

Tenth Edition

# The Voice and Voice Therapy

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*From Dan to his sister, Barbara Boone Brueggemann, who typed the raw manuscripts of the first two editions of this textbook.*

*From Stephen to his wife, Patty, and his family.*

*From Shelley to her mother, Sarah Von Berg, an extraordinary speech pathologist and mentor.*

*From Richard to his wife, Amanda, and his twin daughters, Kaitlyn and Brooklyn, whose voices fill his heart with joy.*

# In Memoriam



**DANIEL R. BOONE** was born in Chicago, IL on October 30, 1927 and died suddenly on October 27th, 2018, three days shy of his 91st birthday. On the week of his passing, Dan was the keynote speaker at a voice and speech conference in Dallas. He had just published a new book featuring vignettes covering more than 60 years of aphasia, speech, and voice practice. Dan was on top of his game until the very end.

Dan graduated with a BA in speech-language pathology (with a minor in psychology) from the University of Redlands in 1951. From 1951–1953, he worked as a speech-language pathologist at the Long Beach VA Hospital with veterans of either WW II or the Korean War. He subsequently received both an MA (1954) and a PhD (1958) from Western Reserve University in Cleveland.

Dan had a series of academic appointments: Assistant Professor at Western Reserve University, 1960–1963; Associate Professor, University of Kansas Medical Center, 1963–1966; Professor, University of Denver, 1966–1973; Professor, University of Arizona, 1973–1988 and Professor Emeritus, 1988–present. For the first 20 years of his professional career, Dan was active clinically and in research with various neurogenic disorders. With the success of his voice text, *The Voice and Voice Therapy*, first published in 1971, he devoted the last 40-plus years of his career to voice disorders and treatment. As a writer, Dan authored over 100 professional articles and 18 books. In both Kansas and Colorado, he was elected president of that state’s speech and hearing association. He served both as Vice President and President of the American Speech, Language, and Hearing Association (ASHA), receiving both Fellowship and Honors from that organization.

In the prologue to this edition, Dan presents a historical personal overview of the field of voice disorders and their treatments, as well as a rich history of the evolution of this textbook. We trust you will find it as interesting as we do.

It was our privilege to know Dan as a mentor, colleague, and dear friend. May his legacy be a lasting one.

*Stephen, Shelley, and Richard*

# About the Authors

**DANIEL R. BOONE** celebrated his 60th year as a speech-language pathologist with the publishing of this tenth edition of *The Voice and Voice Therapy*. Dr. Boone held professorships over the years at Case Western Reserve University, University of Kansas Medical Center, University of Denver, and the University of Arizona (where he was a professor emeritus). Dr. Boone was a former president of the American Speech-Language-Hearing Association and held both a Fellowship and the Honors of that organization. He was the author of over 100 publications and was well known nationally and internationally for his many workshop presentations. Dr. Boone served as consultant to the Parkinson Voice Project in Dallas, TX, from 2011 until his death. Dr. Boone was perhaps best known for his love of his students and turning them on to the excitement of clinical voice practice.

**STEPHEN C. MCFARLANE** is a professor emeritus at the School of Medicine at the University of Nevada, Reno. He was awarded ASHA Fellowship in 1982 and ASHA Honors in 1999. He received both his B.S. and M.S. degrees from Portland State University and his Ph.D. degree from the University of Washington. Dr. McFarlane has a long history of research interests in the area of voice disorders. Study of the outcomes from voice therapy and the development of new treatment techniques is of particular interest. His scholarly work has been published in dozens of books and journals, among them *Seminars in Speech and Language*; *American Journal of Speech Language Pathology*; *Phonoscope*; and *Current Opinion in Otolaryngology & Head and Neck Surgery*.

**SHELLEY L. VON BERG** teaches, practices, and researches in the areas of voice, dysphagia, and motor speech disorders in adults and children in the Department of Communication Sciences and Disorders at California State University, Chico, where she holds the rank of Professor. She earned her M.S. and Ph.D. degrees from the School of Medicine at the University of Nevada, Reno. She has presented on the assessment and intervention of neurogenic speech-language disorders nationally and abroad. She also teaches abroad on occasion. Dr. Von Berg has been published in the ASHA *Leader Series*; *Unmasking Voice Disorders*; *Language, Speech, and Hearing Services in Schools*; *Current Opinion in Otolaryngology & Head and Neck Surgery*; *Cleft Palate–Craniofacial Journal*; and *AAC Journal*.

