

Contents

<i>List of Figures and Tables</i>	page viii
<i>List of Contributors</i>	x
<i>Acknowledgements</i>	xiv
General Introduction	1
MICHAEL A. SKEIDE	
Part I Theoretical Frameworks and Computational Models	3
1 Theories of Dyslexia	5
USHA GOSWAMI	
2 Theories of Dyscalculia	25
VINOD MENON AND HYESANG CHANG	
3 Computational Models of Reading and Mathematical Difficulties	45
MARCO ZORZI AND ALBERTO TESTOLIN	
Summary: Theoretical Frameworks and Computational Models	61
Part II Cognitive Profiles and Behavioural Manifestations	63
4 Cognitive Profiles and Co-occurrence of Dyslexia and Dyscalculia	65
CHIARA BANFI, KARIN LANDERL, AND KRISTINA MOLL	
5 Reading and Mathematics Anxiety	83
DÉNES SZŰCS	
Summary: Cognitive Profiles and Behavioural Manifestations	98
Part III Genetic and Environmental Influences	99
6 Genetic and Environmental Influences on Dyslexia and Dyscalculia	101
MARGHERITA MALANCHINI AND AGNIESZKA GIDZIELA	

7	Pre- and Postnatal Environmental Effects on Learning to Read and Mathematical Learning FUMIKO HOEFT* AND FLORENCE BOUHALI*	115
	Summary: Genetic and Environmental Influences	151
	Part IV Neurodevelopmental Foundations	153
8	Neurogenetic Insights into the Origins of Dyslexia and Dyscalculia MICHAEL A. SKEIDE	155
9	Longitudinal Neural Observation Studies of Dyslexia GORKA FRAGA GONZÁLEZ, KATARZYNA JEDNORÓG, AND SILVIA BREM	162
10	Longitudinal Neural Observation Studies of Dyscalculia KARIN KUCIAN AND URSINA MCCASKEY	183
11	Neuroplasticity in Response to Reading Intervention JASON D. YEATMAN	202
12	Neuroplasticity in Response to Mathematical Intervention TERESA IUCULANO	212
	Summary: Neurodevelopmental Foundations	229
	Part V Gender, Ethnicity, and Socioeconomic Background	231
13	Gender and Sex Differences in Dyslexia and Dyscalculia JESSICA F. CANTLON	233
14	The Role of Socioeconomic and Ethnic Disparities for Dyslexia and Dyscalculia RACHEL ELIZABETH FISH	251
	Summary: Gender, Ethnicity, and Socioeconomic Background	263
	Part VI Cultural Unity and Diversity	265
15	Cross-Cultural Unity and Diversity of Dyslexia WAI TING SIOK AND LANG QIN	267
16	Cross-Cultural Unity and Diversity of Dyscalculia BAIHAN LYU AND XINLIN ZHOU	282
	Summary: Cultural Unity and Diversity	300
	Part VII Early Prediction	303
17	Early Prediction of Learning Outcomes in Reading ARNE LERVÅG AND MONICA MELBY-LERVÅG	305

	Contents	vii
18 Early Prediction of Learning Outcomes in Mathematics	318	
ELIZABETH A. GUNDERSON		
Summary: Early Prediction	333	
Part VIII Intervention and Compensation	335	
19 Randomized Controlled Trials in Dyslexia and Dyscalculia	337	
KATHARINA GALUSCHKA AND GERD SCHULTE-KÖRNE		
20 Cognitive Enhancement and Brain Stimulation in Dyslexia and Dyscalculia	350	
NIENKE E. R. VAN BUEREN, EVELYN H. KROESBERGEN, AND ROI COHEN KADOSH		
21 Persistence and Fade-Out of Responses to Reading and Mathematical Interventions	362	
H. MORIAH SOKOLOWSKI AND LIEN PETERS		
Summary: Intervention and Compensation	378	
Part IX Best Practice – Diagnostics and Prevention	381	
22 Diagnosis of Dyslexia and Dyscalculia: Challenges and Controversies	383	
THOMAS LACHMANN, KIRSTIN BERGSTRÖM, JULIA HUBER, AND HANS-CHRISTOPH NUERK		
23 Prevention of Dyslexia and Dyscalculia: Best Practice and Policy in Early Education	410	
MARCUS HASSELHORN AND WOLFGANG SCHNEIDER		
Summary: Best Practice – Diagnostics and Prevention	423	
Part X Best Practice – Schooling and Educational Policy	425	
24 Dyslexia and the Dyslexia-Like Picture: Supporting All Children in Primary School	427	
SONALI NAG		
25. Best Practice and Policy in Maths Education in School	444	
ANTJE EHLERT AND LUISA WAGNER		
Summary: Best Practice – Schooling and Educational Policy	459	
General Summary	461	
MICHAEL A. SKEIDE		
<i>References</i>	465	
<i>Index</i>	611	