Language Disorders in Bilingual Children and Adults

Third Edition

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Preface to Third Edition

This book focuses on the intersection of two main populations: those who are bilingual and those who have a language disorder. More than half the global population speaks at least two different languages. It is also true that developmental language disorders in children and acquired language disorders in adults are high-incidence disabilities in single- as well as in dual-language speakers. As such, bilingual individuals with suspected or confirmed language disorders are frequently encountered by speech-language pathologists and allied professionals. Our understanding of the empirical and theoretical literatures, combined with our own clinical, research, and social experiences, is presented in this book. We use this understanding to promote optimal outcomes for bilingual children and adults with language disorders.

As with previous editions, this third edition is much more about extracting core principles and frameworks from the empirical, theoretical, and professional literatures to guide meaningful clinical actions with bilingual individuals. It is less about prescribing specific procedures. That is, the emphasis is on providing a rich context for critical, creative, meaningful clinical actions, stemming from a synthesis of the best available evidence. This book is intended to arm speech-language pathologists, graduate students in communication sciences and disorders programs, and clinical language researchers with information needed to formulate and respond to questions that support optimal outcomes for bilingual clients.

In the years since publication of the first edition of this book, research at the intersection of bilingualism and language disorders has moved from the margins to the mainstream. The number of published studies including bilinguals and individuals with language disorders has increased exponentially. This increase is most notable in children with developmental language disorder but has accelerated in the area of bilingual aphasia as well. Also, research on social, cognitive, and neural functioning in typical bilinguals has increased by leaps and bounds. The implications of findings with typical bilinguals

are clearly relevant for clinical actions, so are considered here. Along with these empirical advances, there remain significant gaps in the literature at the intersection of bilingualism and language disorders. We review available evidence related to each topic of interest and also note gaps in the literature that may affect clinical action. A goal of this book is to help professionals understand the implications of empirical findings as well as gaps in direct knowledge to better serve bilingual children and adults with language disorders.

The bilinguals of interest here represent varying levels of first- and second-language proficiency across the life span. That is, we do not define bilingualism according to proficiency in each language, but rather according to the individual's experience or need for two languages. Inclusive in this functional definition of bilingualism are typically developing children and neurologically intact adults who rely on two different languages, to varying degrees, to meet their communicative needs. At the same time, a 4-year-old child from a Spanish-speaking family who has just begun attending an English preschool program is considered bilingual even if she also has a language delay, as is the 72-year-old retired professor with aphasia who spoke both Vietnamese and English prior to the acquired language impairment. Ability or proficiency in each language is an important consideration in assessment and treatment, but it does not determine who is or who is not bilingual for the purposes of this text.

In separate chapters, this book synthesizes the literatures on bilingual children and adults with typical and atypical language skills. The intent is to give the reader an understanding of the multiple factors that affect language development and disorders in those who rely on two languages for meaningful interactions. Assessment and intervention issues and methods are presented separately for adults and children. For children we focus considerable attention on developmental language disorder (DLD). In previous editions, this same disorder was referred to as *primary language impairment* (PLI); the change from PLI to DLD is consistent with the most common term used globally for this condition. Other terms used in the literature or in educational practice to refer to this same condition include *specific language impairment, language-based learning disabilities, language impairment not otherwise specified,* and *late talkers*. In addition to DLD, we also present available evidence on bilingual children with autism. For adults the emphasis is on aphasia, a primary acquired language impairment resulting from focal

damage to certain areas of the brain. In this edition we also consider the available evidence and its clinical relevance for three other acquired language and cognitive impairments in adults: dementia, traumatic brain injury, and right hemisphere disorder.

Although child and adult, and typical and atypical, populations are presented separately, all are considered from a unifying Dynamic Interactive Processing perspective. This broad theoretical framework emphasizes interactions between social, cognitive, and communicative systems. The Dynamic Interactive Processing view of language has its roots in functional rather than formal theories of language.

The most significant change in this third edition is that it is coauthored, not as an edited volume but rather as a fully coauthored text to maintain continuity and build on themes across chapters and book sections. Each of the three authors is bi- or trilingual, is a researcher and teacher at the intersection of bilingualism and language disorders, and has significant direct experience working with children or adults with language and cognitive disorders.

This book was written, and rewritten, sequentially: Chapter 1 before 2, 3 before 4, and so on. Later chapters build on issues and concepts introduced in earlier chapters. As it was written, it is intended to be read, although clearly readers are welcome to follow their own path. There are substantial changes and updates to each chapter in this edition, including many new tables and figures to summarize key themes. Chapters are organized into three general sections.

Section I: Foundational Issues includes three chapters. The first chapter sets the theoretical stage and defines core terms and concepts. The second chapter addresses the cultural context for clinical decisions, professional cultural competencies, and the tools clinicians can use to work effectively with families across languages and cultures. The third foundational chapter addresses evidence-based practice and "common factors" inherent in the treatment process, as they relate to clinical actions with individuals with diverse language and cultural experiences. Each of the three foundational chapters in Section I contains information that is relevant to the subsequent sections on bilingual children (Section II) and bilingual adults (Section III).

