
BOOK REVIEWS

Explaining the Mind in Terms of the Brain: Two Challenges

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The Wisdom Paradox: How Your Mind Can Grow Stronger as Your Brain Grows Older, by Elkhonon Goldberg. 2005. New York: Gotham Books. 337pp., \$26.00 (HB).

Creativity and the Brain, by Kenneth M. Heilman. 2005. New York: Psychology Press. 207 pp., \$55.00 (HB).

Reviewed by DIANE B. HOWIESON, Ph.D., ABPP-CN, *Department of Neurology, Oregon Health & Science University, Portland, Oregon.*

Doctors Goldberg and Heilman have both written absorbing accounts of the brain for the interested public as well as scientists that address some of the most intriguing questions in neuroscience, wisdom and creativity. Dr. Goldberg is a Clinical Professor of Neurology at New York University School of Medicine and a valuable and innovative contributor to the theoretical foundations of neuropsychology. Dr. Heilman, a Distinguished Professor of Neurology and Health Psychology at the University of Florida, is recognized for his many contributions to understanding brain mechanisms underlying behavior as well as his legacy as a teacher and mentor for many neuroscientists.

Dr. Goldberg's book, *The Wisdom Paradox: How Your Mind Can Grow Stronger as Your Brain Grows Older*, takes the form of a personal tour through a wide range of topics based on the author's research, clinical, and daily experiences. Although the focus is on the aging brain and "wisdom," the content covers much more. The book begins with an overview of brain organization and explanations for the role of major brain regions in cognition and emotion. Written for the novice in a clear style, some topics are explored in depth, such as up-to-date information on the relatively new, exciting finding that the brain produces new neurons during adulthood. The coverage goes on to discuss fascinating theories about why the brain has two halves rather than one whole and the finding that the two sides of the brain are more different than previously thought.

How the brain stores memories is explained, and the traditional breakdown of memory into component parts is challenged. The devastating effects of dementia and other age-related diseases of the brain are discussed, but the emphasis is more on normal than abnormal brain functions.

The engaging writing style interweaves the stories of major figures in history and the arts. Where else could you find a

book about the brain that includes information about Descartes, Goethe, Grandma Moses, Golda Meir, Mao Zedong, and Eduardo Chillida, to name a few?

The author makes the distinction between wisdom, an extreme form of competence, and genius, an extreme form of talent. Wisdom is described as the capacity for pattern recognition in which a person is able to recognize an object, situation, or problem as belonging to a familiar class and, therefore, bring prior personal or cultural experience to bear on how we deal with these objects or problems. As we get older, we are able to bring more experience to bear and our wisdom grows stronger. The mechanism by which the brain recognizes patterns and its relative resistance to age-related decline is described in terms of neural networks in the cortex. A parallel process is described for the relative invulnerability of old learned information to age-related decline.

The book presents an optimistic look at cognitive functions that do not decline, and may even grow stronger, with age. Dr. Goldberg makes a cogent argument for staying mentally active in old age in order to preserve cognitive health. In keeping with his previous book, *The Executive Brain*, this book is most enjoyable and accessible, yet informative.

Creativity is one of the most desirable traits a person can have, yet understanding what makes one person more creative than another is not all together clear. In *Creativity and the Brain*, Dr. Heilman proposes brain mechanisms that are likely to be important for creativity. Dr. Heilman is a good person to tackle this topic because he has had a creative career as a neuroscientist.

Because the book is written for an audience that includes non-neuroscientists, the book provides a description of basic brain mechanisms that are important for the theories discussed. Scientific terms are well defined. Distinctions are

made between creativity and intelligence or knowledge, although they are described as necessary components of creativity. Specific talents, such as music or art, are distinguished from creativity because they can be skillful without being valued as innovative.

Creativity is described as a combination of divergent and convergent thinking. For example, in science a creative person suggests a novel relationship between two or more facts or events (divergent thinking) and then develops evidence to support the hypothesis (convergent thinking). Dr. Heilman proposes that the brain mechanisms that underlie creativity might involve the simultaneous activation of widely distributed modular networks that store diverse sets of representations, thereby allowing for novel thinking. The frontal lobes appear to play an important role through their regulation of cognitive flexibility, as well as goal-oriented behavior and persistence.

In his discussion about theories of creativity, Heilman shows how hypotheses are generated to test a theory, many of which fall short. When support for a theory occurs, new hypotheses are generated to continue to explore the theory. Among the interesting theories for which support is pre-

sented is the discussion of the role of neurotransmitters on cognitive flexibility. Studies, some by the author and his colleagues, have found that innovative thinking is enhanced by reducing the effect of norepinephrine on the brain. Too much norepinephrine produces a level of arousal that appears to constrict thinking.

