Cognitive Development The Learning Brain

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FITZPATRICK HANCOCK

Transforming the Workforce for Children Birth Through Age 8 National Academies Press
The first edition of this successful reader brought together key readings in the area of developmental cognitive neuroscience for students. Now updated in order to keep up with this fast moving field, the volume includes new readings illustrating recent developments along with updated versions of previous contributions.
Neural Substrates and Genetic Influences National Academies Press
More children born today will survive to adulthood than at any time in history. It is now time to emphasize health and development in middle childhood and adolescence--developmental phases that are critical to health in adulthood and the next generation. Child and Adolescent Health and Development explores the benefits that accrue from sustained and targeted interventions across the first two decades of life. The volume outlines the investment case for effective, costed, and scalable interventions for low-resource settings, emphasizing the cross-sectoral role of education. This evidence base can guide policy makers in prioritizing actions to promote survival, health, cognition, and physical growth throughout childhood and adolescence.
Disease Control Priorities, Third Edition (Volume 8) Psychology Press
This volume considers how children's thinking evolves during development, with a focus on the role of experience in causing change. It brings together cutting-edge research by leaders in the psychology and neurobiology of child development to examine the processes by which children learn and those that make children ready and able to learn at particular points in development. Behavioral approaches include research on the "microgenesis" of cognitive change over short time periods (e.g., several hour-long sessions) in specific task situations. Research on cognitive change over longer time scales (months and years) is also presented, as well as research that uses computational modeling and dynamical systems approaches to understand learning and development. Neural approaches include the study of how neuronal activity and connectivity change during acquisition of cognitive skills in children and adults. Other investigations consider the possible emergence of cognitive abilities through the maturation of brain structures and the effects of experience on the organization of functions in the brain. Developmental anomalies, such as autism and attention deficit disorder are also examined as windows on normal development. Four questions drive the volume: *Why do cognitive abilities emerge when they do during development? *What are the sources of developmental and individual differences, and of developmental anomalies in learning? *What happens in the brain when people learn? *How can experiences be ordered and timed to optimize learning? The answers to these questions have strong implications for how we educate children and remediate deficits that have impeded the development of thinking abilities. These implications are explored in several chapters in the volume, as well as in the commentaries by leading discussants.
Neuroscience of Cognitive Development Guilford Press
Children are already learning at birth, and they develop and learn at a rapid pace in their early years. This provides a critical foundation for lifelong progress, and the adults who provide for the care and the education of young children bear a great responsibility for their health, development, and learning. Despite the fact that they share the same objective - to nurture young children and secure their future success - the various practitioners who contribute to the care and the education of children from birth through age 8 are not acknowledged as a workforce unified by the common knowledge and competencies needed to do their jobs well. Transforming the Workforce for Children Birth Through Age 8 explores the science of child development, particularly looking at implications for the professionals who work with children. This report examines the current capacities and practices of the workforce, the settings in which they work, the policies and infrastructure that set qualifications and provide professional learning, and the government agencies and other funders who support and oversee these systems. This book then makes recommendations to improve the quality of professional practice and the practice environment for care and education professionals. These detailed recommendations create a blueprint for action that builds on a unifying foundation of child development and early learning, shared knowledge and competencies for care and education professionals, and principles for effective professional learning. Young children thrive and learn best when they have secure, positive relationships with adults who are knowledgeable about how to support their development

and learning and are responsive to their individual progress. Transforming the Workforce for Children Birth Through Age 8 offers guidance on system changes to improve the quality of professional practice, specific actions to improve professional learning systems and workforce development, and research to continue to build the knowledge base in ways that will directly advance and inform future actions. The recommendations of this book provide an opportunity to improve the quality of the care and the education that children receive, and ultimately improve outcomes for children.

A Reader Routledge

The contributors reveal new findings about the basic mechanisms underlying brain development, with particular reference to mathematical reasoning as well as to decision-making in a variety of situations.