**RICHARD I. ZRAICK** holds the rank of Professor and is the Director of the School of Communication Sciences and Disorders at the University of Central Florida. He was awarded ASHA Fellowship in 2014. He earned his doctorate at Arizona State University. Dr. Zraick is a clinician and teacher-scholar with over 30 years of experience in clinical practice and academia. His scholarship focuses on voice disorders, speech and voice perception, interprofessional education, healthcare simulation, and health communication. He regularly speaks about these topics at state, regional, national, and international scientific and professional conventions.



# Contents

Preface	xi	Control of Breathing	27
Acknowledgments	xiv	The Respiratory Cycle (Inhalation and Exhalation)	27
Prologue	xv	Passive Forces	28
		Active Forces	29
<b>1 An Introduction to Voice Disorders and Their Management</b>	<b>1</b>	Respiratory Volumes and Capacities	31
The Biological Function of the Larynx	2	The Effects of Aging on the Respiratory System	31
The Emotional Function of the Larynx	3	Breathing for Life Versus Breathing for Speech	32
The Linguistic Function of the Voice	4	The Phonatory System	33
Prevalence of Voice Disorders in the General Population	5	Anatomy of Phonation	33
Prevalence of Voice Disorders in Special Populations	7	The Laryngeal Framework	34
Prevalence of Voice Disorders in Children	7	The Extrinsic Laryngeal Muscles	34
Prevalence of Voice Disorders in the Elderly	8	The Supplementary Laryngeal Muscles	34
Prevalence of Voice Disorders in Teachers and Student Teachers	8	Laryngeal Cartilages	35
Prevalence of Voice Disorders in SLPs and Future SLPs	9	Extrinsic Laryngeal Ligaments and Membranes	37
Kinds of Voice Disorders	10	The Laryngeal Cavity	38
Functional Voice Disorders	11	Laryngeal Joints	39
Organic Voice Disorders	12	Intrinsic Laryngeal Ligaments and Membranes	40
Neurogenic Voice Disorders	13	The Intrinsic Laryngeal Muscles	41
Management and Therapy for Voice Disorders	14	The Ventricular (False) Vocal Folds	44
<b>Summary</b>	<b>17</b>	The True Vocal Folds	44
<b>Clinical Concepts</b>	<b>17</b>	Laryngeal Blood Supply and Lymphatic Drainage	46
<b>Guided Reading</b>	<b>17</b>	Nervous System Control of the Larynx	46
<b>Preparing for the Praxis™</b>	<b>18</b>	Lifespan Changes in the Larynx	49
		<b>Voice Production</b>	<b>50</b>
		One Cycle of Vocal Fold Vibration	50
		Body-Cover Theory	51
		Modern Modeling of Phonation	52
		Laryngeal Adjustments for Speech	52
		Voice Registers	52
		How We Change Vocal Pitch	54
		How We Change Vocal Loudness	55
		How We Change Vocal Quality	55
		Resonance	57
		Structures of Resonance	57
		Mechanism of Resonance	60
		<b>Summary</b>	<b>61</b>
		<b>Clinical Concepts</b>	<b>62</b>
		<b>Guided Reading</b>	<b>63</b>
		<b>Preparing for the Praxis™</b>	<b>63</b>
<b>2 Normal Voice: Anatomy and Physiology Throughout the Lifespan</b>	<b>19</b>		
Normal Aspects of Voice	19		
Normal Processes of Voice Production	20		
The Respiratory System	20		
Structures of Respiration	20		
The Bony Thorax	21		
The Muscles of Respiration	22		
The Inspiratory Muscles	23		
The Expiratory Muscles	26		
The Tracheobronchial Tree	26		

