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Evidence-Based Voice Pedagogy (EBVP), Part 1: Voice Research Component

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[Associate Editor's Note: This article is the first in a 3-part series that will explore and further define each of the three components of the Evidence-Based Voice Pedagogy framework, as outlined in Kari Ragan's 2018 article, "Defining Evidence-Based Voice Pedagogy: A New Framework."[1] Each of the three articles will consider a single component of a tripartite framework: *Voice Research*; *Teacher Expertise and Experience;* and *Student Goals and Perspectives*. The order in which these components are presented in this series should in no way be seen as creating a hierarchy of importance.]

Previously, the term Evidence-Based Voice Pedagogy (EBVP) was often conflated with science-based, function-based, or fact-based voice pedagogy. To the contrary, Ragan's framework defines it in broader terms. With its roots in the older and more established Evidence-Based Medicine (EBM), EBVP integrates the experience of a voice teacher (Teacher Expertise and Experience), the goals of the student (Student Goals and Perspectives), and the best available research (Voice Research) to inform an approach to training efficient and artistic singing. EBVP leverages the synthesis of all three components. The gold standard of evidence for any voice teacher is to achieve efficacy in the form of vocally efficient and artistic performances. By definition,

> EBVP is 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. EBVP is a voice pedagogy framework that acknowledges the importance of both scientific voice research and anecdotal evidence, along with consideration of the experience acquired by a teacher, and the importance of individual student needs.[2]

EBVP can easily be conceptualized as a Venn diagram, with our practice inhabiting the convergence of all three components (Figure 1). A Venn diagram uses overlapping circles to illustrate relationships among a group of things. The EBVP Venn diagram visually represents each component and relevant intersections of this framework. There is a commonality in how all three components serve the needs of training singers, each essential in its contribution to EBVP. To maintain a balance, the union of all areas must grow simultaneously in aspects pertaining to this approach. Furthermore,

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there is no hierarchy to the EBVP components. Labeling voice research component number one in the original article in no way signified an organizational ranking of importance. EBVP should be considered the epitome of cooperation between a science-based and practice-based approach to voice teaching, in addition to a holistic nature in consideration of the students' needs in order to demonstrate efficacy in our profession.

The voice research component "refers to research relevant to voice and singing voice production. Relevant fields may include voice science, singing voice, sports science, cognition and learning, medicine, speech and hearing, acoustics, psychology, and historical voice pedagogy."[3] In the field of medicine, EBM has systematized guidelines to identify various levels of quality of research; in the medical discipline, this is especially crucial. In the field of voice pedagogy, one will review and evaluate peer reviewed journals from a variety of fields of research. Acknowledging the importance of scientific research and the rigorous controls it often undergoes, in the field of voice pedagogy there is still value in less controlled investigations—or even anecdotal evidence and its application to teaching. Some of this evidence could more appropriately be classified under the *teacher expertise and experience,* but it most certainly falls within the intersection of the Venn Diagram, which embodies EBVP.

DEFINING RESEARCH

Anthropologist and author Zora Neale Hurston states that, "Research is formalized curiosity. It is poking and prying with a purpose."[4] A more descriptive definition could be that research is a systematic investigation, aimed at creating and developing new knowledge. When considering types of systematic investigation that constitute research, there exist different goals and various modalities. Most research, regardless of its field or modality, can be broadly classified according to how immediately it is applied. First, there is *basic or fundamental research*. The aim of this type of research is to better understand fundamental principles and phenomena with no immediate or direct application in mind. For example, why does a cell process something a particular way? One may not know where such a question will lead, but the answer would benefit our understanding of the world around us. Second, then, is *applied or translational research*, where the aim is to apply fundamental understanding to improve practice. There is a clear symbiotic relationship between these two types of research: without fundamental research, there are no new findings to apply; without applied research, no field of practice can advance.

Figure 1. Evidence-Based Voice Pedagogy (EBVP).

