

Final MA Assignment BMPF7010

Project title:

Reconnecting With Informed Embodied Confidence: Investigating Professional Singers with Laryngeal Dystonia.

Contents: SECTION 1	Page:
Project Proposal / Gantt Chart	2-8
Introduction	9 -11
Literature Review	12-17
Methodology	18-25
Findings, Analysis,	25-39
Arguments, Limitations and Conclusion	40-45
References	46-65

Appendices: SECTION 2	Page:
1. Approved Ethic Form, Permission Letter	2-17
2. Candidate Poster	18
3. Risk Assessment	19
4. Consent Forms	21-34
5. Pedagogical Model (Flower)	35
6. Abstracts detailing Pedagogical Model	36-39
7. Color-Code Sequencing Index and Singer Questionnaire	40-44
8. Color-Code Sequencing Index and Voice Practitioner Questionnaires	59-68
9. Transcript of Practitioner Interview French	69-81
10. Transcript of Practitioner Interview, Translation English, (color-coded)	82-93
11. Model SVHI 2nd ed.	94
12. Andragogy Sample	96
13. Model PSVHI for Professional Singers facing LD,	97-101
14. Brochure Functional Dystonia	102
15. Liz Lerman's CRP	103

Separate Appendices: SECTION 3

- **PowerPoint slides**
- **PowerPoint presentation to be sent by the VSC**

Elevating Confidence Level in Singers with Laryngeal Dystonia

Project Proposal

1. The Context

This research will provide insight into recent findings about the debilitating effects of laryngeal dystonia (from here on labelled LD) on professional singers and the management of this disease. The purpose for this study is to strive to elevate confidence levels in professional singers with LD by listening to their beliefs around their capacities and accessing their embodied knowledge regarding what they can versus cannot do through psycho education, Laban Movement Analysis (LMA) (Bernadet, 2019). The setting of the project is mainly taken place in my home in France, using tools such as phone or Zoom video calls, or in practitioners' offices or email exchanges if need be. Some cross research between interview and questionnaire has been transcribed and used for the practitioners who volunteered to participate. The current setting of my studio is either in person or online sessions with amateur and professional singers, and this study pertains to the teaching of professional singers in my studio who are disabled and discouraged from their habitual function because of LD.

2. The Justification

Laryngeal dystonia is an idiopathic disorder destabilizing motor tasks by disorganizing intentional movement such as breathing, swallowing, speaking or singing (Simonyan, 2021; Vidakovic, 2022; Guidry, 2019). Latest research evidence about LD presents its complex nature as:

multifactorial: stemming from or involving several different factors

phenotypical: relating to its observable characteristics resulting from interaction with its environment with its genotype

heterogeneous: diverse in content

(Simonyan, 2021, Oxford Dictionary online, 2024).

I am undertaking this project because I feel that my own diagnosis of LD in March, 2021, as well as my experiential, evidence-based, Practice-as Research (Nelson, 2022) approach to managing the confidence loss that comes with this affectation makes this research useful for other singers and practitioners. The research could provide insight for voice practitioners, teachers, therapists who are not briefed about LD or LD management. Recent new measures were developed to acknowledge distinction between Laryngeal Functional Dystonia (LFD), Dystonic Voice Tremor (DVT), Essential Voice Tremor (EVT), and Muscle Tension Dysphonia (MTD) (see Figure 1 p.4) (Simonyan, 2021; Dupuch, 2023).

This study is built on foundations of other studies I yielded during the MA, such as BMPF7013, where Liz Lehman's (2003) Critical Response Practice (appendix 15), noting how gentle critical feedback (including self-feedback perception) can help perceive vocal difficulties during singing tasks, differentiating a technical issue from an unintentionally disorganized movement issue in the studio (Barre, 2019; Holding, 2016).

Singers are expected to report their problems to voice teachers, who may or may not refer the issue to otolaryngologists, who are expected to refer the singer to a speech/language therapist in conjunction with neurologists, psychotherapists or other health practitioners. The question arises: How can a voice teacher know to refer the professional singer to a specialist? As confidence capacities in a singer drop, and performance becomes affected, this provides insight towards reported impaired quality of life (Scorr, 2021). Justification for this project is partly built on hypothesis, as I recognize the lack of literature regarding embodiment management for professional singing teachers and didactic singing tasks within LD parameters. I am not a rehabilitation specialist or therapist, but my job as a singing teacher is to help singers aim towards accuracy, and this work acknowledges vocal and psychiatric disturbances before, during and after the diagnostic period particularly for professional singers who train with me, but may require referral to therapeutic measures (Scorr, 2021, Vidakovic, 2022).

3. The Intended Impact

The impact of this research project is to inform teachers and professional singers about LD, and help shorten the time it takes to recognize the symptoms of LD in professional singers. The intention is to elevate confidence in professional singers suffering from LD by introducing a psycho embodiment educative process that could help understand the onset of LD. In my experience, LD disorganizes movement sometimes severely because it renders 'once upon a time easy tasks quasi impossible, adversely affecting confidence levels, leaving the singer embodied with the question 'How will I ever sing normally again? The intention of this research is to further explore current methods of management of the affectation, exploring automatism of movement, how/why singers manage singing tasks without conscious thought, and how they are blocked by LD (Hamzelou, 2017). The intended impact of this study is to develop a protocol, guidance, that can contribute to LD knowledge, while positively and compassionately assisting the thought process and confidence levels in professional singers' with LD.

Singing teachers/voice experts are particularly knowledgeable for professional singers tasks, whether paired, or not, with any form of LD (Titze, 1980; Holding, 2016; Juncos, 2022; Obert, 2023) and the current view in France and in Canada is diagnostic teams are to be made up solely of medical practitioners (excluding singing teachers) as the only valid team of experts leading to

diagnostic and management measures (Simonyan, 2021; Scorr, 2021; Dysphonia.Org, 2023). Due to the complex nature in which LD is diagnosed through multiple assessments by several different practitioners (See below Figure 1 section A), the process can take up to 5.5 years. For a professional singer this is unacceptable in the face of loss of work and, in my experience, the impact of the accompanying sentiment of fatality.

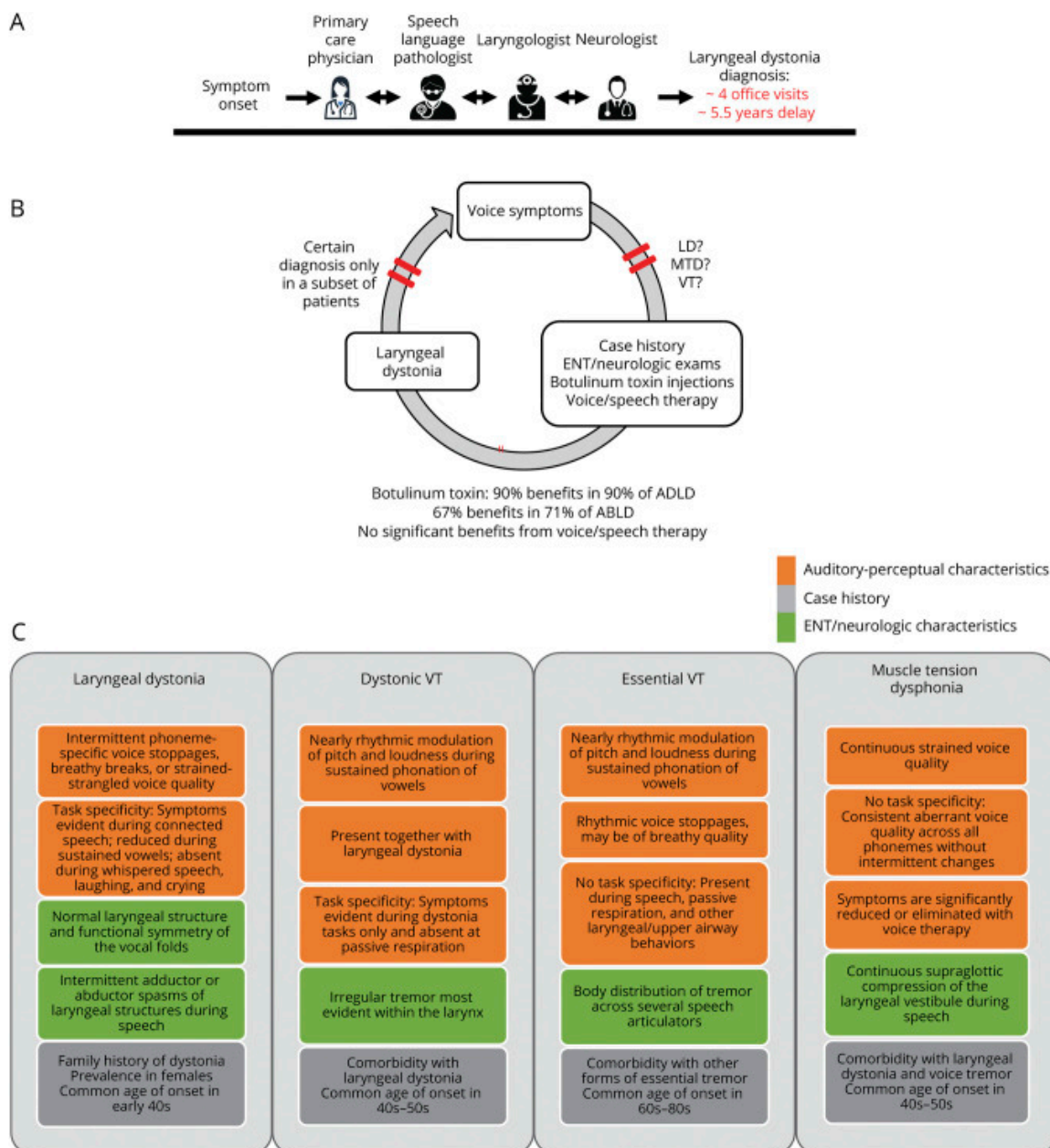


Figure 1. Standard Clinical Management and Clinical Characteristics and of Laryngeal

Dystonia (A) The current standard clinical management of laryngeal dystonia. Multidisciplinary team evaluations of a patient are recommended to facilitate the diagnosis and initiate the treatment. (B) Clinical diagnosis is based on a syndromic approach, using (C) a combination of case history, auditory/perception characteristics, and laryngeal/neurologic examinations.

(Accessed August 4th, 2023, <https://pubmed.ncbi.nlm.nih.gov/33858994/>)

4. The Outlined Intention

This study's findings will be based on mixed methods (open-ended data) research, qualitative case-study, interview sessions, and singer's embodied experience (Creswell, 2015). As this project was motivated by my own insider research positionality framework, I express how experience helped to define the process of gaining knowledge about singing professionally, developing LD, and measuring confidence, by validating a rapport between approachability to the topic and leaning towards a general association. The research paradigm is achieved while infusing my ever-evolving pedagogical practice (Bukamal, 2022; De Vries, 2016). Purposeful general information linked to Practice as Research in Arts Praxis, and will contribute to my knowledge as a voice and singing teacher, in the context of my work with professional singers who have been diagnosed with LD (Creswell, 2015; Nelson, 2022; Scorr, 2021; Simonyan, 2021).

To examine the relevance of professional singers' description of the onset of an LD related spasmodic crisis, this research aims to ask the relevance of psycho education and pathophysiology pertaining to therapeutic management of LD. Psycho education refers to investigating ones personally designed therapeutic measure to meet the need of mitigating emotional regulation within relationships, within ourselves and with others (Porges, 2023; Polatin, 2016; Cyrulnik, 2020) . Thus study also examines a specific team of doctors and therapists and their management strategies for professional singers with LD (Nash, 2021). By providing psycho education regarding trauma and subsequent arousal state, the singer may be able to augment their embodiment knowledge, helping raise self-confidence levels while alleviating self-blame (Durham, 2023). This portion of the study will contain a literature review. Data from questionnaires will be drawn from professional singers with LD recounting their experience regarding their embodied knowledge of the disease, and the description of symptoms from onset of LD, wherein applied analytical techniques (Creswell, 2014) will contribute to pertinent observation of commonalities regarding professional singers and LD.

The singers will then receive psycho embodiment education in conjunction with Laban Movement Analysis (Laban, 1960) training and voice production exercises. The nature of this step in the study is to confirm elevated confidence levels in professional singers through a psycho-educative

precursor, informing participants about embodiment explanation sessions containing music/singing intertwined with :

- The Polyvagal Theory because of its strategies to regulate the feeling of safety by the autonomic nervous system (Porges, 2022)
- Informing professional singers' relationships to their body and voice, attachment theory as an inherent biological response and behavioral system in place to provide satisfaction of basic human needs (Flaherty, 2010)
- Laban Movement Analysis and trauma informed voice theories that affect thought, which in turn affects physicality (Bernadet, 2019)
- Voice exercises exploring 'contact for comfort/safety' which potentially lead to a level of cardiac cohesion. Preliminary research contained in this assignment is based on BMPF7013 structure exercises for efficacious competitive performance professional singing.

These questions will conjoin with awareness in relation to laryngeal 'freedom' despite tremor or irregular movement patterns, while adapting to movement analysis tasks (Bernadet, 2019).

5. The Ethics and Insider Research

Ethically, this study potentially creates the risk of singers' psycho-social well-being which could be affected by several factors carried by LD and its propensity to create disorganized movement, emotional discomfort and onset spasmodic discomfort (Durham, 2023). Since the nature of LD creates discomfort during singing tasks, this can potentially be provoked during the exercises for professional singers (Simonyan, 2021). To counteract these risks, I will ensure to provide each singer with a list of practitioners to contact in case of long-term discomfort, or fear thereof, before the project commences (Dystonia.org, 2023). Each singer will sign a participant's form which informs of potential risks of emotional or physical difficulty that can be encountered during the process of this study. Once the form has been signed, singers will commit but are not required to complete a questionnaire pertaining to the potential influence of LD on singing embodiment, its relationship to confidence and the intended positive impact of this study. The singers can withdraw at any time.

The vocal disorganization which LD causes to embodiment, in my experience, is strongly related to the disruption in confidence levels. As the human brain retains our 'reactions as habits' in order to condense and minimize cognitive effort (Hamzelou, 2017), a professional singer understands the difficulties which the onset of LD provokes during rehearsing and practicing of any performance which can be terrifying (Scorr, 2021). This poses an ethical issue in the study because no harm or distress should come of the exploring of singer's confidence, so a list of attending practitioners will be provided if necessary for the participants. I am not qualified to help other than to refer a singer

to a medical professional, and therefore I should be expected to recognize my boundaries as a singing teacher. The implementing of Insider Research on this study is to allow my experience to influence my empathic understanding of students with vocal task difficulties, examining what embodied steps are controlled and what I can help with (Cheyenne, 2012; Klickstein, 2009; Holding, 2016)

6. The Expected Learning Outcome

The outcome of this study will provide practitioner data along with singer's experience as data, and documenting of the singer's embodied memory in relation to singing tasks, pre and post diagnosis of laryngeal dystonia. The expected learning outcome of this study allows recognition of the singing teacher's important occupational context in the face of LD and its addressed undermining of vocal confidence (Simonyan, 2021), which could be potentially useful for all singing teachers and singers for purposes of comprehending the link between singing motor tasks (Bennett, 2017), vocal efficiency (Moss, 2023; Demorest, 2017), and the relationship with LD (Simonyan, 2021). The learning outcomes with encompass:

- Method or guide citing multidisciplinary approaches for andragogical efficiency for singers struggling with LD
- A structure which may help lessen the current diagnostic time (5,5 years) for a patient with LD.

The learning outcome will appeal to more compassion through knowledge, informing professional voice teachers, reassuring professional singers with LD about the affectation and its symptoms.

Gantt Chart:

Gantt Chart BMPF Wierzba 2030625 Date	Agree on research topic with tutor Aims and Objectives Proposal and Gantt chart submission	Formulate and distribute questionnaires for health practitioners and singers	Write introduction and methodology sections Analyse data Formulate results and findings	Draft deadline	Report deadline Presentation
August 11th					
August 25th					
Sept 11th					
Sept 25th					
Oct 11th					
Oct 25th					
Nov 25th					
Dec 11th					
Jan 11th					
Feb 11th					
March 11					

Reconnecting With Informed Embodied Confidence: Investigating Professional Singers with Laryngeal Dystonia

Introduction

My interest in this project is auto-ethnographic, since through personal experience, I wish to help professional singers and their teachers with confidence loss because of laryngeal dystonia (LD). After receiving a diagnosis in 2021, I began the MA program to explore LD and singing matters, related pedagogical skills, and the science of cognitive embodied evidence-based music. I am a singing teacher who works with students wishing to become professional singers in all genres. My approach promotes appraisal of self-confidence within their vocal art (Guyer, 2022), a basic psychological process in which persuasive communication theories infuse what teachers should seek to add to their curriculum about performing:

- How much the performer and their audience mindfully process a transmitted thought.
 - Whether that thought is advocated.
 - The consequence of that thought.
 - The consequence in attitude modification associated with the overall communication.
- (Guyer, 2022; Titze, 1995; Klickstein, 2009)

Since with LD I found myself limited in control of my sound, my identity as a singer was compromised. It is my intention to further these discussions with critical analysis of the literature surrounding theoretical and practical framework for understanding confidence loss in professional singers with LD, to help others (Simonyan, 2021; Vidakovic, 2022; Moss, 2023; Perrouchoud, 2014; Massey, 2021).