<b>3</b>	<b>Functional Voice Disorders</b>	<b>64</b>	<b>Guided Reading</b>	<b>104</b>
	Excessive Muscle Tension Disorders	65	<b>Preparing for the Praxis™</b>	<b>105</b>
	Muscle Tension Dysphonia (MTD)	65		
	Ventricular Dysphonia	66		
	Benign Pathologies Resulting from Excessive Muscle Tension Disorders	69		
	Vocal Fold Nodules	69		
	Vocal Fold Polyps	72		
	Reinke's Edema	73		
	Laryngitis	74		
	Voice Characteristics with Excessive Muscle Tension Disorders	75		
	Diplophonia	75		
	Phonation Breaks	76		
	Pitch Breaks	76		
	Psychogenic Voice Disorders	78		
	Puberphonia	79		
	Functional Aphonia	80		
	Functional Dysphonia	82		
	Somatization Dysphonia	83		
	<b>Summary</b>	<b>84</b>		
	<b>Clinical Concepts</b>	<b>84</b>		
	<b>Guided Reading</b>	<b>85</b>		
	<b>Preparing for the Praxis™</b>	<b>85</b>		
<b>4</b>	<b>Organic Voice Disorders</b>	<b>86</b>		
	Congenital Abnormalities	87		
	Laryngomalacia	87		
	Subglottic Stenosis	87		
	Esophageal Atresia and Tracheoesophageal Fistula	88		
	Acid Reflux Disease	89		
	Contact Ulcers (Granulomas)	92		
	Cysts	93		
	Endocrine Changes	94		
	Hemangioma	95		
	Hyperkeratosis	95		
	Infectious Laryngitis	96		
	Leukoplakia	97		
	Recurrent Respiratory Papillomatosis	98		
	Pubertal Changes	99		
	Sulcus Vocalis	100		
	Webbing	101		
	Laryngeal Cancer	102		
	<b>Summary</b>	<b>103</b>		
	<b>Clinical Concepts</b>	<b>104</b>		
			<b>5</b>	<b>Neurogenic Voice Disorders</b>
				<b>106</b>
			A Working View of the Nervous System	107
			The Central Nervous System, the Cortex, and Its Projections	107
			Pyramidal and Extrapyramidal Tracts	107
			Thalamus, Internal Capsule, and the Basal Ganglia	108
			Neurotransmitters	110
			The Brainstem and the Cerebellum	110
			The Peripheral Nervous System (PNS)	111
			Cranial Nerves (IX, X, XI, XII)	112
			Conditions Leading to Neurogenic Dysphonia	115
			Vocal Fold Paralysis	115
			Unilateral Vocal Fold Paralysis (UVFP)	116
			Medical Management of UVFP	118
			Bilateral Vocal Fold Paralysis (BVFP)	119
			Spasmodic Dysphonia (SD)	120
			Judgment Scales for SD	122
			Voice Therapy for SD	123
			Botulinum Toxin Type A (BTX-A) Injections	124
			Surgical Approaches to ADSD	125
			Essential Voice Tremor	125
			Differences Between SD, Essential Voice Tremor, and Muscle Tension Dysphonia	127
			Parkinson's Disease (PD)	127
			Cerebrovascular Accident (CVA)	129
			Traumatic Brain Injury	131
			<b>Summary</b>	<b>131</b>
			<b>Clinical Concepts</b>	<b>132</b>
			<b>Guided Reading</b>	<b>132</b>
			<b>Preparing for the Praxis™</b>	<b>132</b>
			<b>6</b>	<b>Evaluation of the Voice</b>
				<b>134</b>
			Screening for Voice Disorders	135
			Medical Evaluation of the Voice-Disordered Patient	136
			The Roles of the SLP and Physician and the Need for a Medical Evaluation	138
			Evaluation of the Voice-Disordered Patient by the SLP	139
			Review of Auditory and Visual Status	140
			Case History	141
			Description of the Problem and Cause	141
			Onset and Duration of the Problem	142



