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Language Development and Age

The anecdotal view of language acquisition is that children learn language with apparent ease, no instruction, and in very little time, while adults find learning a new language to be cognitively challenging, labor-intensive, and time-consuming. In this book Herschensohn examines whether early childhood is a critical period for language acquisition after which individuals cannot learn a language as native speakers. She argues that a first language is largely susceptible to age constraints, showing major deficits past the age of twelve. Second language acquisition also shows age effects, but with a range of individual differences. The competence of expert adult learners, the unequal achievements of child learners of second languages, and the lack of consistent evidence for a maturational cut-off, all cast doubt on a critical period for second language acquisition.

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To the memory of my mother, Jean Gullivan Rogers,
and my surrogate mothers, Mary Gullivan, Eleanor
Gullivan Lent and Sylvia Rosenbaum Herschensohn

Contents

<i>List of figures</i>	<i>page</i> ix
<i>List of tables</i>	x
<i>Preface</i>	xi
<i>Acknowledgments</i>	xiii
<i>List of abbreviations</i>	xiv
1 Just in time: is there a critical period for language acquisition?	1
1.0 Introduction	1
1.1 Central themes	3
1.2 Background research on critical periods	7
1.3 Language and brain	12
1.4 Theoretical frameworks	21
1.5 Conclusion	25
2 Right on time: process and schedule of first language acquisition	27
2.0 Introduction	27
2.1 Phonology	29
2.2 Lexicon	36
2.3 Syntax	46
2.4 Morphology	58
2.5 Conclusion	63
3 All in good time: a window of opportunity for first language acquisition	65
3.0 Introduction	65
3.1 L1A in exceptional circumstances	67
3.2 L1A in extreme deprivation	74
3.3 Deafness	83
3.4 Language creation	92
3.5 Conclusion	98
	vii

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978-0-521-87297-3 - Language Development and Age
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Frontmatter
[More information](#)

viii	Contents	
4	Behind time: process and schedule of second language acquisition	100
4.0	Introduction	100
4.1	Phonology	102
4.2	Lexicon	109
4.3	Syntax	117
4.4	Morphology	126
4.5	Conclusion	132
5	Pressed for time: age constraints in second language acquisition	134
5.0	Introduction	134
5.1	Sensitive periods for L2A	136
5.2	Child L2A in typical and exceptional circumstances	144
5.3	Grammatical deterioration and age	155
5.4	Endstate grammars	165
5.5	Conclusion	170
6	Biding time: further consideration of age and acquisition	172
6.0	Introduction	172
6.1	A biological critical period for language acquisition?	173
6.2	The brain and language	182
6.3	Processing language	193
6.4	Neuroimaging	203
6.5	Conclusion	209
7	It's about time: evaluation of age sensitivity in language acquisition	211
7.0	Introduction	211
7.1	Evidence for a critical period	212
7.2	Age effects and the brain	217
7.3	Child acquisition	227
7.4	Adult L2A	233
7.5	Conclusion	239
	<i>Bibliography</i>	242
	<i>Index</i>	286

Figures

1.1 Left hemisphere of brain showing areas important for language functions	<i>page</i> 15
2.1 English and Japanese directionality	49
2.2 Phrase structure, English	51
2.3 Phrase structure, French	52
3.1 Early vs late ASL L1A (Mayberry 1993)	89
4.1 Categorization of labial stops along a VOT continuum	103
5.1 AoA and grammar (Johnson and Newport 1989)	160
5.2 AoA and grammar (Bialystok and Hakuta 1994)	161
5.3 AoA and grammar (Birdsong and Molis 2001)	162
6.1 Left hemisphere of brain showing areas important for language functions	185
6.2 Neuron	189
6.3 Obtaining event-related brain potentials	200

Tables

2.1	Rate of acquisition and median vocabulary	<i>page</i> 42
2.2	Relative production of nouns, verbs and other categories (age 10–18 months)	42
2.3	Finiteness versus verb placement in German data from Andreas	57
3.1	Group means for chronological age, PPVT and Block Design (WISC-R)	72
4.1	Errors of verbal morphology, Emma and Chloe	130
5.1	Criteria for critical periodhood	136
5.2	Characteristics of fundamental difference (Bley-Vroman 1990)	138

Preface

The notion of a critical period for acquisition of first and subsequent languages is the topic of this book, which investigates the following questions:

- (i) What is the evidence for a critical period for language acquisition?
- (ii) Is there a critical period for first language acquisition?
- (iii) Is there a critical period for subsequent language acquisition?

