Maltreatment, Event-Related Potentials, and Memory
Dante Cicchetti and W. John Curtis

in Stress, Trauma, and Children's Memory Development: Neurobiological, cognitive, clinical and legal perspectives
Published in print: 2008 Published Online: May 2008
Item type: chapter

Research utilizing event-related potentials (ERPs) has greatly advanced knowledge concerning the neural underpinnings of a variety of cognitive processes in both children and adults. This methodology has also allowed for an examination of changes in the neural processes associated with cognitive development from early infancy through to young adulthood. This chapter begins with a brief technical and historical overview of ERP methodology, and this is followed by a survey of the major findings of ERP studies examining normative memory functioning in infants and children. The review of ERP and memory in normal populations sets the stage for a more comprehensive understanding of the patterns of findings in ERP research with children who have experienced maltreatment. Finally, the chapter suggests future research directions on ERPs and memory in samples of maltreated and nonmaltreated infants and children, and discusses how such investigations could inform the design and implementation of randomized prevention and intervention trials with children who have experienced maltreatment.

Introduction
John E. Richards

in Neoconstructivism: The New Science of Cognitive Development
Published in print: 2009 Published Online: February 2010
Item type: chapter

This introductory chapter begins with a brief background of the term neoconstructivism, which was generated by combining neo, taken from...
the Greek neos, meaning “new,” and constructivism, taken from (among other sources) the pioneering theorist and researcher Jean Piaget. It then discusses the origins of this book, the idea of which was motivated in part by research on cognitive development.

Introduction

Tom Simpson, Peter Carruthers, Stephen Laurence, and Stephen Stich

in The Innate Mind: Structure and Contents

Published in print: 2005 Published Online: January 2007
Item type: chapter

This introductory chapter reviews some of the debates in philosophy, psychology, anthropology, evolutionary theory, and other cognitive sciences that provide a background for the topics with which this volume is concerned. Topics covered include the history of nativism, the poverty of the stimulus argument, the uniform and structure pattern followed by human cognitive development, evolution biology, and cognitive modularity. An overview of the subsequent chapters is presented.

Are Dynamic Systems and Connectionist Approaches an Alternative to Good Old-Fashioned Cognitive Development?

Lisa M. Oakes, Nora S. Newcombe, and Jodie M. Plumert

in Toward a Unified Theory of Development Connectionism and Dynamic System Theory Re-Consider

Published in print: 2009 Published Online: September 2009
Item type: chapter

This chapter addresses the question of whether dynamic systems and connectionist approaches are an alternative to good old-fashioned cognitive development (GOFCD). The chapter is organized as follows. The first section discusses what connectionism and dynamic systems bring to the study of cognitive development. The second section examines how connectionist and dynamic systems theories relate to other GOFCD theories of developmental change. The third section evaluates the contribution of connectionism and dynamic systems in more depth by examining explanations of two historically important issues in cognitive development: infants' behavior in the A-not-B task and children's solutions to the balance scale problem. Finally, the chapter considers
how well connectionist and dynamic systems approaches address criticisms often leveled at other theories of cognitive development.

Parent-Offspring Conflict and the Development of Social Understanding *
Daniel J. Povinelli, Christopher G. Prince, and Todd M. Preuss

This chapter begins with a brief review of the theory of parent-offspring conflict and considers the role of this conflict in the cognitive development of human infants. It then discusses the evolution of theory of mind — which is taken to have its origins in human evolution — and considers how this human cognitive specialization might have interacted with existing parent-offspring dynamics. How the epigenetic systems of infants might have responded is shown by elaborating upon existing cognitive and behavioural systems, or by canalizing later developing ones earlier into development, in order to recruit higher degrees of parental investment. The merits of this framework is assessed in the context of the development of behaviours considered by some researchers to be indicative of a certain degree of social understanding, namely, gaze-following, pointing, social smiling, and neonatal imitation. The chapter concludes by showing how this proposal makes several longstanding theoretical and methodological difficulties for the field of cognitive development even more vexing.

