

*All speech, written or spoken, is a dead language, until it finds a willing and prepared hearer.*

—Robert Louis Stevenson

Thank you for listening to what we have to say. We hope that this text finds many who are willing and prepared to hear. We are excited to offer you a text that reviews the basic and advanced information on speech sound disorders. A unique feature of this book is its modular organization. It is organized to serve as both an introduction text and an advanced text for graduate seminars.

In most university programs in speech–language pathology, students take an introductory undergraduate course and an advanced graduate course on speech sound disorders. When vastly different books are used at the undergraduate and graduate levels of instruction, some students may find it difficult to integrate their undergraduate information with the more advanced graduate-level knowledge. Almost all students need to review the undergraduate material before they can effectively participate in a graduate seminar and understand and integrate the material presented at the two levels of instruction. Unfortunately, not all graduate texts summarize the basic information for a review at the graduate level. Sometimes opinions differ as to what is basic and what is advanced. Simply omitting certain materials from a text because it is judged basic or advanced makes it harder for the instructors to use a text, especially if they disagree about the distinction the author or authors have made.

The modular organization of this text helps resolve this problem to some extent. To supplement a text, graduate seminar instructors typically use multiple sources, including other books and journal articles. We do not pretend that our distinction between basic and advanced information will be acceptable to all instructors. However, we do hope that the organization of the book will make it easier for students and instructors to use material as they see fit at the two levels of instruction. For example, those who wish to avoid theoretical or more abstract information in their undergraduate classes can easily skip the advanced units or use that information selectively. All graduate students can find the basic information in the text so they can review the assigned chapters before their participation in graduate seminars. We are grateful to the students, instructors, and reviewers who have affirmed our organization of the text as a unique and useful feature.

Besides giving the book a two-tier organization, we have tried to use a student-friendly writing style. We have minimized the use of jargon, and all relevant technical terms are introduced and defined. Our goal was to write the book in a way that makes it easier for students to understand phonology's basic vocabulary, approaches, perspectives, theories, and assessment and treatment techniques for speech sound disorders. Some students and our reviewers of past editions have repeatedly confirmed that we have succeeded in writing a user-friendly text. We have strived to further improve that simple and direct style in this fourth edition.

This fourth edition includes substantial and significant revisions and additions to reflect advances in speech sound learning, theoretical concepts, and assessment and treatment of speech sound disorders. We have thoroughly revised all chapters to reflect recent trends, research, and theories. We have reorganized several chapters, particularly Chapters 4, 5, and 6, to facilitate a better flow of information. In each chapter, we have more succinctly summarized background information that most instructors may not cover in detail. A mostly rewritten Chapter 8 on speech–language diversity is the final chapter in this new edition. We have omitted Chapter 9 on phonological awareness as a stand-alone chapter and have instead integrated the most pertinent information into other chapters.

Chapter 1 defines and describes speech sound disorders and points out its comprehensive scope. The chapter also defines and distinguishes articulation and phonological disorders. We give a brief historical account to help students understand what theoretical trends have forced terminological changes in the study of speech sound disorders. We give an overview of classifications of speech sound disorders, offer critical evaluation of classifications, and point out the clinical implications.

Chapter 2 gives an overview of the anatomy and neuroanatomy of speech production. Although revised for clarity and succinctness, the chapter retains all the illustrations that are helpful to students in visualizing anatomic structures and their relationships. The advanced section on theories of speech production has been substantially revised. We have eliminated dated theoretical speculations and added sections on clinically more relevant theories of articulatory phonology, sociolinguistics, and exemplar- and usage-based theories of phonetics and speech production. We have written a new section on theoretical advances in neurocomputational models of speech production, including the DIVA and FACTS and their critical evaluations.

Chapter 3 offers the basic perspectives on phonetics and phonology of speech sound disorders. We explore the interrelatedness and interaction of these two disciplines that contribute to an understanding of speech sound disorders. The chapter highlights the differences in how linear and nonlinear phonological theories handle speech sound production, learning, disorders, and assessment and treatment of those disorders. The Advanced Unit of Chapter 3 includes phonetic, linear, and nonlinear phonological theories. A critical evaluation of theories concludes the chapter.