We know that in singing teaching, predictable musical demands of embodied singing tasks provoke neural confidence signals, when accuracy is achieved (Vidakovic, 2022; Sokol, 2020, Perrouchoud, 2014; Bergan, 2010). We also know that exploring confidence from a metacognitive viewpoint explicitly asks the researcher to focus in on a level of awareness of a subject's thought processes, and the effects of those thoughts (Pouget, 2016). An understanding of the process creates knowledge of patterns resulting in confidence-guided behaviors (Pouget, 2016, Rudebeck, 2014; Masset, 2021). Defining terms in which exploration and developing a roadmap for professional singers with LD and their teachers is the goal of this project.

Beginning to define LD in a professional singer

Perruchoud (2014) confirms that when dystonia is observed in experimental data through the lens of experimental psychology and neurophysiology. Research has yet to clarify the Sensory-Motor Integrative Loop for Enacting (SMILE) for motor rehabilitation, which explains the non-curable aspect (Perrouchoud, 2014; Simonyan, 2021). Performing singing requires dividing tasks into doable movement, arranging and styling intentionally (Bergan, 2010). LD is characterized by excessive jitter and muscle contraction due to sensory processing abnormalities, leading to unsolicited activity in the body, which is primordial for presence in professional singing (Simonyan, 2021; Cazden, 2021; Buckley, 2020; Murry, 2014). The results are devastating as some singers quit singing entirely and others lose confidence data is missing in the literature to define the consequences of LD on professional singers (Buckley, 2020)..

About presence

Evaluating “presence” in a voice, whether tonal, acoustic or emphatic, is important in a professional singer’s performance (Klickstein, 2009; Juncos, 2022; Holding, 2016). Increased disruption of communication because of laryngeal tension and spasming, are all reported among singers’ acoustic factors of LD (Buckley, 2020; Blitzer, 2018; Murry, 2014). Certain types of LD, adductory laryngeal dystonia, and spasmodic dysphonia include severe changes of speaking voice and pitch breaks (Konzcak, 2023). Buckley (2020) reports that in studies used to construct an acoustic model of overall severity of effects of dysphonia, these studies excluded compensatory vocal effort, or unwanted movement to try to control the spasming. Exploration of confidence and the current measures are primordial to understanding settledness, homeostasis, and how disruptive elements and factors affect embodiment (Tarvaäinen, 2018; Allen, 2016).

Embodied Cogniscent Confidence in Singing Tasks

Observing the biological factors of confidence is crucial to this study because of singers with LD dropping confidence in response to the illness (Kiani, 2014). For singers, developing self confidence is related to practicing ahead of time to eliminate troubles which appears in performing situations (Sörensen, 2022, Allen, 2016; Klickstein, 2009). Current research shows that metacognitive awareness promotes confidence, but that interoceptive inference models reflect confidence as a process of an internal state expectation (Allen, 2016).

On a daily basis, people perform tasks being fed ambiguous information about factors we do not control (Allen, 2016). It is specifically important to this study intertwining embodied cognitive awareness to promoting higher confidence level with which a person perceives and bases their corresponding movement, despite LD limitations.

My aims and objectives in this study are:

Aims:

- To cross examine the literature connecting embodied singing tasks to professional meliorative practice, through the perspective of having experienced LD.
- To design a model of options related to furthering empathic self-study, for the purpose of calming confidence loss, by examining the links of various management proposals by specialists

Objectives:

- To explore possible strategies in raising awareness and confidence.
- To observe practitioners who have experience working with professional singers with LD.
- To identify their stances and find an approach to raising confidence loss in professional singers with LD.

Literature Review

Professional Singing, Confidence and Laryngeal Dystonia:

A closer look at approaching the literature

This study articulates the latest medical and singing related empirical research priorities, while exploring from a pedagogical, experiential, affective, embodied, imaginative and sensory, and aesthetic point of view. The what, why and how of the way knowledge can be communicated within a multi-faceted, actively creative relationship to professional singing is important to detail in this literature review for pedagogues everywhere who deal with singers experiencing dystonia of any subtype (Halstead, 2014; Guidry, 2019). I believe in a pragmatic, andragogical stance (appendix 13 p86) as a practical observation in adult learning, based on humanistic psychology stance that the adult is autonomous, free, and growth-exploration oriented (Keensee, 2018; Polatin, 2020).

Because research landscape is developing new landscapes such as Practice as Research (PaR), critical analysis of the literature related to LD, keeping comparative, inductive approach to the collected data in this study, and witness alongside the history about the topic and where we are going with it (Acomi, 2023; Krzeminski, 2022; Nelson, 2022, Merriam, 2016). Nelson (2022) quotes the Executive Summary of the recent Performance Research Action Group (PRAG) reported in 2022 that “In practice research, forms of intuitive, embodied, tacit, imaginative, affective and sensory ways of knowing can be conveyed, and its sharing presents an opportunity for modernizing and revitalizing of research communication, uncovering novel dissemination routes in the digital era” (James, 2021).

All aspects of my study in the MA program have driven me towards this study because I have experienced LD, and because I have thoroughly researched pedagogical singing methodology, embodiment, anatomy, preparation and performance of voice, neuroscience of singing, motor learning principles, while studying somaesthetic holism and music, which will serve my teaching methodology with empathic and intellectual infusion (Wierzba, 2023a). Bakhshi (2015) provides evidence that projects are becoming more complex due to unforeseen and unpredicted characteristics of complexity as systematic variables evolve.

I organized key themes, finding literature related to my topic, which is comprehensive of multiple aspects of what happens to confidence levels in singers who are diagnosed with LD. Tobi (2018) iterates the importance of organizing research for substantializing interdisciplinary framework in order to identify the gaps that may exist in existing research, evaluate already existing methods and provide a comprehensive overview about a topic. Learning to distinguish experiential literature such as blogs or facebook posts from published researchers, called ‘grey matter’, and published empirical literature which has been peer-reviewed was part of my learning journey in the entire MA

process (Merriam, 2016; Yeo, 2018). Dividing my topic into three sections before deep diving into the research allowed for different angles to be determined, developed and measured into subsections (Armagan, 2013; Joshi, 2015, Tobi, 2018). It was primordial to this study to approach the literature by way of seeing from whence the literature came and subsequently categorize professionals and their points of view into subsections:

1 - Professional singer life:

- Meaningful Presence of the voice during professional singing voice tasks
- The arousal/awareness state
- Anatomy and neuroanatomy of singing and relationships to ourselves, our entourage and our bodies
- The intensity of the singing work requirements and their relation to embodied singing, embodied learning

(Fleischer, 2022; Ludlow, 2011; Zuim, 2023; La, 2022; Klickstein, 2009; Reed, 2022; McCarther, 2018; Sørensen, 2022; Allen, 2016; McEwen, 1988; Moss, 2022)

2 - Confidence

- Its definition and the embodiment
- Potential effect on confidence levels in a professional singer
- Why it is so important in relation to singing

(Klickstein, 2009, Rosenberg 2023; Buckley, 2020; Chitkara, 2008; Uludag, 2013; Allen, 2016; Pores, 2023)

3 - Laryngeal Dystonia

- Its history
- Clinical Features and diagnostic tools)
- Management through different therapies

(Creighton, 2013; Simonyan, 2021; Ehrlich, 2023; Guiry, 2019; Hyodo, 2021; Kuo, 2023; Halstead, 2014; Blitzler, 2018; Yeung, 2022)

Professional singer life, learned vocal behaviors and moving on from LD

Guiry (2019) aims to look at how research is in place to understand through symptomatology how to explore innate learned vocal behavior (Guiry, 2019; Simonyan, 2021; Yousef, 2023). This helped validate my instinctive understanding of purposeful categorization of vocal tasks into two group within LDs: **what one can and cannot execute**. By exploring one's vocal capacities, a practice which is quotidian and primordial to developing a sense of self, depending on one's professional level albeit with the tremors and spasms present, one is exploring new boundaries for themselves, in relation to professional singing tasks within the framework of a handicap index (appendix 13) (Guiry, 2019; Cohe, 2007; Sokol, 2020).

This project reveals a flower design (appendix 5), which is intended to provoke discussion relative to subtopics listed around professional singing and LD. This provides a detailed descriptive explaining how a professional singer with LD could explore mental, emotional, physical, and physiological aspects of what is happening to them, through the literature I have explored (Klickstein, 2009; Entwistle, 2010; Polatin, 2020; Scaerce, 2016). Then in appendix 13, realistic distinction between achievable or non-achievable movement in the body can be explored, including breathing combined effort/magnitude/amplitude aim and postural aspects of Laban Movement Analysis, related to performing a didactic vocal task (Porges; 2023; Nelson, 2022; Titze, 1991; Linneberg, 2018).

The role of a speech language therapist is to help identify pitch, movement and coordination analysis within vocal tasks perturbances and in this project the practitioner participants were involved with professional singers with different forms of LD for over 25 years, (Cazden, 2021; Obert, 2022; Kothare, 2022; Simonyan, 2021). Progress since ten years of understanding neural imaging techniques and in vivo data acquired through central nervous system study allows us to connect brain activity and voice impairment during vocal tasks through aberrant LD impairment-related activity (Kothare, 2022; Simonyan, 2021). Budin (2017) writes: "Positive thinking, practice, training, knowledge and feedback are all useful ways to help improve or boost confidence levels. Confidence comes from feelings of well-being, acceptance of your body and mind and belief in your own ability, skills, and experience".

Examining confidence

In an article entitled "Building Confidence", research points to confidence as being a state of mind experience rather than an action or a set of rules (Budin, 2017). Allen (2016) agrees to this, as computational confidence has typically been described as the output of a feed-forward signal-monitoring of sensory evidence. Confidence in terms of its biology is a pertinent subtopic in this study to explore the effects of LD (Kiani, 2014). As a concept, confidence perception is an

evaluation signal achieved through didacticism and task achievement (Lebreton, 2015). Singers process the feeling of confidence and in particular, self confidence, as it relates to multiple factors: communication of emotion, appearance, sound quality and positive evaluation of task performance, are a few (Allen, 2016; Klickstein, 2009). My aspiration is that each of my students feel confident that they are engaging in and enjoying what they prepare. Developing self-confidence is planning and preparing to mitigate negative self-judgment and performance anxiety (Juncos, 2022; Klickstein, 2009).

Uludag (2013) argues that calculating our decision making based on the premise of our body's meaningful signals informing us rapidly about our inner state, in particular referring to how our hearts are beating and how alert our arousal state is, feeds confidence in the decision making without affecting the decision itself. Whitman (2023) contradicts that capacity for acquiring skill related to confidence includes gathering, analyzing, and evaluating information over time creating prediction probability while checking for credibility and quality. Interpreting the research questionnaire for practitioners and singers (appendix 7, 8) and connecting the subtopics explored to my findings about confidence loss can inform a professional singer with LD about what to expect and encourage empathic exploration, individualized and meant to hear the narrative of potential harmful self-judgment, mediating self-esteem (Wu; 2009).

In relation to confidence, for coding this type of mixed quantitative and qualitative data, Linneberg (2019) gives a more practical "how to" introduction for novice researchers, while Merriam (2016) provides enlightened the questions such as:

What may have surprised the researcher?

How does this analysis compare with what is already researched?

What are overall conclusions?

How does your study contribute to the knowledge about this area of research?

There were challenges to the first three questions Merriam (2016) presents, because to this day no other study has been published about the impending implications of LD for a professional singer's mental/physical health and eventual career, besides one report by Halstead (2014) which predicts that some singers with LD will find relief through Botox injection, and others will not find relief and will inevitably quit singing.

Clinical Features and Limited Management Resources

Since Creighton's (2013) paper entitled "A call for clinician education" was published, evolution in technology and research has blossomed, but the diagnostic delay has worsened from his report, which is of 4.43 years, to 5.5 years, according to Simonyan's (2021) post- conference report. Some

recent published papers report that multidisciplinary working groups of clinicians from multiple disciplines including otolaryngologists, neurologists, speech pathologists, geneticists, and neuroscientists should come together in workshops given by the National Institute of Health (Halstead, 2015; Vidakovic, 2022; Simonyan, 2021). This provided, in 2021, the adoption of the term "Laryngeal Dystonia" instead of "Spasmodic Dysphonia" to reflect the progress in research of etiology and pathophysiological markers indicating functional and neuro structural network disorganization (Simonyan, 2021; Halstead, 2015). Reports of singer's cramp are characterized as under-researched globally, and latest research concludes that anyone who treats performers and voice disorders should understand the treatment protocol and different presentations of the disease (Simonyan, 2021; Vidaković, 2023, Halstead, 2014).

Studies from medical experts in the field of LD consistently state that further study is required to better manage LD symptoms: Vidaković (2022) states that further comprehension into the notion of cortical silent period (cSP) which is visibly shortened in length during LD onset of certain symptoms, can be achieved through neuro imagery during trans cranial magnetic stimulation (TMS). TMS is a tool which is primordial to understanding the evolution of the disease and neurologists recommend a brain scan to detect if a lesion or injury is the cause for any type of dystonia (Vidakovic, 2022; Simonyan, 2021; Yeung, 2022). Botox injections are known for treating muscle tension dysphonia in certain singers, but do not apply systematically to every case of LD and render a singer unable to phonate for a period of up to three months (Yeung, 2022). A very recent video accessible on YouTube (appendix 3 p 33) features a panel of interviewers including professor Konzczak (2023) provides insight into treatment for adductor specific spasmodic dysphonia through repetitive electro-stimulation, acknowledging the importance using non-invasive neuro modification as a short-term improvement in voice quality, but acknowledges that optimal dosage requires more study for treating voice symptoms in spasmodic dysphonia. Rangon (2023) states that gentle neuro modulation is already longstanding valued practice in non-western medicine, needing further studying and validation. Auriculotherapy, which is a complementary therapy based on the stimulation of specific points on the ear, is known for its potential in enhancing psychological well-being (Rangon, 2023; Porges, 2023; Neves, 2022). Various aspects of this therapy, including the physiological mechanisms, clinical applications, and the psychological implications of this treatment help foster valuable insight into the interdisciplinary intersection of Auriculotherapy and Psychology, providing a holistic treatment for mental well-being (Neves, 2022; Rangon, 2018).

LD Pathologies linked to singing

The motivation to demonstrate different pathologies within LD categories gave me incentive to pursue a comprehensive analysis of the evaluations different doctors and researchers were providing, to tie it into the embodiment of singing. Important points to remind throughout the

interpretation of the data were Halstead's (2014) reports, concurring with Vidakovic's (2022) and Simonyan's (2021) reports :

- Singer's Dystonia is not related to a problem of technique
- Singer's Dystonia resembles other forms of task-specific focal dystonia in various types of musicians alike from a motor-skill brain-body perspective
- Accurate diagnosis of the disease permits the possibility of a singer seeking treatment and management in order to continue certain singing tasks while possibly modifying repertoire

In analyzing professional singing tasks, I began exploring the relationship of a professional singer to their perception of their voice and their bodies and what the inner-voice mechanisms say (Grape, 2003). Gess (2015) describes pleasurable presence in a performance as any sensory experience that affects the soma in an involuntary or voluntary sensory mode, in the process of representing a phenomenologically conceptual atmosphere. Lamont (2012) and Shusterman (2018) concur that the emotions related through a eudaemonic performance experience are characterized in personal engagement of the participants', both performer and audience, focusing on meaningful affect within rewarding performance experiences, creating potential to sustain long-term music-making.

Methodology

Ontology and Epistemology. Rationale

The intention in this study is to gain perspective within action research as each participant's account of their experience ties the into the learning outcome (Bell, 2018; Merriam, 2016). Revealing similarities and disparities helps to find gaps in the research and qualitative research is interested in understanding the meaning and ontological stance constructed by professional singers and their confidence levels following a diagnosis of LD (Bell, 2018; Merriam, 2016; Konzak, 2023). Qualitative research design begins with planning the steps towards how to, when, where research underpinning is necessary in this case (Howitt, 2010; Boynton 2004a, Merriam, 2016).

Designing the research for as much accuracy, validity and reliability as possible in this work includes consistent consideration of the complexity of the topic, acknowledging the objective measures within epistemic values and virtues as evidence-based (Zahle, 2021; Jongbo, 2014; Asenahabi, 2019; Creswell, 2014; Bell, 2018).

This work needs further follow-up clinical trial type investigating for management of confidence levels to be pursued in studio by experienced teachers for and by professional singers with LD. Robin Nelson (2023) legitimizes this practice and describes how comparative qualities are quantified in Arts Praxis' newly conceived ways of collecting multidisciplinary insider data through Practice as Research partnered with Performance Research Action (Nelson, 2022; Asenahabi, 2019). Recent research into the way collaborations are born between "sci-art", or "art-science" have developed a hybrid format that transparently combines the use of education and research initiatives, epistemology, public discourse and performance interlocution as hand-in-hand transformative phenomena (Thompson-Bell, 2023). As a phenomenological study, the integration of first person point of view is the intentionality of this study, because the experience of LD occurrence in professional singers can be analyzed and shared to further the teaching experience, since speech language pathologists are not singing teachers, and vice versa (Scaerce, 2016; Grape, 2003; Kuutma, 2023; Jacobsen, 1997; Lă, 2022)

Paradigm

As a professional singer, conductor and singing teacher, and I am attempting in this study to connect the information I gather to the employments I occupy since over 30 years in practice, while examining different approaches, as through different lenses of evidence-based practice in order to best understand how to teach and learn with newly acquired skills and tools (Fostaty Young, 2008;

Helding, 2016; Nelson, 2022; Merriam, 2016). This project was motivated by my own insider research positionality. I seek to express how my own experience helped to define the process of gaining knowledge about singing professionally, being hit with LD, and measuring confidence, by validating a rapport between approachability to the topic and leaning towards a general association, while infusing my reflective pedagogical ever-evolving practice (Bukamal, 2022; De Vries, 2016).