Development of Mathematical Cognition Psychology Press

How we raise young children is one of today's most highly personalized and sharply politicized issues, in part because each of us can claim some level of "expertise." The debate has intensified as discoveries about our development-in the womb and in the first months and years-have reached the popular media. How can we use our burgeoning knowledge to assure the well-being of all young children, for their own sake as well as for the sake of our nation? Drawing from new findings, this book presents important conclusions about nature-versus-nurture, the impact of being born into a working family, the effect of politics on programs for children, the costs and benefits of intervention, and other issues. The committee issues a series of challenges to decision makers regarding the quality of child care, issues of racial and ethnic diversity, the integration of children's cognitive and emotional development, and more. Authoritative yet accessible, From Neurons to Neighborhoods presents the evidence about "brain wiring" and how kids learn to speak, think, and regulate their behavior. It examines the effect of the climate-family, child care, community-within which the child grows.

Converging Evidence from Various Methodologies John Wiley & Sons

Cognition, Brain, and Consciousness, Second Edition, provides students and readers with an overview of the study of the human brain and its cognitive development. It discusses brain molecules and their primary function, which is to help carry brain signals to and from the different parts of the human body. These molecules are also essential for understanding language, learning, perception, thinking, and other cognitive functions of our brain. The book also presents the tools that can be used to view the human brain through brain imaging or recording. New to this edition are Frontiers in Cognitive Neuroscience text boxes, each one focusing on a leading researcher and their topic of expertise. There is a new chapter on Genes and Molecules of Cognition; all other chapters have been thoroughly revised, based on the most recent discoveries. This text is designed for undergraduate and graduate students in Psychology, Neuroscience, and related disciplines in which cognitive neuroscience is taught. New edition of a very successful textbook Completely revised to reflect new advances, and feedback from adopters and students Includes a new chapter on Genes and Molecules of Cognition Student Solutions available at http://www.baars-gage.com/ For Teachers: Rapid adoption and course preparation: A wide array of instructor support materials are available online including PowerPoint lecture slides, a test bank with answers, and eFlashcords on key concepts for each chapter. A textbook with an easy-to-understand thematic approach: in a way that is clear for students from a variety of academic backgrounds, the text introduces concepts such as working memory, selective attention, and social cognition. A step-by-step guide for introducing students to brain anatomy: color graphics have been carefully selected to illustrate all points and the research explained. Beautifully clear artist's drawings are used to 'build a brain' from top to bottom, simplifying the layout of the brain. For students: An easy-to-read, complete introduction to mind-brain science: all chapters begin from mind-brain functions and build a coherent picture of their brain basis. A single, widely accepted functional framework is used to capture the major phenomena. Learning Aids include a student support site with study guides and exercises, a new Mini-Atlas of the Brain and a full Glossary of technical terms and their definitions. Richly illustrated with hundreds of carefully selected color graphics to enhance understanding.

From Infancy Through Emerging Adulthood World Bank Publications

A new understanding of cognitive development from the perspective of neuroscience This book provides a state-of-the-art understanding of the neural bases of cognitive development. Although the field of developmental cognitive neuroscience is still in its infancy, the authors effectively demonstrate that our understanding of cognitive development is and will be vastly improved as the mechanisms underlying development are elucidated. The authors begin by establishing the value of considering neuroscience in order to understand child development and then provide an overview of brain development. They include a critical discussion of experience-dependent changes in the brain. The authors explore whether the mechanisms underlying developmental plasticity differ from those underlying adult plasticity, and more fundamentally, what distinguishes plasticity from development. Having armed the reader with key neuroscience basics, the book begins its examination of the neural bases of cognitive development by examining the methods employed by professionals in developmental cognitive neuroscience. Following a brief historical overview, the authors discuss behavioral, anatomic, metabolic, and electrophysiological methods. Finally, the book explores specific content areas, focusing on those areas where there is a significant body of knowledge on the neural underpinnings of cognitive development, including: * Declarative and non-declarative memory and learning * Spatial cognition * Object recognition * Social cognition * Speech and language development * Attention development For cognitive and developmental psychologists, as well as students in developmental psychology, neuroscience, and cognitive development, the authors' view of behavioral development from the perspective of neuroscience sheds new light on the mechanisms that underlie how the brain functions and how a child learns and behaves.

