

AN ANALYSIS OF EMMA DIRUF SEILER'S TEACHING PHILOSOPHY AND
CONTRIBUTION TO VOICE PEDAGOGY

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Emma Diruf Seiler (1821–1886) was a Bavarian-American voice teacher and scientist who wrote and published *Altes und Neues über die Ausbildung des Gesangorganes mit besonderer Rücksicht auf die Frauenstimme* (Old and New in the Art of Singing, with Special Attention to the Female Voice) in 1861 while working in Leipzig. It was translated by William Henry Furness and published in Philadelphia as *The Voice in Singing* in 1868. This pedagogue and her writings are largely unknown to those who study historic bel canto pedagogy. In the opening of Seiler's pamphlet, she explained her purpose for writing was "to bring into harmony things which have always been treated separately, the Science and the Art of Singing..." Aside from brief comments in a few books on vocal pedagogy, Emma Seiler is largely unknown. Neither her contribution to voice science and pedagogy, nor the impact of her integrated philosophy on teaching have been subjected to scholarly scrutiny. The purpose of this document is to explore her philosophy on teaching, her method of female vocal instruction, and her impact on voice instruction. This dissertation historicizes evidence-based pedagogy through Seiler's example.

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CHAPTER 1

INTRODUCTION

Emma Diruf Seiler (1821-1886) was a Bavarian-American voice teacher and scientist who wrote and published *Altes und Neues über die Ausbildung des Gesangorganes mit besonderer Rücksicht auf die Frauenstimme* (Old and New in the Art of Singing—With Special Attention to the Female Voice) in 1861 while working in Leipzig. It was translated by William Henry Furness and published in Philadelphia as *The Voice in Singing* in 1868. This pedagogue and her writings are largely unknown to those who study historic *bel canto* pedagogy. In the opening of Seiler’s pamphlet, she explained her purpose for writing was “to bring into harmony things which have always been treated separately, the Science and the Art of Singing...”¹ She stated her realization that the traditional method of teaching *bel canto* singing by anecdote and experience was not wholly safe, effective, or cohesive. Seiler elucidated that through anatomical, physical, and acoustical study, she was fully capable of guiding the training of a voice in a practical manner, without risk of injury.

This pedagogical pronouncement may very well be the first of its kind, but it is hardly the last.² Julius Stockhausen (1826-1906) admitted influence by Seiler’s book and quoted her in concluding his *Gesangs Methode* (1884). He quotes,

Our time is a period of transition. Teachers of singing will, alas! continue to quarrel with each other, instead of unitedly striving after certainty and clearness of method, until accurate knowledge takes the place of the present conjectures about the function of the vocal organs, and the way of training a voice. This knowledge will, it is to be hoped, lead us back some day to the simplest and most natural kind of teaching, which consists in the professor being able to awaken in his pupil a love for beauty of tone, and to indicate the

¹ Emma Seiler, *The Voice in Singing*, translated by William Henry Furness (Philadelphia: J. P. Lippencott and Co., 1868), 6.

² Manuel Garcia II was an advocate of teachers and students being thoroughly familiar with the vocal anatomy. No doubt influenced by Garcia’s anatomical expertise, Emma Seiler additionally applies the science of physics and acoustics to her teaching method.

best way of acquiring it. The influence which this might exert on the art of music as a whole is incalculable; for music has always found its chief resource in song, and this is what has preserved instrumental music from degenerating into empty jingle and meaningless noise.³

In her book *Bel Canto: A Theoretical & Practical Vocal Method* (1881), Mathilda Marchesi wrote,

After many years of successful experience, I am convinced that scientific knowledge is indispensable to professors of singing because it enables them to treat the vocal instrument in a natural and rational manner and with greater certainty... If we do not teach the elements of the anatomy and physiology of the human voice, we needlessly deprive the pupil of the means of becoming acquainted with the physical phenomena of the vocal organs...Every art consists of a technical, mechanical part and an aesthetical part...A singer who cannot overcome the difficulties of the first part can never attain perfection in the second, not even a genius.⁴

The existence of any direct connection between Seiler and Marchesi is unknown, but they were certainly of like mind. Seiler's philosophy on the instruction of voice was accepted by many and echoed within their own writings on the subject.

Aside from brief comments in a few books on vocal pedagogy, Emma Seiler is largely unknown. Neither her contribution to voice science and pedagogy, nor the impact of her integrated philosophy on teaching have been subjected to scholarly scrutiny. The purpose of this document is to explore her philosophy on teaching, her method of female vocal instruction, and her impact on voice instruction. This dissertation will historicize evidence-based pedagogy through Seiler's example.⁵ Seiler employed scientific experimentation and publication to grant an empirical evidence-based approach to the wider public; an integration of science and art that was praised in

³ Julius Stockhausen, *A Method of Singing*, translated by Sophie Löwe (London: Novello and Company, Limited., 1884), 135.

⁴ Mathilde Marchesi, *Bel Canto: A Theoretical & Practical Vocal Method*, (New York: Dover Publications, 1970), xiv-xviii.

⁵ Kari Ragan, "Defining Evidence-Based Voice Pedagogy: In Defense of Scientific Understanding," *Journal of Singing* 75, no.2 (2018): 158. Evidence-Based Voice Pedagogy is defined as the integration of voice teacher expertise and experience, student goals and perspectives, and relevant research into voice science and production to effectively evaluate and identify technical inefficiencies to guide students toward vocally healthy and efficient, stylistically accurate, and artistic performances.

Europe and America, and led to her reputation as a skillful teacher with a thorough understanding of the voice.

While hailed in Europe and the United States for this treatise, the prescience and evidence of Seiler's integrated approach have not yet been fully explored. In this project, I will outline Seiler's account of anatomical and pedagogical considerations of the voice and situate them among contemporary voice science to consider how her work has persisted over time and what we might learn from it today.

Early Years

Emma Seiler (1821-1886) grew up in a privileged position in society. Her father, Dr. Jakob Diruf, won favor with King Ludwig I of Bavaria and was named Kreismedicinalrath (surgeon-general) soon after arriving in Würzburg.⁶ Seiler was close to the children of the royal family, playing with them often, and maintained a close relationship with the princesses of Bavaria into adulthood. As a child, Seiler sang “with great success not only in her father's house, but also in charity concerts.”⁷ Her mother, Julia Stromeier Diruf, was a cultured woman and excelled in all matters of society.⁸ Although never formally introduced into society, Seiler was cherished by those who came into contact with her as a child and later in life.⁹

When Emma was about eighteen, she visited her sister in Bern, where she met Dr. Jakob Seiler. She was not particularly impressed by him, but was persuaded by her brother-in-law to

⁶ Scull, *The Life of my Mother, Emma Seiler*, (Boston: privately printed, 1902), 4. Her father's station would later provide prestigious medical positions for her brothers Gustav and Oskar, the latter of which she was particularly close.

⁷ Scull, *Life of my Mother*, 43.

⁸ Scull, *Life of my Mother*, 10. These activities included presenting Emma's two eldest sisters into society in Munich, hosting the pianist Ignaz Moscheles while on tour, and joining the Crowned Prince for private audiences.

⁹ Scull, *Life of my Mother*, 14. She was known as “the rose of Würzburg.” Marie recounts that she was known as “a great bell” with a clear and healthy complexion, long blonde hair and a rich soprano voice. She was known to be altruistic, self-less, modest, and very cheerful.

think Seiler was an advantageous match, and they married in 1842. Though considered a man of significant means, Dr. Seiler was a fickle and neglectful man. Eventually, he was forced to flee to America, leaving her to settle his debts.¹⁰ Seiler had no choice but to sell everything of value and request her inheritance early to do so. Using the small amount of remaining money and so-called “pin money” she received annually from the princesses of Bavaria, Seiler began making plans to cultivate her voice.¹¹ Since childhood, she had possessed a naturally beautiful voice and believed that becoming a voice teacher would allow her to provide for her family. This path would eventually lead to her work and contribution in voice science.



Figure 1: Sketch of Emma Seiler at age nineteen.¹²

Dresden

To begin this new career path, the Seiler family traveled to Dresden with her two children, Anna Jetha Hedwig “Marie” Seiler Scull (1844-1923) and Carl Seiler (1849-1905). There Seiler

¹⁰ Scull, *Life of My Mother*, 40.

¹¹ Marie wrote, “she still had a very fine voice; as a young girl she had often sung with great success not only in her father’s house, but also in charity concerts, and in her present situation it was only natural that she should think of her musical accomplishments as a means of supporting herself and her children.” Scull, *Life of My Mother*, 43.

¹² This image occupies the inside cover of Marie Seiler Scull’s *The Life of My Mother, Emma Seiler*. Though the book was printed in 1902, the image would likely date from 1840, if it was in fact created at the time of the implied age. *The Life of My Mother, Emma Seiler* is the most comprehensive biographical source on Emma Seiler. Marie was very close to her mother and lived with her until she was twenty-seven. Her account seems fairly accurate and consists of many anecdotes and details that assist in making connections with Seiler’s life and social circle. There are however, some superfluous details and some minor misspellings of names.

studied voice with Ferdinand Böhme (1815-1883) and piano with Clara Schumann's father, Friedrich Wieck (1785-1873); focusing on her piano skills after sustaining a severe vocal injury.¹³ While in Dresden she enjoyed the company of Franz Liszt, Hector Berlioz, Richard Wagner, Hans Guido von Bülow, and Carl Gutzkorn among others.¹⁴ During this time, Dr. Jakob Seiler returned from America. He was initially ready to grant a divorce in exchange for their children, but this was unacceptable to Seiler. After her refusal, he rescinded his offer of divorce and threatened to take the children from her.¹⁵ Seiler was forced to engage lawyers and her husband's family for support in this matter; she also hid the children during this time for their safety and security. This was a very difficult time in Seiler's personal life.

Heidelberg

The Seiler family moved to Heidelberg in 1856.¹⁶ While there, the family became acquainted with Hermann Helmholtz. Seiler began to assist him with the musical side of his research and through this work and his encouragement, she immersed herself in the necessary sciences of physics, physiology and acoustics.¹⁷ These sciences would captivate her for life.

¹³ Scull, *Life of My Mother*, 44–45; Kathy Price, "Emma Seiler: A Pioneering Woman in the Art and Science of Teaching Voice," *Journal of Singing* 68, no.1 (2011): 11. Seiler lost her voice while studying under Professor Böhme and therefore committed herself to piano study instead. A part of this disappointment was that voice lessons paid better than piano lessons.

¹⁴ Seiler, *Voice in Singing*, 7. Seiler mentions observing Jenny Lind as often as possible. She was a famous student of Manuel Garcia II and known as the "Swedish Nightingale;" Coffin, *Historical Pedagogy Classics*, 50. Coffin mentions that Seiler and Garcia would have been in Dresden at the same time. He exclaims "How strange that she did not go to Garcia for study!"

¹⁵ Scull, *Life of My Mother*, 54–59.

¹⁶ Scull, *Life of My Mother*, 60–69. Seiler fled to Ohlau with her children to escape the threat of her husband taking the children away from her. The family was only able to make this journey with large amounts of money given from both of her brothers. After a year's time, they moved to Heidelberg.

¹⁷ Scull, *Life of My Mother*, 39. Seiler possessed an incredible ability to educate herself in an array of skills and trades. Not only did she see to her general education as a child, but she taught herself how to run a farm, overseeing laborers and the household budget. Additionally, she studied pharmacy in order to provide that essential service for her community. Her abilities extended to opening her house to women who suffered from nervous prostration or mental exhaustion and caring for them.

Working closely with Helmholtz between 1859 and 1861, Seiler contributed to his research on vowel quality and timbre. Benjamin Steege explains the nature of their research and experiments together:

The two performed a number of observations on the voice: singing loudly into an open grand piano with dampers released in order to see how violently the variously sympathetically vibrating strings would knock off paper riders rested upon them, thereby ascertaining the relative intensities of upper partials in a vowel sound when sung; holding agitated tuning forks in front of the mouth while changing the shape of the oral cavity in order to determine the proper tones of the various vowels; and listening attentively to sustained vocal tones with spherical resonators tuned to the tones' various upper partials.¹⁸

During this time, Seiler shared her findings from self-examination using the laryngoscope, an act known as autolaryngoscopy, and allowed Helmholtz to view her vocal cords. The more traditional manner of examination consisted of two individuals; see figure 2 below. Using Helmholtz's spherical resonators, Seiler was also able to explain the appropriate or desired tones of vowels in both male and female voices. She trained herself to hold a refined aural discernment with these tools.¹⁹ Later, she would explain these relationships in *The Voice in Singing*.²⁰

It was also during this time that Helmholtz was writing his *Sensation in Sound* and according to the American Philosophical Society's biographical publication, Helmholtz and Seiler worked increasingly more with one another. Helmholtz so valued Seiler's perspective and expertise that he "went almost daily for advice, and for verification of his calculations by her own experiments."²¹

¹⁸ Steege, *Helmholtz and the Modern Listener*, (New York: Cambridge University Press, 2012), 186.

¹⁹ Steege, *Helmholtz and the Modern Listener*, 189–190; Charlotte Mulligan, "Biographical Sketch of Emma Seiler," *Proceedings of the American Philosophical Society* 29, no.1 (1891): 158. DOI 129.120.85.2. Mulligan wrote that Seiler "studied the inflections in the cries in birds and beasts until they became a perfect language to her." Seiler was interested in the formation of all sounds during her life.

²⁰ Seiler, *Voice in Singing*, 56–57.

²¹ Flemming, Harford, *A Sketch of The Life of Madam Seiler*, (Philadelphia: WM.H. Hoskins Co., no date,) 15.

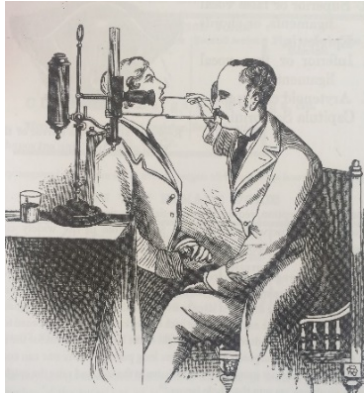


Figure 2: The traditional laryngoscopic practice, which involves two people. ²²

Marie expresses triumph that her mother was “at last on the road she had so long sought...to learn more than was then known about the human voice.” Through teaching piano, Seiler came to know Carl Morée, a student of medicine, and though lacking musical talent, he possessed connections to supply her a larynx for dissection. Owing to popular prejudice and to her friends’ horror at such pursuits, this could only be done in secret and at night. Seiler wanted more; she desired to explore female larynges.²³ Whether she asked or bribed Morée, as Maria feared, this activity for a woman in the 1850’s would have garnered disapproval.²⁴ She used this relationship to explore something in which she would not have otherwise had access.

Leipzig

Seiler exhausted herself in the summer of 1859, and required a substantial break.²⁵ During

²² Steege, *Helmholtz and the Modern Listener*, 187.