Both fundamental and applied research utilize various modalities of investigation. Some of those modalities include (but are not limited to) prospective human subject trials, bio-mechanical modeling, historical analyses, case studies, and practice-based research. While EBM defines a hierarchy (discussed later in this article) of the importance of each of these research modalities, EBVP recognizes the value of all. In terms of its application to voice pedagogy, there is considerable breadth in what types of research should be considered. Furthermore, there are innumerable fields of study whose research adds value to the practice of teaching singing.

ASSESSING RESEARCH

How we review and assess research is an area that can be improved. As we encounter new reports of research, the value and applicability of that research can be assessed in relation to three areas, termed the "gold standards."[5] First, look for peer review. Peer review is the process by which a manuscript is reviewed by a number of scholars/researchers who have expertise in the field relevant to that manuscript. These experts assess the methodology and results presented in the manuscript and evaluate the study's suitability to be published. While not perfect,

peer review serves as an essential safeguard against the publication of misleading research findings.

The second "gold standard" used to assess the quality of new research is the reputation of the journal and the publisher. With the inception of the Internet, this warrants more discernment than ever before. It is wise to be more skeptical of information distributed online without a known reputation of the publisher. There is also a growing problem of predatory journals encouraging researchers to publish in their publications, which have limited, or even fraudulent, systems of review. Of course, broadening the scope of one's investigation often requires looking beyond known sources of information. Still, investigating the reputation of a particular journal becomes imperative at this juncture.

As a third standard, we can assess the credentials of the author and his/her reputation. Has the author's work been substantiated previously, or throughout a number of years? Has the author's reputation been established within the particular field of expertise and does he or she have clear research and conservative publication of results?[6] While new investigators certainly make significant contributions to their fields, reputation and credentials may tip the balance of believability in favor of a more established investigator when conflicting conclusions are presented.

Another influence to consider is the funding source and/or sponsorship of the research. Sponsors can meddle with the scientific integrity of the research being conducted in order to produce desired results. Alternatively, and perhaps more insidious, sponsors can influence how results are presented, highlighting only results that support their interests, while downplaying contradicting indications. Corporate or foundation funding of research should not immediately discount that research's results, but the consumer is wise to consider that information in relation to how the data are presented.

SCIENCES AND HUMANITIES

With regard to Evidence-Based Voice Pedagogy (EBVP), most relevant fields of research or study can be divided into broad categories of the sciences and the humanities. Science is a body of knowledge about a topic, which can be described via a process of observation and experimentation. This process of observation and experimentation has been formalized as the "Scientific Method." The basic process of engaging in the scientific method begins with an **observation**, which leads to a **question** about what one is seeing or hearing, which leads to a **hypothesis** about why things are the way they are. That hypothesis leads to a **prediction** that is then tested with an **experiment**. The results of the experiment are observed and considered in relation to the original observation as the process starts over with a new iteration, a revised hypothesis, and prediction resulting in a retest. This process repeats, with incremental improvements to the hypothesis and/or prediction. Science, as a body of knowledge, is dependent upon the process. It is continually updated and reshaped as the process takes its iterative course of revision and re-experimentation. Often, we are asked if we believe in science. The implied meaning of this question is whether one believes in the body of knowledge. One might be wiser to emphasize that we believe in the process by which the body of knowledge is shaped. The scientific method may not be perfect, but it is the best tool developed thus far to observe and describe the world within which we live.

Science can further be divided into **physical sciences** (study of natural phenomena, e.g., physics and chemistry), **biological sciences** (study of living organisms, e.g., biology, microbiology, and biochemistry), and **social and behavioral sciences** (study of human behavior, e.g., psychology, anthropology, and sociology). Research relevant to EBVP comes from all three divisions. The study of physics and acoustics from the physical sciences helps us understand sound generation and propagation. Tissue morphology and biomechanics from the biological sciences help us understand elements of vocal health, among many other applications. The social and behavioral sciences provide invaluable insights into skill acquisition and performance. In short, ignorance in any area shortchanges the teacher and the learner.