Variability of the Problem	142	<b>Assessment</b>	178
Description of Vocal Demands	143	Perceptual and Noninstrumental Observations	178
Additional Case History Information	143	Endoscopic Evaluation	180
Behavioral Observation	144	Summary	180
Auditory-Perceptual Ratings	144	Recommendations	181
Voice-Related Quality of Life	145	<b>Summary</b>	<b>181</b>
The Oral-Peripheral Mechanism Examination	151	<b>Guided Reading</b>	<b>181</b>
Laryngoscopy/Phonoscopy	151	<b>Preparing for the Praxis™</b>	<b>182</b>
The Clinical Voice Laboratory	153		
Acoustic Analyses and Instrumentation	154	<b>7 Voice Facilitating Approaches</b>	<b>183</b>
Sound Spectrography	154	Patient Compliance and Emerging Technologies in Voice Intervention	184
Fundamental Frequency	156	Voice Facilitating Approaches	185
Frequency Variability	157	1. Auditory Feedback	187
Maximum Phonational Frequency Range (MPFR)	158	2. Change of Loudness	189
Average/Habitual Intensity	158	3. Chant-Talk	192
Intensity Variability	159	4. Chewing	193
Dynamic Range	159	5. Confidential Voice	195
The Voice Range Profile (Phonetogram)	160	6. Counseling (Explanation of Problem)	198
Vocal Perturbation Measures	161	7. Digital Manipulation	199
Vocal Noise Measures	163	8. Elimination of Abuses	202
Electroglottographic Analysis and Instrumentation	164	9. Establishing a New Pitch	204
Aerodynamic Measurements and Instrumentation	164	10. Focus	206
Lung Volumes and Capacities	166	11. Glottal Fry	210
Air Pressure	166	12. Head Positioning	212
Airflow	167	13. Hierarchy Analysis	214
Laryngeal Resistance	167	14. Inhalation Phonation	216
Phonatory-Respiratory Efficiency Analyses and Instrumentation	169	15. Laryngeal Massage	218
Maximum Phonation Time (MPT)	169	16. Masking	220
s/z Ratio	169	17. Nasal-Glide Stimulation	223
Voice Dosage Analysis and Instrumentation	171	18. Open-Mouth Approach	224
Case Studies	173	19. Pitch Inflections	226
Assessment	173	20. Redirected Phonation	227
Perceptual and Noninstrumental Observations	173	21. Relaxation	230
Summary	175	22. Respiration Training	233
Recommendations	175	23. Tongue Protrusion /i/	236
Assessment	176	24. Visual Feedback	237
Perceptual and Noninstrumental Observations	176	25. Yawn-Sigh	240
Voice Facilitating Approaches	176	<b>Summary</b>	<b>241</b>
Summary and Recommendations	176	<b>Preparing for the Praxis™</b>	<b>242</b>
Effects of Disability on Participation in General Curriculum	177	<b>8 Therapy for Special Patient Populations</b>	<b>243</b>
Short-Term Objectives	177	Voice Therapy for Particular Populations	243
Evaluation Plan	177	The Aging Voice	243
		Pediatric Voice Problems	247
		Professional Voice Users	251

Deaf and Hard of Hearing	254	<b>Summary</b>	<b>289</b>
Transgender Patients	256	<b>Guided Reading</b>	<b>290</b>
Voice Therapy for Respiratory-Based Voice Problems	259	<b>Preparing for the Praxis™</b>	<b>290</b>
Airway Obstruction	259	<b>10 Resonance Disorders</b>	<b>291</b>
Airflow Interference	259	Resonance Defined	291
Vocal Fold Paralysis	260	Disorders of Nasal Resonance	292
Asthma	260	Hypernasality	292
Emphysema	261	Hyponasality	292
Faulty Breath Control	262	Assimilative Nasality	293
Paradoxical Vocal Fold Movement	262	Evaluation of Nasal Resonance Disorders	293
Chronic Cough	263	Perceptual Analysis of Speech	294
Tracheostomy	264	Hoarseness	295
<b>Summary</b>	<b>264</b>	Simple Clinical Instrumental Assessment	296
<b>Clinical Concepts</b>	<b>265</b>	Stimulability Testing	296
<b>Guided Reading</b>	<b>265</b>	Articulation Testing	297
<b>Preparing for the Praxis™</b>	<b>266</b>	The Oral Examination	297
 		Laboratory Instrumentation	298
<b>9 Management and Therapy Following Laryngeal Cancer</b>	<b>267</b>	Aerodynamic Instruments	299
Risk Factors, Incidence, and Demographics in Head and Neck Cancer	267	Nasometry and Nasalance	299
Historical Review of Laryngeal Cancers	268	Spectrography	300
Modes of Cancer Treatment	269	Imaging Studies	301
Case Examples	269	Endoscopy	301
Voice Facilitating Approaches	272	Treatment of Nasal Resonance Disorders	303
Vocal Hygiene	273	Hypernasality	303
Laryngectomy	273	Surgical Treatment for Hypernasality	305
Tumor Staging	274	Prosthetic Treatment of Hypernasality	306
Surgical Advances and Organ Preservation Protocols	277	Voice Therapy for Hypernasality	308
Preoperative Counseling	277	Hyponasality	311
Postlaryngectomy Communication Options	278	Assimilative Nasality	312
The Artificial Larynx	279	Therapy for Oral-Pharyngeal Resonance Problems	313
Esophageal Speech (ES)	280	Reducing the Strident Voice	314
The Injection Method	281	Improving Oral Resonance	315
The Inhalation Method	282	<b>Summary</b>	<b>318</b>
Tracheoesophageal Puncture (TEP)	284	<b>Guided Reading</b>	<b>318</b>
Overview of the Pharyngoesophageal (PE) Segment	288	<b>Preparing for the Praxis™</b>	<b>318</b>
		References	320
		Index	354