The research examines different viewpoints from clinical to pedagogical and experiential perspective. Seeking how confidence materializes through psychological work on oneself in combination with singing tasks, while assembling a detailed look at management of LD and the approach of future science desiderata, the actors in scientific practices lead with their experiences because of their crucial, post phenomenological approach to studying science while it is in the making (de Boer, 2020; Nelson, 2023; Latour, 2005).

Traditional positionality is mutable despite firm roots in philosophical stance, and although useful in some cases, contestable when a wider-visioned, empathic association can be perceived as a greater value in experiential research that allows scrutinizing through different lenses (Thompson-Bell, 2023; Nelson, 2023). Hybrid interpretivist insider paradigm is a useful choice of research paradigm in this case, albeit paradoxical, because despite indwelling acutely to similar experiences of what could have created bias, the key experience plays a direct role in understanding what I have gained through the research and applying in in my lessons as a teacher (Dwyer, 2009; Lerman, 2003).

Methodology with subsectional formatting

To streamline data collection for this study, methodology adopted focused on creating subsections with clear formatting. Then, comprehensive content with separate headings ensured different topics and subtopics served as a strategic example of connected, stylistic and readable research (Joshi, 2015. Ghenaiet, 2024). Delineating research cause was primordial to begin this complex, informative and daunting project, indispensably documenting the journey involved, through what methods and type of research design were used to best construct coherency for the reader and myself (Schutz, 2018; Giorgi, 2009; Wood, 2019; Merriam, 2014).

Equivocal interpretivist research is assumed in the forefront, because my positionality, being affected by my LD diagnosis, which affects the nature of the observations and determines how the fieldwork would be affected when teaching singing students awareness about LD. Honing in on LD's subgroups while mitigating the bias I have as a singer with LD entails interpreting the diagnosis period, the effects on the career, its relationship to movement disorder and its manifestation in each individual case, allowing me to merge the topics of loss of confidence,

performance arousal state and the overall ability to cope with a health crisis as a general common feature state (Bukamal, 2022; Payne, 2014; Vidakovic, 2023). Confidence as a subject indicates sensitivity as an assessment variable, behavioral variable, therapeutic journey variable, and outcome variable within related topics (MacNeill, 2022; Abitbol, 1986; Cazden, 2021; Vidakovic, 2022; Konzczak, 2023). To tie these features together with professional singing, the position as qualitative researchers are in relation to tensioned spaces with “we” and “us” rather than “they” or “them”, which allows respectful acknowledgement of insider relationship by admitting that not all singer or LD-related experiences are exactly the same, or even shared by any given community, despite similarities in details (Dwyer, 2009). It is not uncommon to research interests, value orientations, experience, and current satisfaction within task value and self-concept ability in order to contribute to further persistent learning about strategic use of reflection and proof of competency, especially when complex topics are involved (Goodman, 2022; Hannum, 2023; Bowen, 2022; Williams, 2022). The questions I prepared in the practitioner/singer surveys are a reflection of qualitative, phenomenological exploration, simultaneously acknowledging current practice merged with “methodological engagement” (Hannum, 2021; Goodman, 2022; Bowen, 2022; Williams, 2019).

Digital culture provides recent findings with on Youtube, Vimeo, social media platforms, and articles online in open access platforms which are aggregating ideas and information simultaneously (Konzczak, 2023; Nelson, 2022; Acomi, 2023; Krzeminski, 2022). Always aware of the character of this information whether pertinent and containing practice-based evidence, in particular with videos containing recent advancements in technology (Borish, 2020), I reiterate the development of archetypal knowledge in scientific, clinical, conceptual and empirical analysis towards practice in *discovering, inventing, innovating and communicating* concepts, albeit peer-review is required as a means to validate introspective and interactive data (Nelson, 2022; Leal-Rodriguez, 2023; Acomi, 2023; Krzeminski, 2022, Yeo, 2018).

The instrument which differentiates principally from a neurological to a pedagogical standpoint are the psychological pathways and singer-task related questions linked to Laban Movement Analysis, aiming to find out if LD management is truly efficacious for professional singers, despite the manifesting of symptoms being so different for each person. Adults who put down their own singing are less likely to participate in singing activities (Demorest, 2017; Sembeh, 2023). Experiential research leaves the participant’s description as the essence of the study (Kohler, 2023, Creswell, 2014). Responsive adaptive treatment is recommended by LD medical specialists themselves, and singing voice specialists may include teachers who provide experience used alongside the results of the treatment for advancement in strategizing behavioristic and experiential considerations for singers with LD (Alhazmi, 2022; Bargh, 1999; Simonyan, 2021; Scaerce, 2016).

Methods

Confronting confidence loss in professional singers with LD necessitates pin-pointing conclusive meaning for intentional transparency and clarity about LD management, physical, psychological, emotional, and occupational hazards it causes case by case (Jilcha Sileyew, 2019; Tobi, 2019; Bell, 2018; Asenahabi, 2019; Creswell, 2014). This is the intent of the study, and the literature review method was used to synthesize systematic observation of integrative literature surrounding the topic of conducting research into professional singers with LD and their diminished confidence levels, providing an overview of disparate, interdisciplinary findings and helping construct theoretical conceptual methods (Creswell, 2014; Snyder, 2019). The sample selection was aimed towards voice and health practitioners having dealt with singing professionals having been diagnosed with LD and professional singers who could recount their experience.

The culmination of the study was foremost comprised into method phases:

1. Designing the **prospective study** by generating hypotheses, so that findings would include experiential perspective from practitioners and singers alike (Merriam, 2016).
2. **Designing a pedagogical model** (Appendix 5) which provides questions and answers, projecting the "seek and find" of what works and what does not for individualistic needs in singers with LD.
3. **Coding the data** which was provided by practitioners and singers
4. Consideration of and creation of a theoretical **pedagogical type model** (Appendix 5) and explanation of its purpose
5. **Systemic literature review** to moderate the underlying research of the topic, possible explanations and subtopics derived from that topic, and the eventual reasons and research behind its usefulness as a pedagogical framework model
6. Gathering the data and presenting a **PowerPoint** lecture based on findings

In coding the data, I iterate that practitioner participant (PP) number 5's questionnaire became a discussion type interview which was conducted in French, and as I am a bilingual French English speaker, I translated word for word (Appendix 10). Then I built a reverse translation, to verify the linguistic anatomy, taking time be sure I understood the context.

Relationships between the variables, in this case the participant's iterations, in this study, were apparent through shaped taxonomies, as Tesch (1990) and Boynton (2004) suggest how one term in the center and interrelated variables surrounding in periphery can draw causal chains and networks leading to classification systems for tentative explaining of hypothetical relationship and management processes. In his book entitled "Qualitative Data Collection", Howitt (2010) iterates that:

“Data collection needs to be treated as a process involving a range of activities before and after data collecting...where the researcher can go for help with their ideas, how the researcher recruits volunteers, making sure those who agree to take part actually do so.” (Part 2, p 58)

Participant composition (Sample Selection)

I created a poster (Appendix 2) for the purpose of calling to participants which was published on my social media page. This could be interpreted as a snowball type sampling technique, because participants are recruited through particular identification, in this case, their professions, which are related to professional singers losing confidence with LD (Boynton, 2004b).

I remained within the selection process originally decided, as not to modify specific inference about professional singers or practitioners (Boynton, 2004a; Howitt, 2010). This was to include two separate groups of participants, one group being professional practitioners, to gather professional opinions and experiences with singers diagnosed with LD as data, and the other comprised of professional singers, to gather experiential data (Boynton, 2004a, 2004b; Howitt, 2000).

Documents

Each of the participants received an information sheet through an email specifically and individually addressed to them in full anonymity, as per the ethical standards, explaining what was required of them, estimating how the questionnaire intended to explore what they knew about LD, interconnected, and self-study related questions including how their experience and knowledge might apply to managing confidence levels in a professional singer experiencing LD (Boynton, 2004a, 2004b). For some participants, the use of the abstracts form (appendix 6) may have been useful to reveal details connected to topics perhaps otherwise unknown to the reader, as Bouchrika (2024) mentions, the abstract is commonly found at the beginning of the research paper and details what the research paper topic is about, implying whether the reader decides if continuing reading is necessary for the goal. The abstracts (appendix 6) accompanying the questionnaire were carefully and purposefully selected to play the role of an action-related glossary, explaining the subtopics linked to and surrounding professional singing, LD and confidence, as evoked in the questionnaire (Boynton, 2004b; Merriam, 2016; Howitt, 2010).

Exploring if LD management consist of a somewhat predictable path ?

The first paragraph on the questionnaire for singers and practitioners informs about my experience as a professional singer with LD, and how the culmination of this project was influenced by my desire to inform others. Questionnaires were combined with the abstracts of scientific papers

providing a glossary-type instructional reading tool explaining the interrelated subtopics. Below is the list with their references detailed, as an useful insert (Boynton, 2004a,2004b) asking the participant to explore and comment if needed, while indicating if they recommend other topics to explore. Open-answer method is used to comment as opportunity type sampling technique (Merriam, 2016). I did this as a format technique, proposed by Boynton (2004) to maintain visibility of existing methods in therapeutic management, and to provide potential instruments to justify what needs are required and useful in exploring confidence for professional singers:

- **Different types of LD** (Simonyan, 2021)
- **Psychoeducation** (Walsh, 2010)
- **Polyvagal Theory** (Porges, 2022; Cazden, 2021)
- **Relationship Theory for Self Concept use** (Wu, 2009; Hazan, 2009)
- **Vocal Efficiency/Neuroanatomy of Singing Embodiment** (Baker, 2023; Louis, 2015)
- **Laban Movement Analysis, Embodied Music skill** (Jensenius, 2018)
- **Self-control, Exertion** (Laboskey, 2004)
- **Auriculotherapy effects on Well-Being** (Rangon, 2022)

Focus was drawn on practitioners and singers agreeing or disagreeing with self-study methodology as a means to regain confidence and the findings showed obvious differences from one practitioner to another, and this proved very challenging to analyze and cross compare the data. This data was merged with the Singing Voice Handicap Index II (appendix 11) questionnaire, which formulates questions related to functional, psychological and physiological aspects of difficulties while singing, thus creating the Professional Singing Voice Handicap Index (appendix 14), the latter comporting more sensitive and specific area research questions into what can and can not be done as a vocal task for professional singers with LD.

Prospective Action Research

As a teacher, exploring the topics surrounding LD on professional singer's confidence implies having to begin mapping the complexities of the topic and devising a study that will potentially validate specialized theoretical pedagogical practice (Knowles, 1980; Moustakas, 1994; Fostaty Young, 2008). This could be seen as **imaginative variation**, which infers seeing as many perspectives as possible from divergent, meaningful experiential roles or positions, since I am also a professional singer with LD (Moustakas, 1994; Merriam 2016). Pedagogues sometimes craft their skill set from their own experience, constructing from their practiced discipline, finding relevancy while prescribing practice-related reinforcement in behaviors appropriate to their epistemological values (Knowles, 1980; Skinner, 1953; Young, 2008). The qualitative data analysis

presented with comparative analysis strategy through the frame of **action research** during this project will serve as a potential tool for myself and for other researchers, teachers and professional singers, who might have experienced anyone in their studios having any form of LD (Merriam, 2016; Fostaty Young, 2008, Holding, 2016; Bergan 2010; Scaerce, 2016).

I will explain in the findings section why and how exploring these topics became a psychological, physical and physiological cross-road between professional singing, laryngeal dystonia and examining confidence. The choice for honing in on these topics theorize what might help raise awareness, counteracting confidence loss by gaining awareness of the self (Saheedi, 2023).

Ethical guidelines

I received few responses and aimed to receive more responses by contacting professional practitioners in my entourage who volunteered their expertise. Ethical guidelines were adhered to, by:

- explaining in the introductory sheet which all participants received that participation had to be on a voluntary basis,
- Receiving implied consent,
- Remaining strictly anonymous.

Since I am not a voice rehabilitation specialist, but I am a singing teacher and music director. I do not have the means to diagnose. If discomfort was expressed, a list of practitioners would be supplied for referring a participant in case of unintentional physical or emotional harm, or if a singer participant in my study would wish to discuss beyond my competency. Participants remained strictly anonymous and the timing and size of the project would not allow for individual transcriptions of thirty minutes per singer. While contacted by three singers who wanted to participate, only one person actually fulfilled the experience of completing the first questionnaire. The reasons for refusal to participate are important to include as they can elucidate any (Boynton, 2004):

1. Not wanting to
2. Not wanting to learn/not enough knowledge about the topics
3. Not having time
4. Not given

Findings

Sampling Flowchart

The following is a chart detailing the response rate (Boynton, 2004a). This sampling frame is sufficiently large in the practitioner field, but the singer field is not representative enough, despite the instrument's suitability for all potential singer participants, where physical, mental, cognitive, language understanding and perceived threat of questions are distributed (Boynton, 2004b). All participants were contacted via social media and some whom I learned about, through the Voice Study Center.

Here are the details of practitioner participants (PP) enumerated and the singer one participant, who was the only participant to complete the study:

Participants invite to the study : (n=18 contacted directly + X invited on social media platforms or through the Voice Study Centre

Declined Directly: (n=3) (composed of 3 PhD level voice pedagogues/singing voice researchers)

No response: (n=5) (composed of one professor of psychology/neurology, one psychologist for artist actors or singers, three otolaryngologists

Outliers: (n=7) (4/5) who after committing gave no response, including one emotion therapist, and two singers

Number of participants in final analysis: (n=7) (singer=1: 6=health practitioners)

The participants involved

The reason for choosing experienced professionals comes down to this particular subgroup since I wanted to hone into the range of criteria in a wealth of detailed literature and field experience related to professional singers experiencing confidence loss from an LD diagnosis (Boynton, 2004b). Despite the types of precise information I hoped to receive, it was crucial that the creation of the participant groups be not randomized, so that I aimed towards evidencing practitioners who assess, evaluate, manage, and propose treatment, to justify the aims and objectives of this project (Merriam, 2016). My research needs to detail the particular 'special' needs of singers to build a rich picture of the sampling to provide sound methodology (Boynton, 2004a, 2004b; Merriam, 2016).

The following is a graph detailing particular notes summarizing how the questionnaires (appendix 7,8) were devised:

The practitioner participant's (PP) assigned number (to respect anonymity, 1-6).

Their professional titles and profession description (Q1, Q2).

Their country of origin to provide context within ethical guidelines about potential culture and social irregularities or delineate different practice characteristics within practice or treatment standards (not asked in questionnaire).

The number of years in practice for the practitioners (Q3).

Whether or not the practitioners have had experience with clients who are professional singers with Laryngeal Dystonia of some form. The singer participant (SP1) was asked about the onset of symptoms (Q2) and the management of symptoms.

Participants	Profession	Origine	Years	Experience in working with clients or patients with LD?
PP1	Speech Language Pathologist	USA	>25	Yes, all different types of LD
PP2	Neurologist/Pain and Neurodevelopment Pediatric Specialist	France	>15	Yes, patients with Dystonia including LD
PP3	Speech Language Pathologist, Singing Voice Rehabilitation	USA	>30	Yes, all different types of LD
PP4	Psychotherapist, Family Mediation	France	>35	Yes, 1
PP5	Speech Language	France	>35	Yes, all different types of LD
PP6	Movement Disorder Specialist	Based in the USA, originally	>30	Yes, mainly SD but answered they do not diagnose
Singer Participant	Diagnosis	Onset symptoms	Management	Results
SP1	Otolaryn-gologist: <i>Benign non-essential vocal tremor</i>	Came with weight loss, noticed during providing examples in teaching sessions	Techniques to override tremor: SLP work	Some days better than others, gained techniques to override tremor and stabilize voice

Fig 1, Table shows participants and potential relationship to professional singers who have been diagnosed with some form of Laryngeal Dystonia. By Karen Wierzba

Timing, design, participation, consent, questionnaires and abstracts and why:

Deliberation and reflection began in late July 2023. Reading about topics related to professional singing, confidence and LD provided keywords to spark the study, starting research design in September 2023. I wanted to focus on professional singers having had a diagnosis of any form of laryngeal dystonia, and health practitioners who work with dystonic patients. The keywords from the abstracts and studies I read formed questions, which Nelson (2022) refers to as Arts Praxis, or when Practice as Research contextualizes the need for the study itself. In my studio I have not come across professional singers with LD, but I do know their singing tasks, the methods, processes and achievements behind treatment sources, shortening the time period to seek better management in the eyes of the practitioner.

