
BOOK REVIEWS

The Study of Neuropsychology: Where It's Been and Where It's Going

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Neuropsychological Research: A Review. Peter Mariën and Jubin Abutalebi. (Eds.). 2008.
New York: Psychology Press, 568 pp., \$90.00 (HB)

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In an effort to pay homage to their colleague and friend, behavioral neurologist Luigi Vignolo, the editors have amassed an impressive group of experts from Europe, North America, and Australia who provide an international perspective frequently missing from other neuropsychological texts. In the Introduction, Jubin Abutalebi and Peter Mariën state their wish to “stimulate the understanding of how neuropsychology has developed” and to “generate a lasting appreciation for the sense of wonder that drives scientific efforts” (p. 1). Thankfully for us, they masterfully achieved their goals; their selected contributors, many of whom knew Professor Vignolo personally, convey obvious dedication and enthusiasm for their chosen areas of neuropsychological study. It was fun (yes, fun!), for example, to read Michael Posner’s summary of 40 years of work in attention (Chapter 18) and how key findings and technological developments in the field have influenced him. Readers seeking concise reviews about core neuropsychological concepts, including an historical context, current state-of-the-art, and future directions for research will want to invest in this book.

The book is divided into six primary sections: (I) approaching the brain; (II) language disorders; (III) skilled movement, music, and number-processing disorders; (IV) modality-specific recognition disorders; (V) neglect, attentional, and executive disorders; and (VI) memory disorders and neurodegenerative diseases. There is a seventh section reserved solely for concluding remarks. In Section I, three approaches for conducting neuropsychological research are presented. In Chapter 1, Howard Gardner urges neuropsychologists to broaden their view of intelligence and to take advantage of computers and virtual technologies to assess intellectual potential in ecologically valid ways. Using a very different approach, Michael Petrides and Deepak Pandya illustrate in Chapter 2 how methodical study of neuroanatomical pathways and functional relationships can propel the field forward. Making superb use of diagrams, they walk the reader through historical studies of language to current conceptualizations that

are far more complex than traditional views encompassing only Broca’s, Wernicke’s, and the arcuate fasciculus. The final chapter of this section by Jubin Abutalebi, Lisa Bartha Doering, Pasquale Anthony Della Rosa, and Peter Mariën focuses on incorporating neuroimaging into neuropsychological studies. Basic information on primary structural and functional neuroimaging techniques is provided, along with a concrete example of how to construct a functional neuroimaging experiment using fMRI.

In Section II on language disorders, Kenneth Heilman does a nice job setting the historical stage for current information processing models of aphasia, and where the models break down. The focus of Chapter 5, by Yves Joanette, Ana Inés Ansaldo, Karima Kahlaoui, and André Roch Lecours, is on the often neglected topic of right hemisphere involvement in language. This chapter is rich in its descriptions of language disturbances following right hemisphere damage and what is and is not known. The authors make the important point that labeling these disorders as “aphasia” is a necessary step for helping to ensure that these patients get the rehabilitative services they need. Acquired dyslexia and dysgraphia are covered in Chapter 6 by Ria de Bleser and Claudio Luzzatti, with a discussion of similarities and differences among languages that is especially interesting and informative. Developmental dyslexia is reviewed by Albert Galaburda, Joseph Loturco, and Glenn Rosen in Chapter 7, including genetic factors and functional neuroanatomical information from both animal and human studies. Chapters 8 and 9 provided excellent summaries of aphasia recovery and rehabilitation, respectively. In the former chapter, Stephano Cappa and Jubin Abutalebi highlight neural mechanisms of language recovery, many of which have been uncovered using functional neuroimaging techniques. They point out the shift in focus from “what is injured” to “what is working” is a fruitful topic for future research. In the latter chapter, Anna Basso emphasizes the need to fill important gaps in research on aphasia rehabilitation, including examination of efficacy over effectiveness,

duration of therapy, and clearly defined treatments that are reproducible and justified by theory.