# Preface

## New to This Edition

From the first publication of *The Voice and Voice Therapy* in 1971, the authors have attempted to maintain the book's relevance to students and voice clinicians alike. Each edition has incorporated the most current scientific evidence from a variety of disciplines that supports the behavioral approaches to voice assessment and intervention that are core to the text. In this tenth edition, videos demonstrating voice assessment and Voice Facilitation Approaches appear liberally throughout the chapters, accompanied by clinically relevant sidebars that guide the reader through a series of thought-provoking exercises illustrating the principles of voice anatomy and mechanics. The tenth edition also incorporates hundreds of Self-Check quizzes that map onto the chapters' learning outcomes. Each quiz is followed by feedback for all correct and incorrect answers. These pedagogical additions, along with the end-of-chapter Praxis Questions, help support the book's use in the classroom and clinic. The culmination of these elements ensures that students and their instructors, or clinicians and their colleagues, have the most current resources they need for voice and voice related disorders in a single package. Some chapter-by-chapter highlights include:

- Chapter 1, "An Introduction to Voice Disorders and Their Management," features current data on the incidence and prevalence of voice disorders in the general population and in specific populations. There are also expanded discussions of the classification of voice disorders and of the various approaches to managing the person with dysphonia.
- Chapter 2, "Normal Voice: Anatomy and Physiology Throughout the Lifespan," has been expanded considerably. It features a more comprehensive description of the anatomy and physiology of normal voice production. The detailed, colored anatomical illustrations and accompanying captions make it easy for the reader to "put it all together." This chapter can stand alone, thus eliminating the need for students, instructors, or clinicians to refer to outside source material.
- Chapter 3, "Functional Voice Disorders," presents practical approaches to identifying and managing behaviorally based voice disorders across the age spectrum. The chapter includes expanded discussions of excessive laryngeal muscle tension and the benign laryngeal pathology that may develop as a result, as well as voice disorders with a psycho-emotional basis or overlay. Special attention is given to the emotional and/or behavioral issues that might result in children with functional voice disorders. We also review evidence-based practice (EBP) studies supporting the value of our Voice Facilitating Approaches in treating persons with functional or psychogenic dysphonia.
- Chapter 4, "Organic Voice Disorders," presents practical approaches to identifying and managing organic voice disorders. The chapter includes significant updates on the risks for, and assessment and treatment of, gastroesophageal reflux diseases and laryngopharyngeal reflux. Endocrine changes and juvenile recurrent respiratory papilloma have also been expanded. We present current literature on the medical management of all organic disorders and on the role of the voice clinician in evaluation and therapy.