²³ Susan Lesley, “Biographical Sketch of Madame Seiler,” *Proceedings of the American Philosophical Society* 29, no.1 (1891): 154. DOI 129.120.85.2; Price, “Emma Seiler: A Pioneering Woman,” 10; Scull, *Life of My Mother, Emma Seiler*, 75–76.

²⁴ Anon., “The Review of Reviews,” *British Periodicals* (1893): 402. In a section titled “UNWOMANLY” PURSUITS, it is written: Madame Seiler was, therefore, the pioneer in a field which many others have since explored. She was bent upon studying the dissected larynx, and through a medical student in Heidelberg she procured a throat, which they dissected and studied together.

²⁵ Scull, *Life of My Mother*, 78–85. In addition to her grueling studies and work, Seiler’s eldest brother and sister-in-law died suddenly, her father passed away, her beloved little brother married a woman that despised Emma, and her legal separation was finally granted.

this time, the aid of her family and friends assisted in the maintenance of her social standing. In fact, Emma received an annual sum from her beloved brother for several years.²⁶ The family moved to Leipzig, where they met Heinrich Schleinitz. Through Scheinitz, the director of the Leipzig Conservatory, they attended current student performances and became associated with high Leipzig society. (See figure 3.) They were acquainted with “all the great musicians in Leipzig.” During this stay in Leipzig, Seiler experimented more with autolaryngoscopy. Marie was a willing subject for her mother as well. Professors Heinrich Weber and Friedrich Merkel were often a part of these observations, for they were very interested in Seiler’s work.²⁷ In 1861, *Altes und Neues über die Ausbildung des Gesangorganes mit besonderer Rücksicht auf die Frauenstimme* was published to much acclaim.



Figure 3: The Salon der Frau von Schleinitz. ²⁸

Berlin

In 1862, the family moved to Berlin where a voice instructor-position had opened. Through an introduction from Professor Helmholtz, Seiler became acquainted with Emil du Bois-Reymond,

²⁶ Scull, *Life of My Mother*, 76. Starting around 1855, this amount ceased after his marriage to Marie Girl due to her jealousy of Emma.

²⁷ Scull, *Life of My Mother* 85–96.

²⁸ “Hermann L. F. von Helmholtz,” accessed December 1, 2018, <http://www.unav.es/gep/Helmholtz.html>. This sketch depicts the Schleintz’s salon. Also pictured is Dr. Helmholtz and his wife. Seiler is not depicted here, but from Marie’s account, this was the society which Seiler was regularly a part of. Director Schleinitz encouraged Seiler to take up a voice teaching position at the Conservatory in Leipzig.

“who was a friend to her as long as she lived.”²⁹ In Berlin, the family partook of the many music venues and maintained a respected social circle.³⁰ While Seiler did not study or work with du Bois-Reymond the way she did Helmholtz, she was well-respected by him. He provided a letter recommending her to American society, saying:

Mad. E Seiler has made for herself an honorable name in Germany, not only as a practical teacher of singing, but also by her valuable investigations in regard to the culture of the musical voice. By her own anatomical studies she has acquired a thorough knowledge of the vocal organs, and by means of the laryngoscope has advanced, in the way first trodden by Garcia, to the establishment of the conditions of the formation of the voice. We owe to her a more exact knowledge of the position of the larynx, and of its parts in the production of the several registers of the human voice; and she appears especially to have brought to a final and satisfactory decision the much vexed question respecting the formation of the so-called *fistel tones* (head tones). She has been associated with the best powers possessed by Germany in the department of theory of music and physiological acoustics, standing by the side of the celebrated physiologist, Helmholtz, while he was engaged in his physiologico-acoustic work upon the generation of the vowels and the nature of harmony.³¹

War broke out in 1864, and shortly after, Seiler procured letters of introduction from Professors Helmholtz and du Bois-Reymond and prepared to travel to America with Marie. Carl was to stay and study for university exams.

Philadelphia

Emma and Marie traveled from Saßnitz, Germany to New York City, arriving on September 11, 1866. Shortly afterwards, they traveled to Philadelphia.³² At the time of their arrival, neither mother or daughter spoke much English. Through the letters of introduction, Emma and Marie were associated with several socially elite families in Philadelphia. The letters not only

²⁹ Scull, *Life of my Mother*, 98.

³⁰ Scull, *Life of My Mother*, 97–98.

³¹ Seiler, *Voice in Singing*, 5. Du Bois-Reymond wrote two letters of introduction for Seiler, one in German, and another in English which was meant to introduce her to the Philosophical Society of Philadelphia. It is now known as the American Philosophical Society.

³² Scull, *Life of My Mother*, 110.

introduced Seiler to society, they gave her credibility for her scientific and musical abilities. Professor du Bois-Reymond also introduced Seiler to the Philosophical Society of Philadelphia. They depended on the German society already present in Philadelphia and their recommendations to assist in getting settled, and within one week of residing in the US, Seiler had her first piano students, with others following suit.³³ They took respite of the city the following summer and vacationed in Elizabethtown, where Seiler worked every morning to compile her writings on the voice. She was determined to have it published the following fall.³⁴ (See figure 4.)

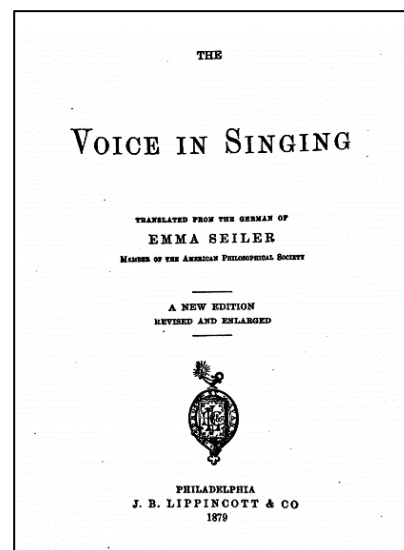
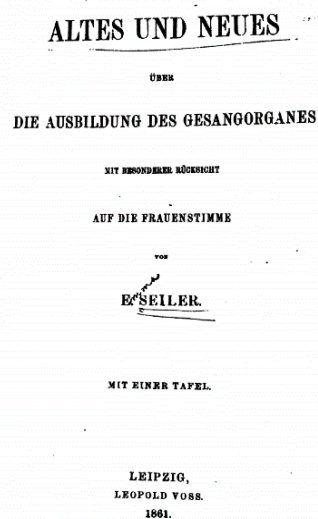


Figure 4: Original title covers of *Altes und Neues über die Ausbildung des Gesangorganes* and *The Voice in Singing*, translated by Dr. William Henry Furness.

Upon returning back to Philadelphia, Seiler and her daughter procured a small home for themselves; Seiler immediately set about the process of publishing her book. She sought advice from Rev. William Furness, a respected German scholar, regarding publishing. While his intention was to seek a translator for her work, two weeks passed before Rev. Furness called on Seiler to

³³ Scull, *Life of My Mother*, 102, 113–117.

³⁴ Scull, *Life of My Mother*, 119–120. The Industrial Revolution had a great impact on the city of Philadelphia during the latter nineteenth century. The pollution was stifling and the population was rapidly growing. Seeking a reprieve from these elements, it was common for people of society to leave the city for a holiday or the summer season.

state that he translated the work himself and that Lippincott & Co., would publish it at once.³⁵ Seiler's *Altes und Neues über die Ausbildung des Gesangorganes mit besonderer Rücksicht auf die Frauenstimme* was published as *The Voice In Singing* in 1868.³⁶ This publication brought great attention to Seiler "among the men of science," as Marie writes, and Emma was in great demand by students and teachers of singing. Later that fall, Emma Seiler became the third woman inducted into the Philosophical Society of Philadelphia.³⁷ The following year, Seiler was compiling exercises for the female voice and planned to publish this with Oliver Ditson (1811-1888), the founder of Oliver Ditson and Co., a major publishing house in the nineteenth century.³⁸ Additionally, he asked her to travel to Boston to teach, which she obliged to do.³⁹



Figure 5: *Exercises for Training the Voice and Rossini Vocalises.*⁴⁰

³⁵ Scull, *Life of My Mother*, 120–121.

³⁶ Price, "Emma Seiler: A Pioneering Woman," 11.

³⁷ Scull, *Life of My Mother*, 121. The American Philosophical Society was founded by Benjamin Franklin in 1743.

³⁸ "Oliver Ditson Society," accessed January 10, 2019, <https://necmusic.edu/archives/oliver-ditson>.

³⁹ Scull, *Life of My Mother*, 122.

⁴⁰ Seiler's exercises were published in Boston and prompted her teaching residence there. As of now, no resources have been uncovered to explain the compilation of the *Rossini Vocalises* or Seiler's role in publishing them. The *Rossini Vocalises* were published with Louis Meyer in Philadelphia.

Later Years

Seiler's *The Voice in Speaking* was published in the fall of 1875, again by Lippincott & Co. It was translated by Rev. Furness, and Dr. Carl Seiler, Emma's son, provided a scientific appendix. In 1873, Seiler established a small music school where she taught piano and voice lessons, lectured on music history, and produced concerts and operas from the music room in her home.⁴¹ In 1886, Seiler contracted spinal meningitis after traveling to care for Marie, who was sick with typhoid fever. Seiler passed away a few weeks later.⁴²

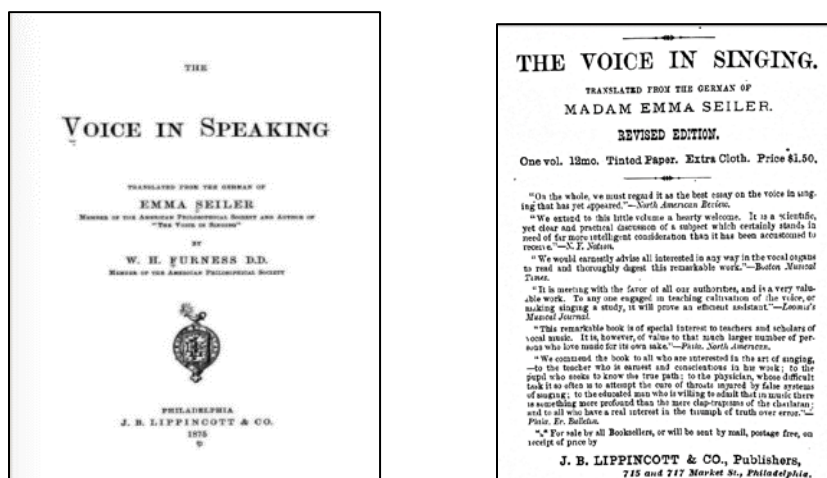


Figure 6: *The Voice in Speaking* and its inside cover.⁴³ For full text, see Appendix B.

In 1891, a collection of Seiler's students and friends presented a marble relief-portrait of her to the American Philosophical Society at Philadelphia. Her laryngoscope was also presented as a gift on behalf of her son, Dr. Carl Seiler. It was believed to be the first laryngoscope used in America. At that time, Seiler was one of six women inducted into the American Philosophical Society a "distinction she owed to her earnest and exhaustive study of acoustics and vocal

⁴¹ Scull, *Life of My Mother*, 125–126.

⁴² Scull, *Life of My Mother*, 127–128. Emma was not allowed to see Marie on this visit, a fact that Marie did not learn about until a few years later. Once well enough, Maire read a letter from her mother, who mentioned having a cold; it would be the last conscious act of Seiler's life.

⁴³ Seiler, *Emma, The Voice in Speaking*, (Philadelphia: J. P. Lippincott and Co., 1875,) inside cover page.

physiology...”⁴⁴ Her obituary quoted Manuel Garcia II, saying she was ‘The greatest living authority upon the voice.’⁴⁵

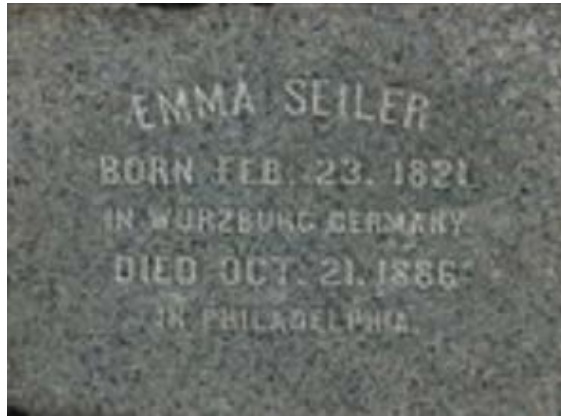


Figure 7: Emma Diruf Seiler’s Tombstone.⁴⁶

⁴⁴ Anon., “*The Review of Reviews*,” 402. The author concludes that Seiler “achieved something positive in science in the face of discouragements which might well daunt the most resolute spirit.”

⁴⁵ Anon., “DEATH OF MADAME SEILER,” *Tonic sol-fa reporter*, (March 1, 1887): 63.

⁴⁶ “Find A Grave,” accessed December 1, 2018, <http://www.findagrave.com/memorial/104141048/emma-diruf-seiler/photo>.

CHAPTER 2

STATE OF RESEARCH

Emma Seiler's work in pedagogy and publications were well-received in her lifetime, both in Europe and the United States of America. However, despite the accolades for her contributions, research on Seiler is lacking and even more so from European sources. The existing research can be organized according to sources that engage with her work, those that focus on her personal life, and more recent scholarship that points towards her register theory.

In 1868, *The North American Review* published remarks on Emma Seiler's recent *The Voice in Singing*; giving it a flattering review, and exalting her work and reputation as a teacher of singing. The publication also outlined her connection to the high society of Philadelphia and to that of Hermann Helmholtz.⁴⁷ Seiler's daughter, Marie Seiler Scull, wrote *The Life of My Mother Emma Seiler* in 1902. Scull wrote that during their second winter in Leipzig, her mother published 'Altes und Neues, by E.S.' She said that it created "some sensation in the scientific world..."⁴⁸ Through Scull we learn that when *The Voice in Singing* was published by Lippincott & Co., it "received a great deal of attention, especially among the men of science in America as well as abroad."⁴⁹ We also learn of the demands for Seiler as a teacher of voice and a mentor to other teachers of voice.⁵⁰ Her tenacity garnered her success, but most importantly it situated her to teach others her philosophy of training and understanding of the voice. It was, after all, her desire to be an effective teacher that lead her down the scientific path. Her obituary quoted Manuel Garcia II,

⁴⁷ Hermann Ludwig Ferdinand von Helmholtz (1821–1894) and Professor Emil Heinrich du Bois-Reymond (1818–1896) sent letters of introduction with Seiler to America. One of these letters directly introduced her to the Philosophical Society in Philadelphia; Anon., "Review of *The Voice in Singing* by Emma Seiler," *The North American Review* 106, no. 219 (April 1868): 728.

⁴⁸ Scull, *Life of My Mother*, 97.

⁴⁹ Scull, *Life of My Mother*, 121.

⁵⁰ Scull, *Life of My Mother*, 121–126.

saying she was ‘The greatest living authority upon the voice,’⁵¹ yet few pedagogy researchers know who she is today.