The Innate Mind, Volume 3
Stephen Stich

This book is the third of a three-volume set on the innate mind. It provides an assessment of nativist thought and definitive reference point for future inquiry. Nativists have long been interested in a variety of foundational topics relating to the study of cognitive development and the historical opposition between nativism and empiricism. Among the issues here are questions about what it is for something to be innate in
the first place; how innateness is related to such things as heritability, genetic information, and theories of cognitive development; the status of arguments both for and against nativism; and how best to understand the role of genes in development and inheritance. These issues are all explored in one way or another in this book. But the book also looks to the future. Alongside state-of-the-art discussions of such established nativist concerns as language, number, spatial cognition, and social cognition, this book examines nativist work in a variety of areas where detailed nativist exploration is relatively new, including cultural learning, creativity, economic choice, culture, and morality. The expansion of nativist theorizing into all these new areas shows both the power and the promise of nativist approaches, and points the way to the future.

Wonder and the Moral Emotions
Robert C. Fuller

in Spirituality in the Flesh: Bodily Sources of Religious Experiences

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Item type: chapter

The emotion of wonder is among our genetically encoded programs for responding to unexpected features of the environment. Wonder is distinct from other emotions in its ability to foster receptivity, openness, metaphysical thinking, and moral sensitivity. Biological and psychological studies of wonder help us understand the moods and motivations that distinguish aesthetic spirituality or nature religion.

Transitions in Cognitive Development: Prospects and Limitations of a Neural Dynamic Approach
Han L. J. van der Maas and Maartje E. J. Raijmakers

in Toward a Unified Theory of Development Connectionism and Dynamic System Theory Re-Consider

Published in print: 2009 Published Online: September 2009
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Item type: chapter

This chapter discusses old-fashioned cognitive development from the point of view of two modern approaches, connectionism and nonlinear dynamical systems theory. The main assertion in both connectionist and dynamic systems approaches is that higher cognitive functioning is largely based on nonsymbolic, graded, and dynamic properties, of
which these same approaches provide the best account. The chapter argues that the claim concerning nonsymbolic higher order cognition is overstated and explains its position by focusing on sudden transitions in cognitive development.

Executive Functions after Frontal Lobe Injury: A Developmental Perspective
Vicki Anderson, Harvey S. Levin, and Rani Jacobs
in Principles of Frontal Lobe Function
Published in print: 2002 Published Online: May 2009
Item type: chapter

This chapter contrasts normal cerebral and cognitive development with that of children who have sustained frontal pathology. It focuses specifically on the domain of executive function, with the assumption that frontal regions are essential to the development and implementation of efficient executive skills. It discusses two studies from that illustrate the impact of frontal lobe pathology during childhood and the problems of assessing these skills accurately with current methodologies. The first study describes an ongoing program of research that examines the range of executive deficits exhibited by children who have sustained traumatic brain injury involving the frontal regions. The second study investigates the impact of focal frontal lesions during childhood, with an emphasis on approaches to the measurement of executive function.

Introduction and Preview
K. Warner Schaie
in Developmental Influences on Adult Intelligence: The Seattle longitudinal study
Published in print: 2005 Published Online: September 2007
Item type: chapter

This chapter presents an overview of the phenomena of adult cognitive development. It lays out the reasons why intelligence in adulthood should be studied by giving a brief history of the study of adult intelligence. It points out that intellectual competence attains increasing importance from middle adulthood onwards, when level of intellectual competence may determine job retention. It discusses whether independent living within the community remains possible in later life, and considers
maintenance of control over financial decision making. A conceptual model is then given to tackle the developmental influences that have an impact on the life course of cognition. The model provides the rationale for the various influences related to cognitive development. An account is then given of the history and objectives of the Seattle Longitudinal Study.

Summary and Conclusions
K. Warner Schaie

in Developmental Influences on Adult Intelligence: The Seattle longitudinal study

Published in print: 2005 Published Online: September 2007
Item type: chapter

This chapter presents conclusions from the Seattle Longitudinal Study. The lessons learned are reviewed in the context of the five questions considered in this book regarding the life course of intellectual competence, and the conclusions reached from interventions in the normal course of adult cognitive development are discussed. The findings from studies designed to learn more about adult cognition in a developmental behavior, genetic, and/or family context are described, along with findings from extensions into identifying the genetic and environmental influences that shape adult intellectual development. The chapter ends by providing information on how to access certain limited data sets from the SLS that are being made available for use by qualified researchers and college teachers for secondary analyses or instructional purposes.