Chapter 4 describes the typical learning of speech sounds as reported in normative and longitudinal research. We have updated the research on infant speech perception and added much relevant information on infant speech production. We have revised and heavily reorganized the speech learning stages to make it consistent with current research and thinking. We have rewritten the Advanced Unit of this chapter to discuss statistical learning theory of speech production and the clinical as well as theoretical relevance of infant-directed speech.

Chapter 5 examines assessment approaches and methods, providing a comprehensive framework for assessing speech sound disorders in children. We have added current methods of analyzing assessment data including whole-word measures, error frequency and distribution approaches, and nonlinear methods. We incorporate preferred terms in the diagnosis of speech sound disorders. We have reorganized this chapter into three major parts to make the sections more manageable and comprehensible. The Advanced Unit of this chapter continues to include an overview of speech sound disorders associated with organic and neurogenic problems, focusing exclusively on those found in childhood.

Chapter 6 includes our comprehensive, step-by-step program that takes advantage of research evidence in the treatment of speech sound disorders in children of varied backgrounds. We continue to emphasize that the program, although detailed and specific, is adaptable to include such strategies as treating individual sound production, patterns in error production, and motor-based difficulties such as phonotactic constraints and suprasegmental errors. For this edition, we have divided Chapter 6 into five major components from pretreatment to dismissal considerations. We believe this will make our comprehensive program even easier to follow. The Advanced Unit of this chapter continues to include specific treatment considerations for the treatment of speech sound disorders associated with organic and neurogenic problems found in childhood.

Chapter 7 provides the reader with an overview of some now classic and some newer treatment approaches. We have eliminated various programs that have fallen out of favor in clinical practice or included published components that are no longer readily available. To help clinicians make informed decisions on treatment selection, this chapter also offers a brief evaluation of the research evidence supporting each approach.

Chapter 8 is mostly rewritten to reflect the more recent thinking on the issue of dialectal variations and speech sound disorders. The third edition's Culture and Communication chapter is retitled as "Disorders Within Dialects." The chapter is now placed after those on speech sound assessment and treatment so that the reader has all general information on assessment and treatment before exploring the special considerations for disorders within dialects. The chapter takes a new orientation to describing and understanding the dialectal differences in nonevaluative as well as noncomparative terms. We have introduced new terms to describe dialectal variations with no reference to an outside standard. The variations are viewed from within the dialects themselves, not from an outside lens. We also

have concentrated on clinically oriented theoretical concepts to streamline the advanced explanatory approaches to bilingualism and bidialectalism.

For this edition, Chapter 9 has been omitted as a separate chapter, but its most essential and relevant content to the assessment and treatment of speech sound disorders has been integrated into Chapters 4, 5, and 7.

We have added text boxes and various activities in each chapter to help the student integrate newly learned information. For this edition, we have added *target learner outcomes* at the beginning of each chapter and *study questions* at the end of each chapter to help facilitate reader understanding of the presented information. We now follow each chapter with its own reference list. As in previous editions, the text includes varied companion e-resources consisting of clinically friendly printable materials such as diagnostic reports; sound establishment techniques; baseline, treatment, and probe documentation forms; sound stimulability recording forms; nonstandardized screening measures, and much more. For this edition, we have integrated several of the resources and forms into Sound Resource Packs for all American English consonants according to cognate pairs. We expect the resource packs to become a student favorite.

We would like to extend our deepest gratitude to the book reviewers, who provided us with valuable feedback; their suggestions helped guide many of the changes found in this fourth edition. We have made rigorous efforts to incorporate all of the proposed changes. We would also like to thank the many children in our professional lives, who have taught us more about speech sound disorders than any research study ever could. Their uniqueness affirms that all children are individuals and cannot be put into a universal framework. Their individuality makes assessment and treatment of speech sound disorders stimulating, exciting, and extremely rewarding. The delight that comes in helping children achieve better communication with the important people in their lives is immeasurable. We hope that our presentation of speech sound disorders excites and prepares the clinician to take on this gratifying and worthwhile endeavor.