Before the state of research is fully introduced, we must consider the cultural and gender biases that impacted Seiler. She lived in a world of dichotomies: female or male, educator or scientist, amateur or professional, American or European. To understand her life and significance, we must first address these boundaries. For her Leipzig publication, Seiler felt it necessary to abbreviate her first name, thus concealing her gender. She shared that her brother initially praised the book but threw it across the room and reprimanded her upon learning that she was the author.⁵² Surprisingly, twenty years later Stockhausen referred to the author of *Altes und Neues* as a man in his introduction.⁵³ Concealing her gender likely contributed to her work being accepted in Europe. In America she published under her full name and was hailed for all four of her publications!

Many of Seiler’s musical successes were due to her being perceived as an amateur.⁵⁴ When Seiler emigrated to the United States, it was at an exciting time for music education and advanced musical training.⁵⁵ While scientific in nature, her work manifested itself in an educational manner after her arrival and the American culture was primed to accept her expertise. Seiler’s scientific approach to singing would have been one of the first, if not the first, such approaches in the country. Beyond this, her work may have been seen as a soft science or as a musically cultivating one, and therefore was within the acceptable amateur undertakings for a woman.

Seiler’s scientific interests were pursued in conjunction with the men in her life, first with

⁵¹ Anon., “DEATH OF MADAME SEILER,” *Tonic sol-fa reporter*, (March 1, 1887): 63.

⁵² Anon., “The Review of Reviews,” 402.

⁵³ Stockhausen, *Method of Singing*, 4.

⁵⁴ Ruth A. Solie, “Women’s History and Music History: The Feminist Historiography of Sophie Drinker,” *Journal of Women’s History* 5, no.2 (1993): 14, 16; Smith, *The Gender of History*, 3.

⁵⁵ Howe, *Women Music Educators in the United States*, 71-91.

her father, then her husband, and later Hermann Helmholtz. This trend was prevalent for women in Europe and in the United States.⁵⁶ Science was a rare endeavor for women in the U.S. during the nineteenth century and for those women who pursued it, they were rarely referred to as scientists since that was a term reserved for men.⁵⁷ In the hard sciences and additional fields, only men were believed to have time for research and academic instruction. This belief impacts how we as a society view and value historic contributions today, especially those of women.⁵⁸ Despite the binary boundaries placed on her, Seiler established a fair amount of cultural capital in America and Europe as a writer, teacher, and scientist of the voice.⁵⁹

Let us now consider the sources that engaged with Seiler's work. Julius Stockhausen (1826-1906), wrote in his 1884 introduction to *A Method of Singing* that Seiler's work was "one of the best works on the art of singing..." He specifically refers to her exaltation of tone, the importance of its development and characterization. Stockhausen expresses his desire to successfully illustrate the acquisition of said tone to his readers.⁶⁰

Emil Behnke's (1836-1892) 1880 publication, *The Mechanism of the Human Voice*, addresses Seiler's work after introducing the Thick, Thin, and Small registers. Behnke refers to subdivisions amongst the registers of a voice and says that he cannot do better than to quote Seiler's description of the registers from her book. Using Helmholtz's recommendation as validation of Seiler's work, Behnke then notes that he only disagrees with her when his own convictions call

⁵⁶ Sondra Wieland Howe, *Women Music Educators in the United States: A History*, (Lanham, Maryland: Scarecrow Press, Inc., 2014,) xiii.

⁵⁷ Martha J. Bailey, *American Women in Science: A Biographical Dictionary*, (Denver, Colorado: ABC-CLIO, 1994) vii.

⁵⁸ Bonnie G. Smith, *The Gender of History: Men, Women, and Historical Practice*, (Cambridge, Massachusetts: Harvard University Press, 1998) 3.

⁵⁹ Kimberly Francis, "Her-Storiography: Pierre Bourdieu, Cultural Capital, and Changing the Narrative Paradigm," *Women and Music: A Journal of Gender and Culture*, 19, 2015, 170.

⁶⁰ Stockhausen, *Method of Singing*, 4. E.

for it.⁶¹ He uses Seiler's explanation of the registers, interjecting his thoughts, concerns, and questions throughout.⁶² Prior to her death, Dr. Browne, who worked with Behnke, stated "not one of us has improved upon her work, with all our efforts, and she stands still the peer of the greatest of us all."⁶³

The *Hygiene of the Vocal Organs* was written by Morell Mackenzie (1837-1892) in 1880, and as one of Seiler's biographers states, "It is referred to with respect as one of the highest authorities on the subject..."⁶⁴ Seiler is first mentioned in regards to the small cuneiform cartilages she observed, but that Mackenzie cannot find. He disagrees with Seiler's interpretation of where they are located via *Wilson's Human Anatomy*, and while he acknowledges that others have observed them, he has "not been so fortunate as to meet with them."⁶⁵ Mackenzie later mentions Seiler's recommendation for singing with slight breath pressure in order to have more control over the vocal organs.⁶⁶ Referring to Seiler as "That accomplished teacher," Mackenzie praises her and Garcia for not bringing the use of the laryngoscope into their teaching.⁶⁷ Mackenzie briefly mentions Seiler's register divisions,⁶⁸ and study of head tones which influenced Behnke.⁶⁹

Nearly 100 years after Behnke and Mackenzie mentioned Seiler in their writing, Brent Jeffrey Monahan (b. 1948) wrote *The Art of Singing* in 1978 and refers to Seiler a few times. This

⁶¹ Behnke, *The Mechanism of the Human Voice* 9th ed., (London: J Curwen & Sons, 1890,) 27.

⁶² Behnke, *Mechanism of the Human Voice*, 28–30.

⁶³ Mulligan, "Extracts from a Biographical Sketch of Madame Emma Seiler," 158; Price, "Emma Seiler: A Pioneering Woman," 16.

⁶⁴ Flemming, *A Sketch of The Life of Madam Seiler*, 19.

⁶⁵ Mackenzie, *Hygiene of the Vocal Organs: A Practical Handbook for Singers and Speakers*, 6th ed. (London: Macmillan and Co., 1888) 46–47.

⁶⁶ Mackenzie, *Hygiene of the Vocal Organs*, 85.

⁶⁷ Mackenzie, *Hygiene of the Vocal Organs*, 62.

⁶⁸ Mackenzie, *Hygiene of the Vocal Organs*, 196

⁶⁹ Mackenzie, *Hygiene of the Vocal Organs*, 200–201.

source both engages with her work and commends her register theory. Monahan points to *The Voice in Singing* as one of the earliest pedagogy books to include information on acoustics within its scope. He credits Seiler with explaining the laws of physics and then directly applying them to the singing voice.⁷⁰ Regarding her register theory, Monahan states that Seiler followed Garcia in her divisions,⁷¹ but in a bibliographic note he says that she may be the originator of the five-register theory.⁷² Garcia's "Observations of the Human Voice," mentions the Chest, Falsetto, and Head registers; however, she embellished on his terminology and made further observations in regards to the female voice.⁷³ Monahan mentions the need for vowel modification on higher pitches, and credits Seiler with expanding the explanation from that of Garcia. She suggests mixing the vowel composed with the "klang" of the pitch assigned, essentially mixing the vowel towards the one with a higher first formant.⁷⁴ He closes his remarks on Seiler by stating that "her work resulted in a number of imitations."⁷⁵

Within Berton Coffin's (1910-1987) *Historical Vocal Pedagogy Classics* of 1989, Emma Seiler is given a special introduction that speaks to her strengths as a physiologist and singing master. He writes about Seiler's extreme interest in reviving the Italian school of singing, but through scientific discovery. After all, according to Seiler the Italian art of singing was declining due to the extinction of the castrati.⁷⁶ Coffin credits Seiler and Helmholtz with defining the

⁷⁰ Brent Jeffrey Monahan, *The Art of Singing: A Compendium of Thoughts on Singing Published Between 1777 and 1927*, (Metuchen: The Scarecrow Press, Inc., 1978), 108-109.

⁷¹ Monahan, *Art of Singing*, 157. Monahan offers that Garcia's monograph of 1861 was not available to him for this study.

⁷² Monahan, *Art of Singing*, 285.

⁷³ Garcia, "Observations on the Human Voice." *Proceedings of the Royal Society of London*, Vol. 7 (1854- 1855), 407-409; Coffin, *Historical Vocal Pedagogy Classics*, (London: The Scarecrow Press, Inc., 1989,) 51.

⁷⁴ Monahan, *Art of Singing*, 200.

⁷⁵ Monahan, *Art of Singing*, 226.

⁷⁶ Seiler, *Voice in Singing*, 15.

“*physiological-acoustical* laws of nature upon which the early vocal masters of singing based their teaching by ear...”⁷⁷ Using Helmholtz resonators, Seiler identified the strength of vowel resonance throughout the female voice and recommended that they be added for optimal sonority.⁷⁸ Coffin wrote “that this much practical research, including investigations with Helmholtz, was done in the mid to late 1800s by this inquisitive woman is unique.”⁷⁹

Both *The Disciplines of Vocal Pedagogy: Towards an Holistic Approach* by Karen Sell (b. 1939) in 2005 and *The Singer’s Companion: A Guide to Improving Your Voice and Performance* by Brent Monahan in 2006, mention Seiler once. Sell mentions rudimentary biographic information on Seiler, specifically noting Seiler’s frustration with strictly empirical teaching and a vocal injury, likely as support for a holistic approach, but she also mentions Seiler’s general research.⁸⁰ Monahan refers to a point Seiler referenced with breathing, an idea from the Old Italian method of a pupil inhaling air into the lungs, with only the ribs expanding and that the chest should only rise for exceptionally long and passionate passages.⁸¹ Yet, within sections on phonation, resonance, timbre, and taste, Seiler is not mentioned at all. The engagement of these two sources with Seiler’s work is superficial at best.

In the chapter addressing historical pedagogy within *Vocal Health and Pedagogy: Science and Assessment*, Robert Thayer Sataloff (b. 1949) states that even a brief overview of pedagogy must mention Seiler, who was instrumental in Helmholtz’s formulation of acoustic theories of

⁷⁷ Coffin, *Historical Vocal Pedagogy Classics*, 56.

⁷⁸ Coffin, *Historical Vocal Pedagogy Classics*, 54.

⁷⁹ Coffin, *Historical Vocal Pedagogy Classics*, 50–51.

⁸⁰ Sell, *The Disciplines of Vocal Pedagogy: Towards an Holistic Approach*, (New York: Ashgate Publishing, 2005), 28.

⁸¹ Brent Monahan, *The Singer’s Companion: A Guide to Improving Your Voice and Performance*. (Prompton Plains, New Jersey: Limelight Editions, 2006), 19.

voice production. While fault is found in her hypothesis on the function of the laryngeal mechanism, her treatise is a forerunner to “Germanic pseudoscientific pedagogic literature that attempts...to apply physiology and acoustics to the singing voice.”⁸²

On to sources that focus upon her register theory. Cornelius Reid’s (1911-2008) *Essays on the Nature of Singing*, alludes to Seiler’s physical division of the vocal fold activity within her register theory.⁸³ Later in his book, he again acknowledges Seiler’s subdivision of the physical activity of the vocal folds, but expresses dissatisfaction that the terms she used do not “touch directly upon matters pertaining to the tautening mechanisms that set the physical conformation of the vocal folds (the intrinsic muscles of the larynx)...”⁸⁴ In his last comment on Seiler’s register theory, Reid states that her findings signal a “shift in emphasis from traditional viewpoints to theories derived from laryngoscopic observations...” On this note, Reid thought it worth mentioning that regardless of these developments, few voice teachers seem to have been influenced by this science.⁸⁵

In James Stark’s (b. 1938) *Bel Canto* of 1999, Seiler’s most significant contribution is again, the impact of her register theory on Browne, Behnke, and John Curwen.⁸⁶ Stark mentions that Seiler influenced Curwen in regards to advocating for a low larynx when singing,⁸⁷ as well as the fact that she was quoted generously by Lunn, Mackenzie, and Curtis.⁸⁸ Stark criticizes her use

⁸² Sataloff, *Vocal Health and Pedagogy: Science and Assessment*, 2nd ed., (San Diego, CA: Plural Publishing, 2006), 210.

⁸³ Cornelius L. Reid, *Essays on the Nature of Singing*, (Huntsville, Texas: Recital Publications, 1992,) 17.

⁸⁴ Reid, *Essays on the Nature of Singing*, 87.

⁸⁵ Reid, *Essays on the Voice in Singing*, 146.

⁸⁶ James Stark, *Bel Canto: A History of Vocal Pedagogy*, (Toronto, Buffalo, London: University of Toronto Press, 1999), 78-79.

⁸⁷ Stark, *Bel Canto*, 40.

⁸⁸ Stark, *Bel Canto*, 78.

of imagery when describing the voice as a rebounding column of air.⁸⁹ At more length, Stark remarks on Seiler’s register theory as “re-casting of Garcia’s two-pronged approach” essentially saying that her divisions of chest and falsetto register are accounting for firm and loose glottal closure within the two modes of vibration.⁹⁰

An article entitled *Emma Seiler: A Pioneering Woman in the Art and Science of Teaching Voice* was published in 2011, its author Kathy Price (b. 1955) offers fuller biographical information and focuses on Seiler’s Register Theory.⁹¹ She especially focuses on her register theory as it correlates to present day theories.⁹² Figure 8 is a table the displays this correlation.

Voice Scientists	Terms					Transition Points	
						First	Second
Seiler		Chest (1st, 2nd)	Falsetto (1st, 2nd)	Head		D ₁ -F ₄	D ₃ -F ₅
Sundberg	Fry or Pulse	Chest	Middle	Head	Whistle	G ₄ (upper limit)	E ₅
Titze	Pulse or Fry	Chest or Modal	Middle or Head	Falsetto	Whistle	D ₁ -F ₄	D ₃ -F ₅
Thurman	Pulse	Lower	Upper	Flute	Whistle	D ₁ -F ₄	D ₃ -F ₅

*Primary registers are in bold and the transition points occur between these registers.

Figure 8: Prices chart comparing Seiler’s register theory to present-day theories.⁹³

While Richard Miller (1926-2009) did not reference Seiler’s register theory in his *Training Soprano Voices*, he divides the “Soprano *passaggi* and Register Zones” into five portions. Miller names these divisions Chest, Lower Middle, Upper Middle, Upper and Flageolet. His designations of the primo and secondo *passaggi* are also in agreement with Seiler’s placement.⁹⁴ (See figure 9.)

⁸⁹ Stark, *Bel Canto*, 54.

⁹⁰ Stark, *Bel Canto*, 78.

⁹¹ Price, “Emma Seiler: A Pioneering Woman,” 13.