A Unifying Foundation John Wiley & Sons

Cognitive Development and Cognitive Neuroscience: The Learning Brain is a thoroughly revised edition of the bestselling Cognitive Development. The new edition of this full-colour textbook has been updated with the latest research in cognitive neuroscience, going beyond Piaget and traditional theories to demonstrate how emerging data from the brain sciences require a new theoretical framework for teaching cognitive development, based on learning. Building on the framework for teaching cognitive development presented in the first edition, Goswami shows how different cognitive domains such as language, causal reasoning

and theory of mind may emerge from automatic neural perceptual processes. Cognitive Neuroscience and Cognitive Development integrates principles and data from cognitive science, neuroscience, computer modelling and studies of non-human animals into a model that transforms the study of cognitive development to produce both a key introductory text and a book which encourages the reader to move beyond the superficial and gain a deeper understanding of the subject matter. Cognitive Development and Cognitive Neuroscience is essential for students of developmental and cognitive psychology, education, language and the learning sciences. It will also be of interest to anyone training to work with children.

How People Learn Psychology Press

As humans, we self-regulate whenever we adapt our emotions and actions to situational requirements and to internalized social standards and norms. Self-regulation encompasses skills such as paying attention, inhibiting reflexive actions, and delaying gratification. We need self-regulation for navigating in the social world (e.g., when we inhibit revealing a secret, even though it is tempting to tell it), academic life (e.g., when we study for the test, even though we would prefer to watch our favorite TV show), and much more-indeed, in every aspect of life. While both environmental and genetic factors have direct, long-lasting influences on an individual's ability to self-regulate, these factors also interact with each other in critical ways. On one hand, environmental factors such as parental attachment can shape the epigenetics and the expression of the individual genotype; on the other hand, gene variations may increase vulnerability to certain environmental pathogens. This book presents self-regulation as a crucial link between genetic predisposition, early experience, and later adult functioning in society. Individual chapters examine what self-regulation is, how it functions, how genetic and environmental factors influence its development, how it affects social and academic competence in childhood and adulthood, what pathologies can emerge if it is under-developed, and how it might be fostered in children. Part of the Human Brain Development Series, edited by Michael Posner, this book will appeal to developmental psychologists, developmental neuroscientists, educational psychologists, and educational practitioners interested in the link between brain sciences and education.

Cognitive Development and Cognitive Neuroscience John Wiley & Sons

This volume presents a short review study of the potential relationships between cognitive neuroscience and educational science. Conducted by order of the Dutch Programme Council for Educational Research of the Netherlands Organization for Scienti c Research (NWO; cf. the American NSF), the review aims to identify: (1) how educational principles, mechanisms, and theories could be extended or re ned based on ndings from cognitive neuroscience, and (2) which neuroscience prin- ples, mechanisms, or theories may have implications for educational research and could lead to new interdisciplinary research ventures. The contents should be seen as the outcome of the ‘Explorations in Learning and the Brain’ project. In this project, we started with a ‘quick scan’ of the lite- ture that formed the input for an expert workshop that was held in Amsterdam on March 10–11,2008. This expert workshopidenti ed additional relevant themesand issues that helped us to update the ‘quick scan’ into this nal document. In this way the input from the participants of the expert workshop (listed in Appendix A) has greatly in uenced the present text. We are therefore grateful to the participants for their scholarly and enthusiastic contributions. The content of the current volume, however, is the full responsibility of the authors.

