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1 Introduction

Jeanette Altarriba and Roberto R. Heredia

The Study of Bilingualism

There is no doubting the notion that interest in bilingual and multilingual studies has increased since the publication of the first edition of the current volume, *An Introduction to Bilingualism: Principles and Processes*. The field has seen a steady increase in submissions of quality articles on this topic to such venues as the *International Journal of Bilingualism*, *Multilingual and Multicultural Development*, and *Bilingualism: Language and Cognition*. Further, participation in scholarly venues that include research in this field such as the International Symposium on Bilingualism (ISB; now in its 11th year, meeting biennially), the American Association for Applied Linguistics (AAAL), International Association of Applied Linguistics (AILA), and The Mental Lexicon conference, just to name a few, has increased in recent years. Thus, the motivation to learn more and write more about how bilingual speakers encode, store, and retrieve information has increased over the past 10 years. For this reason, the present volume attempts to present an update of research in the field and a review of some of the newer aspects of the field both from a theoretical perspective and from an applied or practical perspective, as well.

In addition to basic research that has been produced by those who examine language in the laboratory domain, those who seek to understand how languages can best be learned and used in more applied domains have asked interesting questions regarding the most effective methods of second language acquisition. Updated volumes, such as *Theories in Second Language Acquisition* (Van Patten & Williams, 2014) and *Introducing Second Language Acquisition* (Saville-Troike, 2012), and newer volumes, such as *Bilingualism and Multilingualism* (Bhatia, 2013), underscore the notion that individuals, researchers, and interested readers are seeking the newest or latest information on how best to teach a second language (L2) and how best to fashion a set of “best practices” in this field of endeavor. The more we know about the nuances of word types (e.g., concrete vs. abstract vs. emotion) within and across languages (Altarriba, 2003) and the more we know about the relationship between language and culture in the acquisition of new languages (e.g., Robinson & Altarriba, 2015), the better equipped we are in understanding just what mechanisms might underlie the notion of being a practiced, expert user of a new language. It is clear that this endeavor has continued to gain momentum and garner great interest from the science and public communities at large. Thus, the crafting of this second edition of the current text is meant to further the discussion on these topics with new and interesting data that should pique the interest of those who enjoyed the first edition and those who are delving into these areas and issues for the first time. In this introduction, we hope to address a few avenues of research endeavors that have been delineated more thoroughly over the past decade or so, and to introduce the reader to new areas of bilingual inquiry that have
come forth based on the earlier work. A discussion of newer contributions appears below, as well as an overview and outline of the current set of works.

**Informing the Study of Bilingualism (and Monolingualism)**

What has prompted the field of bilingual research to move forward has been the ever-expanding globalization of language and communication in recent years. Though English is a predominant language and **lingua franca** throughout the world, we know that other languages come close to English as firmly representing a large proportion of the world's inhabitants (see Figure 1.1).

Moreover, by some estimates, over half of the world's population is at least bilingual, and fluently so, and still another strong proportion of speakers is well-versed in more than two languages as a natural course of the learning and mastery of linguistic skills. As the expansion in technologies and new medias has given rise to ever more efficient ways of using language to convey meaning across the globe, so too has an interest arisen in knowing how to communicate effectively across languages, as well as across variants of the same language. Indeed, one of the primary uses of language has been to communicate thoughts, facts, feelings, and beliefs. Additionally, we have known for quite some time that when language is impoverished or otherwise hampered in any way, a clear knowledge of the relationship between the brain and language can provide solutions to those situations in which production is less than desirable. The current volume continues to seek to include the exploration and testing of practical hypotheses between the various theories that have been used in the field of bilingual research. These theories of language interference have been expanded and enriched by the automatic processing of language, new neuroscientific methods, and our understanding of the brain and language.

As the field of bilingual research has been developing, more testable hypotheses and theories of language interference have been developed and applied to the current body of knowledge. These hypotheses are not intended to be comprehensive but rather to highlight some of the more fundamental areas of research that are of interest to current and future researchers. This is evident in the following chapters.