⁹² Kathy Kessler Price, “Emma Seiler and Mathilde Marchesi: Pioneering Women in the Art and Science of Teaching Voice” (photocopy, American Philosophical Society, 2009). Price examines the science-based discourses on female register theory from both Seiler and Marchesi and compares them to current research. Price states on page 7, that “their scientific scrutiny of vowel registers as a primary means of achieving healthy vocal technique contributed to the pedagogy of their day and helped forge a path to current understandings regarding registration theory.”

⁹³ Price, “Emma Seiler: A Pioneering Woman,” 17.

⁹⁴ Miller, *Training Soprano Voices*, (New York: Oxford University Press, 2000,) 25.

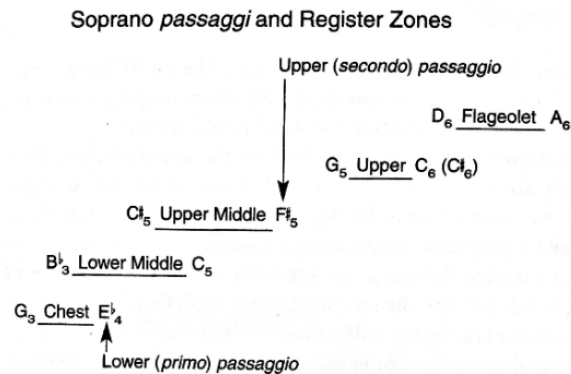


Figure 9: Richard Miller’s designations of the soprano voice.⁹⁵

Most recently, Joseph Talia (b. 1954) mentioned Seiler in his 2017 *A History of Vocal Pedagogy: Intuition and Science*. This is the most generous references to Seiler’s work since her lifetime. Talia explains that Seiler’s most significant contribution to the field of pedagogy was her incorporation of Helmholtz’s acoustic research into her observations of the phonatory source with the laryngoscope. Talia refers to Seiler’s initiative to consolidate Garcia’s observations with Helmholtz’s research as untiring and her great contribution. Before giving an overview of her register observations, Talia summarizes Seiler’s work as matching “particular vocal fold shapes and modes of vibration with a specific [register],” additionally matching “the vibrations issuing from the source with the vocal acoustics she had learned with Hermann Helmholtz, therefore creating an early form of the source filter theory...”⁹⁶ Talia closes his remarks on Seiler’s work by stating that Emile Behnke, a contemporary pedagogue, was particularly influenced by her work.⁹⁷

Scholarship on Seiler’s life outside of pedagogy is nearly nonexistent, however, the next two sources focus on her personal life. The first, *Das aussergewöhnliche Langenthaler Jahrzehnt 1841-1851 der grossen Frau Emma Seiler-Diruf* (The extraordinary Langenthal decade 1841-1851

⁹⁵ Miller, *Training Soprano Voices*, 25.

⁹⁶ Talia, *History of Vocal Pedagogy: Intuition and Science*, (Samford Valley: Australian Academic Press, 2017), 287.

⁹⁷ Talia, *History of Vocal Pedagogy*, 290

of the great Mrs. Emma Seiler-Diruf) was written by Max Jufer (b. 1922) and published in 2000.⁹⁸ Seiler settled in Langenthal, Switzerland as a newly-wed couple with her physician husband. This book highlights a period of Seiler's life before she pursued music and science. Seiler's daughter Marie, tells of many social services that Seiler ultimately provided to this region, including care for the mentally ill, a food service to the poor and starving, and that she even "studied pharmacy" in order to assist her husband with his medical profession.⁹⁹ Mrs. J.P. Lesley, a close friend of Seiler in Philadelphia wrote to the American Philosophical Society of this time as well. She emphasized that Seiler's work was of great impact and success, that the Swiss, Swedish and Danish governments sent emissaries to observe and copy them in their own administrations. She adds that upon her own visit through this region, around 1888, that she met a couple who enthusiastically recalled Seiler's services.¹⁰⁰

Women Music Educators in the United States: A History, is a 2014 book by Sondra Wieland Howe (b. 1938) and is another example of scholarship on Seiler outside of vocal pedagogy.¹⁰¹ What Howe writes about Seiler is largely biographical discussing her marriage, children, musical and scientific studies, and her immigration to Philadelphia. Howe briefly mentions Seiler's intention to seek a science-based method of vocal training, and that Seiler's theories on registration were in agreement with other pedagogues of her time.¹⁰²

These works offer but a glimpse into Seiler's *The Voice in Singing*. Observations within

⁹⁸ Max Jufer, *Das aussergewöhnliche Langenthaler Jahrzehnt 1841-1851 der grossen Frau Emma Seiler-Diruf*, (Langenthal: Stiftung zur Förderung Wissenschaftlicher und Heimatkundlicher Forschung über Stadt und Gemeinde Langenthal, 2000,) 23–32.

⁹⁹ Scull, *Life of My Mother*, 32. Pages 17–40 in Seiler's biography recount the many social services she provided to this area of Switzerland.

¹⁰⁰ Lesley, "Biographical Sketch of Madame Seiler," 153–154.

¹⁰¹ Howe, *Women Music Educators in the United States*, 58–59.

¹⁰² Howe, *Women Music Educators*, 60.

her book span the physiological, physical and aesthetic aspects of singing, yet most research on Seiler focuses on a singular element, largely her description of female registers. In the next chapter a much fuller overview of Seiler's observations and findings will be presented.

CHAPTER 3

SUMMARY OF *THE VOICE IN SINGING*

This summary is an orderly presentation of the ideas, findings, and beliefs pertaining to the voice, written by Emma Seiler in *The Voice in Singing*. The existing state of research on Seiler is a deficient representation of her musical and educational beliefs. While her scientific findings are discussed more frequently amongst pedagogues, the entirety of her work is not represented. A summary of *The Voice in Singing* provides the field with a more thorough idea of what Seiler was passionate about, and contributing to with her writing. Excluding minimal commentary, this chapter broadly follows the outline of Seiler's book. As an aid to the reader, the complete table of contents from the revised English publication of 1867 is reproduced in Appendix A.

I. Vocal Music: Its Rise, Development and Decline

Seiler established the outline of her findings by first expressing her concern for the current decline in qualified singers.¹⁰³ She guides the reader through a history lesson on the rise of vocal music and solo singing.¹⁰⁴ This is how she builds her argument; that while the recent “superficial treatment of science” has “injured the art of singing,” it can in fact aid artistic talent. She states that the art of singing is aesthetic, but also physiological and physical; that “without an exact knowledge, appreciation, observance, and study of which, what is hurtful cannot be discerned and avoided; and no true culture of art, and consequently no progress in singing, is possible.”¹⁰⁵ The physiological aspect of vocal art addresses the quality and strength in the vocal organ, and the

¹⁰³ Seiler, *Voice in Singing*, 8–10; Carozzi, G.N. Esq, “Practical Suggestions on Vocal Culture,” *Proceedings of the Musical Association*, (December 4, 1882): 20.

¹⁰⁴ Seiler, *Voice in Singing*, 11–15.

¹⁰⁵ Seiler, *Voice in Singing*, 18.

physical aspect refers to the use of air from the lungs through the larynx, but the aesthetic aspect comprises “the whole domain of music and poetic beauty.”¹⁰⁶

II. Physiological View: Formation of Sound by the Organ of the Human Voice

Seiler begins the discussion of the physiological view by explaining the experiments of Johannes Müller (1801-1858) and continuation of them by Dr. Merkel.¹⁰⁷ Working with human excised larynges, they were able to manipulate the vocal processes and produce tones of the chest and falsetto registers. Seiler states that these contemporary experiments shed no light on phonatory process within a living person.¹⁰⁸ However, she credits Manuel Garcia’s use of the laryngoscope as the first correct mode of scientific inquiry into the production of sung sound in the living. After explaining the construction and proper use of the laryngoscope, she offers Garcia’s observations in his own words.¹⁰⁹ These are followed by her own observations and their application towards training the singing voice.

Observations with the Laryngoscope by Manuel Garcia

In an unusual treatment of existing scientific insight, Seiler quotes half of Garcia’s *Observations on the Human Voice*. Through Garcia, Seiler informs the reader first of the actions of the glottis, epiglottis, arytenoid cartilages, and the superior and inferior ligaments during inhalation, and phonation in the chest, head, and falsetto registers.¹¹⁰ Then the “Emission of the Chest Voice” addresses the shape and contact of the glottis, as well as the contraction of the larynx

¹⁰⁶ Seiler, *Voice in Singing*, 17–19.

¹⁰⁷ Seiler, *Voice in Singing*, 19–20. She is likely referring to Dr. Carl Ludwig Merkel (1812–1876), a laryngologist who worked in Leipzig and published extensively on the physiology and anatomy of the Human Voice.

¹⁰⁸ Seiler, *Voice in Singing*, 20.

¹⁰⁹ Seiler, *Voice in Singing*, 21.

¹¹⁰ Seiler, *Voice in Singing*, 22–23; Garcia, “Observations on the Human Voice,” pp. 399–410. The sections of quotes used were originally titled Opening of the Glottis and Movement of the Glottis.

and the superior ligaments.¹¹¹ “Production of Falsetto” describes the shortening of the vocal ligament as pitch ascends, and also the change in glottis contact, which is reduced to the ligament alone.¹¹² It is in this quotation, that Garcia mentions similarities and differences between the two registers, chest and falsetto. He explains that both registers are divided into two parts. This alludes to Seiler’s register theory and explanation. She departs from Garcia’s observations with the “Manner in Which the Sounds are Formed.”¹¹³ By doing this, Seiler excludes several of Garcia’s theories. Those that she excluded explain the “successive and regular explosions” of the glottis as the source of sound, a theory that we know today as the source-filter theory. This theory stemmed from Müller’s 1848 experiments.¹¹⁴ Seiler states that much of this information is of great interest to a physiologist, and that she will present information that is of value to the singing voice with the “Physical View” section of her writing. She criticizes Garcia’s observations, saying that some elements of importance are completely neglected, while others are exaggerated in regards to the function of and transition between registers.¹¹⁵

My Own Observations with the Larygoscope

Seiler gives credit to several contemporary scientists who have published valuable

¹¹¹ Garcia, “Observations on the Human Voice,” 402. Originally titled Emission of the Chest-voice.

¹¹² Garcia, “Observations on the Human Voice,” 403. Production of Falsetto is the original title.

¹¹³ Garcia, “Observations on the Human Voice,” 403–405. The original title was used. As we have just said, and what we have seen proves it, the inferior ligaments, at the bottom of the larynx, form exclusively the voice, whatever may be its register or its intensity; for they alone vibrate at the bottom of the larynx.* But by virtue of what principle is the voice formed? It seems to me, that the answer to this question can be but this; the voice is formed in one unique manner, –by the compressions and expansions of the air, or the successive and regular explosions which it produces in passing through the glottis.” *We gladly acknowledge that this most important fact has been already announced by J. Muller, although we have our objections to the theory which accompanies it. –*Handbuch der Physiologie des Menschen*.

¹¹⁴ Garcia, “Observations on the Human Voice,” 403–405; “The Acoustic Theory of Speech Production: the source-filter model,” accessed January 10, 2019, [http://www.haskins.yale.edu/ featured/heads/mmmsp/acoustic.html](http://www.haskins.yale.edu/featured/heads/mmmsp/acoustic.html).

¹¹⁵ Seiler, *Voice in Singing*, 26–27.

observations for pathological purposes.¹¹⁶ Her aim, however, was solely to explore the various limits of the voice.¹¹⁷ Seiler states that she observed the open larynx and rings of the trachea just as Garcia described. Per her description, Seiler's preferred vowel for observation was the [a] as heard in *man* and in order to see clearly the glottis, faint and weak sounds were favorable.¹¹⁸

In describing the chest register, Seiler describes the contact of the arytenoid cartilages and the inferior vocal cords, as well as the formation of the superior or false vocal folds.¹¹⁹ She notes that the arytenoid cartilages cease to close completely around C/C#4 within the female chest voice and A/Bb3 in the male voice. With effort, the complete closure of the arytenoid cartilages can be extended upwards in range, but at the risk of inflammation of tissue and production of disagreeable tones.¹²⁰ She proceeds to explain that the transition from arytenoid cartilage assistance to no assistance causes the vocal ligaments to relax slightly and appear to lengthen. The laryngeal position of the chest register is lower than that of quiet breathing.

The overall action of the glottis remains the same in the falsetto register, with the exception that the inner edges of the vocal ligaments vibrate with a fine space between them and that the superior, or false vocal folds, are smaller in appearance on each side of the supra larynx. Just as the vocal cords lengthened without the assistance of the arytenoid cartilages, they again lengthen when beginning the falsetto register at F#4.¹²¹ This activity extends to C/C# 5 in female voices

¹¹⁶ Doctors Johann Nepomuk Czermak (1828–1873), Carl Ludwig Merkel (1812–1876) and Charles Bataille (1822–1872) are mentioned in the German publication of Seiler's work. Seiler excludes Bataille's contributions as being in the interest of science. The English translation adds, though spelled 'Turk,' Ludwig Türck (1810–1868), and Georg Richard Lewin (1820–1896).

¹¹⁷ Seiler, *Voice in Singing*, 27.

¹¹⁸ Seiler, *Voice in Singing*, 28.

¹¹⁹ Seiler, *Voice in Singing*, 29. She refers to the superior or false vocal cords as ligaments in her writings.

¹²⁰ Seiler, *Voice in Singing*, 30. "These transitions...coincide perfectly with the places where J. Müller had to *stretch* the ligaments of his [excised] larynx so powerfully in order to reach the succeeding half-tone."

¹²¹ Seiler, *Voice in Singing*, 31.

and Eb/E5 in male voices. She remarks that the laryngeal position in the falsetto register is in its natural position, just as it is when breathing quietly.¹²²

As the falsetto register arrives at F#5, the head register begins. Here the vocal ligaments close suddenly, but not evenly along their entire length. Her description is that of a posterior chink of sorts.¹²³ This opening appeared to vibrate as well and contract with each higher tone.¹²⁴ Seiler explains that these findings were objected on the grounds that this action within the glottis would only be feasible with the assistance of cartilage and muscle, none of which were known or to be found in the manuals of anatomy at the time.

With this issue in mind, Seiler returned to working with the laryngoscope, which further convinced her of her observations. She returned to dissecting larynges and was pleased to discover the arytenoid-thyroid interna within the fine membranes of the vocal ligaments. She states that these structures have been observed by others, are found in all larynges, and vary in consistency.¹²⁵ It was during this time of dissection that Seiler also became aware of the cuneiform cartilages, or the Wrisberg cartilages.¹²⁶ She writes that she found them present in all female larynges, but only occasionally within the male larynges. To Seiler this justified why head tones were produced by but a few male voices. Seiler reasoned that most anatomical investigations were conducted on male larynges, and that this may account for the lack writing on these structures.¹²⁷ Eventually she found that *Wilson's Human Anatomy* explained them thus.

¹²² Seiler, *Voice in Singing*, 32.

¹²³ Seiler, *Voice in Singing*, 33.

¹²⁴ Seiler, *Voice in Singing*, 34.

