GLOBAL EDITION

Introduction to Communication Disorders

A Lifespan Evidence-Based Perspective

FIFTH EDITION

Robert E. Owens, Jr. • Kimberly A. Farinella • Dale Evan Metz

ALWAYS LEARNING

PEARSON

Introduction to Communication Disorders

A LIFESPAN EVIDENCE-BASED PERSPECTIVE

GLOBAL EDITION

ROBERT E. OWENS, Jr.
College of St. Rose

KIMBERLY A. FARINELLA
Northern Arizona University

DALE EVAN METZ
State University of New York at Geneseo, Emeritus

PEARSON

Boston Columbus Indianapolis New York San Francisco Upper Saddle River
Amsterdam Cape Town Dubai London Madrid Milan Munich Paris Montreal Toronto
Delhi Mexico City Sao Paulo Sydney Hong Kong Seoul Singapore Taipei Tokyo

Vice President, Editorial Director: Jeffery W. Johnston
Executive Acquisitions Editor: Ann Davis
Executive Field Marketing Manager: Krista Clark
Senior Product Marketing Manager: Christopher Barry
Project Manager: Annette Joseph
Head of Learning Asset Acquisition, Global Edition: Laura Dent
Acquisitions Editor, Global Edition: Sandhya Ghoshal
Assitant Project Editor, Global Edition: Sinjita Basu
Senior Manufacturing Controller, Production, Global Edition: Trudy Kimber
Full-Service Project Management: Jouve India
Cover Designer: Lumina Datamatics
Cover Photo: Shutterstock/nchlsft
Cover Printer: Ashford Colour Press

Pearson Education Limited
Edinburgh Gate
Harlow
Essex CM20 2JE
England

and Associated Companies throughout the world

Visit us on the World Wide Web at:
www.pearsonglobaleditions.com

Authorized adaptation from the United States edition, entitled Introduction to Communication Disorders: A Lifespan Evidence-Based Perspective, 5th edition, ISBN 978-0-133-35203-0, by Robert E. Owens, Jr., Kimberly A. Farinella, and Dale Evan Metz, published by Pearson Education © 2015.

ISBN 10: 1-292-05889-7
ISBN 13: 978-1-292-05889-4

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British Library

10 9 8 7 6 5 4 3 2 1
14 13 12 11 10

Typeset in ITC Mendoza Roman Std by Jouve India.

Printed in Great Britain By Ashford Colour Press Ltd, Gosport.

Wendy Metz,
MS, CCC-SLP,
wife, colleague, mentor, and friend

PREFACE

Introducing a new edition is always exciting and exhausting. In preparing a new edition, especially an introductory text, there is always the question of balance. Did we provide enough detail? Too much? Did we get the perspective correct? We hope that those of you who are familiar with the previous editions will agree with us that this edition is a worthy introduction to the field of speech pathology and audiology and one that contributes meaningfully to the education of speech-language pathologists and audiologists.

Within each chapter, we have attempted to describe a specific type of disorder and related assessment and intervention methods. In addition, we have included lifespan issues and evidence-based practice to provide the reader with added insights. Each type of disorder is illustrated by personal stories of individuals with that disorder. Further knowledge can be gained through the suggested readings provided at the conclusion of each chapter.

NEW TO THIS EDITION

This fifth edition of *Introduction to Communication Disorders* has many new features that strengthen the existing material in the previous edition. These include the following:

- Chapters have been reorganized and rewritten to help conceptualize the information differently so as to conform more to current clinical and educational categories. Several chapters have been reworked entirely.
- The reorganization of the entire book has resulted in fewer chapters—in part to respond to instructors' concerns about covering the material in a semester. We do listen!
- Of course, the material in each chapter has been updated to reflect the current state of clinical research. Special attention has been paid to the growing body of evidence-based research and literature. A quick perusal of the references will verify the addition of hundreds of new professional articles.
- As in the past, we have worked to improve readability throughout the book and to provide the right mix of information for those getting their first taste of this field. Several professors and students have commented favorably on our attempt in previous editions to speak directly to the reader, and we have continued and expanded this practice.
- We have continued to provide evidence-based practices in concise, easy-to-read boxes within each chapter. This demonstrates our commitment to this practice begun in the previous edition. As with all the rest of the text, these boxes have been updated to reflect our best knowledge to date.
- Background information has been simplified and shortened, in response to input from professors who felt we had provided too much and that

this information would be covered in other introductory course in anatomy and physiology, language development, and phonetics. This change increases readability and decreases the burden on faculty who felt compelled to teach it all.