While science can teach much about the human voice and our capacity to learn and perform new skills, voice research in the context of EBVP is incomplete without research in humanities. A few examples of humanistic areas of research would include art and art history, world languages, history, linguistics, philosophy, and religious studies. Experienced voice teachers know that the research in these fields, which includes the systematic investigations of historical pedagogy and performance

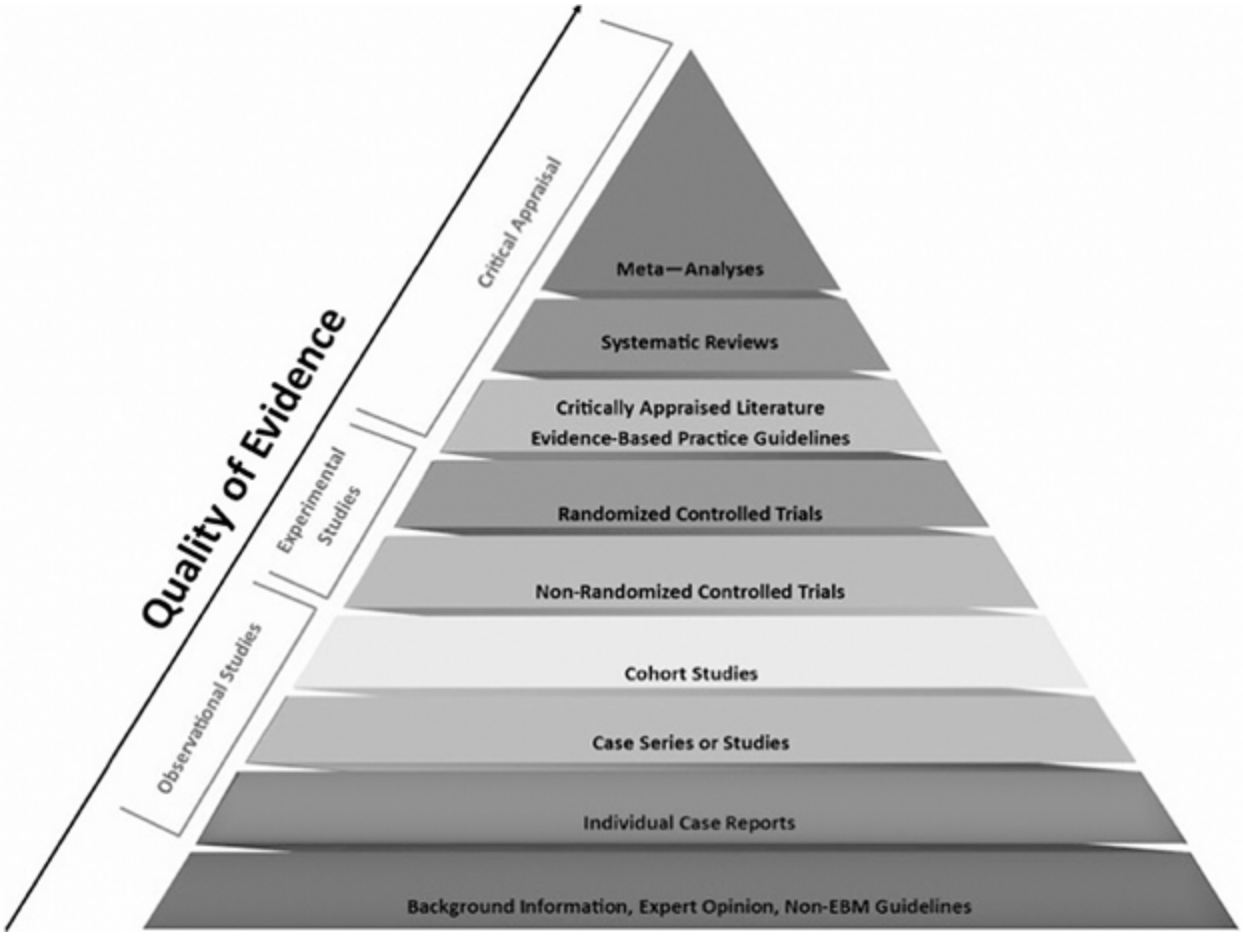

Figure 2. Evidence-Based Medicine Quality of Evidence.*
***K. Rajeshwar Reddy, "Evidence Based Medicine: A Paradigm for Clinical Practice," *Journal of Gandaki Medical College-Nepal* 11, no. 02 (December 2018): 74–81.**