The longitudinal study of spatial cognitive development in children with pre- or perinatal focal brain injury
Joan Stiles, Pamela Moses, and Brianna M. Paul

in Reprogramming the Cerebral Cortex: Plasticity following central and peripheral lesions

Published in print: 2006 Published Online: September 2009
Item type: chapter

This chapter discusses the perceptual effects of pre- or perinatal lesions. It shows that when subjects were asked to perform a task the outcome may appear normal, however, procedural affects may be present.
Imaging techniques are used to study anatomical and functional changes related to recovered behavior.

**Darwin and development: Why ontogeny does not recapitulate phylogeny for human concepts**

Frank C. Keil and George E. Newman

in *The Making of Human Concepts*

Published in print: 2010 Published Online: May 2010
Item type: chapter

This chapter argues that human cognitive development tells us a great deal about what makes human thinking qualitatively unique, but it does so in the same way that current evolutionary biologists explain how organisms are particularly well adapted to niches; that is, the way in which human concepts are specialized, rather than the product of a linear increase in complexity. The chapter outlines a few key developmental transitions that are commonly assumed in human cognitive development and then demonstrates how these ontogenetic distinctions fail to contribute to our understanding of cross-species differences.

**Epistemic Flow and the Social Making of Minds**

Charlie Lewis, Jeremy I. M. Carpendale, John Towse, and Katerina Maridaki-Kassotaki

in *Self- and Social-Regulation: Exploring the Relations Between Social Interaction, Social Understanding, and the Development of Executive Functions*

Published in print: 2010 Published Online: May 2010
Item type: chapter

Correlations between an understanding of self and other in psychological terms, often referred to as “theory of mind,” and the control of action, often labeled “executive functions,” have been reported and debated. We suggest that claims about such relations rest on a prior assumption that these are two separate, coherent domains and children have stable, measurable abilities in these areas. Examining relevant research, however, indicates variability in a number of ways, suggesting that both social understanding and executive skills are substantiated and develop within the flow of interaction with people and objects. According to our alternative approach to social cognitive development, social
understanding develops within social interaction as children learn to talk about situations of shared understanding. We suggest that executive function and social understanding may be interdependent and emerge through the same processes within social interaction.

A Bidirectional View of Executive Function and Social Interaction
Suzanne Hala, Penny Pexman, Emma Climie, Kristin Rostad, and Melanie Glenwright

in Self- and Social-Regulation: Exploring the Relations Between Social Interaction, Social Understanding, and the Development of Executive Functions

Published in print: 2010 Published Online: May 2010
Item type: chapter

In this chapter, we explore the idea that the relation between social interaction and executive functions might be best characterized as bidirectional. That is, that while developing executive function abilities almost definitely have considerable impact on emerging social understanding in young children, social interactions may also provide significant impetus for executive development. Working from a broadly Piagetian framework we include two avenues of exploration to illustrate. The first is that social collaboration on a problem might facilitate executive processes. Here we use the example of a collaboration on a strategic deception task. The second is that exposure to the ambiguous nature of social interactions may force the child to exercise more executive control, resulting in advances in various aspects of executive function. For examples, we draw from two research literatures—children's understanding of sarcasm and children's ability to grapple with acquiring more than one language.

Self- and Social-Regulation
Bryan Sokol, Ulrich Muller, Jeremy Carpendale, Arlene Young, and Grace Iarocci (eds)

Published in print: 2010 Published Online: May 2010
Item type: book

New research on children's executive functioning and self-regulation has begun to reveal important connections to their developing social understanding (or “theories of mind”) and emotional competence. The exact nature of the relations between these aspects of children's
social and emotional development is, however, far from being fully understood. Considerable disagreement has emerged, for instance, over the question of whether executive functioning facilitates social-emotional understanding, or vice versa. Recent studies linking the development of children’s social understanding with aspects of their interpersonal relationships also raise concerns about the particular role that social interaction plays in the development of executive function. Three key questions currently drive this debate: Does social interaction play a role in the development of executive function or, more generally, self-regulation? If it does play a role, what forms of social interaction facilitate the development of executive function? Do different patterns of interpersonal experience differentially affect the development of self-regulation and social understanding? In this book, the contributors address these questions and explore other emerging theoretical and empirical links between self-regulation, social interaction, and children's psycho-social competence. It will be a valuable resource for student and professional researchers interested in executive function, emotion, and social development.