ACKNOWLEDGMENTS

Robert Owens

I would like to thank the faculty of the Department of Communication Sciences and Disorders and the entire faculty and administration at the College of St. Rose in Albany, New York. What a wonderful place to work and to call home. The college places a premium on scholarship, student education, professionalism, and a friendly and supportive workplace environment and recognizes the importance of our field. I am indebted to all for making my new academic home welcoming and comfortable. I am especially thankful to President Margaret "Maggie" Kirwin, Interim School of Education Dean Margaret McLane, my chair Jim Feeney, and my colleagues in my department, fellow faculty members Dave DeBonis, Colleen Karow, Megan Overby, Jack Pickering, Anne Rowley, Jessica Kisenwether, and Julia Unger, and fellow clinical faculty members Kim Lamparelli, Elizabeth Baird, Marisa Bryant, Wyndi Capeci, Sarah Coons, Elaine Galbraith, Julie Hart, Barbara Hoffman, Jackie Klein, Kate Lansing, Jessica Laurenzo, Melissa Spring, and Lynn Stephens. You have all made me feel welcomed and valued.

It is with some sadness that I remember my colleagues at my former institution, State University of New York at Geneseo and the demise of the Department of Communicative Disorders and Sciences due to a shortsighted college administration decision. These great folks include Rachel Beck, Irene Belyakov, Linda Deats, Brenda Fredereksen, Beverly Henke-Lofquist, Thomas House, Carol Ivsan, Cheryl Mackenzie, Doug MacKenzie, Dale Metz, Diane Scott, Gail Serventi, and Bob Whitehead. All of us are indebted to the chair Linda House, who helped us keep our dignity and our promise to students in the face of a terrible and demoralizing situation. Best to you all always.

I would be remiss if I did not acknowledge the continuing love and support I receive from Addie Haas. She was with us in the first and second editions and continues to be a source of inspiration.

Finally, my most personal thanks and love goes to my spouse and partner, who supported and encouraged me and truly makes my life fulfilling and happy. I'm looking forward to our life together.

Kimberly Farinella

I wish to sincerely thank Bob Owens, Dale Metz, and Steve Dragin for again including me on this new and exciting edition of the textbook. I remain perpetually in awe of the fact that I work with such brilliant people, and I'm truly grateful for the opportunity.

I would also like to thank the faculty, staff, and students in the Department of Communication Sciences and Disorders at Northern Arizona University for their help and support of this current edition of the textbook. I especially want

to thank my dear friend and colleague, Dr. Emi Isaki, for her contributions to the *Disorders of Swallowing* chapter, and also to our graduate assistants at NAU, Susan Williams and Sonia Mehta, for their photo contributions.

I want to thank my family, especially my parents, for their continued support of my career, and I want to express my gratitude to my significant other and future spouse, Tom Parker. I look forward to a long and happy life with you with plenty of skiing in the beautiful mountains of Flagstaff, Arizona!

The following reviewers offered many fine suggestions for improving the manuscript: Tausha Beardsley, Wayne State University; Wendy Bower, State University of New York at New Paltz; Louise Eitelberg, William Paterson University. Their efforts are sincerely acknowledged.

Pearson wishes to thank Dr. Gatha Sharma for her contribution to the Global Edition.

BRIEF CONTENTS

CONTENTS

Introduction to Communication Disorders

1 Communicative Disorders and Clinical Service

CHAPTER LEARNING GOALS

When you have finished this chapter, you should be able to:

- Describe communication impairment
- Describe the roles of audiologists, speech-language pathologists, and speech, language, and hearing scientists
- Outline the history of changing attitudes toward individuals with disabilities over the centuries and legislation over the past several decades
- Describe how evidence-based practice (EBP) influences clinical decisions

Can you imagine life without communication? No talking, no listening, no interacting with others? Communication is part of what makes us human. Even minor or temporary problems with communication, such as laryngitis, are often frustrating. Many of us have experienced a problem in speaking or listening at some time in our lives.

