and maintained, the singer then adds an [a] or [o] between, i.e. [mamama, or momomom]. The idea is to establish a connection between the respiratory support system and the face and lips. Step two adds voiceless consonants, such as [p], (mamapapa) to establish forward placement in non-nasal consonants. Step three broadens the use of non-nasal consonants in spoken alliterative phrases, such as “Miss Muffet made muffins.” Step four expands this further with the execution of full paragraphs of dialogue with forward, resonant placement. Step five attempts to apply the resonant voice into everyday conversations. The singer is asked to speak to family and friends utilizing a resonant voice. The sixth and final step attempts to apply the resonant voice into the singer’s needs. Since many singers also teach, special attention would be paid to resonant speaking while teaching.

### **Personality Considerations**

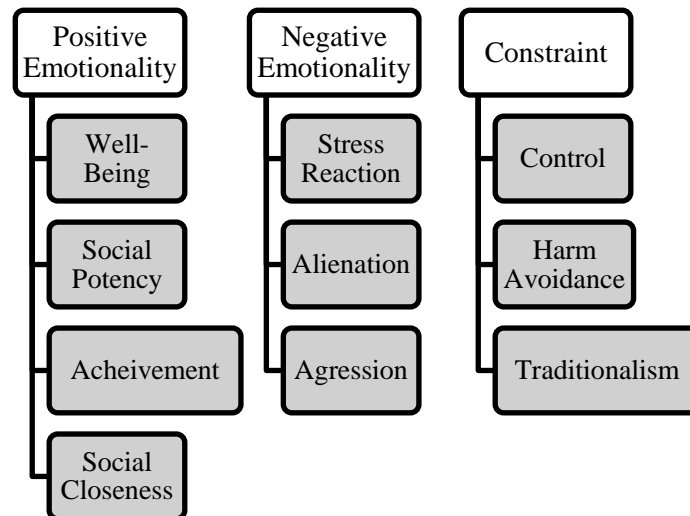
The human voice plays a crucial role in emotional expression, acting as the “barometer,” “mirror,” or “control valve” for expressing feelings.<sup>45</sup> A study conducted in 2000 by

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<sup>45</sup> Stemple, Roy, and Klaben, ‘Clinical Voice Pathology: Theory and Management’ 69.

Roy, Bless and Heisey showed the correlation between personality types and vocal disorders. Participants with reported vocal disorders were given the Tellegen's Multidimensional Personality Questionnaire, or MPQ. The MPQ consists of 300 true or false self-reference statements. The answers generate scores for three dimensions of personality.<sup>46</sup>

1. Positive Emotionality (PEM): behavior and personality characteristics conducive to joy, with a relationship to dominance, engagement, and confrontation of one's social environment.
2. Negative Emotionality (NEM): a sensitivity to negative stimuli, stressed by one's own attitude, and a predisposition to feel worry, anxiety, resentment, or victimization.
3. Constraint (CON): inhibited, restrained, cautious, plans before acting, and avoids risky or dangerous situations (a fourth superfactor of absorption was later added to the MPQ)<sup>47</sup>



**Figure 2.** The three higher-order personality dimensions of the MPQ. Adapted from Figure 1 in Roy et al, "Personality and Voice Disorders: A Multitrait-Multidisorder Analysis," 527.

<sup>46</sup> Roy, Bless, and Heisey, "Personality and Voice Disorders," 523.

<sup>47</sup> "MPQ Standard," accessed March 13, 2017, [http://www.upress.umn.edu/test-division/mpq/copy\\_of\\_mpq\\_BF-overview](http://www.upress.umn.edu/test-division/mpq/copy_of_mpq_BF-overview).

There are also ten secondary dimensions of personality (Figure 2).<sup>48</sup> Those who reported muscle tension dysphonia as their vocal disorder scored high on stress reactivity, alienation, and general unhappiness, and scored low on the PEM and well-being scales. Roy and others synthesized this information to describe a highly introverted individual with traits of inhibition, which lead to excess muscular tension. On the other side of the spectrum, individuals who reported vocal nodules as their disorder scored highly on the PEM scale, as well as stress reaction, social potency, and aggression. The vocal nodules group scored low on the CON scale. This information suggested an individual who is disinhibited and vocally aggressive. This information also reinforces the previous presented research that singers most often report vocal nodules because they are primarily extraverted.