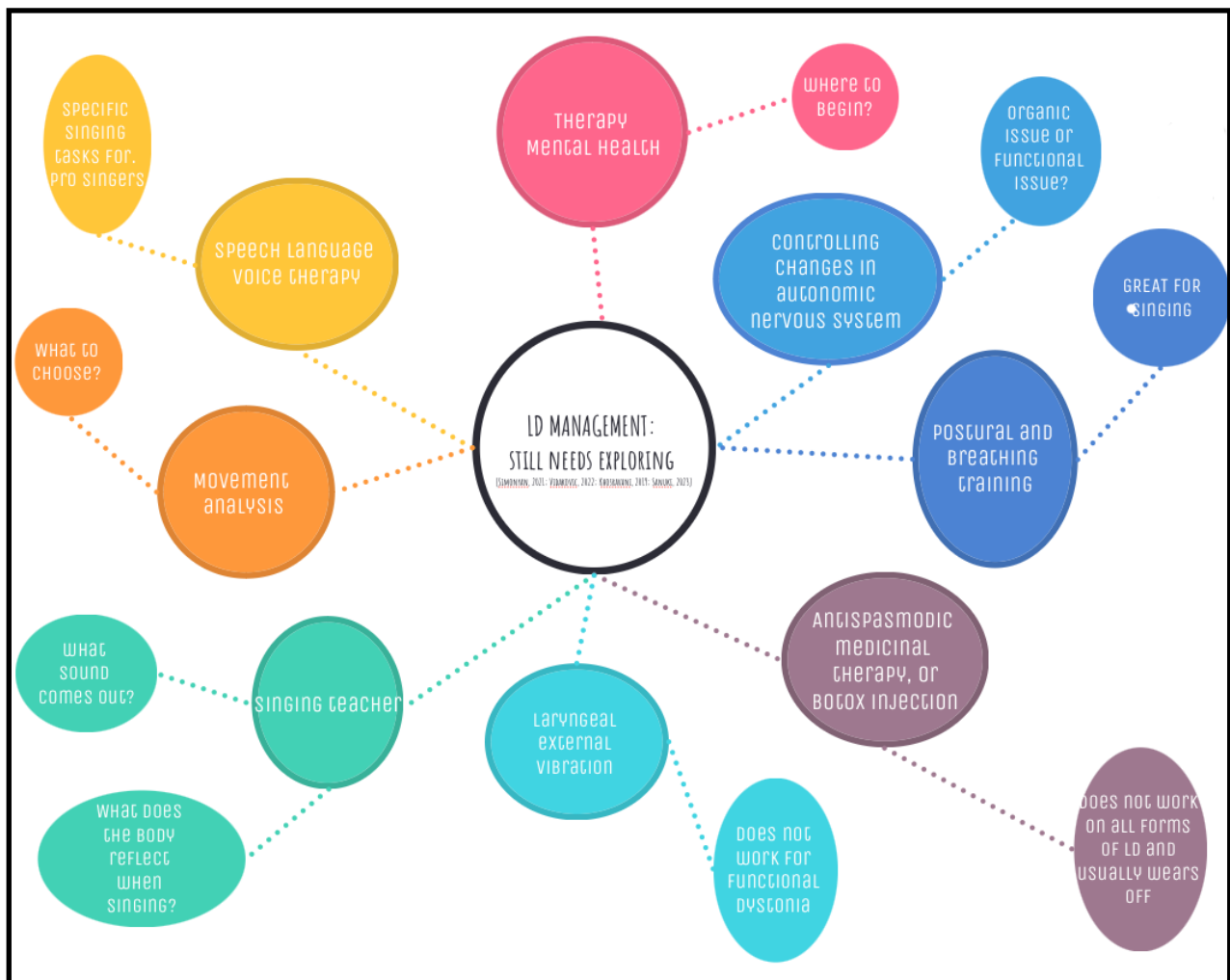


Figure 2: This diagram explains while no cure exists for LD, the medical corps agrees that management for the disease requires collaboration of vast multi-faceted research, as shown above from a gathering of keywords linked to LD management from the most recent journal articles (Simonyan, 2021; Vidakovic, 2022; Khosravani, 2019; Sanuki, 2023).

I wanted to know if professional singers had psychological accompaniment suggested to them at the time of diagnosis, and if a particular type of therapy was recommended. I also wanted to know if the practitioners who work with diagnosed professional singers had a professional opinion about a particular route of therapy for their clients. I realized in August 2023 that these topics were not researched together, so I conceived the detailed flower design (appendix 5), created to stimulate visual coherency linked to LD management and weaving the topics throughout the project.

The flower design was used also as a guideline from going astray into other topics than the ones evoked during the research period (Annink, 2015). Its use related psychoeducation, embodied phrasing through Laban Movement Analysis (appendix 13), professional level singing tasks, and demonstrated specialized insight into the responsibility of the professional singer's relational understandings as an actor in their well-being journey (Nelson, 2022; Entwistle, 2010; Saeedi, 2023). Through analysis on self-evaluation, the Singing Voice Handicap Index 2 questionnaire (Appendix 11) was also consulted in to support the creation of my questionnaires, as well as its coding procedure suggested by its creators, which was taken into account during the research to further develop a disorder-specific, holistically approached health status instrument (Cohen, 2007; Sokol, 2020) (Appendix 5, 13).

Coding questions 5- 8 in practitioner participants questionnaire

The findings were sub-coded into groups of in vivo type inductive coding to “articulate and evidence the research inquiry” (Nelson, 2022, p81), meaning my research originally developed in conjunction with information from the abstracts (appendix 6), but the participants words are most important to this study as the actual information causes transparent reporting where the data collection is recounted without researcher's bias (Gehman, 2018; Linneberg, 2018). A blended approach, abduction, of deductive and inductive coding is the most common approach, meaning that the researcher can remain open to surprises between actual **experiential data and existing theory**, which is how my research questionnaire was designed and coded (Linneberg, 2018; Saldana, 2016; Howitt, 2010).

- **Attribute coding** in colors to delineate sequences or segments - yes (green) or no (red) answers to the question of particular therapeutic self-study, with explanations a (light blue) as to whether value importance is attributed to answers

- **RaDaR coding:** Watkins (2017) states the need for being clear by using RADaR technique which converts contextual data into user-friendly language
- **Structural coding through word repetition frequency in thematic categorization** in explanations and comments as addendums to yes/no answers helping to determine how the study project was received and views of practitioners
- **Evaluation coding** to understand the validity of my project
- **Pattern coding** Data misinterpretation or misunderstandings
(Howitt, 2010; Saldana, 2016)

How to read colour codes

Practitioner questionnaires:

For the PP questionnaires, data was coded by colour into green representing "yes" answers, red representing "no" answers, and orange representing "yes/no". Here is a small chart of colours for the qualitative data categories:

COLOURS ASSIGNED	Thematic attribution	Evaluation structure
PINK	Objective Measure	To back up validity of methods relating self-study topics
<u>THICK UNDERLINE</u>	Pertinence issue	Assigned to explain pertinence through answer, No answer, incomprehensible answer, answer question not asked
ORANGE	Improvement	In singing skills and confidence linked to therapeutic activity
PURPLE	Validity	Practitioner questions the validity of my claim with regard to its connection to a process in the context of rehabilitation management
GREEN	Recommendation	Practitioner recommends another methodology to employ theory/ study/self-actualization
RED	Ethical	Causing potential distress to patient
YELLOW	Andragogical (appendix 12)	Life-long learning, phenomenological stance promoting autonomously chosen, free, growth oriented learning
BLUE	Doubt	In the capacity for the client to understand said theoretical concepts
BROWN	Denial	In terms as a barrier for potential growth

Practitioners professional opinion: yes/no Is self-study related topics useful for professional singers with LD ?

Linneberg (2019) warns the novice researcher, like myself, that much material about coding exists, but can either be too comprehensive or too superficial, meaning that the extraction of data from qualitative research has the potential to enhance the quality of analyses and findings. I tend to get anxious about what to focus on when choosing what is relevant to management of LD, via transparency and validity from, for example the interview with PP5 and how to extract relevant information guiding orientation for theoretical, conceptual framework for management or even improvement of LD symptoms. RADaR becomes rigorous because of the systematic analysis that occurs during each step of the process, producing focused concise presentations of the textual data (Watkins, 2017).

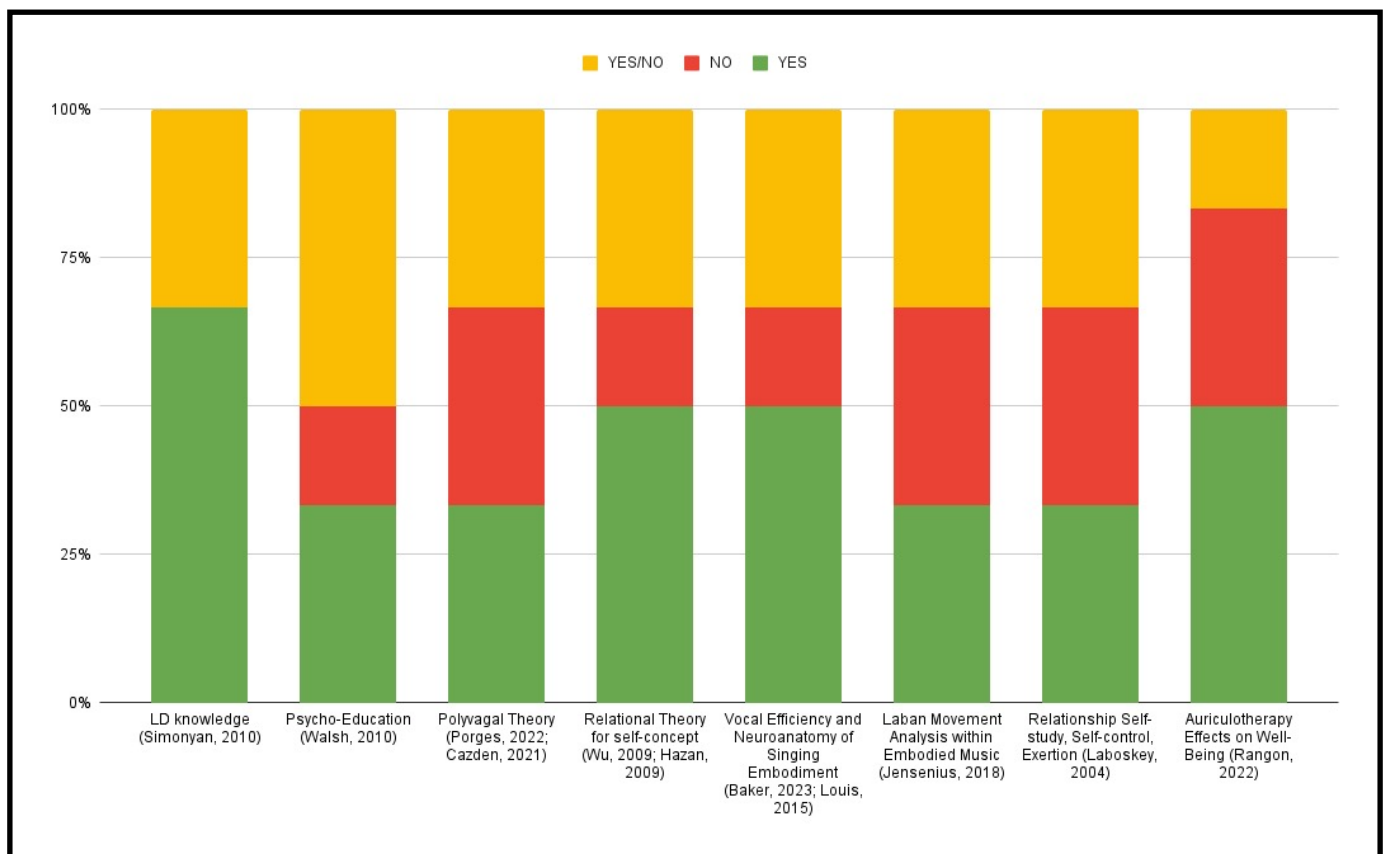


Fig. 3 This graph indicates the outcome of Yes/No (orange), Yes (green) and No (red) answers from practitioners regarding some of the self-study topics related to mental, physical and physiological health of professional singers and their loss of confidence after an LD diagnosis. Graph by M Nemhauser.

The practitioner participants were asked, in question 5 of professional opinions regarding the usefulness of self-related study in conjunction with these topics, as explained in:

- **Laryngeal Dystonia (Simonyan, 2021)**
- **Psycho-education (Walsh, 2010)**
- **Polyvagal Theory (PT) (Porges, 2023; Cazden, 2021)**
- **Relationship Theory for Self Concept (Wu, 2009; Hazan, 2009)**
- **Vocal Efficiency/Neuroanatomy Singing Embodiment (Baker, 2023; Louis, 2015)**
- **Laban Movement Analysis, Embodied Music (Jensenius, 2018)**
- **Relationships Self-Study, Self-Control, Exertion (Laboskey, 2004)**
- **Auriculotherapy Effects on Well-Being (Rangon, 2022)**

Results of question 5A, B, 7 and 8:

PP1 (SLP) examined the validity of all methods of self-related study stating as an example that Polyvagal Theory has been disproven. Polyvagal Theory combines the study of psychophysiological states and their underlying measurable neurophysiological substrates of safety, danger, and dissociation (Porges, 2022). In the scientific academic world, controversy has ensued from the open-ended theoretical practices that this model presents; although widely informing the mental health community, the neuroscience community challenges with key biological concepts (Ansari, 2023).

However, when PP1 was asked if knowing about the topics aforementioned could contribute to bettering self-confidence within a professional singer's capacity to self-analyze, PP1 opened a door by answering "Possibly, but not necessarily related to SD" and then confirmed their opinion, given in Q5, that the only benefit for professional singers with LD will be proper diagnosis and treatment. Moss (2024) and Gershman (2023) warn researchers that correlation is not cause, despite drawing causal inferences, and this aspect was held into account during the entire process of my study because of the complexity of the unknown variables in the onset of LD and its different effects on the professional singers themselves (Vidakovic, 2022; Simonyan, 2021). PP1 has not recommended self-study to a professional singer with LD, to potentially modify unwanted movement during vocal tasks. PP1 does not think it would be beneficial to include psycho-education or movement analysis in the management of LD symptoms.

PP2 (Neurologist) answered YES to the relevance of all of the topics within self-related study for a professional singer diagnosed with LD. Their answers of systematic YES were explained with a clause: Self-related studies are always useful when assessing functional symptoms, but are not sufficient to validating a theory, citing that objective measures such as Heart Rate Variability (HRV) in

considered an index of resiliency and useful for prognosis (PP2 appendix 7). This statement validates that further research about HRV within professional singers with the particularity of LD and their confidence measures is needed to determine how the relationship of this topic to vocal tasks affecting performance skills. PP1 has not recommended self-study to a professional singer with LD, to potentially modify unwanted movement during vocal tasks and states that their tools/skillset improves symptoms. PP2 does think it would be beneficial to include psycho-education or movement analysis in the management of LD symptoms, for ANS rehabilitation and limbic system rehabilitation in conjunction with the voice.

PP3 (SLP) answered YES, if the professional singer is comfortable reading and processing abstract terminology of a medical journal, otherwise NO. It is important to state here that reading an abstract is not the method I suggest in my study for a professional singer with LD to raise their confidence level; the intention is to demonstrate the theory through different learning practices. This caused confusion about method and methodology in this study, which I learned, should have paid closer attention in the context of explaining what self-study is, if the participants had trouble understanding its meaning, Therefore PP3's answers to question 5AB was documented as YES/ NO. PP3's answer in 5B which states that in their experience, a singer with LD who presents the disease as **deeply patterned** into the unconscious nervous system, can, prior to this level of pathological presentation, have symptoms which begin to appear within an anxious or unregulated emotional state from the autonomic nervous system point of view. PP3 recommends that this type of client be referred to a psychotherapist who may use techniques or exercises related to or derived from Polyvagal theory. PP3 reiterates that independent self-study may not benefit the client/patient in question. PP3 has not recommended self-study to a professional singer with LD, to potentially modify unwanted movement during vocal tasks, in exception of the intellectually inclined. PP3 does not think it would be beneficial to include psycho-education or movement analysis in the management of LD symptoms for lack of training in long, remote, theoretical, chain of relevance.

PP4 (Psychotherapist) answered YES to all of the topics validity within self-study, stating that while we all have to learn to live with each other, everyone is different and processes information differently, through transcendental energy, thoughts and feelings and sensations, gathering information about ourselves. Self-study, in PP4's opinion, asks and answers the question: "Who is the most important person for you? YOU!", and validates the question by stating that knowing our innermost landscapes is an opening to knowing the universe and others, bringing connected-self to others.

I investigated PP4's recommended read: Boris Cyrulnik (2021, 2022), a current French neuropsychologist, treats attachment theory as a "parental theory" to the topic of becoming resilient, through suffering to flourish state. This directly links topic together which I chose in this

LD study, as Simonyan (2021) and PP3 (Question 5B) acknowledge that the deeper the pattern of the LD on the autonomous nervous system, as in, ***the longer one waits to identify and admit to a conscious disorganization in a functional movement, the harder it is to regain control of certain automatic movement and their neural responses in the body.*** PP4 has not recommended self-study to a professional singer with LD, to potentially modify unwanted movement during vocal tasks. PP4 does think it would be beneficial to include psycho-education or movement analysis in the management of LD symptoms, stating anything that can inform people about themselves can only be beneficial, if the subject is “How to become the actor of your life, without burdening your life”.

PP5 (SLP) was asked about these questions in an interview on October 18, 2023 (appendix 9,10). PP5 is heard answering YES/NO hesitantly, to all of the study topics I mention, stating that automatic improvement is shown when assigning a name (diagnosis) to a sickness is acted. However, PP5 also states that the patient/client requires self-actualizing accountability and exploration to understand how they came to where they are and where the disease leads towards an “exit door”, using tools like cognitive behavioral therapy, vocal exercises, and other types of therapies. PPS explains that any therapeutic value is only useful if the individual receiving it understands that solution to a problem begins from within, when knowing oneself.