We hope through this text to explore the nature of **communication disorders**. In this first chapter, we'll introduce the professionals who work with individuals who have communication disorders. These are audiologists, speech-language pathologists, or speech/language scientists. We'll also explore the roles of other professional team members, where speech-language pathologists and audiologists work, and what they do, plus we'll explain the nature of EBP. This first chapter also provides a historical perspective and outlines the laws that mandate appropriate care for those in need. Along the way, we'll explore why people choose these careers.

HELPING OTHERS TO HELP THEMSELVES

Why does someone decide to become a speech-language pathologist (SLP) or audiologist? It is mostly because of the satisfaction they receive from helping others to live a fuller life. Many—maybe even you—first became interested through a personal or family encounter with a communication disorder or through a work or volunteer experience with individuals with communication disorders. SLPs and audiologists may also have chosen their careers because they want to be useful to society, to contribute to the general good.

COMMUNICATION DISORDERS

We've mentioned communication disorders, but we haven't been very specific. It's always good to agree on our topic in any type of communication, so let's begin here.

A **communication disorder** impairs the ability to both receive and send, and also process and comprehend concepts or verbal, nonverbal and graphic information. A communication disorder may affect hearing, language, and/or speech processes; may range from mild to profound severity; and may be developmental or acquired. One or a combination of communication disorders may be presented by an individual and may result in a primary disability or may be secondary to other disabilities.

That's a lot. In short, a communication disorder may affect any and all aspects of communication, even gesturing. A communication disorder may affect hearing, language (the code we use to communicate), and/or speech (our primary mode or manner of communication). This is reflected in American Speech Language Hearing Association's (ASHA) name. (The Appendix describes ASHA's role in more detail.) But communication impairments can affect much more as you are about to explore through this book and the course you're taking. For example, SLPs are also involved in feeding and swallowing assessment and intervention.

A **speech disorder** may be evident in the atypical production of speech sounds, interruption in the flow of speaking, or abnormal production and/or

absences of voice quality, including pitch, loudness, resonance, and/or duration. A **language disorder**, in contrast, is an impairment in comprehension and/or use of spoken, written, and/or other symbol systems. Finally, a **hearing disorder** is a result of impaired sensitivity of the auditory or hearing system. No doubt you've heard individuals referred to as deaf or hard of hearing. In addition, auditory impairment may include **central auditory processing disorders**, or deficits in the processing of information from audible signals.

It's appropriate to note here that communication disorders do not include communication difference, such as dialectal differences or multilingualism. If you've been to a country where you don't speak the language well, you know that this can impede communication. While these differences may lead to communication difficulties, they are not disorders.

Another communication variation is **augmentative/alternative communication** systems. Far from being communication impairments, these systems, whether signing or the use of digital methods, are attempts often taught by SLPs to compensate and facilitate, on a temporary or permanent basis, for impaired or disabled communication disorders.

As you can see, communication disorders cover a wide range of problems with varying severities and are related to several other disorders. Our purpose in preparing this text is to help you understand and appreciate the many different disorders included in communication impairment. Maybe you began a few pages ago with some vague recollection of an SLP in your elementary school who mostly worked with children correcting their production of difficult speech sounds. That's part of disordered communication, but it's only a small part, as you are about to find out.

THE PROFESSIONALS

Opportunities for SLPs and audiologists include serving individuals of all ages from infancy through the aged with varied disorders, from mild to profound, in a wide assortment of settings.

Today, professionals who serve individuals with communication disorders come from several disciplines. They often refer clients to one another or work together in teams to provide optimal care. Specialists in communication disorders are employed in early intervention programs, preschools, schools, colleges and universities, hospitals, independent clinics, nursing care facilities, research laboratories, and home-based programs. Many are in private practice. SLPs and audiologists receive similar basic training, but in their advanced study, they concentrate on one profession or the other.