A more recent study conducted by Dietrich and Abbott in 2008 continued the work of Roy and others by examining the laryngeal behavior of healthy speakers who identified themselves as introverted or extraverted. Fifty-four vocally healthy women between the ages of 18 and 35 were divided into introvert and extravert groups using the *Eysenck Personality Questionnaire* (EPQ). All participants completed the *Trier Social Stress Test*.<sup>49</sup> Participants were given two minutes to prepare a speech about why they should be hired as a lawyer and then five minutes to present the speech. Data was collected from

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<sup>48</sup> The CON-secondary dimension of traditionalism would most easily be related to the popular usage of conservatism. The person is described as endorsing moral values and institutions, honors their parents and is concerned with their reputation.

<sup>49</sup> Dietrich and Verdolini, "Vocal Function in Introverts," 976.

contacts at two extralaryngeal sites that indicated laryngeal elevation and depression (lowering). In addition, participants were also asked to give subjective data about the amount of perceived effort during each speech task.<sup>50</sup> Participants in the introversion group showed considerably higher infrahyoid (laryngeal elevating) muscle activity, than the control group and the extraversion group. Vocal effort was shown to significantly increase during stress, implicating the importance of stress reaction as a precursor to vocal disorders. The study concluded that vocal inhibition was a resulting factor of introverts due to their laryngeal behavior under stress. Vocal inhibition is described in the study “as the process of slowing, halting, or abrogation of ongoing behavior due to conflict monitoring, perceived threat, or novelty.”<sup>51</sup> The important elements for singers to take away from these two studies are that introverts and extraverts exhibit vulnerabilities to muscle tension dysphonia and vocal nodules resulting from personality traits of inhibition and impulse control; that vocal effort increases under psychological stress, and the reaction to that stress influences laryngeal behavior. Dietrich and Abbott’s study provides valuable information about environmental stress. Environmental stressors can be represented by a myriad of different circumstances in a person’s life, whether it be an important public performance, or a tragic life event. Environmental stress causes physical and emotional stress that provoke vocal disorders in some individuals.<sup>52</sup>

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<sup>50</sup> Ibid

<sup>51</sup> Dietrich and Verdolini, “Vocal Function in Introverts,” 984.

<sup>52</sup> Stemple, Roy, and Klaben, *Clinical Voice Pathology: Theory and Management*, 69.

According to the *Anxiety and Depression Association of America*, “stress is a response to a threat in a situation, [while] anxiety is a reaction to the stress.”<sup>53</sup> Since stress reaction, or anxiety, has been shown to affect laryngeal behavior, it is worth noting that severe performance anxiety affects between 14 and 16% of all singers.<sup>54</sup> It is also worth noting that 41% of all college students who visit counseling centers report struggling with anxiety. Common anxiety disorders include General Anxiety Disorder and Social Anxiety Disorder, which affect 6.8 million and 15 million people in the United States, respectively. These anxiety disorders manifest themselves with symptoms of muscle tension, sleeplessness, and an inability to interact with peers.<sup>55</sup> Since a voice teacher’s schedule often includes teaching non-voice majors, as well as non-performance based voice majors, it is important for them to be mindful of both general anxiety and performance-based anxiety disorders. Since it is clear that anxiety is common not only among singers, but in many college students in general, it is logical to assume that anxiety is another factor contributing to the development of vocal disorders based on an individual’s reaction to his/her stress.

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<sup>53</sup> “Stress,” Anxiety and Depression Association of America, accessed January 31, 2017, <https://www.adaa.org/understanding-anxiety/related-illnesses/stress>.

<sup>54</sup> Heather Winter Hunnicutt and A. Scott Winter, “Musical Performance Anxiety: Adapting Psychotherapy Techniques of Desensitization to the Voice Studio, Part 1,” *Journal of Singing* 67, no. 3 (Jan 2011): 331, accessed October 10, 2014, <http://search.proquest.com/docview/857287625?accountid=4485>.

<sup>55</sup> Suzanne Degges-White and Christine Borzumato-Gainey, eds., *College Student Mental Health Counseling: A Developmental Approach* (New York, NY: Springer Publishing Company, LLC, 2014), 237-242, <<http://www.myilibrary.com.ezproxy1.lib.asu.edu?ID=539579>>.