¹²⁵ Seiler, *Voice in Singing*, 34.

¹²⁶ Seiler, *Voice in Singing*, 35. These cartilages were discovered by anatomist Heinrich August Wrisberg (1739–1808).

¹²⁷ Mackenzie, *Hygiene of the Vocal Organs*, 46. Mackenzie states that male larynges are used more often than female for dissection purposes.

The Cuneiform cartilages are two small cylinders of yellow fibro-cartilage, about seven lines in length, and enlarged at each extremity. By the lower end, or base, the cartilage is attached to the middle of the external surface of the arytenoid, and by its upper extremity forms a prominence in the border of the aryteno-epiglottidean fold of membrane. They are sometimes wanting.¹²⁸

It also goes on to state that these cartilages are ossified to a lesser or greater extent within male larynges, especially in older larynges.¹²⁹ Coffin states that these cartilages are now known to be an articulating part of the arytenoid cartilage, found in all larynges, but that their role in female head voice production is awaiting research.¹³⁰ Lennox Brown (1841-1902) mentions Seiler's anatomical description and believed function of the female head voice in his *Voice, Song, and Speech: A Practical Guide for Singers and Speakers*.¹³¹

Seiler continues with the discussion of the head register and states that the transition from the falsetto register to the head register brings a relaxation in the vocal organs; similar to that seen in the transition from the chest to falsetto registers. This is “because the ligaments by this repeated partial closure of the glottis are much less stretched than in the highest tones of the proceeding lower register.” Seiler believed this register most susceptible to loss, whether due to illness or abuse. Her observations on registers is concluded by explaining that the actions of a register can be maintained when singing lower tones beyond the natural register limit, but that the tones will not sound as full. In a brief section entitled “Abnormal Movements of the Glottis,” Seiler addresses her own, as well as Garcia, Czermak, and Funke's observations of irregularly closing arytenoid

¹²⁸ Erasmus Wilson, *Wilson's Human Anatomy*, (Philadelphia: Blanchard and Lea, 1858,) 504; Seiler, *Voice in Singing*, 35.

¹²⁹ Wilson, *Wilson's Human Anatomy*, 504.

¹³⁰ Coffin, *History of Vocal Pedagogy Classics*, 52.

¹³¹ Browne, Lennox, Behnke, Emil, *Voice, Song, and Speech: A Practical Guide for Singers and Speakers* 23rd ed. (New York: G.P. Putnam's Sons, 1900), 60.

cartilages and vocal ligaments. Apparently, these abnormal movements had been garnering much attention, and Seiler felt that she should address them.¹³²

In “Results of the Foregoing Observations,” Seiler organizes these findings into three sections. In the first, she concisely explains the five actions observed in the vocal organs. They are:

1. *The first series of tones of the chest register*, in which the whole glottis is moved by large, loose vibrations, and the arytenoid cartilages with the vocal ligaments are in action.
2. *The second series of the chest register*, when the vocal ligaments alone act, and are likewise moved by large, loose vibrations.
3. *The first series of the falsetto register*, where again the whole glottis, consisting of arytenoid cartilages and vocal ligaments, is in action, the very fine interior edges of the ligaments, however, being alone in vibrating motion.
4. *The second series of the falsetto register*, the tones of which are generated by the vibrations of the edges alone of the vocal ligaments.
5. *The head register*, in the same manner and by the same vibrations, and with a partial closing of the vocal ligaments.¹³³

Seiler’s register theory is the most written about observation from *The Voice in Singing*. Emil Behnke reiterates Seiler’s register theory using the terms *lower thick*, *upper thick*, *lower thin*, *upper thin*, and *small* for the female voice, and this same theory is included in Browne and Behnke’s work together.¹³⁴ Price also demonstrated Seiler’s theory alignment with current theories from Titze, Sundberg, and Thurman. However, some modern pedagogues, such as Barbara M. Doscher (1922-1996) who wrote *The Functional Unity of The Singing Voice*, call for the

¹³² Seiler, *Voice in Singing*, 35–37.

¹³³ Seiler, *Voice in Singing*, 37–38; Price, “Emma Seiler: A Pioneering Woman,” 13.

¹³⁴ Browne, *Voice, Song, Speech*, 128–136. No credit is given in this work, but credit is given in Behnke’s *The Mechanism of the Human Voice*.

recognition of “changing vibrational modes of the vocal folds,” without acknowledging Seiler’s work.¹³⁵

In Seiler’s second section, she states that observation has shown that there are natural limits to each register. When a register’s action is exceeded beyond its highest notes, straining will be seen and felt. However, the vocal organs reflect no straining when a higher register’s action is applied to lower tones, the fullness of tone however may be lacking. Coffin concurs by writing that “a definite rule resulted from her study - *no voice can bear over-straining beyond register limits - the result is that the voice becomes unstable and weakened.*”¹³⁶

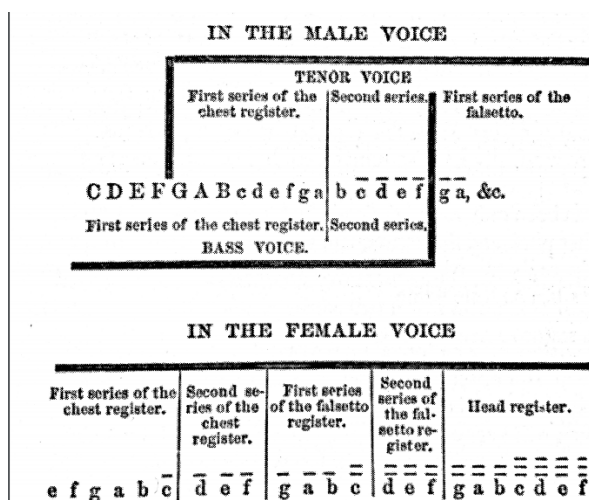


Figure 10: Seiler’s register transitions in the male and female voice.¹³⁷ See Appendix C.

The third section focuses on the transition points of male and female registers. (See figure 10.) Seiler says that the chest-falsetto register is the same for men and women at F/F#4, but that the other transitions are different. She emphasized that distinguishing between a bass or tenor had more to do with the level of ease in production amongst the “tones of the higher or lower registers,”

¹³⁵ Doscher, Barbara M., *The Functional Unity of The Singing Voice* 2nd ed., (London: The Scarecrow Press, Inc., 1994,) 178.

¹³⁶ Coffin, *Historical Vocal Pedagogy Classics*, 52. The italics in this quote are original to the source.

¹³⁷ Seiler, *Voice in Singing*, 39.

and with what consistency of timbre in the voice, than the register transitions.”¹³⁸ The same expression also discerns the contralto from the soprano. She closes this section with reinforcement of her observations; one, in the careful manner of her work, and the second, as having been reinforced by additional scientists.” Both aspects finding these observations to be correct.¹³⁹

Practical Application of These Observations to the Cultivation of the Singing Voice

Seiler states that the current trend in teaching the voice is detrimental to the grace and beauty of the sound, as well as the longevity of the instrument. The trend she writes about, is the extension of lower register action past its natural range. This is especially true in the tenor voice.¹⁴⁰ Seiler cites the raising of concert pitch as one source of pressure to sing certain pitches in a full chest tone. She claims that old Italian singing masters trained singers to have an imperceptible transition between their falsetto and chest registers. This transition is much more difficult for men than women, but was achievable with extensive study.¹⁴¹ Seiler recommended singing the notes close to register shifts, with the lower activity of the two for easier register transitions.¹⁴² Although the fulness of sound may be lacking, Seiler references the Old Italian method of training and acquiring strength through the transitions of the voice.¹⁴³

As a brief aside, Stark wrote that Seiler offered no advice for the uniting registers;¹⁴⁴

¹³⁸ Seiler, *Voice in Singing*, 38.

¹³⁹ Seiler, *Voice in Singing*, 39.

¹⁴⁰ Seiler, *Voice in Singing*, 39–40.

¹⁴¹ Seiler, *Voice in Singing*, 41. Seiler makes the point that women speak in the range of their second chest and first falsetto registers, and thus are accustomed to this transitional area of their voices. Men, however; do not speak in this range.

¹⁴² Seiler, *Voice in Singing*, 38.

¹⁴³ Seiler, *Voice in Singing*, 41.

¹⁴⁴ Stark, *Bel Canto*, 79.

however, Price points to her exercises that used direction reversal to teach blending.¹⁴⁵ Examples of this are in figure 11.

The image displays two pages of musical notation. Page 28, titled 'XXX. FOR THE HEAD REGISTER.', features a vocal line with a complex melodic pattern of eighth and sixteenth notes, and a piano accompaniment consisting of chords in the right hand and a steady bass line in the left hand. Page 29, titled 'XXXI. LOW CHEST REGISTER.', shows a vocal line with a more rhythmic, eighth-note pattern, and a piano accompaniment with a similar rhythmic structure. Both exercises are in common time and use a key signature of one flat.

Figure 11: Excerpt from *Exercises for Training the Soprano Voice*.

The point that Seiler stresses is that the appropriate tones be produced in the corresponding register; that the second chest register and second falsetto register not be skipped, and the preceding register entered into, too soon. This treatment causes an “irregular formation” of the voice, with some tones being coarse from the extension of a register, and other tones being faint or shrill from

¹⁴⁵ Price, “Emma Seiler: A Pioneering Woman,” 14.

enter a preceding register too soon.¹⁴⁶ Next, Seiler points out the physical sensations that accompany each register's production of sound. Largely, she is addressing sympathetic vibrations in the body as the range ascends.¹⁴⁷ She attributes these sensations to the nerves active in the process, which is not the case.

It is here that we get a glimpse of Seiler's training philosophy. In addition to utilizing the natural tones of each register:

1. The tone of the second chest and falsetto registers should be cultivated before the first chest and head tones. This will best ensure the voices fullness throughout. Care should also be taken to foster imperceptible transitions, the most significant being between first and second falsetto for the female voice.
2. Generally, though not always, a voice may be categorized by the "fullness and grace" displayed in the falsetto registers, soprano, or the chest registers, contralto. Likewise, a bass will more sweetly execute the first chest register, and a tenor, the second series of the chest register.
3. An inability to properly train male and female registers has led to the over-categorizing of Baritone and Mezzo-Soprano voices.
4. The best singing is that which is simple and natural. This applies to the execution of registers within each voice, as well as the demonstration of proper tones between teacher and student.¹⁴⁸
5. Instructors of singing will benefit from scientific study, both in creating clarity of terminology and the acceptance and correction of erroneous practices.¹⁴⁹

III. Physical View: Formation of Sounds by the Vocal Organ

In expressing this area's role in the art of singing, Seiler first states that a review of well-known physical laws is needed. She begins by describing the different perception of noise,

¹⁴⁶ Seiler, *Voice in Singing*, 42–43.

¹⁴⁷ Seiler, *Voice in Singing*, 44; Sataloff, *Vocal Health and Pedagogy*, 210. The focus upon these sensations is what Sataloff criticizes as insupportable in his writing on Seiler.

¹⁴⁸ Seiler, *Voice in Singing*, 44–46.

¹⁴⁹ Seiler, *Voice in Singing*, 47.

aperiodic movement of air, verses tone, and periodic movement of air.¹⁵⁰ Within the “Tone, and Its Law of Vibration” section, Seiler explains a standing wave with the example of ripples created in water by stone. She explains that this movement is similar to that within air except that sound waves can move in multiple directions in air. She quotes Tyndall in explaining that “the condensation of the sound-wave corresponds to the crest, while the rarefaction of the sound-wave corresponds to the sinus of the water-wave.”¹⁵¹ A periodic disturbance in the air will result in the periodic movement of the eardrum and that “the duration of the vibrations constituting the movement must be the same in the ear as in the sounding body.”¹⁵²

The properties of tone (Klang) are strength, pitch, and timbre. The strength of a tone is defined by the depth of the sound wave, while the pitch is controlled by the number of waves being created per second. To explain the timbre (Klangfarbe) of tones, Seiler returns to the activity of water, for water can be disrupted in differing manners by air, just as a violin bow and piano hammer interact differently with their respective strings.¹⁵³ A clearer explanation of timber comes from Seiler’s discussion of over-tones (Obertöne)” when she writes that the form of vibrations, that is the combination of partial tones, is what determines the timbre.¹⁵⁴ The strength or reinforcement of harmonic partial tones, or over-tones and how they interact, either complimenting or overpowering the fundamental, determines the overall timbre of the sound.¹⁵⁵ For clarity, Seiler’s

¹⁵⁰ Seiler, *Voice in Singing*, 49.

¹⁵¹ John Tyndall, *Sound*, (New York: D. Appleton and Company, 1867) 62; Seiler, *Voice in Singing*, 50. John Tyndall (1820-1893) was a prominent Irish physicist and a professor for over 30 years in London.

¹⁵² Seiler, *Voice in Singing*, 51.

¹⁵³ Seiler, *Voice in Singing*, 51–53.

¹⁵⁴ Partial tones that are numeric integers of the fundamental frequency, are considered harmonic partials or over-tones.

¹⁵⁵ Seiler, *Voice in Singing*, 53–54. For example, if the higher harmonic over-tones overpower the fundamental, the sound will grow shrill, but if the discordant over-tones, existing even higher, become too strong, the timbre becomes sharp.

writing on partial tones is added here, even though it was published preceding “The Vowels.” Seiler briefly addresses partial tones, combinations and the node of vibration. There is no direct application to the voice is this writing.

In writing on the vowels, Seiler explained that all tones in singing reflect a vowel sound. This vowel has a range of extreme clarity and sweetness in the voice, and this occurs “when the tone corresponding to the vowel belongs to the over-tones of the fundamental tone.” Seiler wrote that after she learned to sharpen her ear to the perception of over-tones, she was then able to discern favorable vowels. The female voice ultimately encompasses just over an octave of range where every vowel can be produced with the same clarity; however, not equal sonority. These are outlined for the female voice in figure 12.



Figure 12: A modern depiction of Seiler’s recommended vowels for the female range.

Vowel modification is Seiler’s last point in this section. Because the most ideal vowels will not always be set on the ideal tones, artists must shade the required vowel with that which will be clear and full in their voice. Seiler claims that any tone accompanied by E/F8 as an over-tone, as the ear is attuned, will sound harmonious regardless of the vowel.¹⁵⁶ This point has been repeated by a number of pedagogues since Seiler. Doscher writes “To state this acoustical law once again, if the fundamental frequency of the sung note is higher than the first formant of the vowel being

¹⁵⁶ Seiler, *Voice in Singing*, 56–59.

sung, the fundamental frequency itself must serve as the first formant and the vowel color altered to match that frequency.”¹⁵⁷

Beats (Schwebungen) occur between tones in close proximity to each other. The “sounding bodies vary in only a small part of a vibration sound, [and therefore alternate] stronger and weaker...” this is what determines our perception of a dissonance. Intervals that produce few or no beats are consonant. Seiler applies this information to the harmonization of voices.