Currently, the focus is on theories that are of interest and that have been applied to the study of language comprehensively. More than one theory of language is proposed to overlap in many areas of research. In this regard, theories that overlap in many areas of research are of interest and that have been applied to the study of language comprehensively. This is evident in the following chapters.

![Figure 1.1](https://www.washingtonpost.com/news/worldviews/wp/2015/04/23/the-worlds-languages-in-7-maps-and-charts/?utm_term=74a29f6cde7)

*Figure 1.1* The world's predominant languages and the number of countries in which they are most widely spoken (adapted from [https://www.washingtonpost.com/news/worldviews/wp/2015/04/23/the-worlds-languages-in-7-maps-and-charts/?utm_term=74a29f6cde7](https://www.washingtonpost.com/news/worldviews/wp/2015/04/23/the-worlds-languages-in-7-maps-and-charts/?utm_term=74a29f6cde7)).
Introduction

The study of bilingual and multilingual language processing has been the ever-evolving focus of the field of cognitive neuroscience. Though English remains the single most studied language in the world’s scientific literature, few studies are conducted in more than one language. As the world becomes more interconnected, the number of bilingual, multilingual, and polyglot speakers continues to grow. This growth has led to the development of new theories and methodologies that inform the hypotheses and research questions that have been pursued in this field, and the interpretation of the data that has resulted from experimentation.

As the fields of cognitive, linguistic, and psycholinguistic sciences often dictate, reasoned investigations of language processing should extend from the careful formation of testable hypotheses and theories and from thoughtful considerations regarding the development of the proper methods so as to produce the data that inform the theory—the scientific method. Many of the works included herein focus on this approach to adding to the fundamental knowledge regarding bilingual research, and do so in expert ways that leave little to consider in terms of confounds or alternative interpretations. The aim with the current edition is that works that review experimental theory and data, and the original data sets that are included among the current chapters, emphasize the link between theory and data in their focus on advancing the field of bilingual research.

Currently, the fields of bilingualism and multilingualism have taken on a greater interdisciplinary or multidisciplinary approach. That is, one sees in the field that beyond the areas of psycholinguistics and language processing are the contributions of bilingual approaches to areas such as social psychology, creativity and problem-solving, speech and communication disorders, and developmental aspects of aging. Indeed, it has become quite clear, and researchers have known for a short time, that bilingual approaches to questions of interest across a broad range of topics can actually illuminate issues and concerns that were previously addressed using only monolingual models and samples. More and more the question has become: How can a bilingual or multilingual approach answer question X or Y? Capitalizing on the fact that words in two languages might overlap in meaning but diverge in form has been one tool that cognitive scientists, for example, have used to understand the relative impact of the use of bilingualism as a tool to understand the relationship between semantics (e.g., meaning) and lexical (e.g., word) representations (e.g., Altarriba & Sotano, 1996; Heredia & Blumentritt, 2002; Heredia & Cieslicka, 2016).

Theories that explore the relationship between the mind and the brain might also be interested in the theory and data that surround bilingual research, as some accounts would suggest that bilingualism poses certain cognitive benefits (see de Bot & Houtzager; Paap, current volume). Some of the work in the pages that follow will allude to these discussions, but we do know that there have been accounts of bilingual speakers showing greater flexibility retrieving items or engaging in problem-solving and turn-taking exercises. They may show benefits in terms of creativity and divergent thinking, reading, and concept formation, and certain metalinguistic abilities may be enhanced due to managing and knowing more than one symbol-set for language. While the nuances of these notions have been challenged and contested in some regards, before this newer area of studying bilingual advantages was brought to the foray in the language sciences, it was already documented some time ago that there were enhancements in thinking and language use that bilinguals could accumulate over time, by virtue of knowing how to manipulate an L2 and subsequent languages. Thus, as applied to theory development overall, in terms of the cognitive underpinning of what makes us human—language—the study of bilingual speakers'
abilities continues to be extremely important to furthering our overall knowledge of how we continue to evolve as a species in an ever-changing industrial world.