- Chapter 5, “Neurogenic Voice Disorders,” presents the latest research in the behavioral, pharmacological, and surgical management of neurogenic voice disorders. Emphasis is placed on interventions for unilateral vocal fold paralysis and adductor spasmodic dysphonia. We also review numerous evidence-based practice (EBP) studies supporting the value of our Voice Facilitating Approaches in treating the respiration, phonation, and resonance subsystems in persons with dysarthria. Behavioral approaches that increase the respiratory support and intelligibility in Parkinson’s disease are described and supported by strong clinical research.
- Chapter 6, “Evaluation of the Voice,” has been updated extensively. It features the latest approaches to the auditory-perceptual evaluation of the voice and to assessment of voice-related quality of life. Multiple case studies illustrate both instrumental and noninstrumental assessment of the voice across medical and educational settings. These case studies also provide a framework for report writing and special considerations for voice populations across the lifespan. New figures illustrate instrumental approaches to identifying and quantifying voice and resonance disorders. Over a dozen new tables present the student and clinician with normative data across the lifespan for a variety of acoustic, aerodynamic, and related voice measures. This chapter can stand alone, thus eliminating the need for students, instructors, or clinicians to refer to outside source material.
- Chapter 7, “Voice Facilitating Approaches,” continues to be the bedrock of this textbook. We have retained our core set of 25 Voice Facilitating Approaches and present the latest evidence-based practice (EBP) studies supporting their value in treating persons with dysphonia. Many of the cases illustrating the approaches have been updated to reflect the types of patients seen in current clinical practice, including applications for audiovisual feedback in therapy. We also discuss current literature on patient compliance and barriers to treatment.
- Chapter 8, “Therapy for Special Patient Populations,” features expanded discussions of the identification and management of children, adolescents, and older adults with dysphonia. In particular, we discuss in greater detail the professional voice user, notably educators, and the management of dysphonia in this increasing population of patients. We discuss in more detail the management of dysphonia in children and adults with hearing impairment and in those with a variety of respiratory-based conditions. The section on voice, speech and communication style adaptations for those pursuing gender identity change has also been expanded.
- Chapter 9, “Management and Therapy Following Laryngeal Cancer,” features detailed discussion of the medical management of patients with laryngeal cancer and the role of the voice clinician in evaluation and therapy. The illustrations and photographs that accompany the chapter are powerful learning tools for the student and clinician and can also serve as effective teaching tools for the patient. Communication options post laryngectomy are discussed in detail, including the artificial larynx, esophageal speech, and tracheoesophageal speech.
- Chapter 10, “Resonance Disorders,” features both the instrumental and noninstrumental assessment of persons with disorders of nasal or oral resonance. Hypernasality, hyponasality, and assimilative nasality are discussed in depth, along with medical and behavioral approaches to each disorder. We have expanded the chapter’s discussion of the team management of persons with cleft palate speech. Application of our Voice Facilitating Approaches to treatment of resonance disorders is illustrated.

Close to 1,200 references to other studies are included throughout the text. Cardinal literature from the past 40 years of voice science and care is included, as well as the most current literature from a variety of disciplines. Greater than half the references are new in this edition, with the majority representing advances in our field from the year 2012 to the present.

All new pedagogical elements supporting the use of the book for teaching include the following:

- The Learning Objectives at the beginning of each chapter have been expanded.
- Self-check multiple-choice quizzes are embedded in each chapter, complete with answer feedback for all correct and incorrect answers.
- Clinical Sidebars reinforce clinical application of material.
- Clinical Concepts at the end of select chapters reflect many of the learning objectives.
- Guided Reading exercises at the end of select chapters reference key clinical articles.
- Multiple-choice questions (Preparing for the PRAXIS™) at the end of select chapters help readers master the type of content covered in the Praxis II™ examination in speech-language pathology.
- An updated and robust instructor resource package, contains a wealth of supplemental materials, including PowerPoint slides for each chapter, an instructor resource manual, and a test bank.

## Enhanced Pearson eText

The tenth edition is available as an Enhanced Pearson eText, emphasizing student-centered learning, with the following features:

- Video Examples. Embedded videos provide an illustration of a key principle or concept in action. These video examples show the authors demonstrating the use of Voice Facilitating Approaches with persons with voice disorders.
- Self-Checks. In each chapter, self-check quizzes help assess how well learners have mastered the content. The self-checks are made up of self-grading multiple-choice items that not only provide feedback on whether questions are answered correctly or incorrectly, but also provide rationales for both correct and incorrect answers.
- Preparing for the PRAXIS™. Every chapter ends with an exercise that gives learners an opportunity to answer multiple-choice questions similar to those that appear on many teacher licensure tests. Feedback is provided.