Cognitive Development and Cognitive Neuroscience National Academies Press

Over the past century, educational psychologists and researchers have posited many theories to explain how individuals learn, i.e. how they acquire, organize and deploy knowledge and skills. The 20th century can be considered the century of psychology on learning and related fields of interest (such as motivation, cognition, metacognition etc.) and it is fascinating to see the various mainstreams of learning, remembered and forgotten over the 20th century and note that basic assumptions of early theories survived several paradigm shifts of psychology and epistemology. Beyond folk psychology and its naïve theories of learning, psychological learning theories can be grouped into some basic categories, such as behaviorist learning theories, connectionist learning theories, cognitive learning theories, constructivist learning theories, and social learning theories. Learning theories are not limited to psychology and related fields of interest but rather we can find the topic of learning in various disciplines, such as philosophy and epistemology, education, information science, biology, and – as a result of the emergence of computer technologies – especially also in the field of computer sciences and artificial intelligence. As a consequence, machine learning struck a chord in the 1980s and became an important field of the learning sciences in general. As the learning sciences became more specialized and complex, the various fields of interest were widely spread and separated from each other; as a consequence, even presently, there is no comprehensive overview of the sciences of learning or the central theoretical concepts and vocabulary on which researchers rely. The Encyclopedia of the Sciences of Learning provides an up-to-date, broad and authoritative coverage of the specific terms mostly used in the sciences of learning and its related fields, including relevant areas of instruction, pedagogy, cognitive sciences, and especially machine learning and knowledge engineering. This modern compendium will be an indispensable source of information for scientists, educators, engineers, and technical staff active in all fields of learning. More specifically, the Encyclopedia provides fast access to the most relevant theoretical terms provides up-to-date, broad and authoritative coverage of the most important theories within the various fields of the learning sciences and adjacent sciences and communication technologies; supplies clear and precise explanations of the theoretical terms, cross-references to related entries and up-to-date references to important research and publications. The Encyclopedia also contains biographical entries of individuals who have substantially contributed to the sciences of learning; the entries are written by a distinguished panel of researchers in the various fields of the learning sciences.

Cognitive Development Oxford University Press

First released in the Spring of 1999, How People Learn has been expanded to show how the theories and insights from the original book can translate into actions and practice, now making a real connection between classroom activities and learning behavior. This edition includes far-reaching suggestions for research that could increase the impact that classroom teaching has on actual learning. Like the original edition, this book offers exciting new research about the mind and the brain that provides answers to a number of compelling questions. When do infants begin to learn? How do experts learn and how is this different from non-experts?

What can teachers and schools do-with curricula, classroom settings, and teaching methods--to help children learn most effectively? New evidence from many branches of science has significantly added to our understanding of what it means to know, from the neural processes that occur during learning to the influence of culture on what people see and absorb. How People Learn examines these findings and their implications for what we teach, how we teach it, and how we assess what our children learn. The book uses exemplary teaching to illustrate how approaches based on what we now know result in in-depth learning. This new knowledge calls into question concepts and practices firmly entrenched in our current education system. Topics include: How learning actually changes the physical structure of the brain. How existing knowledge affects what people notice and how they learn. What the thought processes of experts tell us about how to teach. The amazing learning potential of infants. The relationship of classroom learning and everyday settings of community and workplace. Learning needs and opportunities for teachers. A realistic look at the role of technology in education.

Handbook of Developmental Cognitive Neuroscience, second edition Springer Science & Business Media

This volume adopts a unique, multidisciplinary approach to the study of the development of the human brain and early behavior. It includes chapters by researchers from several disciplines whose work addresses specific aspects of brain-behavioral interactions in development. The chapters provide strong evidence that the development of both brain and behavior is a response to biological and environmental variations.Language is also discussed, and provides a useful example of biosocial development because linguistic and brain functions and development can be examined under controlled conditions of both genetic and environmental deprivation. Research in this area has produced particularly exciting results pointing to the universality of language capacity among humans and illuminating the processes by which language competence develops.Brain Maturation and Cognitive Development provides new views in the understanding of human nature and present new, biosocially oriented research directions that are unique in their focus.

An Advanced Textbook Amer Psychological Assn

This book conveys the insights gained from recent empirical research in the field of cognitive development and presents a cumulative account of different aspects of the developing brain and cognition.

The Role of Experience and the Developing Brain John Wiley & Sons

Why should psychologists and educators study the brain? Can neuroscientific research advance our understanding of student learning and motivation? What do informed readers need to know to tell the difference between plausible applications of brain research and unfounded speculation? This timely volume considers the benefits of incorporating findings from cognitive neuroscience into the fields of educational, developmental, and cognitive psychology. The book provides a basic foundation in the methodology of brain research; describes the factors that affect brain development; and reviews salient findings on attention, memory, emotion, and reading and mathematics. For each domain, the author considers the ways that the neuroscientific evidence overlaps with or diverges from existing psychological models. Readers gain skills for assessing the credibility of widely publicized claims regarding critical periods of learning, the effects of stress hormones on the brain, the role of music training in boosting academic performance, and more. Also elucidated are the possible neuroscientific bases of attention deficits, reading problems, and mathematical disabilities in children. The volume concludes by suggesting areas for future investigation that may help answer important questions about individual and developmental differences in learning.