The sections on skilled movement, music, and number processing disorders (Section III) and modality-specific recognition disorders (Section IV) focus on the classic neuropsychological syndromes, including forelimb apraxias by Kenneth Heilman, Leslie Gonzalez Rothi, and Brenda Hanna-Pladdy (Chapter 10), calculation and number processing by Xavier Seron (Chapter 12), and visual and auditory agnosias by H. Branch Coslett (Chapter 14) and Marie di Pietro, Marina Laganaro, and Armin Schnider (Chapter 15), as well as more idiosyncratic topics, such as singing as a treatment for aphasia by Sylvie Hébert, Isabelle Peretz, and Amélie Racette (Chapter 11), thought processing problems in aphasia by Jules Davidoff (Chapter 13), and somatosensory recognition disorders by Gabriella Bottini and Martina Gandola (Chapter 16). Most of these chapters include detailed explanations of theoretical concepts, reviews of neuroanatomical substrates, and directions for future research. Experimental and cognitive neuropsychologists especially will appreciate these summaries.

The final two primary sections on neglect, attentional, and executive disorders (Section V) and memory disorders and neurodegenerative diseases (Section VI) are worthwhile reads for both cognitive and clinical neuropsychological researchers. Giuseppe Vallar provides an excellent summary on subcortical neglect (Chapter 17), a topic rarely seen in other neuropsychological texts, with plenty of concrete examples and diagrams. Chapter 18 by Michael Posner on the neuropsychology of attention offers a rare glimpse into thought processes of how and why experimental methods are chosen, which can be applied to other areas of study. The contribution of electrophysiological methods in the investi-

gation of selective attention by Anna Christina Nobre and Laetitia Silvert is the topic of Chapter 19, which provides a terrific overview of key findings, the current state of research using these methodologies, and ideas for future research. Chapters on the frontal lobe by Paul Eslinger (Chapter 20) and Sebastiaan Engelborghs, Peter Mariën, and Peter de Deyn (Chapter 24) and memory by Olivier Piguet and Suzanne Corkin (Chapter 21), Gianfranco Dalla Barba, Francois Boller, and Dorothée Rieu (Chapter 22), and Jonathan Knibb and John Hodges (Chapter 23) provide very nice summaries integrating theory, human studies, and neuroimaging that are comprehensive and well-organized. The chapter on semantic dementia (Chapter 23) is an excellent overview with clinical, histological, and neuropathological features weaved in. Especially helpful is the discussion of differences between semantic dementia, primary progressive aphasia, and the other frontotemporal dementia syndromes.

In summary, *Neuropsychological Research: A Review* is a sophisticated read not for the faint of heart. Though the chapters are generally well-written and succinct, they cover a wide range of material, including theoretical and methodological concepts from experimental and cognitive neuropsychology, clinical case studies highlighting functional neuroanatomical correlates, and evolving technologies in neuroimaging and genetics, and can be dense with terminology. The contributors are clearly experts in their respective areas, and regardless of your experimental background or level of expertise in neuropsychology, you are likely to learn something new and to be challenged to think more broadly about the scientific study of neuropsychological concepts. I did not have the privilege of knowing Professor Vignolo, but after reading this volume, I wish I had. I believe he would be very proud to have his legacy carried forward in this way.

From Cells to Cognition: Understanding Neural Hard Wiring and Plasticity

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Topics in Integrative Neuroscience: From Cells to Cognition. James R. Pomerantz (Ed.). 2008. New York: Cambridge University Press, 448 pp., \$140.00 (HB)

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Topics in Integrative Neuroscience: From Cells to Cognition (2008), edited by James Pomerantz, Professor of Neurosciences at Rice University, seeks to provide the reader with a sample of the “sweep of discoveries and advances” that have emerged in neuroscience research during the 1990s ‘Decade of the Brain.’ He comments that it is “impossible to capture fully the sweep of discoveries and advances that emerged from that decade within a single volume.” The goal of this text is to provide a sample of the best of neuroscience work in areas that represent great challenges to our understanding

of brain and behavior. Pomerantz specifically identified four areas of importance and invited advanced researchers in each area to contribute chapters in thematically organized sections. The four sections or categories represented in this text are, higher order perception, language, memory systems, and sensory processes.

If there is an overriding theme to this text, it may be best summarized by Squire and Stark, who comment in the introduction to Chapter 9 (‘Memory Systems’): “For all its diversity, one can view neuroscience as being concerned with two