Audiologists

Audiologists are specialists who measure hearing ability and identify, assess, manage, and prevent disorders of hearing and balance. They use a variety of technologies to measure and appraise hearing in people from infancy through old age. Although they work in educational settings to improve communication and programming for people with hearing disabilities, audiologists also contribute to the prevention of hearing loss by recommending and fitting protective devices and by consulting with government and industry on the effects and management of environmental noise. In addition, audiologists evaluate and assist individuals with **auditory processing disorders (APD)**, sometimes

called central auditory processing disorders, and select, fit, and dispense hearing aids and other amplification devices and provide guidance in their care and use (DeBonis & Moncrieff, 2008). Licensed audiologists are independent professionals who practice without a prescription from any other health care provider (ASHA, 2001b). Box 1.1 contains an audiologist's comments on some of the challenges and rewards of the profession. As you will note, being a good detective, or problem solver, is one of the skills that is needed. Websites of interest are found at the end of the chapter.

Credentials for Audiologists

At the present time, the educational requirement for an audiologist is 3 to 5 years of professional education beyond the bachelor's degree. An audiologist's studies will culminate in a doctoral degree that may be an audiology doctorate (AuD) or a doctor of philosophy degree (PhD) or doctor of education degree (EdD) in audiology.

After a person has earned a doctorate, obtained the required preprofessional as well as paid clinical experience, and passed a national examination, she or he is eligible for the Certificate of Clinical Competence in Audiology (CCC-A) awarded by ASHA. ASHA CCC-A (sometimes referred to as ASHA "Cs") is the generally accepted standard for most employment opportunities for audiologists in the United States. In addition, states require audiologists to obtain a state license. The requirements for state licensure tend to be the same as or similar to the ASHA standards (ASHA, 2001b, 2001c).

You can further explore a career in audiology at three websites. The Acoustical Society of America (http://asa.aip.org) has material of special interest to hearing scientists and audiologists. The American Academy of Audiology (www.audiology.org) provides consumer and professional information regarding hearing and balance disorders as well as audiological services. Finally, ASHA (www.asha.org) provides information for professionals, students, and others who are interested in careers in audiology or hearing science. Simply click on "Careers" in the upper-left corner.

BOX 1.1 | An Audiologist Reflects

I chose to become an audiologist because I enjoyed the challenge. Most clients come in and are frightened or apprehensive. I try to set them at ease while I explain each test I will perform. At each step, I try to bring the client along and make sure that he or she understands what I will be doing and why. Children are often the biggest challenge and sometimes refuse to cooperate. This is when I have to be at my best. If I confirm the presence of a hearing loss, then my task becomes one of counseling and referral. It takes time to walk a client through the results and the possibilities. Older clients are often not willing initially to accept a diagnosis of hearing loss. Counseling is very important, especially for family members. It is all too easy for family members to adopt an "I told you so" attitude, but we must be sensitive to the needs of the client with the loss who will need time to adjust to his or her now-diagnosed disorder. It is this detective work and the counseling that give me satisfaction and motivate me to come to work every day.

Speech-Language Pathologists

Speech-language pathologists (SLPs) are professionals who provide an assortment of services related to communicative disorders. The distinguishing role of an SLP is to identify, assess, treat, and prevent communication disorders in all modalities (including spoken, written, pictorial, and manual), both receptively and expressively. This includes attention to physiological, cognitive, and social aspects of communication. SLPs also provide services for disorders of swallowing and may work with individuals who choose to modify a regional or foreign dialect. Like audiologists, licensed SLPs are independent professionals who practice without a prescription from any other health care provider (ASHA, 2000a, 2000b, 2000c). Box 1.2 contains reflections by two SLPs; the first one has been in private practice as a clinician for about 25 years. Although sometimes frustrated by the lack of support in his work setting, he believes in setting his imagination free and not giving up in the challenge to help others.

Credentials for Speech-Language Pathologists

With technology, the task of an SLP is changing. Technologies for digital speech recording and analysis are now readily available, as are new and exciting assistive technologies for those with great difficulty communicating via speech (Ingram et al., 2004). SLPs have a master's or doctoral degree and have studied typical communication and swallowing development; anatomy and physiology of the speech, swallowing, and hearing mechanisms; phonetics; speech and hearing science; and disorders of speech, language, and swallowing.