Application of the Natural Laws Lying at the Foundation of Musical Sounds to the Culture of the Voice in Singing

All sounding bodies are subject to natural laws, including the vocal ligaments. These include the various movements of the vocal cords, the resistance of the glottis to the air pressure from the lungs, and the strength of tone created within the resonating chamber, i.e. the pharynx. The most important aspect in the culture of the voice is the timbre of the tones. Seiler explains that it is here the teacher and singer can create the desired tone. Seiler then isolates three necessities for forming a good tone in singing. The first is to correctly control the breath; the second is with the touch of the voice and the last is with the formation of the vowels and consonants.¹⁵⁸

The control of the breath “is responsible for the ideal over-tones being created and thus the timbre.” “Thus every tone requires for its greatest possible perfections only a certain quantity of breath, which cannot be increased or diminished without injury to its strength in the one case, and its agreeable sound in the other.” Seiler credits the old Italian schools of singing with focusing of the control and correct division of the breath. She states that their rules of obtaining tone adhere to the latest results of scientific investigation. She compares the Italian method of restraint and care,

¹⁵⁷ Doscher, *Functional Unity of The Singing Voice*, 155.

¹⁵⁸ Seiler, *Voice in Singing*, 59–61.

to the over-zealous manner of teaching of her current time with no question as to which is recommended.

The correct touch of the voice “consists in causing the air, brought into vibration by the vocal ligaments, to rebound from immediately above the front upper teeth, where it must be concentrated as much as possible, rebounding thence to form in the mouth continuous vibrations, which are, at the same time, communicated to the external air.” Seiler writes that the tone becomes more beautiful and fuller as the adjustments for vibration are made quickly and brought forward in the mouth.¹⁵⁹ The Italian school placed great importance on the touch of the tone. Through this correct touch, “those forms of vibrations [are] obtained in which all the harmonic over-tones belonging to a perfect tone sound together.” Once a habit, “more breath is then allowed to stream forth immediately after the quick, light rebound of the vibrating column of tone, the vibrations enlarge without changing their form, and so only the strongest, fullest, most beautiful tone possible is obtained.”

In the “Formation of Vowels and Consonants,” Seiler remarks that vowels are formed in the cavity of the mouth and another place. Both for consonants and vowels, one must choose the optimal formation to promote the tone in singing.¹⁶⁰ Seiler prescribes the syllables *sü*, *soo* or *dü*, *doo* in order to develop a fine tone quickly, progressing to *soo-o*, *soo-e*, *soo-o-e-ah* and so forth after one is accustomed to producing tones in the front of the mouth.¹⁶¹ These syllables are what are called for in Seiler’s *Exercises for Training the Voice* published in 1877. Because the International Phonetic Alphabet was not developed until 1886, the assessment of vowels is an

¹⁵⁹ Seiler, *Voice in Singing*, 62–65.

¹⁶⁰ Seiler, *Voice in Singing*, 69. Seiler stresses that attention to the all consonants and vowels from language to language demand careful attention for consistency.

¹⁶¹ Seiler, *Voice in Singing*, 69. The suggested IPA would be [sy], [su] or [dy], [du], progressing to [su o] [su e] [su o e a].

educated guess.¹⁶² A few examples are included in figure 13. Seiler lastly addresses the opening of the mouth, the relaxed and supple position needed of the lips, and the quiet, forward position of the tongue.¹⁶³

EXERCISES FOR TRAINING THE FEMALE VOICE.

In my book entitled "The Voice in Singing," there may be found in reference to the use of these Exercises some hints which, however, will be of service only to such teachers as have become well acquainted with my method of teaching. The syllables, which are best to be used in this country in the training of the voice, are given in many of the Exercises. It must not however be forgotten that different voices require different modes of treatment, and may therefore require different syllables.

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Figure 13: Vowel use per Seiler's *Exercises for Training the Female Voice*.¹⁶⁴

Seiler writes a great deal on the flexibility of voice, primarily that it is a physiologic-physical coordination of the singing organ. Elements of this coordination include breath, the glottis, the larynx, oral space, and the tongue. Breath is the catalyst for phonation; therefore, its coordination to set the vocal cords into vibration quickly, in rapid succession, and to initiate the

¹⁶² Monahan, Brent. *The Singer's Companion: A Guide to Improving Your Voice and Performance*. (Pompton Plains, New Jersey: Limelight Editions, 2006), 49.

¹⁶³ Seiler, *Voice in Singing*, 70–71.

¹⁶⁴ Seiler, *Exercises for Training the Female Voice*, (Boston: Oliver Ditson & Co., 1877), 3.

necessary “retreat” or reprieve for change in tone, is essential to executing trills, roulades, turns and staccati. Ever connected to breath, the glottis must adjust for change in pitch, as well as muscular force for sensitivity and variety. Seiler states that the windpipe and larynx must adjust with inhalation, being drawn down slightly, but remain stable and allow the glottis to adjust for changes of tone. The oral space and tongue must remain consistent to execute the touch of the voice, but also to prevent the epiglottis from becoming involved in the sound.¹⁶⁵ Again, Seiler recommends the use of *koo* for study on agility. She also states that when a trill lies in a transition of the voice, all tones should be sung with the activity of the upper register, not the lower of the two.

Seiler explains that students should be instructed to cultivate tone and fluency at the same time and early in the student’s studies, not later. “Carefully and correctly directed exercises in ornamentation are in the highest degree necessary to the formation of tone; they tire the voice far less than sustained notes, and accustom it to an exact enunciation of the tone.” Seiler mentions that Frederick Wieck (1785-1873), whom she studied with in Leipzig for a time, created many exercises for his students that incorporated ornaments. There is no shortage of excellent exercises for students, but their success is dependent upon the instruction to practice. Instruction should call for exact, direct, light, and elastic execution of tone.¹⁶⁶ Of course, the finest singing in the world is still subject to exact intonation. Seiler therefore cautions the training of singers with the day’s pianos and tuning systems. And while Seiler briefly recognizes the teaching of intonation in the

¹⁶⁵ Seiler, *Voice in Singing*, 71–73.

¹⁶⁶ Seiler, *Voice in Singing*, 75; Scull, *Life of My Mother*, 44. Seiler offers her *Exercises for Training the Voice* as an example of such exercises.

fifteenth and sixteenth centuries, she acknowledges that today, there is no solution for this dilemma.¹⁶⁷

“Speech” is the last section encompassing Seiler’s physical view of the art of singing. Interestingly, this subject is rather short in the scope of Seiler’s writing. *The Voice in Speaking*, would be published in 1875 following the successful English publication of *The Voice in Singing*. In its introduction, Seiler speaks to similarities of scientific finding and their application to speech, as well as singing.¹⁶⁸ One of the issues that Seiler addresses in speech is the area of formation; if more forward, as in proper singing, would be clearer, easier, and more sonorous. The singing tone, however, should not be used in speech, as it is offensive.¹⁶⁹ Seiler also addresses inflection and prosody, noting the importance of timbre in the speaking voice. She closes this section by noting that there are interesting aspects of speech worthy of scientific observation and that the natural laws applied to singing can also be advantageous for speech.¹⁷⁰

IV. The Aesthetic View of the Art of Singing

In this final section of Seiler’s book, she states that perfection of technique is not the same as the aesthetic aspect of singing. She calls for a broader understanding and acceptance of aesthetic, as taste and ideas have varied throughout history and will continue to do so.¹⁷¹ At the same time, she addresses the culture and understanding needed to recognize and fully appreciate beauty, for it “depends upon principles, i.e., rules and laws, which are founded in the nature of the human reason. The appreciation, therefore, of beauty accompanies the development in man’s reason.”

¹⁶⁷ Seiler, *Voice in Singing*, 76.

¹⁶⁸ Seiler, *Voice in Speaking*, (Philadelphia: J.B. Lippincott & Co., 1875), 7-8.

¹⁶⁹ Seiler, *Voice in Singing*, 77.

¹⁷⁰ Seiler, *Voice in Singing*, 78.

¹⁷¹ Seiler, *Voice in Singing*, 82.

This same refined taste is essential for artists, who are only a “true artist” when they never venture past a boundary of beauty.¹⁷² In comparing the potential impact of various artistic forms, Seiler references Aristotle’s writings and declaration that music is “the expression of tones of feelings, and not of definite feelings.” This is the work of any art; to instantly awaken a part of the beholder’s subconscious, but because the slightest imperfection is instantly recognized, not by the understanding of any natural laws, it is the artist’s duty to perfect their technique so that its application is as natural as breathing. “For empty and dead as all technical knowledge is unless it is animated with a soul, yet no product of art aesthetically beautiful is possible without a perfect technique.”¹⁷³

In a short subsection, Seiler again grants a glimpse into her teaching philosophy. She charges the teacher to a thorough understanding of the natural laws, and the student to a high aptitude of culture. Per her recommendation, once the student ceases to be intellectually challenged by technical work, they should be engaged in the process of expression. Seiler holds the teacher to a lofty expectation in this stage of instruction, insisting that the teacher be so filled with inspiration that they are able to lead their student into the same personal abandonment for the sake of expression. For a teacher to execute this, they must be wholly devoted to their personal development in culture and science, demanding of themselves a high expectation before transferring the same expectation to their students.

Of the aesthetic principles, which according to Seiler, rest on psychological understanding, rhythm is first. Seiler holds that order and regularity belong squarely to the principles of beauty, and while rhythm serves as an external organizer of time, it also serves music by creating its

¹⁷² Seiler, *Voice in Singing*, 83.

¹⁷³ Seiler, *Voice in Singing*, 84–85.

innermost character. She breaks down the typical rhythmic accents in time signatures from 2/4, 4/4, 3/4 and 3/8, to 6/8, but emphasizes the power that the accent holds and describes how alterations and syncopations can change the character completely.¹⁷⁴

More difficult than understanding the importance of rhythm is for a student or artist to hold the correct understanding of the tempo. This is particularly problematic in old Italian pieces when performed by musicians of the classical school. Here the tempi are entirely too fast, thus stripping the piece of its character and turning the work into something vulgar. Seiler also mentions that Schubert's works for the voice are often sung too quickly. Even with the assistance of metronome markings, singing artists often use this as a suggestion, for the singer should be guided by the words and sentiment. She warns that great care should be taken to understand the practices of composers and time periods when performing, and that not all *andante* and *allegro* markings are created equal.¹⁷⁵

Seiler's "Composition" section addresses several issues including the use of dissonance, the composer's understanding of the voice and therefore how to write for it, the inability to reconcile older Italian works and texts, differences in Italian and German styles, and performing translated versions. She praises Beethoven for his use of dissonances, but admonishes his writing for the voice, saying that he treated the voice as a "subordinate instrument." She moreover praises Mozart for his study of the old Italian school of writing for the voice and states that his works will be upheld as models for all time.¹⁷⁶ When writing on the poetic and musical disagreement of older Italian works, Seiler insists that when the music is performed correctly the text setting is indeed

¹⁷⁴ Seiler, *Voice in Singing*, 85–87. Seiler uses the word *syncopes* when discussing the effect of accenting, typically unaccented beats.

¹⁷⁵ Seiler, *Voice in Singing*, 88–89.

¹⁷⁶ Seiler, *Voice in Singing*, 89–90.

meaningful. This point harkens back to Seiler's thoughts on correct tempi. Regarding the German and Italian styles, Seiler writes that in the Italian style, form dominates, and singing capability is heavily considered; while inspiration dominates and poetic expression is most significant in the German style. While Seiler appreciates the noble expression of German composers such as Schubert, Schumann, and Mendelssohn, she abhors the vocal writing that is inconsiderate of vocal register transitions and the selection of vowels upon tones.¹⁷⁷ The appropriate placement of vowels is Seiler's concern with singing translated works.

Under "External Aids to a Fine Execution," Seiler outlines rules of renewing breath according to old Italian masters. These rules are: before the beginning of a phrase, before trills and passages, after tied notes, before syncopated and accented notes, between two notes of the same pitch and same value, after staccato articulations, at all rests and pauses, and before an accented note in the middle of a musical passage. These were all to be executed at the discretion of the singing and in correlation to the character of the piece. German music, however governs breath according to the aesthetic and text, so that breathing at the beginning and ending of phrases, and with punctuation is most appropriate. Additionally, German arias and song require a great deal of clear diction. She recommends working through the text in a recitative-like manner, speaking with slight exaggeration with repetition.¹⁷⁸

The next external aid of expression that Seiler mentions is the *messa di voce*, which she curiously does not call by name, but describes as a swelling and weakening of the voice upon stressed tones. She heavily criticizes the inappropriate use of this aid, but states that it is beneficial to mournful and melancholy compositions. The abuse of the *messa di voce* created an over-

¹⁷⁷ Seiler, *Voice in Singing*, 92.

¹⁷⁸ Seiler, *Voice in Singing*, 93–95.

sentimentalized style, and this same style also saw poor use of the *tremolo*, namely its use when quiet singing was called for.

Seiler explains another manner of expression, one that was particularly delightful in the male voice, as the indecipherable transition of registers on a single note. She uses D4 as an example pitch and says that easy movement from chest to falsetto and visa versa could be executed in a very fine way. Her next point is on the use of ornaments. She points once again to the Italian composers, who utilized various ornamentation with repetition of text and melody, and cautions that with the day's music, care must be taken not to introduce these aids of expression frivolously. Taste in ornamentation is best achieved in the cultivation of the artist.

In the section titled "Time of Instruction," Seiler discusses the procedures and culture of training pupils of singing. The old Italian school of singing began training students at the age of nine or ten, and they trained for five or six years. Seiler credits the great success of this instruction to its occurring during a prime period of growth, the fact that the impulse to imitate is so strong as children, that a youth's organ is flexible, and that early study protects them from incorporating bad habits.¹⁷⁹ Seiler's primary complaints of the common instruction of the time were that teachers were not qualified to appropriately cultivate the voice, and that students were learning to sing within choirs. To Seiler, choral singing presents problems for young voices in the ranges required for some voices, the force or volume encouraged by the instructor, and the inadequate attention paid to the artistic culture of singing. On the other hand, Seiler complains that students are often not admitted to a singing master for instruction soon enough and that a high level of results are expected in an unrealistic span of time. The greatest fault that Seiler isolates is the present method of teaching singing. Instead of focusing on the development of tone and timbre, students are being

¹⁷⁹ Seiler, *Voice in Singing*, 96–98.

taught to sing a few pieces tolerably. Seiler confronts the practice as shortchanging the art of singing.

Seiler's "Conclusion" is short and concise. She emphatically states that a singing artist is formed only through intelligence, practice, and the guidance of a master of singing. This guidance is imperative for the singing artist to hold an impartial view of their skills. She restates that the purpose of her writing is not to be create a "manual of singing," but rather "to communicate and extend a knowledge of the latest discoveries and advances in the domain of vocal art, and to protest against and correct prevailing prejudices and errors in regard to this art, as well as to engage the attention of those to whose care the culture of the voice in entrusted."¹⁸⁰

This concludes the summary of Seiler's *The Voice in Singing*. This summary is a succinct, yet thorough representation of Seiler's ideas, findings, and beliefs pertaining to the voice; one that was lacking in the field of research and writing of voice pedagogy. Armed with an improved understanding of Seiler and the breadth of her work, we now turn to discuss the current conversation amongst voice researchers, and observe how Seiler is relevant to the definition of evidence-based pedagogy.