Both books have features in common. Both describe in basic terms the organization of the brain and relate brain structure to function. Both include references for cited studies. Both discuss a wide array of topics rather than being narrowly focused. Lastly, both use personal experiences to demonstrate points or to engage the reader. A major difference between the books comes from the very different backgrounds of the authors. Dr. Goldberg pays tribute to his mentor Alexandr R. Luria, the great Russian neuropsychologist, and describes his early influence on the field in the 20th century. Dr. Heilman acknowledges the contribution of a number of pioneers in neuroscience but does not include Luria.

For neuropsychologists, some topics in these books will seem simplified. Yet neuropsychologists will find them both scholarly and full of thought-provoking ideas.

TBI Research: Reviewing the Past, Planning the Future

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Rehabilitation for Traumatic Brain Injury. Walter M. High, Jr., Angelle M. Sander, Margaret A. Struchen, and Karen A. Hart (Eds.). 2005. New York: Oxford University Press. 368 pp., \$69.50 (HB).

Reviewed by BRICK JOHNSTONE, Ph.D., ABPP-CN, *Professor and Chair, Department of Health Psychology, University of Missouri-Columbia, Columbia, Missouri*.

Rehabilitation for Traumatic Brain Injury, the final product of a 2003 conference that assembled national experts on traumatic brain injury (TBI) rehabilitation, was written to “bring into one volume a concise and authoritative account of what is currently known in the field of TBI rehabilitation.” It is intended for TBI clinicians and researchers including neuropsychologists, physiatrists, neurologists, neurosurgeons, psychiatrists, and rehabilitation therapists. The volume is impressive for the number of chapter authors who are nationally recognized experts on various aspects of TBI rehabilitation (e.g., Drs. Prigatano, Malec, Corrigan, Levin, Boake, Diller, Sohlberg, and Cicerone), as well as the broad and inclusive range of topics covered.

The book is divided into 5 sections covering a broad range of rehabilitation domains. The first section includes chapters on the history of TBI rehabilitation and its effectiveness. This section sets the stage for the following chapters by reviewing the existing literature on the efficacy of TBI rehabilitation in general, critiquing it, and presenting an agenda for future research. The second section, “Rehabilitation of Specific Cognitive Impairments,” reviews the

literature on the efficacy of interventions targeted towards awareness, memory, executive function, social communication, and emotional and motivation disorders, and offers suggestions for future research in these areas. These chapters vary in their length and thoroughness, with some chapters providing extensive review of existing literature and specific recommendations for future research, whereas others provide cursory reviews and only general recommendations for future research. The chapters in the third section, “Factors Affecting Outcome,” are very well written, a strength of the book, and stress the importance and necessity of addressing substance abuse disorders, family and caregiver issues, and vocational rehabilitation programs when providing services to persons with TBI. Section four, “Rehabilitation with Specific Populations,” includes chapters on children and older adults with TBI, as well as multicultural perspectives in TBI rehabilitation. These chapters also vary in length and presentation but provide good summaries of state-of-the-art research with these populations. The last section, “Medical Topics,” includes chapters on pharmacologic management of spastic hypertonia, minimally conscious patients, and neuroimaging in rehabilitation. Based

on their narrow focus, these chapters will likely be of interest primarily to researchers specializing in these areas.

Rehabilitation for Traumatic Brain Injury presents a solid review of TBI interventions and issues that will be of primary interest to TBI researchers, given the book's focus on existing research on TBI interventions and suggestions for future research. In addition to being a good resource for TBI researchers, this book will also be an excellent text for rehabilitation students to learn about state-of-the-art TBI research, and the field's future directions. The book's primary strength is its comprehensive review of the many areas that need further investigation in TBI rehabilitation (e.g.,

cognitive interventions, medical interventions) and inclusion of chapters on the impact of nonmedical factors on TBI outcomes (e.g., specific populations/issues, etc.). Despite its claim, this book provides little practical information for clinicians. *Rehabilitation for Traumatic Brain Injury* will be a good complement to standard rehabilitation texts such as Rosenthal et al.'s *Rehabilitation of the Adult and Child with Traumatic Brain Injury*, Sohlberg and Mateer's *Cognitive Rehabilitation*, Prigatano's *Principles of Neuropsychological Rehabilitation*, and Frank and Elliott's *Handbook of Rehabilitation Psychology*.

Forensic Neuropsychology in the Real World

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Forensic Neuropsychology Casebook. Robert L. Heilbrunner (Ed.). 2005. New York: The Guilford Press. 370 pp., \$50.00 (HB).

Reviewed by LEAH ELLENBERG, Ph.D., ABPP-CN, *Clinical Associate Professor of Pediatrics, University of Southern California School of Medicine, Los Angeles, California.*

The chapters in *Forensic Neuropsychology Casebook* read like a collection of short stories. An experienced forensic neuropsychologist authors each chapter and each case is presented from a personal point of view, a viewpoint generally not found in mainstream textbooks. The case background, test results, and legal proceedings are described along with the neuropsychologist's thoughts, feelings, insights, and lessons learned. The practitioners and topics were well chosen to display the diversity of forensic neuropsychology. Included are adult, pediatric, civil, and criminal cases. Besides the more common cases such as traumatic brain injury, medical malpractice, and workers' compensation, more esoteric topics are covered such as electrical injury, sexual consent capacity in an Alzheimer's patient, and competence to confess.