## **Anxiety Considerations**

Enrico Caruso is quoted as saying “Of course I am nervous. Each time I sing I feel there is someone waiting to destroy me, and I must fight like a bull to hold my own. The artist who boasts he is never nervous is not an artist – he is a liar and a fool.”<sup>56</sup> Musical performance anxiety can include nervousness in anticipation to, or during an event and is estimated to be present in about 80% of musicians.<sup>57</sup> Adrenaline is pumped through the body as the fight or flight response is activated under stress. The resulting change of blood-flow presents a myriad of symptoms ranging from heightened respiratory rate to heart palpitations, and butterflies in the stomach.<sup>58</sup> Three levels of anxiety can be experienced in degrees ranging from mild, to moderate and severe. Most musicians experience moderate performance anxiety under three classes of symptoms, behavioral, physical, and cognitive. The very process of learning to sing may play a role in the anxiety of singers. The subjective nature involved in training singers encourages a “plethora of contradictory theories,” which may contribute to a singer feeling anxious and uncertain about whether they are producing sound correctly or causing damage.<sup>59</sup>

Another contributing factor to performance anxiety is perfectionism.

Perfectionists regularly give in to extreme stress when they are incapable of

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<sup>56</sup> Quoted in Punt, “The Singer's and Actor's Throat: The Vocal Mechanism of the Professional Voice User and Its Care in Health and Disease,” 4.

<sup>57</sup> Hunnicutt and Winter, “Musical Performance Anxiety: Part 1,” 331.

<sup>58</sup> Ibid

<sup>59</sup> Kemp, *The Musical Temperament*, 174.

accomplishing the overabundance of unachievable goals they have set for themselves.<sup>60</sup> Given the information obtained from the previous studies, it is logical to conclude that primarily introverted individuals who experience performance anxiety will experience elevated laryngeal behavior that would further inhibit proper vocal function. This condition would inevitably lead to greater anxiety as the singer struggles to correct vocal dysfunctions that have arisen from stress. The stress-cycle may contribute to an introverted singer's developing chronic muscle tension dysphonia, which would require the voice therapies previously discussed. Primarily extraverted individuals, on the other side of the spectrum, would experience greater vocal effort as a result of performance anxiety. Their lack of impulse control might lead them to increase breath pressure in order to combat the perceived increase in effort. The result of the increased pressure would lead to higher vocal fold impact rates, and may contribute to the extraverted singer developing a vocal nodule.

The common thread throughout the development and treatment of vocal disorders seems to be the management of anxiety. It is therefore important for teachers of singing to be aware of their students' individual range of anxiety levels, and to incorporate appropriate stress-management techniques in their studios, or recommend their students see a medical professional. Techniques that can be used in the studio include relaxation therapy, breath training, and mindfulness practices such as meditation and yoga for stress reduction. The goal of relaxation therapy is to stop the anxiety cycle by "decreasing the

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<sup>60</sup> Heather Winter Hunnicutt and A. Scott Winter, "Musical Performance Anxiety: Adapting Psychotherapy Techniques of Cognitive Restructuring to the Voice Studio, Part 2," *Journal of Singing* 67, no. 4 (March 2011): 446-47, accessed October 10, 2014, <http://search.proquest.com/docview/863389681?accountid=4485>.



intensity of the physiological reaction.”<sup>61</sup> Progressive relaxation is achieved by systematically tensing and relaxing various muscle groups throughout the body. The process diverts an individual’s attention from their anxious thoughts and toward something physical, which in turn allows a period of reprieve from their worries. Once this state is achieved, the individual can move on to the next stage, differential relaxation. This involves isolating muscle groups in an attempt to reduce widespread tension. An example of this would be attempting to bend the arm at the elbow without involving the muscles of the shoulders, back, and chest. This is particularly useful in studio instruction, as the focus of many lessons involves trying to establish the appropriate tension in the support muscles while keeping posture muscles relatively relaxed.

Breath training is a technique already utilized by teachers of singing and is also included in Resonant Voice Therapy, which simply involves training in maintaining slow, relaxed, and low breaths. Mindful-Based Stress Reduction utilizes formal and informal meditation, as well as yoga practice, to draw a person’s focus into the present. One of the formal methods of this practice involves finding stillness.<sup>62</sup> This is accomplished by sitting while quieting the mind and remaining as still as possible. Finding stillness emphasizes letting go of control and allowing the thoughts to come and go as they please. This method of relaxation would be particularly useful to students that exhibit traits of perfectionism, because it would give them practice at relinquishing control.

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<sup>61</sup> Degges-White and Borzumato-Gainey, eds., *College Student Mental Health Counseling*, 247-248.