Three types of credentials are available for SLPs:

1. Public school certification normally stipulates basic and advanced coursework, clinical practice within a school setting, and a satisfactory score on a state or national examination. At the least, prospective school SLPs need a bachelor's degree, although in most states, a master's degree either is the entry-level requirement or is mandated after a certain number of years of

BOX 1.2 | A Speech-Language Pathologist Reflects

For me, the exciting part of my job is the problem solving and the satisfaction of helping others. Similar to a fictional detective who collects all the clues, synthesizes the information, and deduces the guilty party, I evaluate each client and determine the best course of intervention. The more severe the impairment, the greater the challenge, and I love a challenge. How can I help a young man who attempted suicide and is now brain injured to access the language within him? How can a young child with autism begin the road through communication to language? How can I help parents communicate with their infant who has deafness, blindness, and cerebral palsy? When is the best time to introduce signing with a nonspeaking client? These are all challenges for me and the children and adults I serve. We work together as I try to solve each communication puzzle and propose and implement possible intervention strategies. Sometimes I'm very successful and sometimes I have to reevaluate my methods, but as I said, I love a challenge.

employment. The exact requirements to become a school SLP vary from state to state. ASHA encourages the same standards for SLPs in all employment settings, as described in the following paragraph.

2. ASHA issues a Certificate of Clinical Competence in Speech-Language Pathology (CCC-SLP) to an individual who has obtained a master's degree or doctorate in the field. Ongoing professional development must be demonstrated through a variety of continuing education options. Since 2004, the United States, United Kingdom, Australia, and Canada have allowed mutual recognition of certification in speech-language pathology (Boswell, 2004).
3. Individual states have licensure laws for SLPs that are usually independent of the state's department of education school certification requirements. A license is needed if you plan to engage in private practice or work in a hospital, clinic, or other setting apart from a public school. Most states accept a person with ASHA CCC-SLP as having met licensure requirements, although you will need to check with your state licensing board on the specifics.

Table 1.1 shows the credentials that are needed in the professions of audiology and speech-language pathology. These are also found on the ASHA website.


Thought Question

If you want to further explore a career in speech-language pathology, check out the ASHA website (www.asha.org). You'll find a wealth of information, as well as discussion of various disorders that affect children and adults who may benefit from the help of a SLP. Type in the disorder you wish to explore in the search box in the upper right. If you wish to read about a career as a SLP, click on "Careers" at the top left.

Speech, Language, and Hearing Scientists


Click here to check your understanding of the concepts in this section.

Individuals who are employed as speech, language, or hearing scientists typically have earned a doctorate degree, either a PhD or an EdD. They are employed by universities, government agencies, industry, and research centers to extend our knowledge of human communication processes and disorders. Some may also serve as clinical SLPs or audiologists.

TABLE 1.1

Credentials for speech-language pathologists and audiologists

Credentialing Organization	Speech-Language Pathologist	Audiologist
American Speech-Language-Hearing Association	Certificate of Clinical Competence in Speech-Language Pathology (CCC-SLP)	Certificate of Clinical Competence in Audiology (CCC-A)
State department of education	Certification as teacher of students with speech and language disabilities*	—
State professional licensing board	License as speech-language pathologist	License as audiologist

*The title for the school-based speech-language pathologist varies from state to state.

What Speech, Language, and Hearing Scientists Do

Speech scientists may be involved in basic research exploring the anatomy, physiology, and physics of speech-sound production. Using various technologies, these researchers strive to learn more about typical and pathological communication. Their findings help clinicians improve service to clients with speech disorders. Recent advances in knowledge of human genetics provide fertile soil for continuing investigation into the causes, prevention, and treatment of various speech impairments. Some speech scientists are involved in the development of computer-generated speech that may be used in telephone answering systems, substitute voices for individuals who are unable to speak, and many new purposes. Box 1.3 contains some observations by a speech-language scientist who enjoys the interdisciplinary nature of his work.

