Pediatric Round Table

Social and Moral Development: Emerging Evidence on the Toddler Years

Edited by: Lewis A. Leavitt, MD
Professor Sir David Hall
The Johnson & Johnson Pediatric Institute, L.L.C., gratefully acknowledges Rachel I. Brody, MD, PhD, President of Molecular Perspectives, Inc., for her dedicated efforts as medical editor of this publication. Her valued input as well as her persistency and devotion are greatly appreciated by both the Johnson & Johnson Pediatric Institute, L.L.C., and the editors who worked with her on this project.
Publications in the
Johnson & Johnson
Pediatric Round Table Series

This series includes monographs for professionals and parent education materials.

1. *New Perspectives in Early Emotional Development*
   Edited by Steven P. Shelov, MD

2. *The Role of Early Experience in Infant Development*
   Edited by Nathan A. Fox, PhD and Lewis A. Leavitt, MD

   Edited by Ronald G. Barr, MDCM; Ian St. James-Roberts, PhD and Maureen R. Keefe, RN, PhD

4. *Emotional Regulation and Developmental Health: Infancy and Early Childhood*
   Edited by Barry S. Zuckerman, MD; Alicia F. Lieberman, PhD and Nathan A. Fox, PhD

5. *Social and Moral Development: Emerging Evidence on the Toddler Years*
   Edited by Lewis A. Leavitt, MD and Professor Sir David M. B. Hall

For more information,
call 1-877-JNJ-LINK (565-5465)
or fax 1-877-JNJ-FAXX (565-3299).

Outside the USA,
call 1-631-208-9238
or fax 1-631-208-9253.

Or visit us at [www.JJPI.com](http://www.JJPI.com)
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>vi</td>
</tr>
<tr>
<td>Preface</td>
<td>ix</td>
</tr>
<tr>
<td><strong>Introduction</strong></td>
<td>1</td>
</tr>
<tr>
<td>The Emerging Moral Sense: Are We Painting on a Blank Canvas?</td>
<td>3</td>
</tr>
<tr>
<td>Professor Sir David M. B. Hall and Lewis A. Leavitt, MD</td>
<td></td>
</tr>
<tr>
<td><strong>Section 1. Sociality in Nonhuman Primates</strong></td>
<td>9</td>
</tr>
<tr>
<td>Abstract</td>
<td>11</td>
</tr>
<tr>
<td>Principles of Primate Sociality: From Conflict Resolution</td>
<td>13</td>
</tr>
<tr>
<td>to Sympathy and Quid Pro Quo</td>
<td></td>
</tr>
<tr>
<td>Frans B. M. de Waal, PhD</td>
<td></td>
</tr>
<tr>
<td><strong>Section 2. Early Social Development</strong></td>
<td>35</td>
</tr>
<tr>
<td>Abstracts</td>
<td>37</td>
</tr>
<tr>
<td>The Origins of the Self and Its Role in Development</td>
<td>39</td>
</tr>
<tr>
<td>Michael Lewis, PhD</td>
<td></td>
</tr>
<tr>
<td>Causal Effects of Early Childhood Experiences:</td>
<td>53</td>
</tr>
<tr>
<td>Concepts, Issues and Findings</td>
<td></td>
</tr>
<tr>
<td>Professor Michael L. Rutter</td>
<td></td>
</tr>
<tr>
<td>The Early Development of Prosocial Tendencies</td>
<td>69</td>
</tr>
<tr>
<td>Nancy Eisenberg, PhD</td>
<td></td>
</tr>
<tr>
<td>The Development of Ethnic-Racial Awareness in Childhood:</td>
<td>93</td>
</tr>
<tr>
<td>Implications for School Practices</td>
<td></td>
</tr>
<tr>
<td>Professor Ileana Enesco and Alejandra Navarro, PhD</td>
<td></td>
</tr>
<tr>
<td><strong>Section 2A. Learning From Early Social Development in Autism</strong></td>
<td>121</td>
</tr>
<tr>
<td>Abstracts</td>
<td>123</td>
</tr>
<tr>
<td>Sex Differences in Social Development:</td>
<td></td>
</tr>
<tr>
<td>Lessons From Autism</td>
<td>125</td>
</tr>
<tr>
<td>Professor Simon Baron-Cohen</td>
<td></td>
</tr>
<tr>
<td>From Neonatal Imitation to Social Cognition:</td>
<td>143</td>
</tr>
<tr>
<td>Social and Cognitive Pathways to Developmental Continuity</td>
<td></td>
</tr>
<tr>
<td>Michael Siller, MA and Marian Sigman, PhD</td>
<td></td>
</tr>
</tbody>
</table>
# Table of Contents (continued)

## Section 3. Peers and Play

Abstracts ......................................................... 167

Early Friendships and Children’s Social and Moral Development ........ 169
   *Professor Judith Dunn*

Pretending to Be Someone Else ........................................ 185
   *Paul L. Harris, DPhil*

## Section 4. Problems in Social Interaction

Abstracts ......................................................... 203

Behavioral Inhibition and Attachment as Predictors of Peer Social Competence and Social Anxiety at Early School Age ........ 205
   *Professor Gunilla Bohlin; Professor Berith Hagekull; Ann-Margret Rydell, PhD; Lisa Berlin, PhD and Kerstin Andersson, PhD*