PP6 (Movement specialist, professor, researcher LD) answered more complexly:

YES for knowing more about LD,

YES/NO for psycho-education

NO for Polyvagal Theory

YES for Relationship Theory for Self-Concept

YES for Vocal Efficiency/Neuroanatomy Singing Embodiment

NO for Laban Movement Analysis

NO for Relationship self-study, Self-Control, Exertion

YES for Auriculotherapy Effects on Well Being

PP6's explanation for topics to explore through self-related study explained that LD is a form of focal dystonia. Its pathophysiology is not thoroughly understood. Self-related study may be useful as part of symptomatic management, but the systematic empirical data is available to indicate the effectiveness of self-study to manage LD. This was hugely valuable, because I am proposing throughout this study, particularly in the conclusions, that follow-up study (PhD form) could provide useful insight into LD management for professional singers through the proposed activity (Appendix 5, 13). PP6 has not recommended self-study to a professional singer with LD, to potentially modify unwanted movement during vocal tasks, stating they are not treating people with

LD. PP6 does think it would be beneficial to include psycho-education or movement analysis in the management of LD symptoms as a system of adjuvant therapy, to encourage people to understand their disease state and how behavioral and cognitive interventions may lead to symptom reduction. PP six reiterates that it is unlikely that any therapy leads to a cure of LD.

Question 6, A and B

Does investigating any or all of the topics mentioned in Q5, promote a shift in capacity to self-analyze, therefore potentially contributing in bettering self-confidence and potentially reducing the time lapse from onset of symptoms to actual diagnosis?

PP1 (SLP) answered “possibly but not necessarily related to SD (Spasmodic Dysphonia)” for question 6A, reporting that “proper diagnosis and treatment are the most important and when managed, the singer’s confidence level automatically improves”. I relate from a personal perspective this answer, since from experience, receiving a diagnosis was traumatic, and managing symptoms is still in the works. PP5 (SLP) during their interview stated that some patients come wanting placating answers to questions like “What am I supposed to do in order to make this (singing task) possible?”, and following an answer “I don’t know” from PP5 that anticipates taking time to explore what is possible to work on together, the patient/client tends to feel discomfort from lack of immediate answers. Judge (2021) explores Dimensionality Reduction in complex data sets, stating the difficulty to successfully problem-solve sustainability of volume, variety, velocity, veracity and value of each incident presents itself when one should measure which data to keep and which to ignore over a long period of time. PP1 has worked as an SLP for 25 years, and frames in one short sentence: diagnosis + treatment = bettering confidence. The interpretation leaves questions such as:

- ***According to which type of diagnosis?***
- ***With what degree of severity was the disease patterned?***
- ***What are the steps for which treatment?***
- ***What are the outcomes?***
- ***If the treatment is not effective within the clinician’s domain, is there a possibility to recommend further types of therapy?***

PP1 answered 6B by highlighting YES, but did not follow up with a comment. Creating a comprehensive reporting insights and recommendations calls for comparing results, and the researcher must provide questions to best fit the overall engagement of the topic, presenting options for facilitating cooperation from the participants measuring internal consistent expression (Goodman, 2022; Bowen, 2022). This was the challenge with PP1’s limited comments, but as a speech language pathologist, the job requirement is clear.

PP2's (Neurologist) answers YES to Q6A, stating that their professional opinion encourages the patient's understanding of the mechanisms of the symptoms, and receiving tools to overcome the symptoms can improve self-confidence in patients. I deduce, because of the systematic YES answers in Q5, that by using the word tools, PP2 refers to the aforementioned self-study related topics to explore and perhaps acquire as related embodied or somatic skillsets, improving knowledge about physical, mental, psychological and movement-related mechanisms related to LD. In answering 6B, PP2 states that acquiring the skillset can help the patient recognize symptoms, discern how the symptoms are affecting the body's function, which tasks or behaviors, and whether or not the symptoms are functional (appendix 13).

Questioning Trust

The element of a practitioner's doubt in patient's capacity to analyze

The evidence of categorizing behavioral and modality-general representation of confidence presented in my study was difficult to formulate. The study provides a different variables such as automatic improvement in confidence (represented in orange) for example, after diagnosis, questioning validity (represented in purple), for example, in any methods I proposed to examine, and iterated doubt, for example, in a patient's capacity to respond to any method I proposed (represented in blue).

Theory that a professional singer would be unable to engage in self-study, attempting to regain a sense of confidence post diagnosis with LD were clearly presented in PP1's and PP3's responses. PP1 did not acknowledge anything but the benefice from exercises related to diagnosis and improvement in their particular work-environment context. PP3 advised that a therapeutic relationship with a professional versus working alone could be the only means of applying theory to one's individual health crisis situation. Contrary to this perspective, PP2, PP4 and PP5 guaranteed amelioration of symptoms with engagement in getting to know the self as much as possible, and PP6 denied the relationship of LD with a psychiatric link, despite unclear and unproven evidence linking self-awareness and cognitive processing. Studies do recommend mutuality and collaborative response work for more efficacious therapeutic outcome (DeAngelis, 2019).

In the interview of participant PP5, as a cross comparison with the questionnaire of PP3 regarding self-analysis improving self-confidence, both participants perceived and expressed validity issues and doubt within the method behind therapeutic interventions as a form of crisis-monitoring and developing potential strategies to alleviate discomforting symptoms or unwanted, patterned behaviors.

PP5 states that there lies an element of accountability from the patient for their arrival to (past to present) the crisis point, a form of accountability is related to admitting to an issue in the voice (present), and accountability is required to come out (find the future exit door) of a problem with the voice. Since improvement depends heavily on the mindset and practices that the singer adapts, for all of the practitioner participants, one can only consider that mindset, mindfulness and confidence in this particular problem is necessary to evaluate in order to find solace.

PP3 and PP6 deny any responsibility to the mindset or attitude of the client, and PP6 claims that LD is not a psychiatric disorder. PP3 claims that there is no evidence that theoretical knowledge links self-analysis to overall improved self confidence. PP3 argues that self-analysis could make anxiety-symptoms worse, therefore making confidence issues worse. This may be true in the case of someone suffering from depression and lack of self-esteem (Rosenberg, 2023; Masset, 2021) but PP6's response to question 8 finally states that anyone experiencing LD should be encouraged to understand their disease state with behavioral or cognitive intervention, without saying how self-study should occur (alone, or accompanied), and how self-study may lead to symptom reduction. PP2, PP4 and PP5 perceive therapeutics as necessary but do not invalidate how to proceed, meaning they do not question validity of one type of adjuvant therapy as associated with sole benefits improving confidence levels in professional singers with LD.

This contradicts PP3 and PP1's simpler views suggesting therapeutic analysis must come from a therapist providing guidance, while PP5 agrees with PP3 and PP1's analysis which states a patient's capacity to introspect can increase emotional and physical deregulation among some of their clients. The common elements here are validity issues and doubt issues, and I see clearly that both elements require more intentional evaluation in behavioral or emotional related, defined subcategories. Further study of multidisciplinary approaches which could potentially help orientate validate that the theoretical framework behind getting to know the somatic, psychological, physical and embodied states of a professional singer's relationship to LD, is precisely what I adventured to accomplish with this project.

One common element is certain, all therapists and specialists agree that without therapeutics of some type, the patient's symptomatic pathology is likely to worsen (PP1-PP6). In my own experience, the orientation of therapeutics valuable to me was very limited, as a professional singer with confidence loss, from beginning with noticing a vocal issue, to seeing an ENT, receiving a clear vision of what was happening that contributed to the onset of LD, where to go to receive beneficial physiotherapy, psychotherapy, and movement therapy (speech language therapy in this case) for how to find what PP5 describes as an exit door. My process took 3 years. Typically a diagnostic period spans over 5,5 years (Simonyan, 2021), which adversely affects any professional singer's career (Vidakovic, 2022) beginning with a singer's perception of "where to go and what to

do” when this type of problem occurs. This study validates this topic, needing more study, time, and elements from professional singers and their experiences recounted in qualitative terms.

Discussion and Analysis:

Treating perception as behavioral science research in the context of this study

As mentioned by three of the participants, PP1, PP3 and PP5 who are all speech, language, and voice therapists for singers, for the majority of their patients over a span of more than 30 years in practice, the consensus is that people inflicted with laryngeal dystonia (LD), spasmodic, dysphonia, voice, tremor, and other neurological disorders, tend to wish to “go back” to the accomplished singers they were before, and prefer leaving singing altogether. PP5 states that for some professional singers with LD, the option of delving into self-study requires more energy from examining possible reasons for how the singer got to where they are, and how they will get somewhere else, than where they are in their bodies, than giving up all together.

PP4 (psychologist) mentioned the difficulties people experience when facing the unknown, explaining that nobody is able to predict the length of time in which suffering from any trauma brings on feelings which are very difficult to examine if they are hidden, unconscious, or non symptomatic; this makes the healing path of ‘heading through the unknown’ impossible to chart.

This is confirmed in the suggestion PP4 makes to have a deeper examination into Cyrulnik’s (2022) explanation of attachment theory and the biological mechanisms that are constructed between the ages from birth to adulthood within what we learn about perceiving how secure or endangered or dissociated we feel. Tying us directly into Porges’ explanation about Polyvagal Theory and established to improve semiology and contextual knowledge around the notion of **confidence**, Cyrulnik’s iteration about pedagogical use of attachment theory, a self-study topic infused into different methods, is useful for teachers everywhere (Cyrulnik, 2022; Porges, 2022). For example, when a teacher unconsciously displays lack of confidence within themselves in an embodied manner, for whatever reason, the display of intrinsic emotional discomfort is perceived by the student, even at a very young age, even after an adaptation period of establishing a relationship between themselves and the child (Cyrulnik, 2022).

The semiology, or reading of signs (Merriam-Webster, 2024) helps children learn body language, instructs perception, instructs children about imminent danger and is appropriate as emotional responses such as empathy, self-respect, and resilience in any situation requiring self-confidence (Cyrulnik, 2022; Porges, 2023; Prétot, 2022). This validates Cyrulnik’s (2022) and Porges’ (2023) reasons for theorizing concepts which relate to acquiring improved self-confidence to regulate homeostasis in our entourage.

Healing or teaching others begins with getting to know about ourselves because we as human beings must live and cope together, applying the principles of homeostasis to communities around us (Cyrulnik, 2022; Porges, 2023; Prétot, 2022). Likewise, when examining the concept of andragogical or adult learning situations, purposeful theoretical or conceptual learning becomes trickier while observing the differences of characteristic values such as satisfaction, confidence in pedagogical strategy and other emotional-related regulatory experiences (Swanson-Wilson, 2005). Fostering a good relationship between practitioner and a professional singer patient while constantly considering meliorative practice, the idea of consciously bettering ones patterns and knowledge, provides dialogue potential for mutuality and collaboration (Ekoto, 2015; DeAngelis, 2019; Porges, 2022; Polatin, 2016). Wu (2009) links knowledge of oneself within a secure attachment style tendency and self-concept clarity to higher self-esteem, resulting in greater clarity of self-perception accuracy.

The same framework of Bowlby's (1969) model of self and other attachment schemas helps understand our homeostatic tendency, preference of distant or proximate relationship styles and how one's perception is involved in situating the ability to communicate (Porges, 2023; Cyrulnik, 2022; Polatin, 2016). Self-and-other analysis reports include self and peer relationship evaluation characteristics of avoidant, anxious and dissociative reactions (Bowlby, 1968), within self values there is mention of qualitative analysis categorizing displayed lack of understanding and empathy for oneself fused with dissociative states leading to persistent denial of distress within social interaction (Wu, 2009; Berger, 2001). Elements of denial can be linked to unconscious behavior, but essentially to alter a behavior, bias trial outcomes require delving into participant's experiences to generate hypothesis (MacNeill, 2016).

I will now segue into the singer participant's statements in their questionnaire.

The Singer Participant's LD journey

The use of color codes was also applied, though categorizing was applied with different headings than those of the practitioner participants.

LD affecting technique for singing was highlighted in blue,

LD affecting speech were highlighted in green,

LD on emotional states were highlighted in purple.

Self-related study through therapeutic beneficial application including knowledge of LD yellow, management of LD were highlighted in orange.

Perception of symptoms related to LD

Singer Participant 1, a singing teacher, and indicated a benign essential voice tremor diagnosis in June, 2022. They noticed trouble in providing accurate singing example demonstration which teaching or creating video trainings. Symptoms improved when in June, 2022, SP1 began working with SLP Kerrie Obert, a well-known practitioner and professor lecturer in the VSC. SP1 indicates that symptoms presented after significant weight loss, and became worse after contracting COVID.

Resilience through meliorative research and practice

SP1 claims that the two years spent waiting for a diagnosis while working hard on delving into research and maintaining their voice through therapy was a “blessing” (Appendix p. 37). They insist that having to be more careful with their voice and coming to terms with having LD is part of their lives as there is no cure. During the assessment period, their management journey began with seeing a speech language therapist (SLP), an otolaryngologist (ENT), a singing teacher, acupuncturist and homeopath, and since the diagnosis, the work with the SLP, ENT, and singing teacher continues. SP1 does not indicate being aware of any other topics related to self-awareness study through the subtopics I related to in this LD study, besides learning more about LD.

Arguments for the validity of this research

Contextualizing the Polyvagal Theory

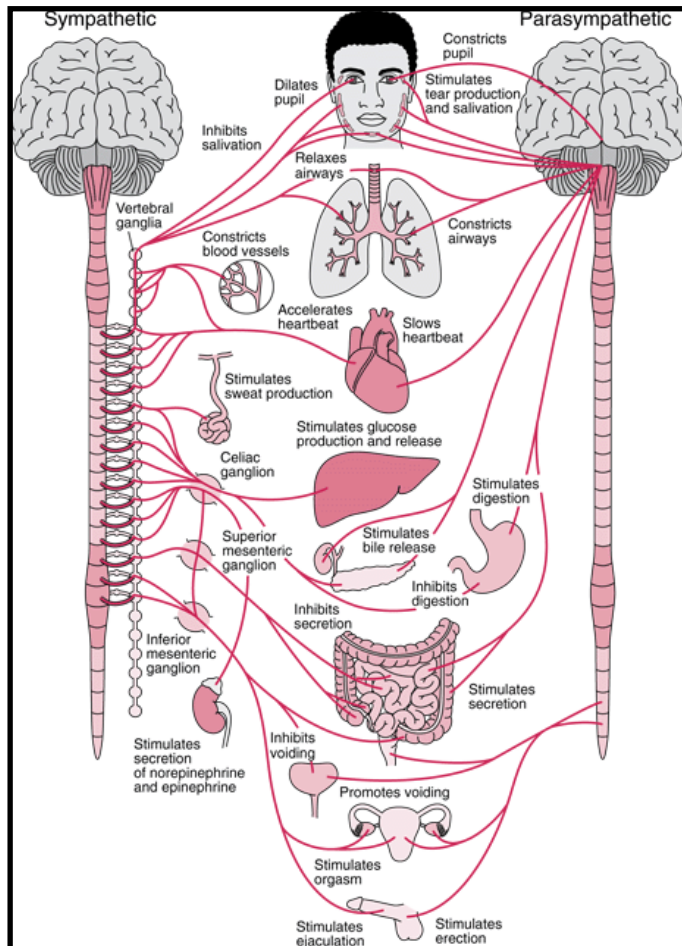


Figure 3. The Autonomic Nervous System according to Merck Manual's Professional Version, accessed on <https://www.merckmanuals.com/professional/multimedia/image/the-autonomic-nervous-system>

Exploring the usefulness of Polyvagal Theory (PVT) in relation to my study requires understanding PVT, Porges' positionality in connection to neuroscience, behavioral science, psychology, emotional embodiment, human experience and the notion of homeostasis which the obtention of healthy relationships between human beings (Carter, 2023; Porges, 2022; Cazden, 2021). When a person perceives safety or danger, their nervous system reflects the message occurring in neural circuits between the brain and the body (Cazden, 2021; Porges, 2022; Rangon, 2023; Porges, 2023; Carter, 2023). This nerve bundle responsible for passing instantaneous body upward and brain downward information called the vagus nerve is involved with the larynx's functions in all mammals, including the autonomous nervous system swallowing, sucking, voice production and breathing (Carter, 2023; Porges, 2023).

In a recent symposium I attended, Dr Stephen Porges and his wife Dr Sue Carter presented workshops and keynotes about the relationship between psychotraumatology and non-invasive or gentle neuro modulation, involving gentle vagus nerve stimulation via auriculotherapy, and psychological practices related to self-study (Porges, 2023). From the psychology point of view, PVT offers a look at how we can begin to understand and accept our own measuring of the body/ brain relationship between any trauma and our sensory experiences as well as our subjective general intuition or feeling, recognition of distress and homeostasis and our capacity for analyzing good relationships with ourselves and others (Cazden, 2021; Porges, 2022; Rangon, 2023; Porges, 2023).