¹⁸⁰ Seiler, *Voice in Singing*, 99–101.

CHAPTER 4

A PIONEERING PRACTITIONER OF EVIDENCE-BASED PEDAGOGY

The history of vocal pedagogy spans around five centuries, beginning with Giovanni Camillo Maffei (1533-1603), a medical doctor born in the early sixteenth century near Salerno, Italy. His treatise, *Delle lettere...Conte d'Alta Villa*,¹⁸¹ is a collection of letters to his patron Giovanni di Capua, Count of Altavilla, on the physiological actions of singing.¹⁸² Many treatises between the sixteenth and eighteenth centuries followed; they are well-known and studied by pedagogues today.¹⁸³ These early treatises addressed largely superficial physiology, as well as training methods, and stylistic practices. It was not until 1741, when Antoine Ferrein experimented with an excised larynx, that medical experiments or dissection were used in discovering the particular processes of phonation. His experiment revealed that phonation was the conversion of aerodynamic power to acoustic power and that the glottis was the source. He also noted differences of tension in the glottis when changing pitches within the head register.¹⁸⁴ A century later, Johannes Müller (1801-1858) would present findings that proposed the myoelastic-aerodynamic theory; however, this theory would not be confirmed until 1854.¹⁸⁵ Around this time, Manuel

¹⁸¹ Giovanni Camillo Maffei, *Delle Lettere...Conte d'Alta Villa*, discorso 1 (1562), trans. Sion M. Honea, accessed December 1, 2018, <https://www.uco.edu/cfad/files/music/maffei.pdf>.

¹⁸² Talia, *A History of Vocal Pedagogy*, 9.

¹⁸³ Treatises preceding Manuel Garcia II's work: Giovanni Battista Bovicelli (1555–1594) *Discorso della voca a del modo d'apparare di contar di garganta* (1562), Lodovico Zacconi (1555–1627) *Prattica di musica*, Giolio Caccini (1551–1618) *le Nuove Musiche*, Bénigne de Bacilly (1625–1692) *Remarques curieuses sur l'art de bien chanter*, Pier Francesco Tosi (1653–1732) *Opinioni de' cantori antiche e moderni*, Giambattista Mancini (1714–1800) *Pensieri e riflessioni pratiche sopra il canto figurato*, Anselm Bayly (ca.1718–1794) *A Practical Treatise on Singing and Playing, being an Essay on Grammar, Pronunciation, and Singing*, Johann Agricola (1720–1774) *Anleitung zur Singekunst*, Jean Blanchet (1724–1778) *Lart du chant*, Bernardo Mengozzi (1758–1800) *Méthode de chant*, *The Singer's Preceptor*, Johann Adam Hiller (1728–1804) *Anweisung zum Musikalisch-Zierlichen gesang*.

¹⁸⁴ Talia, *History of Vocal Pedagogy*, 97.

¹⁸⁵ Robert Sataloff, *Sataloff's Comprehensive Textbook of Otolaryngology: Head & Neck Surgery: Laryngology Vol.4*, (Philadelphia: Jaypee Brothers Medical Publishers, 2016,) 53. Johannes Muller introduces the myoelastic-aerodynamic theory of phonation in 1839, stating that air from the lungs passing through the glottis causes vibration of essentially passive vocal folds... Van den Berg modified the myoelastic-aerodynamic theory in 1958. Key additions

Garcia II used the laryngoscope to view the human vocal folds in action within a living person, confirming Müller's theory,¹⁸⁶ and Hermann Helmholtz (1821-1894) conclusively proved the theory in the 1860s, during the time Seiler was working with him.¹⁸⁷ Ferrein's dissection of the larynx served as a catalyst for scientific observation of the voice and the phonatory process. Seiler was a part of this voice science lineage through Helmholtz; she extended its application and became a catalyst for change in respect to vocal instruction.

While Seiler never expressly set out to revolutionize the tradition of vocal instruction, she set the example of deliberately researching the voice in order to be a more qualified, safe, and accurate teacher. After the publishing of *The Voice in Science*, Marie wrote that all of her "mother's time was taken up with lessons not only by those who wanted to learn to sing for their own amusement, but also by many teachers, which pleased [her], as she could thus spread her ideas and make them useful to many."¹⁸⁸ She relished the opportunity to share with others her knowledge and principals of scientific teaching. In a similar manner, many of today's teachers pursue pedagogy workshops, degrees in higher education, conventions, and internships to advance their understanding of vocal science and instruction.

We know that Seiler made an impression on Julius Stockhausen, and influenced Emil Behnke, Lennox Browne, Morell Mackenzie, and John Curwen in their writings on the voice. We cannot; however, truly understand her impact on vocal instructors in the United States. Nonetheless, Seiler's treatise of the latter half of the nineteenth century stands to be scrutinized as

by Van den Berg included the requirement that the vocal folds be sufficiently approximated and that the vocal folds are driven into oscillation by forces that can be explained by Bernoulli's principle.

¹⁸⁶ Talia, *History of Vocal Pedagogy*, 101–102.

¹⁸⁷ Scull, *Life of My Mother*, 73–74. "She studied acoustics, physics, and physiology as far as they had any reference to the subject in question. Then Helmholtz would ask her to make certain experiments and send to the results."

¹⁸⁸ Scull, *Life of My Mother*, 121–123..

the first call for Evidence-Based Vocal Pedagogy. Monahan concurs and states that Seiler reflected portions of Garcia’s work in 1861 and later Helmholtz’s work in her translated publication. Consequently, by 1891 most new works would contain sections on anatomy, physiology, breath theories, phonation, and resonance. The most significant works would be written by physicians and scientists.¹⁸⁹ Seiler’s teaching philosophy placed emphasis on current scientific knowledge, as well as her experience as a singer and as a teacher. With these priorities, Seiler is an early and excellent example of an evidence-based voice pedagogue. She writes, saying “there [is] not only an *aesthetical* side to the art of singing, but a *physiological* and a *physical* side also, without an exact knowledge, appreciation, observance, and study of which, what is hurtful cannot be discerned and avoided; and no true culture of art, and consequently no progress in singing, is possible.”¹⁹⁰

Evidence-Based Voice Pedagogy

Pedagogues of the twentieth and twenty-first century are calling for evidence-based approaches in their teaching. The 2016 January edition of the *Journal of Voice* published the first systematic review of pedagogy for teaching and learning classical singing. This article was entitled, “Evidence-based Frameworks for Teaching and Learning in Classical Singing Training; A Systematic Review.”¹⁹¹ It narrowed the materials to be considered to nine studies. While considering these nine works, the study aimed to answer three questions:

- 1) Are there frameworks for classical singing training?
- 2) Are existing frameworks evidence-based?
- 3) What is the methodological quality of the research?

¹⁸⁹ Monahan, *Art of Singing*, 226.

¹⁹⁰ Seiler, *Voice in Singing*, 18.

¹⁹¹ Laura Crocco, Catherine J Madill, Patricia McCabe, “Evidence-based Frameworks for Teaching and Learning in Classical Singing Training: A Systematic Review,” *Journal of Voice*, 31, no.1 (1997): 130.e14.

They concluded that there were no evidence-based frameworks for teaching and learning in classical singing training.¹⁹² Furthermore, they posited that “an evidence-based framework would provide a way of organizing the teaching and learning practices already identified in the literature, and give singing teachers and students a structured outline of methods that have been scientifically proven to effectively aid in the teaching process, and improve learning.”¹⁹³

Figure 14: Ragan’s diagrams depicting evidence-based medicine and evidence-based vocal pedagogy.¹⁹⁴

In the fall of 2018, the *Journal of Voice* published an article titled “Defining Evidence-Based Voice Pedagogy.” Evidence-Based Voice Pedagogy is thus defined by Dr. Kari Ragan as “the integration of voice teacher expertise and experience, student goals and perspectives, and relevant research into voice science and production to effectively evaluate and identify technical inefficiencies to guide students towards vocally healthy and efficient, stylistically accurate, and artistic performances.”¹⁹⁵ Ragan has combined elements from Evidence-Based Medicine, a practice that began in the 1980’s, with her own performing, teaching, and research experience from

¹⁹² Crocco, “Evidence-Based Frameworks,” 130.e15.

¹⁹³ Crocco, “Evidence-Based Frameworks,” 130.e16.

¹⁹⁴ Ragan, “Defining Evidence-Based Vocal Pedagogy,” 158–159.

¹⁹⁵ Ragan, “Defining Evidence-Based Voice Pedagogy,” 158.

the last 35 years. This article is the first to clearly define the movement and to suggest a structure for its understanding and acceptance.¹⁹⁶ (See figure 14.)

Voice Research

Voice research is the first component of Ragan's evidence-based vocal pedagogy (EVBP) framework. While a division can exist between empirical and scientific or fact-based teaching styles, this factor is essential towards understanding EBVP. Seiler candidly writes in *The Voice in Singing*, that there was a common opinion to science's inability to improve music or preserve the singing voice. This opinion greatly impaired the receiving and cultivating of scientific findings into the arts community.¹⁹⁷ The need for this research to be implemented into teaching voice was the motivation for Seiler's research, and she stated that:

The old Italian method of instruction, to which vocal music owed its high condition, was purely *empirical*, i.e., the old singing masters taught only according to a sound and just feeling for the beautiful, guided by that faculty of acute observation, which enabled them to distinguish what belongs to nature. Their pupils learned by imitation, as children learn their mother tongue, without troubling themselves about rules. But after the true and natural way has once been forsaken, and for so long a period only the false and the unnatural has been heard and taught, it seems almost impossible by empiricism alone to restore the old and proper method of teaching. With our higher degree of culture, men and things have greatly changed. Our feeling is no longer sufficiently simple and natural to distinguish the true without the help of scientific principles.¹⁹⁸

While in pursuit of her training, she sought elevated schools of singing and master teachers only to discover that their methods conflicted again and again. This experience caused confusion, frustration, and ultimately a vocal injury in which Seiler lost her voice.¹⁹⁹ After dedicating herself

¹⁹⁶ Moving forward, Drs. Lynn Maxfield and Kari Ragan will expand on the Science the Voice Research Component to model a pyramid such as they use for EBM; this will identify what constitutes Voice Research within a tier system to identify the difference between objective measured research and anecdotal research.

¹⁹⁷ Seiler, *Voice in Singing*, 17.

¹⁹⁸ Seiler, *Voice in Singing*, 16. Seiler writes later that through science, she was able to definitively prove for the instruction of the voice, what the Old Italian masters taught by ear.

¹⁹⁹ Seiler, *Voice in Singing*, 6–8.

to years of research and study, she was confident that she could train a voice without inflicting harm. The primary harm Seiler addresses, is the abuse of register function and range.²⁰⁰ Mathilda Marchesi reinforces this idea in the preface of *The Art of Singing*, second edition, released in 1890. She says, “I assume that each teacher, before undertaking the difficult task of the formation of the voice, and the weighty responsibility for the artistic future of his pupils, will have studied anatomy, physiology and acoustics to the extent requisite for explaining and enforcing the following precepts.”²⁰¹ These women are in agreement with one another; voice research is essential for clear and safe teaching.

Elements of research may include: voice and sports science, the singing voice, cognition and learning theories, speech and hearing, the hard sciences of acoustics, psychology, as well as historical voice pedagogy. Ragan states this point, “Acknowledging the importance of scientific research and the rigorous controls it often undergoes, in the field of voice pedagogy, there is still value in anecdotal evidence and its application to teaching.”²⁰² This is a point of departure from EBM/EBP to EBVP, but this adaptation leads to the second component of EBVP.

Voice Teacher Experience and Expertise

Voice teacher experience and expertise is the second component of Ragan’s evidence-based vocal pedagogy framework. This element utilizes the experiences of the instructor both as a teacher and as a performer; highlighting the application of creativity, intuition, musicality, language skills, etc., for the enrichment of their student.²⁰³ Seiler held a variety of experiences that shaped her approach to teaching. She explains that “As I had for many years the advantage of the

²⁰⁰ Seiler, *Voice in Singing*, 40.

²⁰¹ Marchesi, preface to *Art of Singing*.

²⁰² Ragan, “Defining Evidence-Based Vocal Pedagogy,” 158.

²⁰³ Ragan, “Defining Evidence-Based Vocal Pedagogy,” 159.

best tuition, both German and Italian, in the Art of Singing, and had often sung with favor in concerts, I was led to believe myself qualified to become a teacher of this art. But hardly had I undertaken the office before I felt that...I was wanting in the knowledge of any sure starting-point, any sound principle, from which to proceed in the special culture of any individual voice.”²⁰⁴ She did not believe that a student could learn the full art of singing from any book, and that the need for a teacher-student relationship was irreplaceable. In her concluding thoughts of *The Voice in Singing*, she stated that “An artist can be formed only by his own intelligence and practice, under the direct guidance of a master.”²⁰⁵ A teacher’s experience and expertise is an invaluable resource in the learning process of any singer.

Student Goals and Perspectives

Student goals and perspectives is the third component of Ragan’s evidence-based vocal pedagogy framework. It “acknowledges that optimal pedagogical/teaching outcomes require consideration of the interests, values, needs, and choices of the individuals [taught].” Students are after all “more than their voices; they are a whole individual requiring an integrated approach to voice teaching.”²⁰⁶ The demands of a student and professional singer are great and can vary widely; therefore, the need for highly individualized training is essential for each singer’s health and success.²⁰⁷

Seiler did not write at length regarding this element of teaching, but she mentions the importance and impact our collective perspectives hold in making and interpreting music.²⁰⁸ Her

²⁰⁴ Seiler, *Voice in Singing*, 6.

²⁰⁵ Seiler, *Voice in Singing*, 101.

²⁰⁶ Ragan, “Defining Evidence-Based Vocal Pedagogy,” 159.

²⁰⁷ Joseph Talia, foreword to *Voice Science for Elite Singers*, by Jean Callaghan.

²⁰⁸ Seiler, *Voice in Singing*, 18.

ultimate concern was not towards supporting a student's goal, at least not that she wrote about; instead, Seiler was convicted to restore the high art of classical singing using scientific means. Beyond this point, Seiler does not speak about student goals and perspectives.

One possible reason for this is that singers were not afforded a multitude of stylistic options in the nineteenth century. However, today's teachers have to account for an array of paths in which a student may desire training. The decision to be a cross-over artist or to specialize in one style is a choice that every professional singer must make, as well as consideration for additional training such as acting or dance. Additionally, there are many avenues to establishing a professional or successful career as a singer, and these options present each student with choices. The teacher's consideration of these factors in students' lives is essential to their development and training.