<sup>62</sup> White and Gainey, “College Student Mental Health Counseling: A Developmental Approach,” 249.

A student who understands the effects anxiety can have on the voice, and practices anxiety-management techniques, will inevitably feel more at ease with the variables that may arise during practice and performance. A quote from an article by Kwak and others synthesizes this idea: “the question that arises may not be whether instruction in vocal anatomy and physiology produces [a] better voice... but whether instruction helps produce more informed, empowered, and confident singers.”<sup>63</sup> Knowledge about psychology and physiology may produce more confident singers, but it may not be enough if a disorder were to develop, as the following research suggests.

### **Communication with Medical Professionals**

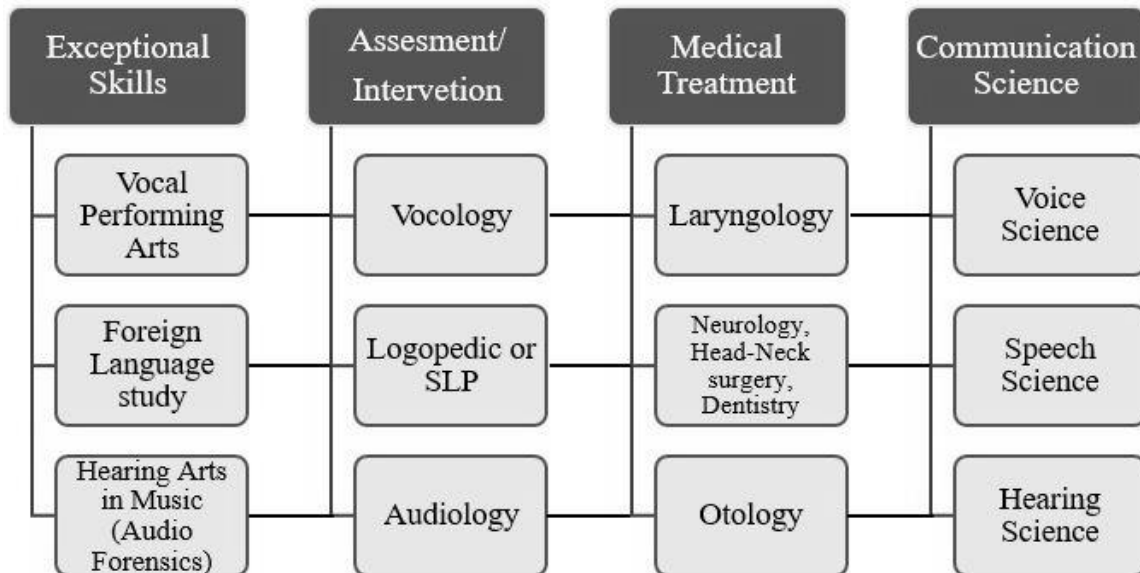
A 2009 study by Braun-Janzen and Zeine reported on the general knowledge levels of singers of varying degrees of experience. One-hundred twenty-nine students ranging from undergraduate to doctoral/young artist were given an eighty-point questionnaire evaluating their experience with otolaryngologists, vocal pathology, and speech therapists. The questions were formulated to gauge the participants’ medical knowledge in vocal anatomy, vocal care, and their anxiety levels regarding medical care and vocal habits. The results of the study showed that the difference in level of knowledge between undergraduate and graduate students were not statistically significant. Anxiety was also shown to be higher in graduate students as they perceived they had more to lose. All participants expressed an interest in expanding their knowledge in areas of anatomy and speech pathology.<sup>64</sup> Another important detail the study brought to light was that

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<sup>63</sup> Paul E. Kwak et al., “Knowledge, Experience, and Anxieties of Young Classical Singers in Training,” *Journal of Voice* 28, no. 2 (March 2014): 195, accessed April 14, 2017, <http://doi.org.ezproxy1.lib.asu.edu/10.1016/j.jvoice.2013.08.006>.

<sup>64</sup> Braun-Janzen and Zeine, “Singers' Interest and Knowledge,” 470-77.

classically trained singers are twice as likely as non-singers to seek guidance about a vocal issue from their voice teacher before consulting appropriate medical advice. This “illustrates the critical role that singing teachers play in the collaborative management of voice disorders.” Below is a figure that illustrates the relationship between professional disciplines and the voice (Figure 3).<sup>65</sup>



**Figure 3** Professional disciplines and their relation to voice. Adapted from figure 1.1 in Titze and Abbott, *Vocology: The Science and Practice of Voice Habilitation*, 13.