Overview and New Content

With the aforementioned background as a type of backdrop for this second edition of the current work, we would now like to introduce the reader to an overview of the contents that are to be explored in the next several chapters that await a closer look. The present volume retains the original number of primary Sections:

Section I: Introduction. Methodological and Theoretical Background
Section II: Cognitive and Neurological Mechanisms
Section III: Creativity and Developmental Principles
Section IV: Social and Sociocultural Processes
Section V: Linguistics, Second Language Acquisition, and Communication Disorders

Section V has been expanded from the prior section heading in the first edition, Linguistic Principles and Applied Perspectives. Principally, the emphasis in the newer derivation of this section is to include an update on work specifically in the domain of Second Language Acquisition and to also make Communication Disorders a more salient part of the chapters included within this final section. An attempt was made at recruiting many of the original authors from the first edition, with a few notable changes, detailed below. Overall, the balance remains in covering a rich and dense (though highly readable) set of chapters that focus on basic research and theory, and including areas that would be thought of as more applied in nature, but still with a rigorous eye towards making sure that the works are comprehensive and stem from an empirical and scientifically driven approach.

Section I includes an overview of basic and expanded methods in use in the area of bilingual research by Marian, who describes a variety of tools and techniques that uncover the processing of language inputs across a bilingual's languages and focuses both on online and offline methodologies to help the field at large derive a composite picture of what we currently know, via these methodologies. The focus of this first section continues to be on laying the groundwork or basic background of work upon which readers can continue to build with knowledge from subsequent sections and chapters. Heredia and Cieślicka present the reader with an update on the actual models or theories upon which most of our bilingual research to date has been built, underscoring the ways in which one should compare and contrast those models to produce newer research questions, furthering the field of bilingual research. Together, the two chapters that start off this newer edition of the current work set the stage for readers at any level to more smoothly and seamlessly integrate the chapters that follow into their new network of knowledge in this overall domain.

While the volume itself is comprised roughly of the same five sections as the prior edition, the total number of chapters has increased by three to a total of 17 (four brand-new topic areas are included, while one chapter was not carried over into this new edition). It is in Section II that we have included a new chapter on a related and very prominent theme, the Bilingual Brain. Before, this topic was included within a single chapter; in the current text, we have expanded the treatment of this area into two distinct chapters covering both what we know about the mechanisms that help to regulate the uses of multiple languages (Blackburn), and what we now know about the actual representation of languages across the hemispheres of the brain (Vaid). As noted earlier, this is perhaps one of those areas for which the opment and interesting q

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Introduction

The current edition of the *Language, Cognition, and Exception Disorders* series continues in the tradition, *Linguistic Disorders of Children: A Guide for Practitioners* in its second Language and Cognitive Disorders. The contributions of the chapters that comprise *Second Language Disorders* are closely tied to the original work of the editors, leading to a substantive and comprehensive understanding of the topics. Overall, the second edition is a collection of chapters that offer a comprehensive and thorough examination of the latest research and developments in the field of language and cognitive disorders.

The editors have used a composite approach to编排 the chapters of this book, which allows for a cohesive narrative that moves from general to specific in the field of language and cognitive disorders. Each chapter provides a detailed analysis of the relevant research and theory, and the editors provide a summary of the key findings and implications of each chapter.

The focus on the role of language and cognitive disorders in the development of language skills is particularly important, as it highlights the importance of considering these factors in the context of individual development.

The chapters cover a wide range of topics, from the role of language in cognitive development to the impact of cognitive disorders on language development. The editors have also included chapters on the role of language in cognitive development, with a focus on specific disorders such as autism spectrum disorder and ADHD.

The chapters are written by leading experts in the field, and the editors have provided a comprehensive overview of the latest research and theory, as well as practical applications for clinicians and researchers.