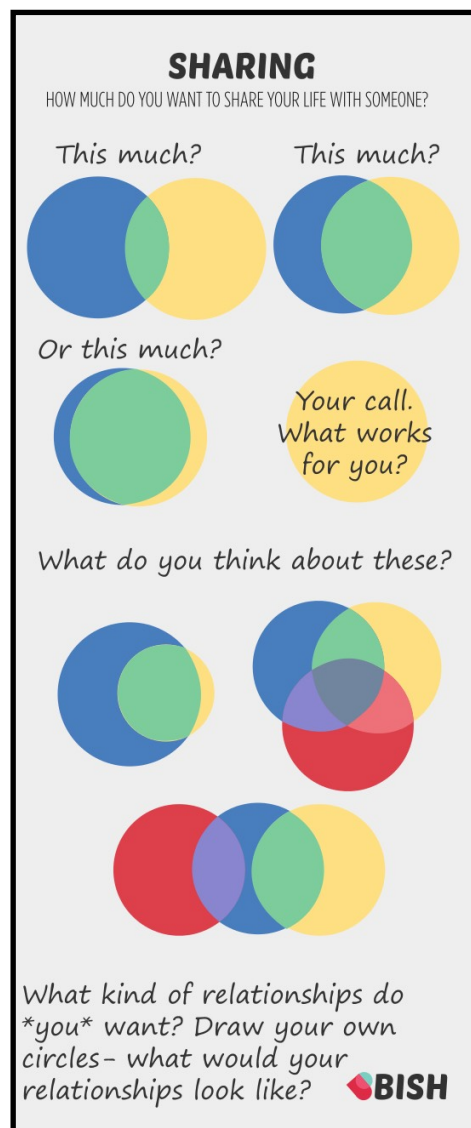


Figure 4: Relationship Venn Diagrams are useful representations to help people arrange what takes space in our lives, as an abstract concept <https://www.bishuk.com/relationships/relationships-venn-diagrams/>

Professional Singing Embodiment and The Impact of LD on Professional Singers

Professional singing is usually paid, and asks the well-practiced performing artist for the highest quality of beautiful, embodied sound, albeit in various acoustical conditions, under due stress to learn music quickly and efficiently, while delivering one's personal unique musical touch (Klickstein, 2009; Howell, 2023; Juntunen, 2023; Kuutma, 2014; Lindell 2017; Røstad, 2020). A professional singer's sound is distinguishable because of its excellency, its ability to transport the listener (Howell, 2023). Brilliant singing gains popularity, mastering the art through the body's delivery of attuned poetic nuances and deeply patterned fine movement (Lindell, 2017; Klickstein, 2009; Howell, 2023). Preparing for a professional singing career requires exploration of efficacious learning strategies, implementing specific tools to enhance an evidence-based, confidence-building framework, eliminating unneeded visible stresses despite difficult vocal tasks. (Wierzba, 2023; Crocco, 2016; Klickstein, 2009; Kuutma, 2014, Røstad, 2020).

This embodied movement is explicitly trained, practiced, chosen, programmed movement is linked to the way singing pedagogical phenomenology becomes examined by teachers (Crocco, 2016; Kuttma, 2014; Crocco, 2019), affecting what is actually happening to the body while simultaneously internalized and externalized sonification occurs (Lindell, 2017; Howell, 2023; Klickstein; 2009). This is the reason for integrating appendix 13, an integrative chart to be used to measure what can and can not be done for a professional singer who indicates having trouble. The Laban Music Movement Analysis is a guide also linked to the perception a singer will have about the quality of their voice during a specific series of didactic singing tasks (Klickstein, 2009; Sobol, 2020) and the consistency with which they are able to perform this task (Sobol, 2020; Jacobson, 1997). Since LD leaves some or perhaps all singing tasks, distorted or healthy, in the hands of a practitioner to resolve what can and can not be accomplished in a phrase, the proposed flower diagram and LMMA method (appendix 5, 13) propose an activity for the long diagnosis period ambiguity with the can and can not do of professional singing tasks.

Limitations

To complete the presentation of the findings in my research, the study's limitations must be mentioned in order to present the obligation of transparency to the academic community (Ross, 2019; Connelly, 2013; Sage, 2014; Drotar, 2008; Adler, 2003). The reliability of the results were analyzed alongside the pertinence of the answers provided by participants who are singing or health related professionals since over 30 years each. Merriam (2016) states that most answers depicted in a musi

Piloting these questionnaires required participants to be able to take the time to examine the questions and taking the time to pilot and tweak a questionnaire aims for a richer response (Boynton, 2004; Merriam, 2016). Viewing some of the answers from the practitioners made me ponder if the linguistic choice of formulation of my sentences needed further work before sending the questionnaire.

I had intended to separate trail sample groups into two categories, one being the participants as singers diagnosed with LD, the other, being voice-related workers: psychologists, otolaryngologist ENT, speech and language therapists, physical therapists, and any other therapeutic accompaniment inferred in the management and treatment of laryngeal dystonia patients from scientific review (Simonyan, 2021; Konzak, 2022; Vidakovic, 2022) . As the project went on, participants who were afflicted with the voice problems dropped out without explanation. This limited the sample, and in turn the pursuit of my aim which was to sample more than one singer. Examining Paula Ross' (2019) study about being limited by our own limitations, I make a point to include what may seem like redundant or perhaps irrelevant limitations, as some of the questions I formatted were done from the position of a patient who was satisfied my their LD management.

I placed the research findings as closely within their project's context, as to ensure trustworthiness and the lack existence of overemphasis or minimized character (Ross, 2019). Illustrating discrepancies point by point and in depth does not lighten the challenge in coding, aiming to interpret accuracy of interpretation of unusual or unanticipated responses to the questionnaires (Dwyer, 2009; Merriam, 2016). External validity, generalizability, is in finding and supporting the legibility of the project, albeit containing complex, evidence-based empirical referencing to draw its (Dwyer, 2009; Merriam, 2016).

Despite my ethical integrity, SP1 dropped out of part two without disclosing any reason. Dwyer (2022) investigated reasoning behind decisions to decline participation in a research intervention. The form in which data was gathered, acknowledgment of the value of research, the participant's role in the study, fear of misinterpretation, and finally the wish to remain within the state of

'ignorance is bliss', are all parts of why trial recruitment and participation up until the end, are interrupted in the processes with outliers (Dwyer, 2022).

Some of the data from practitioners displayed dismissive contempt regarding the need for self-study related to psychological elements (for which abstracts provided further clarity) related to the choices of management of LD, confidence loss and professional singing. I recognize the sensitivity of this topic and the aforementioned self-study topics, and acknowledge my accountability for choosing and wishing to understand related subjects that may appear difficult to tie together, for creating a methodological practice for ameliorated confidence in professional singers with LD. Finally, the timeframe did not allow me to complete the PowerPoint presentation for the participants as the research about all the subtopics took longer than originally anticipated. An email of the presentation could be sent to the participants if they take interest in the finality of the project.

Conclusions/Recommendations

I now am even more motivated to learn about how to work with singers who may have LD, in order to improve my teaching skills and contribute to sound research practice about this topic. The literature here shows that the void of successful treatment of this idiopathic disease influences the underdeveloped methods for management, indicating a recommendation for further research (Vidakovic, 2022). It behooves me as a professional singer and teacher who wishes to help fellow professional singers, to further investigate methods improving statistics of singers quitting singing because of LD (Vidakovic, 2022; Kothare, 2022). Valuable quantitative data about Laryngeal Dystonia (LD) is gathered by otolaryngologists and speech-language therapists internationally, constituting reality and truths to the data sets linked to vocal function and illness/disease/medical imaging and sound measure (Simonyan, 2021; Vidakovic, 2022; Konzcak, 2023). This must not overshadow the lack of information about the patients themselves, making the methodology sound when observing professional singers losing confidence and work from an LD diagnosis. Having access to what knowledge is available and methods for identifying how knowledge comes to be known as a means to serve the professional singing community, serves the future history of building expertise (Sielska-Badurek, 2017).

My objectives were validated by the practitioners and the singer participant who enlightened the need for self-analysis feeding feelings of safety combined with the complexities of intrinsically embodied particularities about singing professionally (Cazden, 2021; Porges, 2023). Speech pathologists and psychologists specializing in vocal arts rehabilitation are known to apply theoretical framework about feeling safely connected to oneself because of its healing nature influencing the "hot and cool" of singing. This refers to remaining resiliently aware of surroundings and thoughts while remaining calm enough physically to perform difficult singing tasks, (Cazden,

2021). Since this is impossible for professional singers with LD, and confidence loss from LD pushes to depression, anxiety and quitting, further research is recommended for how to best accompany professional singers to lessen the burden of LD (Slmonyan, 2021; Vidakovic, 2022)

Justification for the aim of the project is validated in Porges' (2023) newest book "Our Polyvagal World" which suggests that most people silently suffer from what their bodies say from post-traumatic sensory experiences through flashes of colors, sights, sounds, smells, consuming an otherwise healthy ability to connect to ourselves and others. As reported by practitioner participants and the singer participant, LD changed singers into an unforeseen psychological state (Porges, 2023; Cazden, 2021). These findings cross-related with meliorative pedagogical training such as Laban Movement Analysis preempted the creation of the model to assist professional singers with LD, because the Autonomic Nervous System (ANS) regulation is obliged, in musical high level performing, to meet the needs of combined arousal/calm states (Appendix 13) (Porges, 2021: Cazden, 2021).

The Voice Study Center promotes the investigation of such framework. High-quality methodological research is built to hone in on specific performance characteristics and outcomes so that embodied singing endures (Jensenius, 2019). A performer's perception of physical, coordinated movement, which infuses their voice quality with representation of abstract concept of subjective beauty, leads to increased self-regulation, improved practice motivation and neuro motor improvement in embodied singing tasks (Kuttma, 2014; Crocco, 2016; Filipa, 2022).

References

- Abitbol, J (1986) Performers and Voice Fatigue. https://youtu.be/4jVp9U44RBw?si=e-wkqPiz_7ucyRwA accessed Jan 24/2024
- Abukhalaf, A, Darwish, A (2021) Exploring Emotional Intelligence from a Linguistic Perspective. Academia Letters Article 3574
- Acomi, N, Acomi, O, Ova, N, Akilli. A, Anlar, E, Martinez, H, Arisoy, P, Mehmeç, K, Koca, I, Kurt, H, Marzano, F, Akarcay, Y, Ochoa SL, Pellegrino, A, Yucel, Ö, Zorzi, S. (2023). Creativity and Arts in Digital Social Innovation. 10.5281/zenodo.8052835.
- Adler ES, Clark R. (2003) How it's done: an invitation to social research. Belmont: Wadsworth/Thomson Learning
- Ahmadi, N., Abbott, K. V., Rajati, F., Khoddami, S. M., Torabinezhad, F., Ebrahimi Takamjani, I., & Vasaghi-Gharamaleki, B. (2022). Effects of Laryngeal Manual Therapy on Primary Muscle Tension Dysphonia (MTD-1): Implications for MTD-1 Type. Journal of Voice
- Ailey, R. (2022) blog which annotates Bell, J and Waters, S (2018) Doing Your Research Project: a guide for first time researchers. 7th ed. London, McGraw Hill. <https://readings.myblog.arts.ac.uk/2022/06/08/hello-world/> Accessed January 22, 2024
- Alhazmi, A. A., & Kaufmann, A. (2022). Phenomenological Qualitative Methods Applied to the Analysis of Cross-Cultural Experience in Novel Educational Social Contexts. Frontiers in psychology,
- Allen, M. Frank, D. Schwarzkopf, S. Fardo, M. Winston, JS. Hauser, TU. Rees G.(2016) Unexpected Arousal Modulates the Influence of Sensory Noise on Confidence eLife Neuroscience
- Amassian, V.E.; Anziska, B.J.; Cracco, J.B.; Cracco, R.Q.; Maccabee, P.J. (1988) Focal magnetic excitation of frontal cortex activates laryngeal muscles in man. J. Physiol.
- Ames, A (2019) Using Laban's Efforts to Define Movement in Five Music Genres. Master's Thesis, Open Access, University of Northern Colorado, USA
- Ankola, A, Sulica, L, Murry, T (2013) Laryngeal Dystonia gravidarum: Sudden onset of adductor spasmodic dysphonia in pregnancy, The Laryngoscope, 10.1002/lary.24225, 123, 12, (3127-3130)

Annink, A. (2017). Using the Research Journal during Qualitative Data Collection in a Cross-Cultural Context . Entrepreneurship Research Journal

Ansari, S (2023) Exploring the Controversy of Polyvagal Theory.

Armagan, A (2013) How to write an introduction section of a scientific article. NIH National Center for Biotechnology Information

Asenahabi, B M (2019), Basics of Research Design: A guide to selecting appropriate research design. ResearchGate

Atkinson, M.J., Wishart, P.M., Wasil, B.I. et al. The Self-Perception and Relationships Tool (S-PRT): A novel approach to the measurement of subjective health-related quality of life. Health Qual Life Outcomes **2**, 36 (2004). <https://doi.org/10.1186/1477-7525-2-36>

Awan, S. N. , Roy, N. , Jetté, M. E. , Meltzner, G. S. , & Hillman, R. E. (2010). Quantifying dysphonia severity using a spectral/cepstral-based acoustic index: Comparisons with auditory-perceptual judgements from the CAPE-V. Clinical Linguistics & Phonetics,

Bakhshi, J, Ireland, V, Corral de Zubielqui, G. (2015). Exploring project complexities: a critical review of the literature. ResearchGate

Bargh, J, Chartrand, TL (1999) The Unbearable Automaticity of Being. American Psychologist, NYU, Yale, EDU

Barrett, L. F., Quigley, K. S., & Hamilton, P. (2016). An active inference theory of allostasis and interoception in depression. Philosophical transactions of the Royal Society of London. Series B, Biological sciences

Bell, J with Waters S. (2018) Doing Your Research Project - A guide for first-time researchers. 6th Ed. Open University Press

Bennett, G (2017) The Science of Singing: A Voice Lesson from Anatomy and Physiology. The Research and Scholarship Symposium 1. (Accessed July 28th, 2023)

Bergan, C. (2010) Motor Learning Principles and Voice Pedagogy: Theory and Practice. NATS Journal of Voice

Berger, L (2001) The relationship between accuracy of self-perception and attachment organization in adolescence. Academia

Bernadet, U, Fdili Alaoui, S, Studd, KA, Kohn Bradley, K (2019) Assessing the Reliability of the Laban Movement Analysis System.

Blitzer, A (2010) Spasmodic Dysphonia: Focal Laryngeal Dystonia. Encyclopedia of Movement Disorders, p 130-132 Academic Press, Elsevier

Blitzer, A. , Brin, M. F. , Simonyan, K. , Ozelius, L. J. , & Frucht, S. J. (2018). Phenomenology, genetics, and CNS network abnormalities in laryngeal dystonia: A 30-year experience. Laryngoscope, PubMed

Borish, D., Cunsolo, A., Mauro, I., Dewey, C., & Harper, S. L. (2021). Moving images, Moving Methods: Advancing Documentary Film for Qualitative Research. International Journal of Qualitative Methods, 20.

Bouchrika I (2024) Abstract Research Paper: Types, Tips & Best Practices in 2024. <https://research.com/research/abstract-research-paper> accessed Feb 15th, 2024

Bowen, D. J., Ackermann, N., Thompson, V. S., Nederveld, A., & Goodman, M. (2022). A study examining the usefulness of a new measure of research engagement. Journal of general internal medicine, Springer Pub

Boynton P. M. (2004a). Administering, analysing, and reporting your questionnaire. BMJ (Clinical research ed.) NIH Pubmed

Boynton PM, Greenhalgh T. (2004b) Hands-on guide to questionnaire research: selecting, designing, and developing your questionnaire. BMJ NiH Pubmed

Buckley, DP, Cadiz, MD, Eadie, TL, Stepp, CE. (2020) Acoustic Model of Perceived Overall Severity of Dysphonia in Adductor-Type Laryngeal Dystonia. PubMed

Budin, W (2017) Building Confidence. Journal Perinatal Education. Pubmed.

Bundy, J., Pfarrer, M. D., Short, C. E., & Coombs, W. T. (2017). Crises and Crisis Management: Integration, Interpretation, and Research Development.

Cardoso, R, Lumini-Oliviera, J, Meneses, RF (2021) Associations Between Autonomic Nervous System Function, Voice, and Dysphonia, A systematic review, Journal of Voice

Carter, S. (2023) 11th International Symposium of Auriculotherapy, Copenhagen, Denmark. Accessed Sept 8-10 in person.

Cassidy, J., Jones, J. D., & Shaver, P. R. (2013). Contributions of attachment theory and research: a framework for future research, translation, and policy. Development and psychopathology

Cazden, J (2017). Stalking the calm buzz: how the polyvagal theory links stage presence, mammal evolution, and the root of the vocal nerve. Voice and Speech Review. 11. 1-22.
10.1080/23268263.2017.1390036.

Cazden, J (2021) Singing Hot and Cool: The Polyvagal Theory and Vocal Pedagogy. Voice Study Center short course presentation, accessed July 30th, 2023.

Chapman Daniel P, Perry Geraldine S, Strine Tara W. The Vital Link between Chronic Disease and Depressive Disorders. Journal of Preventive Chronic Disease

Chen, M. Summers, R.L.S. Prudente, C.N. Prudente, C.N. Goding, G.S. Samargia-Grivette, S. Ludlow, C.L. Kimberley, T.J. (2020) Transcranial magnetic stimulation and functional magnet resonance imaging evaluation of adductor spasmodic dysphonia during phonation. Elsevier

Cheyne, D, Ferrari, P, Cheyne, JA (2012) Intended Actions and Unexpected Outcomes: Automatic and Controlled Processing in a Rapid Motor Task. Frontiers in Human Neuroscience. ResearchGate.

Chitkara, A., Meyer, T., Keidar, A., & Blitzer, A. (2006). Singer's dystonia: first report of a variant of spasmodic dysphonia. The Annals of otology, rhinology, and laryngology. Researchgate

Colapinto, J (2013) 'Giving Voice'. Dept of Arts and Science, New Yorker, Accessed January 25th, 2024.

Connelly, L. M. (2013). Limitations. Medsurg Nursing, 22(5), 325. GoogleResearch

Conte, A., Defazio, G., Mascia, M., Belvisi, D., Pantano, P., & Berardelli, A. (2020). Advances in the Pathophysiology of Adult-Onset Focal Dystonias: Recent Neurophysiological and Neuroimaging Evidence. F1000Research, 9, F1000 Faculty Rev-67.