Following the information in (figure 3), a vocal performing artist seeks a vocologist to assess vocal issues and a laryngologist if medical treatment is required. Since vocology is still an emerging field, a singer can also seek a Speech Language Pathologist (SLP) for assessment and treatment.<sup>66</sup>

<sup>65</sup> Ingo R. Titze and Katherine Verdolini Abbott, *Vocology: The Science and Practice of Voice Habilitation* (Salt Lake City, Utah: National Center for Voice and Speech, 2012), 13.

<sup>66</sup>Ibid; Vocology dates to 1989, and is defined as the study of vocalization. In the academic community, Vocology parallels audiology and is gradually being recognized as the third branch of communication science (the other two being speech and hearing sciences).

Wares's earlier statement about the voice as a complete instrument was published in 2001. In 2006, the American Speech-Language-Hearing Association (ASHA), the National Association of Teachers of Singing (NATS) and the Speech Trainers Association (VASTA) made recommendations for a broader interdisciplinary training for SLPs, teachers of singing, and voice and speech trainers. The organizations came to a common understanding that SLPs who work with singers and actors need to expand their studies to include courses in voice pedagogy and performance. Teachers of singing were urged to enhance their studies with anatomy and physiology, behavioral management of voice problems, development of the speaking voice, and the singing teacher's role in working with SLPs and physicians in the medical management of voice disorders.<sup>67</sup> The following story of a struggling soprano illustrates the importance of this recommended interdisciplinary coursework.

In 2012, Racheal Gates shared her journey of becoming a singing voice specialist in an issue of the *Journal of Singing*. Gates, a master's degree student in voice at the Cincinnati College-Conservatory of Music, was put on a well-known skin medication. Knowing that certain medications can affect the voice, she asked her doctor if there would be any side effects that would affect her singing. Her doctor assured her that the medication would not influence her voice. Shortly afterwards, she noticed increased vocal effort, particularly with her upper range. Her voice teacher at the time said the resulting change of her voice was most likely due to stress-related tension. It was not

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<sup>67</sup> ASHA/NATS/VASTA: "The Role of the Speech-Language Pathologist, the Teacher of Singing, and the Speaking Voice Trainer in Voice Habilitation," *Journal of Singing* 62, no. 3 (January 2006): 249-50, accessed November 18, 2014, <http://search.proquest.com/docview/1403481?accountid=4485..>

until she worked with Arick Forrest, MD, a laryngologist with years of experience working with professional singers, that her vocal issues were addressed. The medication was, in fact, responsible for her vocal difficulties. Her experience showed a distinct misunderstanding among professionals that subtle changes in a singer's care can greatly affect their voice. The lack of knowledge in the care of the professional voice motivated her to create a unique program of study during her doctoral work at the Ohio State University. In addition to her performance related coursework, Gates spent ten hours a week in clinical and surgical observation; she shadowed ENTs, wrote patient histories, and even observed dissections and anatomy lectures with the College of Dentistry. Her unique interests in a multifaceted approach to vocal anatomy lead to the creation of a permanent singing voice specialist certificate program at OSU and the publication of her own vocal pedagogy book entitled *The Owner's Manual to the Voice: A Guide for Singers and Other Professional Voice Users*.<sup>68</sup>

The interest and job market for pedagogy is strong, yet among the fifty or so universities offering graduate degrees in music, only ten currently have doctoral programs in Vocal Pedagogy.<sup>69</sup> With over 500 DMA voice students in the US, the market for an increased number of interdisciplinary voice degrees is likely to occur. Those students who are currently matriculating in DMA degrees across the country who

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<sup>68</sup> Rachael Gates, "Bridging the Gap: An On-Campus Initiative for Professional Voice Users and Speech-Language Pathology Students," *Journal of Singing* 68, no. 3 (January 2012): 261-64, accessed October 6, 2014, <http://search.proquest.com/docview/923231917?accountid=4485..>

<sup>69</sup> David Meyer and Matthew Edwards, "The Future of Collegiate Voice Pedagogy: Swot Analysis of Current Practice and Implications for the Next Generation," *Journal of Singing* 70, no. 4 (March 2014): 437-42, accessed November 10, 2014, <http://search.proquest.com/docview/1519861184?accountid=4485..>

do not have access to specialized course offerings, have a personal responsibility to fill the gap in education. Rachael Gates's story shows each upcoming teacher that it is possible to gain a wide variety of skills just by exercising personal responsibility in research.