Different authors were confronted repeatedly with many of the same issues despite the wide variety of cases. They are those issues with which all forensic psychology practitioners must grapple. Frequently mentioned were the differences between clinical and forensic cases regarding the nature of "client." In the former, the client is the one being examined, while in the latter, the client is generally the person or entity requesting the evaluation, for example, the attorney or the court.

The referral questions in the legal cases varied widely, but typical clinical questions such as "What are the neuropsychological deficits?" or "What is the best course of treatment?" were never asked. Almost all authors addressed the importance of assessment of motivation and many mentioned the value of collateral sources of data. Ethical issues were raised in most chapters, including the importance of obtaining informed consent and maintaining the position of a scientist rather than an advocate. Michael F. Martelli, for

example, provides a valuable list of recommendations for promoting objectivity. The adversarial nature of the legal process as opposed to the truth-seeking nature of clinical neuropsychological evaluations was a recurrent theme, along with the importance of resisting pressure from the attorney who made the referral and from opposing counsel. Lynn Bennett Blackburn views the deposition process as a chance to practice psychotherapy skills, working to understand the attorneys' "construction of reality, while helping them to accept a more accurate construction—mine."

Harrowing tales of cross examination abound, with admonition to be up to date on the current literature on neuropsychological testing in general, the specific areas relevant to the case at hand, and the cultural and ethnic issues pertinent to conducting assessments and interpreting results. The final three chapters were the responses of three prominent forensic neuropsychologists (Jerry J. Sweet, Manfred F. Greiffenstein, and Paul R. Lees-Haley) to the same eleven questions with their answers reflecting different responses to the same common practice dilemmas.

I found this book to be highly entertaining. The cases were fascinating and many of the authors wrote with style and wit. Paul L. Craig, for example, in describing his thoughts on a journey to a remote Native Alaskan village muses, "I wonder how many other neuropsychologists are going to work today in a dog sled pulled behind a snow machine across a frozen arctic sea?" Kristie J. Nies, described a woman whose circumstances were very difficult before the incident that gave rise to the lawsuit and notes that "the canvas of [her] life was the tragic context on which she interpreted the additional brushstrokes of the injury." The format of allowing practitioners to discuss cases from their respective points of view provided insights into the

unique process each one used to examine the findings and reach their conclusions.

Forensic Neuropsychology Casebook will serve as a very useful adjunct to a standard forensic neuropsychology textbook for the novice as well as the experienced clinician. It

provides a window into the practice of forensic neuropsychology as it exists in the real world and fosters a process of self-examination that may increase a practitioner's competence and ethical purity. Besides, it's a good read.

Recent and Relevant

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The following books were received in recent months:

Principles of Brain Evolution, by Georg F. Striedter. 2005. Sunderland, MA: Sinauer Associates, Inc., 363 pp., \$59.95 (HB).

Mind. Introduction to Cognitive Science, Second Edition, by Paul Thagard. 2005. Cambridge, MA: The MIT Press. 266 pp., \$30.00 (PB).

Handbook of Normative Data for Neuropsychological Assessment, Second Edition, by Maura Mitrushina, Kyle B. Boone, Jill Razani, and Louis F. D'Elia. 2005. New York: Oxford University Press. 1029 pp., \$94.00 (HB).

Neuroimaging of Mental Imagery: Special Issue Of The European Journal Of Cognitive Psychology. Michel Denis, Emmanuel Mellet, and Stephen M. Kosslyn (Eds.). 2004. New York: Psychology Press/Taylor and Francis. 142 pp., \$65.00 (HB).

Technology in Cognitive Rehabilitation. A special issue of the journal *Neuropsychological Rehabilitation*. Peter Gregor and Alan Newell (Eds.). 2004. New York: Psychology Press/Taylor and Francis. 256 pp., \$80.00 (HB).

Voices in the Brain: The Cognitive Neuropsychiatry of Auditory Verbal Hallucinations. A special issue of the journal *Cognitive Neuropsychiatry*. Sean A. Spence and Anthony S. David (Eds.). 2004. New York: Psychology Press/Taylor and Francis. 151 pp., \$47.95 (HB).

Neurocognitive Disorders in Aging, by Daniel Kempler. 2005. Thousand Oaks, CA: Sage Publications, Inc. 333 pp., \$51.95 (PB).

The Auditory Cortex: A Synthesis of Human and Animal Research. Reinhard König, Peter Heil, Eike Budinger, and Henning Scheich (Eds.). 2005. Mahwah, NJ: Lawrence Erlbaum Associates. 493pp., \$89.95 (HB).