Developmental Influences on Adult Intelligence
K. Warner Schaie

Published in print: 2005 Published Online: September 2007 Publisher: Oxford University Press

This book lays out the reasons why we should study cognitive development in adulthood, and presents the history, latest data, and results from the Seattle Longitudinal Study (SLS), which now extends to over forty-five years. The SLS is organized around five questions: does intelligence change uniformly throughout adulthood, or are there different life-course-ability patterns? At what age and at what magnitude can decrement in ability be reliably detected? What are the patterns and magnitude of generational differences? What accounts for individual differences in age-related change in adulthood? Can the intellectual decline that increases with age be reversed by educational intervention? Based on work on the SLS, this book presents a conceptual model. The model represents this book's author's view on the factors that influence cognitive development throughout the human lifespan, and provides a rationale for the various influences that have been investigated — genetic factors, early and current family environment, life styles, the experience of chronic disease, and various personality attributes. The data in this volume include the 1998 longitudinal cycle of the SLS. In light of both new data and revised analyses, psychometric and neuropsychological assessments have been linked in long-term data to
Imagination and Testimony in Cognitive Development: The Cautious Disciple?

PAUL L. HARRIS and MELISSA KOENIG

in Imaginative Minds

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Item type: chapter

Imagination is often associated with the capacity to contemplate nonexistent possibilities; however imaginative faculty is also used when thinking about several non-observable but real events that are learned through testimony rather than direct observation. This chapter discusses the relationship between imagination and testimony in the cognitive development of children. Testimony is the manner with which adults impart information to the younger members of the society. Through testimony, children gain insight into events that they are not able to observe firsthand. And just as children process a fictional narrative through imagination, they also rely on imagination to make sense of real events that they have not witnessed for themselves. To test the interweaving relationship of testimony and imagination, an experimental study testing the credulity of children on matters they cannot verify themselves was conducted. Evidence has shown that even preschool children do not readily believe what they are told and often measure this information with concepts and constructs they have devised for themselves. They are also cautious in their trust, wherein they often seek out and endorse information from reliable informants. They are also capable of showing differentiation among different types of non-observable entities. They exhibit more credence in invisible scientific entities and less credence in non-scientific entities.

The multisensory approach to development

Andrew J. Bremner, David J. Lewkowicz, and Charles Spence

in Multisensory Development

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Page 10 of 11
Philosophers and psychologists alike have debated for centuries how humans and other species deal with the multiple sources of sensory information that specify the world around them. Recent years have seen a dramatic increase in our understanding of multisensory processes in mature adults, which have led to the conclusion that multisensory processes are ubiquitous in mature psychological functioning. However, developmental research has also shown that multisensory integration takes time to develop and that early experience plays a key role in its development. This chapter describes how the development of multisensory functioning can both constrain and enrich perceptual and cognitive functioning through the lifespan. This chapter also reflects on the history of the field, and draws out some key themes of recent research in multisensory development.

Cognitive development in chimpanzees: A trade-off between memory and abstraction?
Tetsuro Matsuzawa
in The Making of Human Concepts

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Item type: chapter

This chapter suggests that the strong, near-photographic memory of chimps for number may be one manifestation of a more general characteristic of a representational system that provides extraordinarily detailed records of visual scenes. Such a system may be viewed as adaptive in a cognitive niche in which rapid, categorical decisions need to be made about objects encountered (e.g. ripe vs. unripe food, friend vs. foe). By contrast, the human cognitive niche emphasizes linguistic descriptions of events that capture an abstract gist which can be communicated to others. In this sense, chimps may be likened to humans with autism who display weak central coherence (i.e. an eye for detail, but without the corresponding big-picture idea).