## **Conclusion**

Amanda Brunk stated that “all voice teachers have a responsibility to their students to be well acquainted with up-to-date pedagogic theories and practices.”<sup>70</sup> This includes knowledge in speech pathology, communication with medical professionals, and familiarity with available research on factors of personality and anxiety management as well. The goal of this multifaceted approach to teaching is to address the root cause of a vocal issue, rather than the symptoms. The therapy techniques discussed in this paper are beneficial in treating the symptoms of vocal pathologies but are only supplementary when considering the underlying causes. Teachers of singing should include personality questionnaires within new student history paperwork to identify whether certain personality traits factor into a student's vocal behavior. These traits are psychological in nature and require a voice teacher to refer the student to an appropriate psychotherapist. Julie Nagel writes “both teachers and therapists need to recognize the importance of their limits and boundaries... A therapist (even a musically trained one) should no more try to teach music to a patient in a session than a psychologically sensitive teacher should

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<sup>70</sup> Brunk, “The Private Studio,” 615

engage in therapy with a pupil in a lesson.”<sup>71</sup> She goes on to recommend that psychological and medical referral networks be integrated into voice programs.

### **Suggested Research**

The correlation has been established that personality effects vocal habits in speakers, but further research is needed to address an evolving definition of personality that includes influences of biology and one’s environment. After surveying these studies, it is evident that limitations arise when participants are separated into extraversion/introversion groups. While this may be easier for data collection, no one exhibits introverted or extraverted behaviors all the time. A singer may identify as primarily introverted but is often required to exhibit extraverted traits when performing, networking or when teaching students. This suggests that the focus of further research needs to be placed on behavior, rather than on the distinction between one personality dimension or another. It would be beneficial for the studies conducted by Roy and Dietrich to be replicated with singing participants and specifically address the terminology limitations and redirect the focus to behavior. To establish possible differences between skill levels, a variety of undergraduate, graduate, and professional opera singers would need to participate. Once a correlation of certain personality-driven behaviors and vocal pathology is established in singing participants, it would be pertinent to explore voice therapy and psychotherapy techniques and determine their efficacy. Additionally, it would be helpful to explore

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<sup>71</sup> Julie Jafee Nagel, “How to Destroy Creativity in Music Students: The Need for Emotional and Psychological Support Services in Music Schools,” *Medical Problems of Performing Artists* 24, no. 1 (2009): 15-17, accessed February 14, 2017, <http://login.ezproxy1.lib.asu.edu/login?url=http://search.proquest.com.ezproxy1.lib.asu.edu/docview/1404823?accountid=4485>.

possible correlations between a singer's personality, their intended career path, and their satisfaction with life. This may prove useful in guiding voice students to the most suitable academic major based on their personality, rather than their talents. This future research, combined with related information in education, would culminate into a new voice teaching method centered around a student's personality.



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## BIOGRAPHICAL SKETCH

Paul Josef Curtis or Josef, as he is commonly known by friends and colleagues, is from northern Utah. He earned his Bachelor of Music degree in Vocal Performance at Brigham Young University and his Master of Music degree in Vocal Performance at Arizona State University. As a Doctoral student at Arizona State, Josef studied with Gordon Hawkins and served as a teaching assistant to the voice faculty from 2013 to 2015. He completed his degree in May 2017. As a tenor, Josef has enjoyed performing with the Grammy-winning Phoenix Chorale, and the early music ensembles Solis Camerata and Helios. He has also performed with True Concord Voices and Orchestra, the Phoenix Symphony, Arizona Musicfest, and the Tempe Wind Ensemble. Josef is an enthusiastic teacher, and currently teaches music history courses and voice lessons at Central Arizona College. His interest in the presented research began in 2013, when he discovered and sought treatment for a vocal issue that was affecting his upper register. Josef participated in vocal therapy sessions with Kristina Kang, CCC-SLP. Part of that therapy sought to address the psychological factors that were contributing to his vocal inhibitions. Josef wondered why, with all the vocal pedagogy research available, psychological factors had not been brought to light during his academic career. Since his own vocal issues were inhibitive, Josef focused his research on the behavior of inhibition, which lead him to the personality dimension of introversion and the personality related studies conducted by Roy and Dietrich.