Section II: Bilingual Children includes four chapters. The fundamental reference point for language disorders is normal or typical development. In order to identify and treat bilingual children with language disorders, it is important to first understand normal or typical

variation in this population. Chapter 4 reviews typical patterns and time frames of language development in children learning two languages, under various circumstances. In Chapter 5 we move on to developmental language disorders in bilingual learners. Chapters 6 and 7 are dedicated specifically to assessment and intervention with bilingual children.

 Section III: Bilingual Adults includes four chapters. Chapter 8 presents language use, cognition, and neurological representation for healthy brain-intact younger and older bilingual adults. This information provides the necessary reference point for Chapter 9, bilingual adults with acquired language and cognitive disorders. The final two chapters discuss clinical issues and activities for adults with aphasia and other acquired language and cognitive disorders. Chapter 10 is devoted to assessment and Chapter 11 to intervention in bilingual adults with acquired language disorder.

About the Authors

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I (Kathi) am particularly grateful for the doctoral students I had the good fortune to teach during my tenure at UMN. These once exceptional students are now consummate professionals—leaders in research, clinical practice, teaching, service, and mentorship. I am in awe of this group and they are exquisitely represented by volume coauthors Drs. Kerry Ebert and Giang Pham. Kerry and Giang paused ambitious research and teaching programs and interrupted busy family lives to make this third edition possible. I cannot thank them enough. They have again proven that the best clinical thinking and writing is collaborative.

We (Kerry and Giang) are delighted to have this invitation to work again with our beloved doctoral advisor. In countless ways, Kathi has molded our research and professional careers. She has fundamentally changed our worldview and how we engage in research and teaching. She has embodied how the most generous and caring humans make the best scientists.

To the indelible memory of Elizabeth ("Liz") Bates

Section I

Foundational Issues

1

PERSPECTIVES ON LANGUAGE, BILINGUALISM, AND LANGUAGE PROFICIENCY

> *Observations always involve theory.*
> —Edwin Hubble

The central topic of this book is language disorders in bilingual children and adults. The general aim is translational: to move from research to practical methods for service delivery with linguistically diverse populations. A clear understanding of what language disorders are as well as what to do about them is predicated on a deep understanding of what language is and how to support its development. Any discussion of language disorders in bilinguals also requires an operationalized definition of *bilingual* as well as a precise understanding of how proficiency in language (versus proficiency in *a* language) is envisioned in typical and atypical populations. For these reasons, information in the current chapter is foundational in that it sets the stage for subsequent discussions of language development, use, and breakdown in bilingual children and adults.

There are three general sections in this chapter: one for each of the concepts that lie at the heart of the questions needed to inform clinical decision making with bilinguals affected by language disorders. We begin with a theory-embedded definition of language.

Here we propose that language may be viewed from a dynamic interactive processing perspective. We then turn our attention to bilingualism. A broad usage- or needs-based definition of bilinguals is proposed and described. The chapter concludes with a discussion of language proficiency and language disorders in bilingual individuals and introduces a conceptual framework to understand and support bilingual language development and use.

Theoretical Perspectives on Language

Theories of language, in a very general sense, are a set of statements or principles created to explain a group of empirically derived observations regarding this extraordinarily complex human phenomenon. Precise, theory-rich definitions of language provide the basis for making testable predictions about language performance and serve as guides to the assessment and treatment of language in monolingual or bilingual individuals. How language is acquired, how it breaks down, what aspects of language should be measured at different ages or developmental stages or in different disorders, the best ways to measure these selected aspects, and, of course, potential methods to facilitate language gains are all subject to different theoretical perspectives.

The definition of language that shapes the information presented in subsequent chapters is rooted in theories of social constructivism, general interactive processing, and dynamic systems. Social constructivism emphasizes the collaborative nature of learning; namely, that cognitive functions are the result of interactions between individuals (Vygotsky, 1978). From a social constructivist perspective, engagement in frequent, positive, reciprocal, social interactions are critical for language development (see Weitzman, Girolametto, & Drake, 2017, for review).

General interactive processing theories consider basic cognitive mechanisms to be integral to efficient language acquisition and use. Basic cognitive mechanisms include perception, memory, attention, and emotion as well as the speed or efficiency with which information is acted upon. A central tenet of general interactive processing approaches is that cognition and language are linked at some very basic level, to the extent that specific linguistic functions may be

acquired and maintained through the application of these general cognitive mechanisms (for review, see Marian, Bartolotti, Rochanavibhata, Bradley, & Hernandez, 2017).

Dynamic systems theory (DST), originally created in mathematics, has been adapted in a wide range of disciplines to describe and explain the behavior of complex systems. Inherent in DST is the notion of emergentism. Instead of having a built-in or "prewired" goal, emergent systems are self-organizing and -reorganizing, evolving into new goals. The result is more than and different from the sum of its component parts. In an additive system, black and white triangles might come together to form a gray six-pointed star; in an emergent system, black and white triangles might interact such that a purple prism emerges. Due to interactions within and across systems, small variations in starting conditions can result in large differences in behavioral outcomes (for review, see de Bot, Lowie, & Verspoor, 2007).