We are fascinated by the human voice and intrigued by the art and science of voice therapy. As the great American poet Henry Wadsworth Longfellow wrote,

*“Oh, there is something in that voice that reaches the innermost recesses of my spirit!”*

We invite you to join us as lifelong students of the human voice, and we hope that while you read this edition, you will share the passion we had for writing it.

*Daniel R. Boone  
Stephen C. McFarlane  
Shelley L. Von Berg  
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# Prologue

**T**he *Voice and Voice Therapy* was first published by Prentice-Hall in 1971, emerging before cellphones or any hint of help from digital technology. Much of the early voice literature was dominated by otolaryngology for “organic” voice problems and by psychiatry for “functional” voice problems. Much of the voice disorders literature in the middle-1960s and earlier references were based on this organic-functional dichotomy. Prominent in the speech pathology literature were two “organic” voice disorders: (1) resonance problems with focus given to hypernasality and cleft palate, and (2) the clinical management after laryngectomy centered on the teaching of esophageal speech.

The “functional” voice disorders literature in the 1960s was based on the premise of dysphonias being caused by continuous abuse and misuse of the voice. Reactive to such excessive vocal effort, vocal fold tissue changes could develop, producing such physical lesions as nodules, polyps, or contact ulcers. However, many children and adults with such hyperfunctional voice problems seen in our clinics showed no laryngeal tissue changes. Their common voice problems were alterations in loudness, inappropriate pitch, poor voice quality, and faulty resonance.

As physicians began referring more people with either “organic” or “functional” voice disorders, the typical speech-language pathologist (SLP) experienced a larger caseload of patients with voice disorders. With this growing demand for voice therapy, many SLPs increased their search for more knowledge about voice disorders and their treatment. Literature search was supplemented by increasing attendance at voice disorder workshops scattered around the country. I can well remember attending such workshops—receiving excellent descriptions of the vocal mechanisms, but sorely lacking about voice therapy strategies and demonstrations of therapy procedures.

As a young professor in the 1960s teaching voice disorders, I developed a voice therapy file for each of three clinical voice components: respiration, phonation, and resonance disorders. My sources for the therapy procedures came from the workshops, from a scant literature including clinical texts, from other SLPs and voice scientists in my profession, from drama and singing teachers, and observations of a few superior users of voice. Since there were no smartphones, emails, web pages, nor Google-type resources available for therapy suggestions, my therapy file showed me what to do and how to do it.

I used this therapy file and other parts of my voice course materials when writing *The Voice and Voice Therapy*. I selected 25 therapy techniques, labeling them in the text as “Facilitating Techniques.” Four subheadings under each technique illustrated the kind of problem for which the approach could be useful, its procedures, a case history example, and an evaluation of the approach. The SLP would apply a therapy technique with the patient. If it worked, it would remain as part of the therapy regimen. If it were not helpful, it was replaced by another of the techniques. The 25 facilitating approaches became a feature of the first edition and have proved popular in all editions since. Incidentally, Prentice-Hall informed me many years ago that this therapy chapter was probably the most photocopied chapter in their total inventory of texts.

While the varying lists of 25 voice facilitating approaches have grown over the years, the relevance of *The Voice and Voice Therapy* has grown remarkably. As each new invited coauthor brought his or her expertise to the conceptualizing and writing of the book, the text continually grew. Now, this tenth edition presents cutting-edge references supporting the latest information on normative voice function and on the present clinical evaluation/management of voice disorders. Pictorial and video clips supplement well the narrative text. The organic–functional dichotomy was modified in many chapters to show a useful blend of management effectiveness. The therapeutic challenge of evidence-based practice and its impact on vocal management and therapy becomes clearer through the praxis exams following each chapter.

Thanks to our three coauthors, I can say without reservation that we may have produced one of the best voice disorders and therapy books ever written. I could not be prouder than I am of the tenth edition of *The Voice and Voice Therapy*.

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