The editors have also included a comprehensive bibliography at the end of each chapter, which provides a valuable resource for further study and research.

The focus on the role of language and cognitive disorders in the development of language skills is particularly important, as it highlights the importance of considering these factors in the context of individual development.
the role of the larger, national context and language policies that affect the ways in which bilingual speakers are viewed, stemming from immigration and historical views. A third chapter that is new to the current edition focuses on the sociolinguistics of bilingualism and the linguistic variation in the expression of meanings within and across linguistic groups (Bullock & Tobiro). Questions as to how linguistic variation came about, the factors that have influenced and continue to influence diversity across languages, and the ideologies of groups that shape the standard language practices of groups are explored in a comprehensive framework that is interdisciplinary in nature. This approach makes for a very integrated review of the extant literature and the applications of various published works in this domain. The fourth new chapter to the current volume resides within Section IV and focuses on code-switching (Magana). While code-switching in and of itself has been explored for several decades, a comprehensive overview of the research and empirical approaches to this topic might not have led to the ability to provide a complete chapter on this area when the first edition of this work was created. Rather, the current moment is a propitious time to gather together the research, theory, and data that pertains to this area of investigation and represents this topic in the current edition of this work. Within this chapter, code-switching is examined within the vein of how it serves to facilitate the sociopragmatic functions of language, the development of bilingual competence, the formation of identity roles for the bilingual speaker, and psycholinguistic studies in the domain of bilingualism. This chapter ends with an interdisciplinary overview of how code-switching informs communication on the whole and narrates or directs written and face-to-face interactions within a larger communicative context.

Rounding out the slate of contributions for this second edition are linguistic contributions to the study of bilingualism, an overview of second language acquisition, and communication disorders in the realm of bilingual studies. All three of these areas were aptly represented in the first edition of the current volume, but have now been expanded and updated to include new and interesting data that have furthered the field in the past decade or so. The chapter on linguistic contributions to bilingualism by returning author Cook focuses on the role of linguistics and linguistic description in understanding how features such as syntax figure prominently in the ways in which new languages are acquired in terms of grammatical structure. While quite a bit of work has focused on the acquisition of concepts or semantics for a new or emerging L2, overviews have sometimes overlooked the notion that other levels of language representation are being developed as well—those considered more within the realm of language description, such as phonetics, phonology, and morphology. Thus, this chapter serves as a primer for the basic definitions of grammar, while also interweaving aspects of emerging bilingualism within its review of the extant literature in this field. Gass and Glew updated their work, as well, providing a chapter for the current work based on that produced for the first edition of the current volume. The focus is squarely on second language acquisition and the attributes of native and native-native speakers in the acquisition of a new language. They focus on the distinctions between early and advanced language learners, the latter often used as a synonym for near-native when describing language abilities. How can one hope to achieve near-native-like fluency? What are the features that distinguish levels of ability both within and across a bilingual’s languages? These and other related questions are aptly explored within this updated chapter. Finally, a set of new authors has tackled the theme of a chapter from the earlier edition that focused on language impairments in bilingual speakers. This updated chapter focuses on communication disorders and how they are represented among this group of speakers (Restrepo, Adams, & Barragan). In this comprehensive overview, deficits in the use of language and the

Summary and Conclusion

The study of bilingualism involves the integration of sociocultural/linguistic considerations, creativity, and theories of child language development. The nature and development of bilingual language acquisition and bilingual cognitive processing are the focus of this review. The purpose of this volume is to present a collection of research endeavors and ideas that advance the development of research in this area and to recognize the importance of bilingual cognitive processing overall.