Definition of Language from a Dynamic Interactive Processing Perspective

Basic premises from theories of social constructivism, general interactive processing, and DST are culled here into an explicit conceptualization of language intended to support and guide assessment or intervention with bilingual individuals with language disorders. The perspective used throughout this book will be referred to as a dynamic interactive processing perspective of language. From a dynamic interactive processing perspective, language is viewed as our most valuable, efficient, and effective communication tool. It consists of layers of formal symbols interwoven with communicative functions. Critically, language is defined as a dynamic system that emerges within a social context through interactions of cognitive, neurobiological, and environmental systems and subsystems across nested timescales. Core terms in this definition are further described in Table 1–1.

As one example of a practical implication of this definition, the dynamic interactive processing perspective of language disorders directs our attention to areas beyond those that are most obviously impaired. That is, in addition to careful assessment of the language system itself, attention to cognitive and neurobiological correlates as

Table 1–1. Language Defined From a Dynamic Interactive Processing Perspective

Language is a dynamic system[1] that emerges[2] within a social context[3] through interactions of cognitive, neurobiological and environmental systems and subsystems[4] across nested timescales[5]

dynamic system[1]	A dynamic system continually changes through interactions with its environment. Language development or change typically is not linear, but may go in leaps or bounds with growth or decline. As with other dynamic systems, over time language tends to settle. This "settling" has varying degrees of stability.
	A less stable system will be more susceptible to changes in resources, and a more stable or settled system will require additional shifts in resources or conditions in order to change. Shifts in energy or resources can be positive or negative.
that emerges[2]	Emergent systems are self-organizing or -reorganizing without a built-in goal. The outcome of the interacting factors may be inevitable, but this does not mean they are preprogrammed. The emergent system is more than and different from the sum of its parts, although it could not exist without them.
within a social context[3]	Language is viewed as our most complex and efficient communicative tool. It is a social tool, developed for the purposes of exchanging information and ideas within the social context. This social context in which language is developed and used includes a wide variety of communicative partners as well as communicative purposes. Communicative contexts, purposes, and partners change throughout one's life, but are embedded in social relationships and culture.

Table 1–1. *continued*

through the interactions of cognitive, neurobiological, and communicative systems and subsystems[4]	The interactions between at least three primary systems are responsible for acquisition and use of language in typical individuals. The cognitive system includes basic perception, attention, emotion, and memory mechanisms. The neurobiological system consists of complex motor, sensory (including hearing and vision), and neurological subsystems. The communicative environment refers to the social, cultural, physical, acoustic, and visual contexts. Each of these systems and subsystems is incredibly diverse and complex. Interactions within and across these systems mean that the outcome or "product" is not always predictable based on input factors.
over nested timescales[5]	Development or change in language, as in other emergent and dynamic systems, is an iterative process in that current levels of ability are critically dependent on previous levels of attainment. Also, behavioral change occurs over different time frames: milliseconds, seconds, minutes, hours, days, weeks, months, years, infancy, early childhood, school age, adulthood, and aging.

well as to the communicative environment is warranted. Interactions or associations between the bilingual's two languages are also of interest. This is because dynamic interactive processing views language in context, interacting both with other subsystems within the individual as well as with the environment. And, of course, because the language system within the individual is dynamic, as are the communicative environments in which language is used, different assessment or treatment methods are needed at different times to serve a variety of purposes. The function or purpose of language, as considered here, is to allow for an efficient, effective means to develop and exchange thoughts, feelings, ideas, and information.

Because language is viewed as an individual's most valuable communication tool, the success of programs designed to treat language disorders must be determined relative to the communicative purposes and environments in which language is needed. Other aspects of the environment also interact with efficient language processing. These aspects include the quality of the auditory signal for spoken language, which may be affected by factors endogenous to the individual (such as the integrity of the hearing system), as well as exogenous factors (such as the rate of stimulus presentation). In these cases, intervention methods for enhancing the quality or availability of the language signal are consistent with the dynamic interactive rocessing perspective.

The dynamic interactive processing approach to language described here is relevant for monolingual as well as bilingual populations. However, the goal of this book is to draw attention to clinical decision making with bilingual populations with suspected or confirmed language disorders. Now that language has been operationally defined, we turn our attention to a working definition of our primary population of interest—bilinguals.

Who Will Be Considered Bilingual?

At its core, the term *bilingual* means "two languages"—a relatively simple concept. On the face of it, then, determining who is bilingual should be a relatively simple task. But because language is a dynamic, complex social tool developed over extended time periods and used for diverse purposes, the term bilingual necessarily encompasses the way these two languages are used by a single individual. Therefore, defining who is bilingual or what it means to be bilingual is not a straightforward task, nor should it be. Language is an extraordinarily complex and fascinating human phenomenon; two languages within a single individual, at the very least, are no less complex or fascinating. As such, there are many ways to define bilingualism, and these definitions serve different purposes. Some definitions may be better or more encompassing than others, but there is no single correct definition.

Conventionally, the term bilingual has been used to refer to individuals who demonstrate some level of proficiency or ability in