Creighton, FX, Hapner, E, Klein, A, Rosen, A, Jenner, HA, John's, MM (2013) Diagnostic Delays in Spasmodic Dysphonia: A call for Clinician Education. Elsevier

Creswell JW. (2014) Research design. Qualitative, quantitative, and mixed methods approaches. 2. Thousand Oaks: SAGE publishing

Crocco, L, Madill, C, McCabe, P. (2016). Evidence-Based Teaching and Learning Frameworks for Classical Singing Training: A Systematic Review.. Journal of Voice

Crocco, L, Madill, C, McCabe, P. (2019). Principles of Motor Learning in Classical Singing Teaching. ResearchGate

DeAngelis, D (2019) Better Relationships with Patients lead to Better Outcomes. American Psychological Association, <https://www.apa.org/monitor/2019/11/ce-corner-relationships> Accessed March 13, 2024.

Demorest, S, Kelley, J, Pfordresher P. (2017) Singing Ability, Musical Self-Concepts and Future Music Participation. Journal of Research in Music Education.

De Vries, G (2016) Bruno Latour. Cambridge MA, Polity Press, Google Scholar

Doğan Yüksel, R., Metin, E.N. (2023) Exploring the Relationship between Mindfulness and Life Satisfaction in Adolescents: The Role of Social Competence and Self-Esteem. Child Ind Res, Springer

Drotar D. (2008) Thoughts on establishing research significance and preserving scientific integrity. J. Pediatr. Psychol.

Dunbar-Wells, R (2003) Using appropriate language modes and explicit teaching aids. Australian Voice.

Durham, M (2023) Singing in Co-Harmony: An Introduction to Trauma Informed Voice Care. Journal of Voice

Dwyer, C. P., Moses, A., Rogers, F. M., Casey, D., Joyce, R., & Hynes, S. M. (2023). A qualitative investigation of reasoning behind decisions to decline participation in a research intervention: A study-within-a-trial. Journal of health psychology, Sagepub

Dwyer, S. C., & Buckle, J. L. (2009). The Space Between: On Being an Insider-Outsider in Qualitative Research. *International Journal of Qualitative Methods*. SagePub

Eadie, T. L. , & Stepp, C. E. (2013). Acoustic correlate of vocal effort in spasmodic dysphonia. *Annals of Otology, Rhinology and Laryngology*, Sagepub

Ehrlich, SK, Battistella, G, Simonyan, K (2023) Temporal Signature of Task-Specificity in Isolated Focal Laryngeal Dystonia, *Movement Disorders*, NIH

Ehrlich SK, Agres KR, Guan C, Cheng G. (2019) A closed-loop, music-based brain-computer interface for emotion mediation. *PLoS One*.

Ekoto, CE, Gaikwad, P. (2015) The Impact of Andragogy on Learning Satisfaction of Graduate Students. *American Journal of Educational Research*.

Eriksson-Mangold, M., Carlsson, S. G. (1991) Psychological and Somatic Distress in Relation to Perceived Hearing Disability, Hearing Handicap, and Hearing Measurements. *Journal of Psychosomatic Research*

Entwistle, V. A., Carter, S. M., Cribb, A., & McCaffery, K. (2010). Supporting patient autonomy: the importance of clinician-patient relationships. *Journal of general internal medicine*

Erdem, C, Lan, Q, Jensenius, AR (2020). Exploring Relationships Between Effort, Motiion, and Sound IN New Musical Instruments. *Human Technology*

Ertel Karen A, Glymour Maria, Berkman Lisa F. (2009) Social Networks and Health: A Life Course Perspective Integrating Observational and Experimental Evidence. *Journal of Social and Personal Relationships*.

Everson-Rose Susan A, Lewis Tené T. (2005) Psychosocial Factors and Cardiovascular Diseases. *Annual Review of Public Health*.

Feeney, B. C. (2004). A Secure Base: Responsive Support of Goal Strivings and Exploration in Adult Intimate Relationships. *Journal of Personality and Social Psychology*

Feeney, B. C., & Collins, N. L. (2015). A New Look at Social Support: A Theoretical Perspective on Thriving Through Relationships. *Personality and Social Psychology Review*.

Fleischer, M, Rummel, S, Stritt, F, Fischer, J, Bock, M, Echternach, M, Richter, B, Traser, L (2022) Voice Efficiency for Different Voice Qualities Combining Experimentally Derived Sound Signals and Numerical Modeling of the Vocal Tract. *Frontiers in Science*, sec. Computational Physiology and Medicine.

Fostaty Young, Sue. (2008). Theoretical frameworks and models of learning: tools for developing conceptions of teaching and learning. *International Journal for Academic Development*. ResearchGate

Foster, G. (2009). A diagrammatic exposition of regression and instrumental variables for the beginning student. *The Journal of Economic Education*, Google Scholar

Frankford, S, Marks, KL, Feaster, TF, Doyle, PC, Stepp, C (2022) Symptom Expression Across Voiced Speech Sounds in Adductor Laryngeal Dystonia. *Journal of Voice*, Elsevier

Gehman, C. (2019) How to Use Open Source Code in Proprietary Software.

<https://www.perforce.com/blog/vcs/using-open-source-code-in-proprietary-software> accessed Feb 14, 2024.

Gershman, SJ (2023) Causal Implications from Correlational Statements. Conceptualization, Writing, Data Curation, Formal Analysis, Investigation, Visualization, Writing. *PubMed Central*

Gess, N. (2015) Ideologies of Sound: Longing for Presence from the eighteenth century until today. *Journal of Sonic Studies*

Ghenaiet, A (2024) Easy Style Guide For Research Paper Subheadings, <https://inkforall.com/ai-writing-tools/subheading/research-paper-subheadings/>. accessed January 24, 2024

Giorgi, A (2009) The Descriptive Phenomenological method in psychology: A modified Husserlian approach. Pittsburgh, PA; Duquesne University press

Goodman, MS, Ackerman, N, Haskell-Craig, Z (2022) Construct Validation of the Research Engagement Survey Tool (REST), *BiomedCentral*, SpringerPub

Grape, C., Sandgren, M., Hansson, L. O., Ericson, M., Theorell, T. (2003). Does singing promote well-being?: An empirical study of professional and amateur singers during a singing lesson. *Integrative physiological and behavioral science*. *Journal of the Pavlovian Society*

Greener S. (2018) Research limitations: The need for honesty and common sense. Inter Learn Environ.

Guiry S, Worthley A, Simonyan K. (2019) A separation of innate and learned vocal behaviors defines the symptomatology of spasmodic dysphonia. Laryngoscope.

Guyer, J, Briñol, P, Vaughan-Johnston, TI, Frabrigar, LR, Moreno, L, Petty, R (2021) Paralinguistic Features Communicated through Voice can Affect Appraisals of Confidence and Evaluative Judgments. Journal of Nonverbal Behavior, Pubmed

Halstead, L. A., McBroom, D. M., & Bonilha, H. S. (2015). Task-specific singing dystonia: vocal instability that technique cannot fix. Journal of voice

Hamzelou J (2017) <https://www.newscientist.com/article/2151137-your-autopilot-mode-is-real-now-we-know-how-the-brain-does-it/> Your Autopilot Mode is Real, Now We Know How the Brain Does It. New Scientist Article/YouTube Video : <https://youtu.be/YPW7BddVjmk>, Accessed August 4th, 2023

Hancock, J (2023) Relationship Venn Diagrams. Accessed March 1st, 2024 <https://www.bishuk.com/relationships/relationships-venn-diagrams/>

Hanekamp S, Simonyan K. (2020) The large-scale structural connectome of task-specific focal dystonia. Hum Brain Mapp.

Hannum, ME, Simons, CT (2020) Development of the Engagement Questionnaire (EQ): A tool to measure panelist engagement during sensory and consumer evaluations. Elsevier Journal
Harrison, P., Marjeh, R., Adolphi, F., van Rijn, P., Anglada-Tort, M., Tchernichovski, O., Larrouy-Maestri, P. & Jacoby, N. (2020). Gibbs Sampling with people. Advances in Neural Information Processing Systems

Hassim, A, Dayang, S, Mazlan, CAN (2023). Internal and External Factors that Influence Students' Persistent Participation in Music Learning. ResearchGate

Hays RD, Anderson R, Revicki DA (1993) Psychometric considerations in evaluating health-related quality of life measures. Quality of Life Research

Hazan C. Shaver PR (1994) Attachment as an Organizational Framework for Research on Close Relationships, Psychological Inquiry

Helding, L (2016) Motor Learning and Voice Training, Part II, Locus of Attention: Internal or External? That is the question. NATS Journal of Voice

Hillman, RE, Stepp, CE, Van Stan JH, Zañartu, M, Mehta, DD (2020) An Updated Theoretical Framework for Vocal Hyperfunction. Pubmed, NIH

Hoffmeister, J. D., Ulmschneider, C. L., Ciucci, M. R., & McCulloch, T. M. (2022). Stress Effects on Pharyngeal Air Pressure and Upper Esophageal Sphincter Pressure During Phonation: The Influence of Vocal Tract Semi-Occlusion. Journal of Voice

Howitt, D (2010) Introduction to Qualitative Methods in Psychology. Pearson Education Limited, 2nd Edition

Hyodo, M, Hisa, Y, Nishizawa, N, Omori, K, Shiromoto, O, Yumoto, E, Sanuki, T, Nagao, A, Hirose, K, Kobayashi, T, Asano, T, Sakaguchi, M (2021) The prevalence and clinical features of spasmodic dysphonia: A review of epidemiological surveys conducted in Japan, Auris Nasus Larynx, Elsevier

Jacobson B.H., Johnson A., Grywalski A., Silbergleit A., Jacobson G., Benninger M.S., (1997) The voice handicap index: development and validation. Am J Speech Language Pathol.

James, B, Özden, S. (2021) Practice Research - Report 1: What is practice research? and Report 2: How can practice research be shared? British Library Shared Research Repository

Jilcha Sileyew, K. (2020). Research Design and Methodology. IntechOpen

Jinnah HA, Berardelli A, Comella C, Defazio G, DeLong MR, Factor S, Galpern WR, Hallett M, Ludlow CL, Perlmuter JS, Rosen AR, (2013) Dystonia Coalition I. The focal dystonias: current views and challenges for future research. Mov Disord.

Johnson, R, Bouhassira, D, Kassianos, G, Leplège, A, Schmader, K, Weinke, T. (2010) The Impact of Herpes Zoster and Post-Herpetic Neuralgia on Quality of Life. BMC Medicine in National Library of Medicine. Vol 8 no 37

Jones, J (2008) Auditory-Motor mapping for Pitch Control in Singers and Nonsingers. Experimental Brain Research, Academia Pub

Jongbo, O C (2014) The Role of Research Design in a purpose driven Inquiry. Review of Public Administration and Management.

Joshi, Y (2015) Tips on using major headings, subheadings, minor headings in research papers. <https://www.editage.com/insights/tips-on-using-major-headings-subheadings-minor-headings-in-research-papers>. Accessed January 24th, 2024.

Judge, J (2021) Dimensionality Reduction in EH&S Data Analysis. Academia

Keesee GS (2018) Blog: Andragogy- - Adult Learning Theory. [http://teachinglearningresources.pbworks.com/w/page/30310516/Andragogy--Adult Learning Theory](http://teachinglearningresources.pbworks.com/w/page/30310516/Andragogy--Adult%20Learning%20Theory) Accessed Jan 25, 2024

Kepecs, A, Mainen, ZF (2012) A computational framework for the study of confidence in humans and animals. NIH PubMed

Kehoe Jerard F., Reynolds Thomas J. (1977) Interactive multidimensional scaling of cognitive structure underlying person perception. Applied Psychological Measurement

Khosravani, Sanaz & Mahnan, Arash & Yeh, I-Ling & Aman, Joshua & Watson, Peter & Zhang, Yang & Goding, George & Konczak, Juergen. (2019). Laryngeal vibration as a non-invasive neuromodulation therapy for spasmodic dysphonia. Scientific Reports. Research Gate

Kiani R Shadlen MN (2009) Representation of confidence associated with a decision by neurons in the parietal cortex Science 324:759–764. <https://doi.org/10.1126/science.1169405> Google Scholar

Kilic Afsar O, Luft Y, Cotton K, Stepanova E, Núñez-Pacheco C, Kleinberger R, Ben Abdesslem F, Ishii H and Höök K. Corsetto. Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems. <https://doi.org/10.1145/3544548.3581294> accessed Sept 2/2023

Klickstein, G (2009) The Musician's Way, A Guide to Practice, Performance and Wellness. North Carolina, Oxford University Press.

Koestner, R., Powers, T. A., Carbonneau, N., Milyavskaya, M., & Chua, S. N. (2012). Distinguishing autonomous and directive forms of goal support: Their effects on goal progress, relationship quality, and subjective well-being. Personality and Social Psychology Bulletin, 38(12), 1609–1620. <https://doi.org/10.1177/0146167212457075>

Koehler, M, Cunningham CD (2023) Perspective: Is 'Self-Care' culture toxic? Deseret News, accessed Nov 28, 2023 <https://www.deseret.com/opinion/2023/11/26/23972764/toxic-self-care-culture-therapy-speak>

Krzeminski, C (2022) Creative Minds: Thinking or Digital Space ?. HAL Open Science

Kuo, Y. L., Chen, M., & Kimberley, T. J. (2023). Probing the inhibitory motor circuits in adductor laryngeal dystonia during a dystonia-unrelated task. *Parkinsonism & related disorders*, 115, 105812. <https://doi.org/10.1016/j.parkreldis.2023.105812>

Kuutma, K., & Kästik, H. (2014). Creativity and “Right Singing”: Aural Experience and Embodiment of Heritage. *Journal of Folklore Research*

Lă, F, Fiuza, M. (2022). Real-Time Visual Feedback in Singing Pedagogy: Current Trends and Future Directions. *Applied Sciences*. ResearchGate

Laboskey, Vicki. (2004). The Methodology of Self-Study and Its Theoretical Underpinnings. Research Gate DOI10.1007/978-1-4020-6545-3_21.

Lamont, A. (2012). Emotion, engagement and meaning in strong experiences of music performance. *Psychology of Music*

Larrouy-Maestri, P., Magis, D., & Morsomme, D. (2014). The effect of melody and technique on the singing voice accuracy of trained singers. *Logopedics Phoniatrics Vocology*,

Larrouy-Maestri, P., & Morsomme, D. (2014). The effects of stress on singing voice accuracy. *Journal of Voice*

Larrouy-Maestri, P. (2020). Evaluation tools in singing education: a comparison of human and technological measures. In *Routledge Companion to Interdisciplinary Studies in Singing* .

Latour, B (2005) *Reassembling the Social: An Introduction to Actor-Network-Theory*. Oxford Academic, Academic OUP

Leal-Rodriguez, AL, Sanchis-Pedregosa, C, Moreno-Moreno, AM, Leal-Millan, AG (2023) Digitalization beyond Technology: Proposing an explanatory and predicative model for digital culture in organizations. *Journal of Innovation and Knowledge*, Elsevier

Lebreton M, Abitbol R, Daunizeau J, Pessiglione M. (2015) Automatic integration of confidence in the brain valuation signal *Nature Neuroscience*. Google Scholar

Lee, Y, Oya, M, Kaburagi, T, Hidaka, S, Nakagawa, T (2023) Differences Among Mixed, Chest, and Falsetto Registers: A Multiparametric Study, *Journal of Voice*,

Lerman, L (2003) Critical Response Process. Google Scholar

Lindell, R., Kumlin, T. (2017) Biosignal Augmented Embodied Performance. In proceedings of the 12th International Audio Mostly Conference on Augmented and Participatory Sound and Music Experiences (AM '17) Association for Computing Machinery, NY, NY

Linneberg, M, Korsgaard, S. (2019). Coding qualitative data: a synthesis guiding the novice. *Qualitative Research Journal*

Lorch, M.P.; Whurr, R. (2016) Tracing Spasmodic Dysphonia: The Source of Ludwig Traube's Priority. *Ann. Otol. Rhinol. Laryngol.*

Ludlow, C. L., Adler, C. H., Berke, G. S., Bielałowicz, S. A., Blitzer, A., Bressman, S. B., Hallett, M., Jinnah, H. A., Juergens, U., Martin, S. B., Perlmuter, J. S., Sapienza, C., Singleton, A., Tanner, C. M., & Woodson, G. E. (2008). Research priorities in spasmodic dysphonia. *Official Journal of American Academy of Otolaryngology-Head and Neck Surgery*,

Ludlow, CL (2011) Spasmodic Dysphonia: A Laryngeal Control Disorder Specific to Speech. NIH PubMed.

Lungu, C., Ozelius, L., Standaert, D., Hallett, M., Sieber, B. A., Swanson-Fisher, C., Berman, B. D., Calakos, N., Moore, J. C., Perlmuter, J. S., Pirio Richardson, S. E., Saunders-Pullman, R., Scheinfeldt, L., Sharma, N., Sillitoe, R., Simonyan, K., Starr, P. A., Taylor, A., Vitek, J., & participants and organizers of the NINDS Workshop on Research Priorities in Dystonia (2020). Defining research priorities in dystonia. *Neurology*

Macdonnell, R, Holmes, R (2007) Motor Speech and Swallowing Disorders. *Neurology and Clinical Neuroscience*, Elsevier

Masset, P Ott, T, Lak, A, Hirokawa, J, Kepecs, A (2021) Behavior and Modality-General Representation of Confidence in Orbitofrontal Cortex. *Pubmed*

McCarther, S (2018) Getting in the Zone, Part 1: Flow and Finding a State of Peak Performance. *Journal of Singing*

McEwen Bruce S. (1988) Stress, Adaptation, and Disease: Allostasis and Allostatic Load. Annals of the New York Academy of Sciences

McGinnis J Michael, Williams-Russo Pamela, Knickman James R. The Case for More Active Policy Attention to Health Promotion. Health Affairs.