Language scientists may investigate the ways in which children learn their native tongue. They may study the differences and similarities of different languages. Over the past half a century or so, the United States has become increasingly linguistically and culturally diverse; this provides an excellent opportunity for cross-cultural study of language and communication. Some language scientists explore the variations of modern-day English (dialects) and how the language is changing. Others are concerned with language disabilities and study the nature of language disorders in children and adults. An in-depth knowledge of typical language is critical to understanding language problems.

The professions of speech-language pathology and audiology require lifelong learning. Clinicians need to be able to intelligently use relevant research findings in their practice.

Hearing scientists investigate the nature of sound, noise, and hearing. They may work with other scientists in the development of equipment to be used in the assessment of hearing. They are also involved in the development of techniques for testing the hard-to-test, such as infants and those with severe physical or psychological impairments. Hearing scientists develop and improve assistive listening devices such as hearing aids and telephone amplifiers to help people who have limited hearing. In addition, hearing scientists are concerned with conservation of hearing and are engaged in research to measure and limit the impact of environmental noise.


Thought Question

It's never too early to think about graduate school. Whether you eventually choose to become an audiologist, an SLP, or a speech, language, or hearing scientist, you will need advanced training. Consider cost, location, faculty, and practicum opportunities. Two websites can be helpful. The ASHA site (www.asha.org)

BOX 1.3 | A Speech-Language Scientist Reflects

I work as a speech scientist and college professor specializing in voice science. In this profession I'm able to combine my love of communication with my interest in biology. As a student I hadn't realized the possibilities that would be open to me in this profession. I instruct students in the structure and functioning of the speech mechanism and in voice disorders. In the clinic, I use instrumentation to measure different parameters of voice. This enables me to objectify my diagnosis and provide accurate measurement of speech changes that may result from any number of disorders as varied as laryngeal cancer and neuromuscular dysfunction. I also work with transgender clients, helping them adopt a new voice. I love my work because it combines science and technology with speech-language pathology.

lists graduate program. Click on "Careers" to explore further. The Peterson's Guide site (www.petersons.com) can assist you with helpful advice about graduate school and a student planner. Type "speech-language pathology," "audiology," or "speech, language or hearing science" in the *Find the School That's Right for You* box at the upper right.

Professional Aides

Paraprofessionals usually have an associate's or bachelor's degree; they work closely with and are supervised by professionals with more training and experience.

Professional aides, sometimes referred to as paraprofessionals or speech-language pathology or audiology assistants, are individuals who work closely with SLPs or audiologists. In states in which professional aides are permitted, the title, educational requirements, and responsibilities of these individuals vary.

Speech-language pathology assistants (SLPAs) typically participate in routine therapy tasks, under the direction of an SLP. They may engage in clerical tasks and assist an SLP in the preparation of assessment and treatment materials. SLPAs may work alongside SLPs in many of the settings in which a fully credentialed SLP is found. Audiology assistants may conduct screenings, participate in calibration of audiological instrumentation, and engage in a variety of clerical tasks under the direction of an audiologist.

Support personnel may work only with supervision and are not permitted to perform such tasks as interpretation of test results, service plan development, family/client counseling, or determination of when to discharge a client from treatment (ASHA, 1995; Paul-Brown & Goldberg, 2001).

Related Professions: A Team Approach

Specialists in communication disorders do not operate in a vacuum. They work closely with family members, regular and special educators, psychologists, social workers, doctors and other medical personnel, and occupational, physical, and music therapists. They may collaborate with physicists and engineers. Box 1.4 contains a SLP's schedule, showing a tremendous amount of teamwork.

SERVICE THROUGH THE LIFESPAN

Individuals with communication and swallowing disorders may be of any age, and professionals address their needs from birth through old age. According to U.S. Census Bureau reports, 1 in 5 people has a disability. In general, the likelihood of having a disability increases as we age. Unfortunately, the total number of individuals in the United States who have speech, voice, and swallowing and/or language disorders is difficult to determine (ASHA, 2008).

Infants may be screened for hearing loss and a host of other disabilities soon after birth. The U.S. Census Bureau reports that about 2% of all children born in the United States have some existing disabling condition and that hearing loss occurs more often than any other physical problem (Brault, 2005). Babies and toddlers may exhibit developmental delay and have physical problems including those involving movement, hearing, and vision that may impact their communication and feeding abilities. All infants in the United States must be screened