practice, has informed our practice as both teachers and performers in significant ways. The University of Washington English Department website concisely states, "A common misconception about research is reinforced when we view it solely in terms of the discovery of things previously unknown (such as a new species or an archaeological artifact) rather than as a *process* that includes the reinterpretation . . . from a critical or creative perspective to generate innovative art or new analyses."[7] EBVP emphasizes the importance of continuing to redefine the cultural understanding of research to be more inclusive of research outside of the sciences. Within the collegiate purview of research institutions, this can be challenging because research depends upon funding. In truth, funding opportunities in the sciences are far greater in both number and size of awards than in the humanities. However, **it is imperative that EBVP not be conflated with an overemphasis on scientific research at the expense or dismissal of humanistic research**. To do so would be a grievous misinterpretation of the EBVP framework.

A HIERARCHY OF IMPORTANCE?

Can EBVP research be weighed according to its methodology? If we take as an example the Evidence-Based Medicine paradigm, there is a clear hierarchy that has been established where results from meta-analyses ideally should be more generalizable (greater ecological validity) than the background information and nonevidence-based guidelines at the bottom of the pyramid (Figure 2).

Figure 3. Example fields of study in which "Voice Research" could be produced.

At the inception of expanding the EBVP voice research component, the authors set out to develop a similar hierarchical model. However, it became evident that while EBVP could be broadly modeled after EBM, within the component of voice research the "quality of evidence" hierarchy failed to capture the value of the breadth of fields (and their necessarily different methods of investigation) that inform voice pedagogy. Voice research in this context encompasses work from both the sciences and the humanities that must be considered without judgement to their importance. Instead, a model has been developed that draws attention to the many fields whose works influence voice research and ultimately voice pedagogy (Figure 3). While the diagram is not exhaustive, it encompasses the some of the main fields of investigation; the primary fields of research that are actively influencing voice pedagogy.

CONCLUSION

Voice research, in its relation to voice pedagogy, should be broadly defined. It truly is a "Big Tent" with room for evidence arising from numerous fields of study in both the sciences and the humanities, employing widely varying methodologies. Its home in EBVP represents a synergistic interaction with the expertise and experience of studio teachers, and with an eye toward the lived perspectives of our students.

NOTES

1. Kari Ragan, "Defining Evidence-Based Voice Pedagogy: A New Framework," *Journal of Singing* 75, no. 2 (November/December 2018): 157–160.
2. Ibid., 157.
3. Ibid., 158.
4. Zora Neale Hurston, *Dust Tracks on a Road: An Autobiography* (London: Hutchinson & Co., 1942), 91.
5. Alan Bailin and A. Grafstein, *The Critical Assessment of Research: Traditional and New Methods of Evaluation* (Oxford: Chandos Publishing, 2010), 7–17.
6. Conservative in this sense is understood to mean that results and their applicability/generalizability are not overstated. Conclusions are drawn only if the evidence supports them.
7. University of Washington, "What is Humanities Research?"; https://english.washington.edu/what-humanities-research (accessed October 30, 2020).

Author, singer, and voice pedagogue, **Kari Ragan** holds degrees from the University of Washington (DMA), and Indiana University (MM, BM). Dr. Ragan was the recipient of the prestigious Van. L. Lawrence Award, the NATS Foundation Pedagogy Award, and was selected to be a Master Teacher for the NATS Intern Program in June 2021. Dr. Ragan works in affiliation with the University of Washington Laryngology program to help rehabilitate singers with injured voices. She has maintained a thriving Independent Voice Studio for over thirty-five years and served on the voice faculty at the University of Washington, where she continues to teach Voice Pedagogy. Plural Publishing released her book *A Systematic Approach to Voice: The Art of Studio Application in 2020.* Other publications and information can be found at KariRagan.com