List of Key Words

Anomia, Aphasia, Bilingual models, Bilingualism, Cognitive-processing, Delay, Developmental Aspects of bilingualism-in-young

Internet Sites Recommended

Developmental Aspects of
Introduction

Corresponding areas that are affected in the brain are reviewed for new and developing bilingual speakers. Language impairment in both children and adults and the ways in which language use is impacted by various deficiencies are discussed with reference to the research that explores how the brain processes language under conditions that affect typical cognitive and physical development. This chapter underscores the need to understand the fully functioning bilingual speaker so that when impairments occur, we are able to establish best practices for treatment so as to result in positive outcomes in terms of rehabilitation and overall health and wellbeing. Clearly, due to advances in methodological approaches and technology, we are better equipped to understand how the bilingual brain may recover from aphasia, anoma, and other language-related impairments through the careful and concerted efforts made in this domain of bilingual science exploration.

Summary and Conclusions

The study of bilingualism and all of its aspects—theory and models, psycholinguistic/sociocultural/linguistic and social approaches, developmental and neuroscience applications, creativity, executive functioning, pragmatic and communicative approaches, and theories of acquisition—formulate the cornerstone of the second edition of an Introduction to Bilingualism: Principles and Processes. The current volume contains areas of investigation that have been updated from the earlier edition, plus a number of new contributions that highlight new and expanding areas of interest in the field—most notably those focusing on the brain, executive functioning, and cognitive control. An area of pragmatic use—code-switching—came into its own in the current volume as a formidable body of research, and exploration has emerged in recent years focusing in this area of language usage. Additionally, newer contributions that focus on the lifespan and developmental issues broaden those areas of inquiry and bring the reader into alignment with current thoughts regarding theories and models in those particular areas of research endeavor.

The hope is that the current edition motivates and inspires new areas of research investigation and that those who are interested in these areas of work recognize the importance of examining the cognitive processing of bilinguals—our previously coined term in an earlier volume by these same editors (Heredia & Altarriba, 2014), bilingual cognitive psychology—for what this line of research might tell us, not only about bilingual and multilingual speakers, but for what it might tell us about human language processing overall.

List of Key Words and Concepts

Anomia, Aphasia, Bilingual advantages, Bilingual brain, Bilingual cognitive psychology, Bilingual models, Code-switching, Cognitive control, Executive functioning, Grammar, Identity, Language impairment, Language variation, Lexical representations, Morphology, Multidisciplinary approach, Multilingualism, Near-native, Phonetics, Phonology, Pragmatics, Scientific method, Scientifically driven approach, Sociocultural aspects, Sociolinguistics

Internet Sites Related to the Study of Bilingualism

Discussion Questions

1. Summarize the information on the number of countries where there are the largest groups of speakers of a given language, as per Figure 1.1. Which is the most widely spoken language depicted in the graph, and which is the least-spoken language in the graph?

2. Summarize the importance of using empirical approaches—the scientific method, experimentation, etc.—on advancing our knowledge of bilingual language processing. Why is it important to continue to conduct research on this topic area?

3. Has interest in the study of bilingualism increased or decreased in recent years? What is noted in support of your answer to this question, within the current chapter?

4. What areas of emphasis or topic areas are cited as new or current areas in the study of bilingualism, in relation to the contents of the current volume as a whole? Why do you believe that these are new areas of interest in the field?

Suggested Research Projects

1. Experimental Study: Code-Switching. With permission, record a conversation between two bilingual speakers and examine the ways in which they switch between their two languages. Document the frequency of occurrence of those switches and examine the situations for which speakers decide to switch or not to switch between languages.

2. Literature Search: Use a database such as PsychInfo (http://www.apa.org/psycinfo) for recent literature on bilingualism and the brain, with a focus on bilingual aphasia. Examine the different ways that language abilities are affected in the two languages of a bilingual who experiences aphasia early in life and late in life. Compare and contrast the outcomes of these two situations.

3. Research Paper: Examine the historical background of investigations of bilingual language processing by selecting a research article on bilingual memory. Write a three-page summary of a given experimental article that focuses on how language and memory were examined in the early 1970s in this area of investigation.

Suggested Readings


References

...largest groups and their data are widely spoken in the graph?

Scientific method, and language processes in the area?

Recent years? What chapter?

Subfields in the study of

Introduction