Merck Manual Professional Version, <https://www.merckmanuals.com/professional/multimedia/image/the-autonomic-nervous-system>, accessed January 24th, 2024

Merriam S, Tisdell, E (2016) Qualitative Research, a Guide to Design and Implementation. Jossey-Bass, San Fransisco, CA.

Meyer, D, Nix, J, Okerlund, D (2021) Practical Science in the Studio, Part 3: “High-Tech” Strategies. Voice Pedagogy, Journal of Singing

Mirowsky J, Ross (2003) Social Causes of Psychological Distress. 2. New York: Aldine de Gruyter; Google Scholar

Mor, N, Simonyan, K, Blitzer, A (2018) Central Voice Production and Pathophysiology of Spasmodic Dysphonia NIH PubMed

Moss Erickson, H (2022) Vocal Learning and Songbirds: An Evolutionary Tale of Singing. Journal of Singing

Moustakas, C (1994) Epoche, Phenomenological Reduction, Imaginative Variation, and Synthesis. Sage Research Methods, Sage Publishing

Nash, Dr J. (2021) How To Perform Psychoeducation Interventions: 14 topics, <https://positivepsychology.com/psychoeducation/> accessed August 20, 2023

Neves, ML, Coutinho, BD, da Silva, EDC, Gentil, LB, dos Santos, ARS, da Silva, MD (2022) Ear Acupuncture and neuromodulation: narrative review. Longhua Chin Med

Nelson, R (2022) Practice as Research in the Arts (and Beyond). Principles, Processes, Contexts, Achievements. 2nd Ed London, UK

Nietzsche F. (1909). “The Birth of Tragedy.” In Friedrich Nietzsche, The complete Works of Friedrich Nietzsche. Complete and authorized English translation. Volume one. Ed. Oscar Levy (trans. A. Haussmann). Edinburgh: The Edinburgh Press

Oliveira, P. Lima Neto, E. Lopes, L. Behlau, M. Oliveira Lima, H. Almeida, A. (2023) Brazilian Dysphonia Screening Tool (Br-DST): An Instrument Based on Voice Self-Assessment Items, *Journal of Voice*

Ott, T, Masset, P, Kepecs, A. (2019). The Neurobiology of Confidence: From Beliefs to Neurons. *Cold Spring Harbor Symposia on Quantitative Biology*.

Payne, S., Tisch, S., Cole, I., Brake, H., Rough, J. and Darveniza, P. (2014), The clinical spectrum of laryngeal dystonia includes dystonic cough: Observations of a large series. *Mov Disord.*, 29: 729-735.

Penfield W, Boldrey E. (1937) Somatic motor and sensory representation in the cerebral cortex of man as studied by electrical stimulation. *Brain*. *PMC*

Perel, E. (2020) The Quality of Your Relationships Determines the Quality of your life. <https://youtu.be/LmDPAOE5V2Y?si=zuJyDg4rAlmLa0su> accessed October 21, 2023

Perel, E. (2024) Meet Esther Perel. <https://www.estherperel.com/about> Accessed January 2nd, 2024

Perruchoud, D, Murray MM, Lefebvre, J, Ionia, S (2014) Focal Dystonia and the Sensory-Motor Integrative Loop for Enacting (SMILE). *Frontiers in Science*

Pestana, P. M., Vaz-Freitas, S., Manso, M. C. (2017). Prevalence of Voice Disorders in Singers: Systematic Review and Meta-Analysis. *Journal of voice : official journal of the Voice Foundation*,

Pfordresher, P. Demorest, S (2020) The Prevalence and Correlates of Accurate Singing. *Journal of Research in Music Education*.

Porges, S (2022) Polyvagal Theory: A Science of Safety. Open Access *Frontiers in Integrative Neuroscience*. Traumatic Stress Research Consortium, Kinsey Institute

Porges, S. (2023) 11th International Symposium of Auriculotherapy, Copenhagen, Denmark. Accessed Sept 8-10 in person.

Porges, S, (2023) How to Feel Safe, Secure, and At Peace. Good Life Project, <https://shows.acast.com/61de0665cc27c20014ea15cf/episodes/how-to-feel-safe-secure-at-peace-stephen-porges-phd-seth-por> Accessed November 4, 2023 (recorded Oct 23)

Porges, S; Porges, S (2023) Our Polyvagal World: How Safety and Trauma Change Us. W. W. Norton & Co. publishing

Pouget A, Drugowitsch J, and Kepecs A (2016). Confidence and certainty: Distinct probabilistic quantities for different goals. PubMed

Prétot, M (2022) Attachment theory, Essential points for teaching elementary school children. (Théorie de l'attachement: points essentiels pour enseigner en maternally. (Videos by Boris Cyrulnik) <https://maternelle.circo25.ac-besancon.fr/2022/03/14/theorie-de-lattachement/> accessed Feb 10, 2024

Price JH, Murnan J. Research limitations and the necessity of reporting them. Am J Health Educ. 2004;35:66–67.

Priorities in Spasmodic Dysphonia/Laryngeal Dystonia (2021). Laryngeal Dystonia: Multidisciplinary Update on Terminology, Pathophysiology, and Research Priorities. Neurology, 96(21), 989–1001. <https://doi.org/10.1212/WNL.00000000000011922>

Reed, C (2022) Examining Embodied Sensation and Perception in Singing. ACM Digital Library

Reese, R., Gruber, D., Schoenecker, T., Bätzner, H., Blahak, C., Capelle, H. H., Falk, D., Herzog, J., Pinsker, M. O., Schneider, G. H., Schrader, C., Deuschl, G., Mehdorn, H. M., Kupsch, A., Røstad, M. (2020). Embodied Sound Archive. Oslofjord Ecologies Artistic Research on Environmental and Social Sustainability, Acoustic Space.

Reese, R., Gruber, D., Schoenecker, T., Bätzner, H., Blahak, C., Capelle, H. H., Falk, D., Herzog, J., Pinsker, M. O., Schneider, G. H., Schrader, C., Deuschl, G., Mehdorn, H. M., Kupsch, A., Volkmann, J., & Krauss, J. K. (2011). Long-term Clinical Outcome in Meige Syndrome Treated with Internal Pallidum Deep Brain Stimulation. Movement disorders : official journal of the Movement Disorder Society, 26(4), 691–698.

Robles TF, Kiecolt-Glaser J, (2003) The Physiology of Marriage: Pathways to Health. Physiology and Behavior.

Rödel, R.M.; Olthoff, A.; Tergau, F.; Simonyan, K.; Kraemer, D.; Markus, H.; Kruse, E. (2004) Human Cortical Motor Representation of the Larynx as Assessed by Transcranial Magnetic Stimulation (TMS). Laryngoscope

Rosenberg, A (2023) Affirming the Artist, Diffusing the Doubts. CS Music, <https://www.csmusic.net/content/articles/affirming-the-artist-diffusing-the-doubts/>. Accessed January 24th, 2024

Ross, C.E. (2003). Social Causes of Psychological Distress (2nd ed.). Routledge. <https://doi.org/10.4324/9781315129464>

Rudebeck PH, and Murray EA (2014). The Orbitofrontal Oracle: Cortical mechanisms for the prediction and evaluation of specific behavioral outcomes. *Neuron*

Saeedi, S. Baghban, K. Seifpanahi, MS. Nazari, M, Moshtagh, A, Manoosi, M, Ayubi, E. (2023) The Vocal Hygiene Treatment Programs for Singers: A Systematic Review, Journal of Voice

Saldana, J. (2016). The Coding Manual for Qualitative Researchers. Sage Publications Inc.

Sanuki, T (2023) Spasmodic dysphonia: An overview of clinical features and treatment options, Auris Nasus Larynx, ScienceDirect

Scearce, L (2016) Manual of Singing Voice Rehabilitation, A practical approach to vocal health and wellness. Plural Publishing. (P. 63-68)

Schwartz, SR, Cohen, S, Dailey, S, Rosenfeld, RM, Deutsch, ES, Boyd Gillespie, M, Granieri, E, Hapner, E, Kimball, CE, Krouse, HK, McMurray, JS, Medina, S, O'Brien, K, Ouellette, D R, Messinger-Rapport, BJ Stachler, RJ, Strode, S, Thompson, D, Stemple, JC, Willging, JP, Cowley, T, McCoy, S, Bernad, PG, Patel, MM (2009) Clinical Practice Guideline: Hoarseness (Dysphonia), Otolaryngology–Head and Neck Surgery. Elsevier

Scorr, L, Factor, S, Parra, S, Kaye, R, Paniello, R, Norris, S, Perlmutter, J, Bäumer, T, Usnich, T, Berman B, Mailly, M, Roze, E, Vidailhet, M, Jankovic, J, LeDoux, M, Barbano, R, Chang, F, Fung, V, Richardson, S, Jinnah, H. (2021). Oromandibular Dystonia: A Clinical Examination of 2,020 Cases. Frontiers in Neurology. 12. 10.3389/fneur.2021.700714.

Self-Confidence and Performance. (1994) National Research Council. Learning, Remembering, Believing: Enhancing Human Performance. Washington, DC: The National Academies Press.

Seth, A. K., & Friston, K. J. (2016). Active interoceptive inference and the emotional brain. Philosophical transactions of the Royal Society of London. Series B, Biological sciences Pubmed

Shaffer, C., Westlin, C., Quigley, K. S., Whitfield-Gabrieli, S., & Barrett, L. F. (2022). Allostasis, Action, and Affect in Depression: Insights from the Theory of Constructed Emotion. Annual review of clinical psychology, ResearchGate

Shafir, T (2017) A Somatic Movement Approach to Fostering Emotional Resiliency through Laban Movement Analysis. *Frontiers in Human Neuroscience*. Academia

Sharkey, J. A., Feather, J. S., Goedeke, S. (2022). The current state of relationship science: A cross-disciplines review of key themes, theories, researchers and journals. *Journal of Social and Personal Relationships*, 39(4), 864-885. <https://doi.org/10.1177/02654075211047638>

Shusterman, R. (1999) *Somaesthetics: A Disciplinary Proposal*. Florida Atlantic University. JStor

Sielska-Badurek, E., Osuch-Wójcikiewicz, E., Sobol, M. Kazanecka, E., Niemczyk, K (-2017 Singers' Vocal Function Knowledge Levels, Sensorimotor Self-awareness of Vocal Tract, and Impact of Functional Voice Rehabilitation on the Vocal Function Knowledge and Self-awareness of Vocal Tract, *Journal of Voice*.

Simonyan K, Barkmeier-Kraemer J, Blitzer A, Hallett M, Houde JF, Jacobson Kimberley T, Ozelius LJ, Pitman MJ, Richardson RM, Sharma N, Tanner K; The NIH/NIDCD Workshop on Research Priorities in Spasmodic Dysphonia/Laryngeal Dystonia. *Laryngeal Dystonia: Multidisciplinary Update on Terminology, Pathophysiology, and Research Priorities*. *Neurology*.

Skills You Need. (2011-2017). Building confidence. Accessed at <https://www.skillsyouneed.com/ps/confidence.html> Accessed Nov 29, 2023.

Skinner, B. F. (1953). *Science and human behavior*. Macmillan.

Snowball, J., Tarentaal, D. & Sapsed, J. (2021) Innovation and diversity in the digital cultural and creative industries. *J Cult Econ* <https://doi.org/10.1007/s10824-021-09420-9>

Snyder, H (2019) Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, Science Direct.

Sobol, M, Sielska-Badurek, EM, Osuch-Wojcikiewicz, E (2020) Normative values for singing voice handicap index, a systematic review and meta-analysis. *Brazilian Journal of Otorhinolaryngology*

Sokoli, E, Hildebrandt, H, Gomez, P (2022) Classical Music Students' Pre-performance Anxiety, Catastrophizing, and Bodily Complaints Vary by Age, Gender, and Instrument and Predict Self-Rated Performance Quality. *Frontiers in Psychology*, Sec. Performance Science

- Solomon, N. P., Ramanathan, P., & Makashay, M. J. (2007). Phonation threshold pressure across the pitch range: preliminary test of a model. *Journal of Voice*
- Sörensen, L. K. A., Bohté, S. M., Slagter, H. A., & Scholte, H. S. (2022). Arousal state affects perceptual decision-making by modulating hierarchical sensory processing in a large-scale visual system model. *PLoS computational biology*.
- Swanson-Wilson, L (2005) A test of andragogy in a post-secondary educational setting. LSU edu,
- Tashakkori, A, Teddlie, C (2010) *Sage Handbook of Mixed Methods in Social and Behavioral Research*. Sage Publishing. Thousand Oaks, CA
- Thomson-Bell, J (2023) *The Epistemic Case for Sci-Art: Toward a Posthuman Praxis*. Leonardo, Advance Online Publication on Project MUSE
- Titze, I. (1992), Vocal Efficiency. *JOV*, Vol 6 Is 2, [https://doi.org/10.1016/S0892-1997\(05\)80127-4](https://doi.org/10.1016/S0892-1997(05)80127-4). (<https://www.sciencedirect.com/science/article/pii/S0892199705801274>)
- Tobi, H., & Kampen, J. K. (2018). Research design: the methodology for interdisciplinary research framework. *Quality & quantity*, 52(3), 1209–1225. <https://doi.org/10.1007/s11135-017-0513-8>
- Uludag, Orhan & Öney, Emrah. (2013). Classification of self-confidence: Is general self-confidence an aggregate of specific self-confidences? *ResearchGate*
- Umberson, D, Karas Montez, J (2011) *Social Relationships and Health: A flashpoint for health policy*. Pubmed Central
- Van Ijzendoorn, M. H., & Sagi-Schwartz, A. (2008). Cross-cultural patterns of attachment: Universal and contextual dimensions. In J. Cassidy & P. Shaver (Eds) *Handbook of Attachment: Theory, Research and Clinical Applications* (pp. 880-905). New York: Guildford Press.
- van Rijn, P., Mertes, S., Schiller, D., Harrison, P. M. C., Larrouy-Maestri, P., André, E., & Jacoby, N. (2021). Exploring emotional prototypes in a high dimensional TTS latent space. In *Proceedings Interspeech 2021* Baixas: ISCA.
- Verburgt, LM (2020), *The History of Knowledge and the Future History of Ignorance*. Chicago Journals, Chicago University Press

Vidakovic, MR, Gunjaca, I, Bukic, J, Kosta, V, Soda, J, Konstantinovic, I, Boskovic, B, Bilic, I, Muzinic, NR (2022) The Patho-Neurophysiological Basis and Treatment of Focal Laryngeal Dystonia: A Narrative Review and Two Case Reports Applying TMS over the Laryngeal Motor Cortex. MDPI Open Access.

Volkman, J., & Krauss, J. K. (2011). Long-term Clinical Outcome in Meige Syndrome Treated with Internal Pallidum Deep Brain Stimulation. *Movement disorders : official journal of the Movement Disorder Society*, 26(4), 691–698

Watkins, D. C. (2017). Rapid and Rigorous Qualitative Data Analysis: The “RADaR” Technique for Applied Research. *International Journal of Qualitative Methods*

Wierzba, K (2023) BMPF7013F - Practice as Research: A Study into the Practice of Teaching Effective Preparation Skills Required for International Singing Competitions. Voice Study Centre. Unpublished

Williams, M, Moser, T (2019) The Art of Coding and Thematic Exploration in Qualitative Research. *International Management Review, IMRJournal*

Wu, C (2009) The Relationship between Attachment Style and Self-Concept Clarity: The Mediation effect of Self-Esteem, Personality and Individual Differences, *Science Direct*

Yeo, S. K., Binder, A. R., Dahlstrom, M. F. and Brossard, D. (2018). An inconvenient source? Attributes of science documentaries and their effects on information-related behavioral intentions *Journal of Science Communication*

Yeung, W, Richards, AL, Novakovic, D (2022) Botulinum Neurotoxin Therapy in the Clinical Management of Laryngeal Dystonia. Open Access MDPI

Yousef, AM, Deliyski, DD, Zayernouri, M, Zacharias, SRC, Naghibolhosseini, M. (2023) Deep Learning-Based Analysis of Glottal Attack and Offset Times in Adductor Laryngeal Dystonia, *Journal of Voice*.

Zahle, J (2021) Objective Data Sets in Qualitative Research. Open Access Springer Link.

Zhao, SJ, Wei, SQ, Luo, JQ, Chen, JM (2020) A Summary of Research on Self-Confidence and Its Role in the Students. *Education Management. Scientific*.

Zhu, Yi & Mahnan, Arash & Konczak, Juergen. (2021). Vibro-Tactile Stimulation as a Non-Invasive Neuromodulation Therapy for Cervical Dystonia: A Case Study. Elsevier

Zuim, A, (2023). Strategies for Safety Thresholds of Phonation for Performers via Dosimetry. & Voice and Speech, National Center. ResearchGate

Zuim, A. F., Lloyd, A. T., Gerhard, J., Rosow, D., Lundy, D. (2021). Associations of Education and Training with Perceived Singing Voice Function Among Professional Singers. *Journal of voice : official journal of the Voice Foundation*