The call for evidence-based vocal pedagogy is not new; it has been formulating for over one hundred fifty years. In the concluding remarks of *Provenance: Historic Voice Pedagogy Viewed through a Contemporary Lens*, Stephen Austin (b. 1964) discusses the role of voice science within the art of teaching voice, especially its contributing role in creating a standard for the evaluation of pedagogical thought and practice.²⁰⁹ The American Academy of Teachers of Singing states that “fact-based voice pedagogy and terminology help foster a common nomenclature and encourage technique that is consonant with the laws of nature.”²¹⁰ The field of voice pedagogy and voice science have much growth to make and can certainly inform each other. Calling for clarity and consistency, Seiler wrote this,

Custom stands in the way as an antagonist, and there must be a conflict with long-cherished and wide-spread errors and prejudices. It lies also in the nature of the case that teachers of

²⁰⁹ Stephen Austin, *Provenance: Historic Voice Pedagogy Viewed through a Contemporary Lens*, (Gahanna, Ohio: Inside View Press, 2017,) 347.

²¹⁰ Edwin, Robert, et al., “In Support of Fact-Based Voice Pedagogy and Terminology,” *American Academy of Teachers of Singing*, (May 2014), 10. <http://www.americanacademyofteachersofsinging.org/academy-publications.php>. (accessed October 4, 2018).

singing are the most determined opponents to be encountered. It is very hard for this class...to acknowledge and renounce as errors what they have taught for years and held to be truths.²¹¹

The future of vocal instruction will continue to be multi-faceted; combining elements of the traditional empirical approach with the application of ever developing voice science. Thus, to move forward with evidence-based pedagogy is every voice teacher's responsibility, and one to which Seiler dedicated much of her life.

To discover and establish the natural laws which lie at the basis of all our forms of art is the office of science; to fashion and control these forms and animate them with a soul is the task of art.

- Emma Seiler



Figure 15: Seiler's portrait that was used to create the marble relief gifted to the American Philosophical Society in November of 1891.²¹²

²¹¹ Seiler, *Voice in Singing*, 47.

²¹² Flemming, preface to *A Sketch of The Life of Madam Seiler*.

APPENDIX A

COMPLETE TABLE OF CONTENTS FROM THE 1867 REVISED ENGLISH

PUBLICATION OF *THE VOICE IN SINGING*

I. Vocal Music Its Rise, Development and Decline

II. Physiological View Formation of Sound by The Organ of The Human Voice

Observations With The Laryngoscope by Manuel Garcia

Emission of The Chest Voice

Production of Falsetto

Manner in Which the Sounds are Formed

My Own Observations with The Laryngoscope

The Chest Register

The Falsetto Register

The Head Register

Abnormal Movements of The Glottis

Results of The Foregoing Observations

Practical Application of These Observations to The Cultivation of The Singing Voice

III. Physical View Formation of Sounds by The Vocal Organ

Tone, and Its Laws of Vibration

The Properties of Tone (Klang)

The Timbre (Klangfarbe) of Tones

Over-Tones

The Vowels

Partial Tones

Beats (Die Schwebungen)

Application of The Natural Laws Lying at The Foundation of The Musical Sounds to The Culture of The Voice in Singing

The Control of Breath

The Correct Touch of The Voice (Tonansatz)

Formation of The Vowels and Consonants

Flexibility of The Voice

Speech

IV. The Æsthetic View of The Art of Singing

Rhythm

Correct Understanding of The Tempo

Composition

Externals Aids to a Fine Execution

Time of Instruction

Conclusion

APPENDIX B

FULL TEXT FROM *THE VOICE IN SPEAKING* INSIDE COVER: REVIEWS FOR
ORIGINAL PUBLICATION

These reviews were collected for the original publication of *The Voice in Speaking*.

“On the whole, we must regard it as the best essay on the voice in singing that has yet appeared.”—*North American Review*.

“We extend to this little volume a hearty welcome. It is a scientific, yet clear and practical discussion of a subject which certainly stands in need of far more intelligent consideration than it has been accustomed to receive.”—*N.Y. Nation*.

“We would earnestly advise all interested in any way in the vocal organs to read and thoroughly digest this remarkable work.”—*Boston Musical*.

“It is meeting with the favor of all authorities, and is a very valuable work. To any one engaged in teaching cultivation of the voice, or making singing a study, it will prove an efficient assistant.”—*Loomie’s Musical Journal*.

“This remarkable book is of special interest to teachers and scholars of vocal music. It is, however, of value to that much larger number of persons who love music for its own sake.”—*Phila. North American*.

“We recommend this book to all who are interested in the art of singing,—to the teacher who is earnest and conscientious in his work; to the pupil who seeks to know the true path; to the physician, whose difficult task it so often is to attempt the cure of throats injured by false systems of singing; to the educated man who is willing to admit that in music there is something more profound than the mere claptrapisms of the charlatan; and to all who have a real interest in the triumph of truth over error.”—*Phila. Ev. Bulletin*.

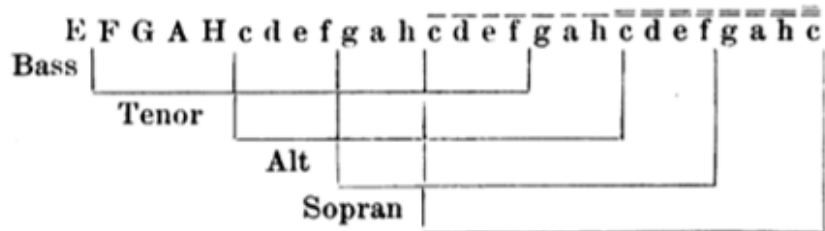
APPENDIX C

SEILER'S REGISTER TRANSITIONS IN THE MALE AND FEMALE VOICE: ORIGINAL

These diagrams were published in *Altes und Neues über die Ausbildung des Gesangorganes mit besonderer Rücksicht auf die Frauenstimme* in 1861. Seiler drew inspiration for her register diagrams from those of Manuel Garcia II.

Zusammenstellung
der verschiedenen Register und Tonreihen nach den
vorhergehenden Beobachtungen.

Mittlere Lagen der verschiedenen Stimmen:



Die Register der Männerstimmen nach GARCIA:



Die Register der Frauenstimmen nach meinen Beobachtungen:



BIBLIOGRAPHY

- The Acoustic Theory of Speech Production: The Source-Filter Model;
<http://www.haskins.yale.edu/featured/heads/mmsp/acoustic.html>
- American Philosophical Society, www.amphilsoc.org.
- Anon., review of *The Voice in Singing*, by Emma Seiler, translated by Dr. William Henry Furness. *The North American Review* 106, no. 219 (April 1868): 727-734.
- . “DEATH OF MADAME SEILER.” *Tonic sol-fa reporter* (March 1, 1887) British Periodicals: 63.
- . “EMMA SEILER,” *The Review of reviews*. British Periodicals (October 1893): 402.
- Austin, Stephen F., *Provenance: Historic Voice Pedagogy Viewed Through a Contemporary Lens*. Gahanna, Ohio: Inside View Press, 2017.
- Bailey, Martha J. *American Women in Science: A Biographical Dictionary*, (Denver, Colorado: ABC-CLIO, 1994) vii.
- Behnke, Emil. *The Mechanism of the Human Voice*, 9th ed. London: J Curwen & Sons, 1890.
- Browne, Lennox. *Voice, Song, and Speech: A Practical Guide for Singers and Speakers*. New York: G. P. Putnam’s Sons, 1884.
- Carl Ludwig Merkel, <http://onlinebooks.library.upenn.edu/webbin/book/lookupname?key=Merkel%2C%20Carl%20Ludwig%2C%201812-1876>.
- Carozzi, G.N. Esq. “Practical Suggestions on Vocal Culture,” *Proceedings of the Musical Association* 9, no. 1 (1882-1883): 17-38. 129.120.15.84
- Coffin, Berton. *Historical Vocal Pedagogy Classics*. London: The Scarecrow Press, Inc., 1989.
- Crocco, Laura, et al., “Evidence-based Frameworks for Teaching and Learning in Classical Singing Training: A Systematic Review,” *Journal of Voice*, 31, no.1 (1997): 130.e7-130.e17.
- Ditson, <http://imslp.org/wiki/Ditson>.
- Doscher, Barbara M. *The Functional Unity of the Singing Voice*. Lanham, Md., & London: The Scarecrow Press Inc., 1994.
- Edwin, Robert, et al., “In Support of Fact-Based Voice Pedagogy and Terminology,” *American Academy of Teachers of Singing*, May 2014.
<http://www.americanacademyofteachersofsinging.org/academy-publications.php>.
- Find A Grave, <http://www.findagrave.com/memorial/104141048/emma-diruf-seiler/photo>.

- Flemming, Harford. *A Sketch of The Life of Madam Seiler*. Philadelphia: WM. H. Hoskins Co., n.d. (Original work located at the American Philosophical Society Library in Philadelphia.)
- Francis, Kimberly, “Her-Storiography: Piere Bourdieu, Cultural Capital, and Changing the Narrative Paradigm,” *Women and Music: A Journal of Gender and Culture*, 19, 2015, 169-177.
- Garcia, Manuel, “Observations on the Human Voice Author.” *Proceedings of the Royal Society of London*, 7 (1854-1855): 399-410. 71.84.155.229
- Giovanni Camillo Maffei, Delle Lettere...Conte d’Alta Villa, discorso 1 (1562), trans. by Sion M. Honea. <https://www.uco.edu/cfad/files/music/maffei.pdf>.
- Hermann L.F. von Helmholtz (1821-1894), <http://www.unav.es/gep/Helmholtz.html>.
- Hiebert, E., *The Helmholtz Legacy in Physiological Acoustics*, chap. 2 *New Directions in Physiology in the Johannes Müller Circle in Berlin*, Heidelberg: Springer International Publishing, 2014.
- Howe, Sondra Wieland. *Women Music Educators in the United States: A History*, Lanham: The Scarecrow Press, Inc., 2014.
- Jufer, Max. *Das aussergewöhnliche Langenthaler Jahrzehnt 1841-1851 der grossen Frau Emma Seiler-Diruf*. Langenthal: Stiftung zur Förderung Wissenschaftlicher und Heimatkundlicher Forschung über Stadt und Gemeinde Langenthal, 2000.
- Lesley, Susan, “Biographical Sketch of Madame Seiler,” *Proceedings of the American Philosophical Society*, 29, no. 135 (January to June, 1891): 151-158.
- Mackenzie, Morell, *The Hygiene of the Vocal Organs: A Practical Handbook for Singers and Speakers*, 6th ed. London, & Macmillan & co., 1888.
<https://catalog.hathitrust.org/Record/002080946>.
- Marchesi, Mathilda. *Bel Canto: A Theoretical & Practical Vocal Method*. New York: Dover Publications, 1970.
- McClellan, Harriet, “Extracts from a Biographical Sketch of Madame Seiler,” *Proceedings of the American Philosophical Society*, 29, no. 135 (January to June, 1891): 160-162.
- Miller, Richard. *Training Soprano Voices*. New York: Oxford University Press, 2000.
- Monahan, Brent Jeffrey. *The Art of Singing: A compendium of Thoughts on Singing Published Between, 1777 and 1927*. Metuchen: Scarecrow Press, Inc., 1978.
- Monahan, Brent Jeffrey. *The Singer’s Companion: A Guide to Improving Your Voice and Performance*. Pompton Plains, New Jersey: Limelight Editions, 2006.

- Mulligan, Charlotte, "Extracts from a Biographical Sketch of Madame Emma Seiler,"
 Proceedings of the American Philosophical Society, 29, no. 135 (January to June, 1891):
 158-159.
- Oliver Ditson Society, <https://necmusic.edu/archives/oliver-ditson>.
- Price, Kathy K., "Emma Seiler: A Pioneering Woman in the Art and Science of Teaching
 Voice," *Journal of Singing* (September/October 2011): 9-22.
- . "Emma Seiler and Mathilda Marchesi: Pioneering Women in the Art and Science of
 Teaching Voice," American Philosophical Society, 2009.
- Ragan, Kari, "Defining Evidence-Based Voice Pedagogy: A New Framework," *Journal of
 Singing*, 75, no. 2 (November/December 2018): 157-160.
- Reid, Cornelius L. *Essays on the Nature of Singing*. Huntsville, Texas: Recital Publications,
 1992)
- Sataloff, Robert Thayer. *Sataloff's Comprehensive Textbook of Otolaryngology: Head & Neck
 Surgery: Laryngology, Vol.4*. Edited by Michael S Benninger. Philadelphia: Jaypee
 Brothers Medical Publishers, 2016.
- . *Vocal Health and Pedagogy: Science and Assessment, Vol.4*, 2nd ed. Edited by Sataloff.
 San Diego: Plural Publishing, Inc., 2006.
- Scull, Maria Seiler. *The Life of My Mother, Emma Seiler*. Boston: privately printed, 1902.
- Seiler, Emma. *Altes und Neues über die Ausbildung des Gesangorganes mit besonderer
 Rücksicht auf die Frauenstimme*. Leipzig: L. Voss, 1861.
- . *The Voice in Singing*. Translated by William Henry Furness. Philadelphia: J. P.
 Lippencott and Co., 1868.
- . *The Voice in Speaking*. Philadelphia: J. P. Lippencott and Co., 1875.
- . *Exercises for Training the Voice*. Boston: Oliver Ditson and Co., 1877.
- Sell, Karen. *The Disciplines of Vocal Pedagogy: Towards a Holistic Approach*. London:
 Routledge, 2016.
- Smith, Bonnie G. *The Gender of History: Men, Women, and Historical Practice*. Cambridge,
 Massachusetts: Harvard University Press, 1998.
- Solie, Ruth A., "Women's History and Music History: The Feminist Historiography of Sophie
 Drinker," *Journal of Women's History*, 5, no.2 (1993): 8-31.
- Stark, James. *Bel Canto, A History of Vocal Pedagogy*. Toronto, Canada: University of Toronto
 Press, 1999.

- Steege, Benjamin. *Helmholtz and The Modern Listener*. New York: Cambridge Press, 2012.
- Stockhausen, Julius. *A Method of Singing*, Translated by Sophie Löwe. London: Novello and Company, Limited., 1884.
- Talia, Joseph. *A History of Vocal Pedagogy: Intuition & Science*. Samford Valley, Australia: Australian Academic Press Group Pty. Ltd., 2017.
- Talia, Joseph. *Vocal Science for Elite Singers*. Samford Valley, Australia: Australian Academic Press Group Pty. Ltd., 2017.
- Tyndall, John, *Sound*, New York: D. Appleton and Company, 1867.
<https://archive.org/details/soundcourseseeig00tyndgoog/page/n6>.
- Wilson, Erasmus, *Wilson's Human Anatomy*, Philadelphia: Blanchard and Lea, 1858.
<http://resource.nlm.nih.gov/101496246>.