These questions raise corollary issues concerning the nature of language acquisition, variables that drive and constrain it, and the role of biological maturation. The book demonstrates that first language (L1) is in large part susceptible to age constraints, whereas second language (L2) – a term conventionally referring to any language learned after the first – is only indirectly so affected. Evidence from L1 shows a clear effect of age on acquisition, for language is not thoroughly acquired if age of onset passes seven years, and it is acquired with major deficits if age of onset passes twelve. Evidence from L2 acquisition also shows effects of age of onset, but the range of variation due to individual and socio-motivational differences prohibits a strict definition of a sensitive period for L2. Indeed, the L2 competence of expert adult learners, the unequal achievements of child L2 learners, variation of L2 endstate for learners with different L1 and the lack of consistent empirical evidence for a maturational cutoff, all cast doubt on a critical period for second language acquisition (L2A). Furthermore, the reasons for the deterioration of acquisition potential are only partly maturational, since experience with the native tongue shapes the neural networks of the brain dedicated to language.

This book investigates the question of a critical period for both L1 and L2A, reporting on the extensive empirical research done in the past decade (and earlier) that has mainly been published in articles. It reviews very recent literature on non-typical development in L1 and L2 (e.g. Williams Syndrome, Specific Language Impairment), evaluates relevant psycholinguistic and neurolinguistic studies, and considers recent debates of the critical period question.

The first chapter traces the history of the notion critical/sensitive period from the nineteenth century, giving examples from other species' development as well as non-linguistic aspects of human behavior. It reviews Lenneberg's seminal work on the biological foundations of language and subsequent research based on his premises. The chapter concludes with a discussion of two theory families, domain-specific nativism and domain-general associationism. While favoring an innatist approach, the book nevertheless subscribes to the necessity of taking both innate predisposition and environmental experience into account.

Chapter 2 describes first language acquisition (L1A) using a framework that includes the importance of both innate predisposition/linguistic universals and environmental experience. The third chapter considers whether there is a critical period for L1A, using evidence from a range of empirical data on atypical acquisition, by deprivation of environment or deprivation of organismic system. The former is exemplified by late L1 learners of sign language, the latter by cognitively impaired individuals. Despite major language deficits of late L1 learners, even the biological data does not indicate a threshold of offset after which L1A is totally impossible.

Chapters 4 and 5 describe patterns and stages of L2A and then examine the evidence adduced for a critical period for this phenomenon. Studies of child/adult L2A, age-linked deterioration in grammar acquisition and expert adult learners show that there is questionable substantiation for L2 age sensitivity. The sixth chapter pursues the question further by examining non-biological L2 influences and biological studies of L2 neural processing. The final chapter reexamines the facts presented in the previous six to arrive at conclusions for L1A and L2A.

This book has profited from a great deal of input and help from colleagues and friends. I wish to thank Michael Herschensohn, Marc Jampole and fifteen graduate seminar students for reading the entire manuscript and making very helpful comments throughout. For reading and commenting on an entire chapter or more, I thank Susanne Carroll (who actually read two), Joe Emonds, George M. Martin (who also read two and encouraged me to look into olidodendrocytes), Fritz Newmeyer and Martha Young-Scholten. For more general discussion and support I acknowledge John Archibald, Debbie Arteaga, Dalila Ayoun, Barbara Bullock, David Birdsong, Robert DeKeyser, Laurent Dekydtspotter, Cheryl Frenck-Mestre, Randall Gess, Judy McLaughlin, Silvina Montrul, Florence Myles, Toshi Ogihara, Lee Osterhout, Joyce Parvi, Philippe Prévost, Bonnie Schwartz, Mike Sharwood-Smith, Roumyana Slabakova, Kathryn Speranza, Rex Sprouse, Jeff Stevenson, Jacqueline Toribio, Jonathan Washington, Lydia White and Richard Wright. Thanks also to my family and friends for all their encouragement.

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Abbreviations

2L1A	bilingual first language acquisition
ABSL	Al-Sayyid Bedouin Sign Language
CPH	Critical Period Hypothesis
DS	Down Syndrome
EOI	Extended Optional Infinitive [period]
FFFH	Failed Functional Features Hypothesis
FTFA	Full Transfer/Full Access
HAS	High Amplitude Sucking
ISN	Idioma de Señas Nicaragüense (“Nicaraguan Sign Language”)
L1A	first language acquisition
L2A	second language acquisition
LAD	Language Acquisition Device
LSN	Lenguaje de Señas Nicaragüense (“Nicaraguan sign pidgin”)
MLU	Mean Length of Utterance
OI	Optional Infinitive [period]
PDP	Parallel Distributed Processing
PLD	Primary Linguistic Data
PPVT	Peabody Picture Vocabulary Test
RI	Root Infinitive
SLI	Specific Language Impairment
SLM	Speech Learning Model
TD	Typically Developing
UG	Universal Grammar
V2	verb second
VOT	Voice Onset Time
WS	Williams Syndrome