From Neurons to Neighborhoods Springer

In recent years there has been a shift within developmental psychology away from examining the cognitive systems at different ages, to trying to understand exactly what are the mechanisms that generate change. What kind of learning mechanisms and representational changes drive cognitive development? How can the imaging techniques available help us to understand these mechanisms? This new volume in the highy cited and critically acclaimed Attention and Performance series is the first to provide a systematic investigation into the processes of change in mental development. It brings together world class scientists to address brain and cognitive development at several different levels, including phylogeny, genetics, neurophysiology, brain imaging, behavior, and computational modeling, across both typically and atypically developing populations. Presenting original new research from the frontiers of cognitive neuroscience, this book will have a substantial impact in this field, as well as on developmental psychology and developmental neuroscience.

Understanding the Psychological and Educational Relevance of Neuroscientific Research Academic Press

This new text consists of parts of Bornstein and Lamb's Developmental Science, 6th edition along with new introductory material that as a whole provides a cutting edge and comprehensive overview of cognitive development. Each of the world-renowned contributors masterfully introduces the history and systems, methodologies, and measurement and analytic techniques used to understand human cognitive development. The relevance of cognition is illustrated through engaging applications. Each chapter reflects the current state of the field in cognitive development and features an introduction, an overview of the field, a chapter summary, and numerous classical and contemporary references. As a whole, this highly anticipated text illuminates substantive phenomena in cognitive developmental science and its relevance to everyday life. Students and instructors will also appreciate the book's online resources. For each chapter, the website features: chapter outlines; a student reading guide; a glossary of key terms and concepts; and suggested readings with hotlinks to journal articles. Only instructors are granted access to the test bank with multiple-choice, short-answer, and essay questions; PowerPoints with all of the text's figures and tables; and suggestions for classroom discussion/assignments. The book opens with an introduction to cognitive development as well as an overview of developmental science in general—its history and theory, the cultural orientation to thinking about human development, and the manner in which empirical research is designed, conducted, and analyzed. Part 2 focuses on the field's major substantive areas: neuroscience and genetics, physical and motor development, perception, and cognitive and language development. Intended for advanced undergraduate and/or beginning graduate courses on cognitive development taught in departments of psychology, human development and family studies, and education, researchers in these areas will appreciate this book's cutting-edge coverage.

The Developing Brain Academic Press

How are the experiences of childhood incorporated into the structures of the developing brain, and how do these changes in the brain influence behaviour? This is one of the many questions motivating research in the relatively new field of developmental cognitive neuroscience. This book provides an extensive overview of the methods used to study such questions, and a thorough investigation into the emerging interface between neurobiological and psychological perspectives in the study of typical and atypical cognitive behaviour. The Cognitive Neuroscience of Development is a collection of essays written by international experts in the field. It covers not only traditional topics such as language, attention and memory development, but also includes individual chapters covering the theories of neurocognitive development and methods of studying brain activity in young infants and children. There are additional chapters on hormonal influences on brain and behavioural development, gender differences in the brain, and genetic disorders. This exceptional series of contributions surveys the study of both cognitive and neural development. The book takes into account brain architecture as well as the behavioural context of development, thus it succeeds in integrating the multiple methods and domains of research that have previously been studied in a more fragmented way. It will be invaluable to upper level students as well as researchers and teachers in Psychology, Neuroscience, Cognitive Science, Paediatrics and related fields.

The 'BrainCanDo' Handbook of Teaching and Learning Amer Psychological Assn

This textbook aims to provide a selective, but representative, review of work in cognitive development, grouped around themes that are familiar from textbooks of adult cognition. The book focuses on the question of what develops, rather than on why it develops. The findings of a given experimental study what develops are generally fixed, but the interpretation of what particular findings mean why is fluid. Some of the experiments discussed in this book have alternative explanations, and every student interested in children's cognition is invited to develop their own ideas about what different studies mean.