The Development of Human Physical Aggression: How Important is Early Childhood? .... 221
   *Richard E. Tremblay, PhD, FRSC*

## Section 5. Interventions to Optimize Social Development for Young Children

Abstracts ......................................................... 241

“Sesame Street”: “R” is for Race Relations, “B” is for Breaking Stereotypes and “D” is for Diversity (It’s Never Been Only About Letters and Numbers) .................. 243
   *Lewis J. Bernstein, PhD; Gail David, MPH; Rosemarie T. Truglio and Charlotte F. Cole*

Will Interventions to Prevent Excessive Aggression Ever Prove Cost-Effective? ........ 255
   *Dr. Stephen Scott*

Interventions That Work ............................................. 269
   *Professor Kathy Sylva*

## Summary .......................................................... 281

Moral Development: Looking to the Future .......................... 283
   *Professor Sir David M. B. Hall*
Participants

Professor Simon Baron-Cohen
Autism Research Centre
University of Cambridge
Downing Street
Cambridge, CB2 3EB, England

Lewis J. Bernstein, PhD
Vice President
Sesame Workshop
1 Lincoln Plaza
New York, New York 10023 USA

Professor Gunilla Bohlin
Department of Psychology
Uppsala University
St Olofsgatan 10 A, Box 1225
Uppsala, SE-751 42, Sweden

Frans B. M. de Waal, PhD
C. H. Candler Professor
Living Links, Yerkes Primate Center
Emory University
954 North Gatewood Road
Atlanta, Georgia 30329 USA

Professor Judith Dunn
Institute of Psychiatry
King’s College
De Crespigny Park, Denmark Hill
London, SE5 8AF, England

Nancy Eisenberg, PhD
Regents’ Professor of Psychology
Department of Psychology
Arizona State University
Box 871104
Tempe, Arizona 85287 USA

Professor Ileana Enesco
Department of Developmental Psychology
Complutense University of Madrid
Campus Somosaguas
Madrid, 28223, Spain

Nathan A. Fox, PhD
Professor
Department of Human Development
Institute for Child Study
University of Maryland
Room 4304, Benjamin Building
College Park, Maryland 20742 USA

Professor Sir David M. B. Hall
Professor of Paediatrics
University of Sheffield
Honorary Consultant Paediatrician
Institute of General Practice
Community Sciences Building
Northern General Hospital
Sheffield, S5 7AU, England

Paul L. Harris, DPhil
Chair
Graduate School of Education
Harvard University
506 Larsen Hall, Appian Way
Cambridge, Massachusetts 02138 USA

Professor Peter Hill
Department of Psychological Medicine
Great Ormond Street Hospital for Children
London, WC1N 3JH, England
Participants (continued)

Lewis A. Leavitt, MD
Professor of Pediatrics
University of Wisconsin
Director of Developmental Pediatrics
Waisman Center on Human Development
1500 Highland Avenue
Madison, Wisconsin 53705 USA

Michael Lewis, PhD
Professor
Institute for the Study of Child Development
Robert Wood Johnson Medical School
97 Paterson Street
New Brunswick, New Jersey 08831 USA

Professor Peter Marsh
Department of Sociological Studies
University of Sheffield
Western Bank
Sheffield, S10 2TU, England

Professor Michael L. Rutter
Department of Developmental Psychopathology
Institute of Psychiatry
King's College
SGDP Research Centre
De Crespigny Park, Denmark Hill
London, SE5 8AF, England

Marian Sigman, PhD
Professor
Department of Psychiatry and Biobehavioral Sciences
University of California, Los Angeles
1285 Franz Hall, Box 951563
Los Angeles, California 90095 USA

Dr. Quentin Spender
Senior Lecturer in Child and Adolescent Psychiatry
Department of Child Psychiatry
St George's Hospital Medical School
Cranmer Terrace
London, SW17 ORE, England

Professor Kathy Sylva
Department of Educational Studies
University of Oxford
15 Norham Gardens
Oxford, OX2 6PY, England

Richard E. Tremblay, PhD, FRSC
Professor of Paediatrics, Psychiatry and Psychology
Centre of Excellence for Early Childhood Development
University of Montréal
3050 Edouard-Montpetit
Montréal, H3T 1J7, Canada

Dr. Stephen Scott
Reader in Child Health and Behaviour
Children's Department
Institute of Psychiatry
King's College
De Crespigny Park, Denmark Hill
London, SE5 8AF, England
The Johnson & Johnson Pediatric Institute, L.L.C., is dedicated to advancing maternal and children’s health worldwide.

In partnership with leading healthcare professionals, the Pediatric Institute creates educational initiatives that help shape the future of children’s health.

Focused areas:
• Caring for mothers and newborns
• Optimizing child health development
• Protecting children at risk

Johnson & Johnson Pediatric Institute
Shaping the future of children’s health
Preface

The Johnson & Johnson Pediatric Institute, LLC, is delighted to present the latest edition of its Pediatric Round Table series. These conferences are designed to address recent research findings on important topics in early childhood development and to foster the free exchange of ideas among an international faculty focused in numerous distinct but related disciplines.

This Pediatric Round Table explored some of those aspects of early child development that contribute to social and moral behavior. The ultimate goals of enhanced prosocial behavior include improvements in educational and living standards and a reduction in crime. Social and Moral Development: Emerging Evidence on the Toddler Years brought together a distinguished international faculty to share their ideas, experiences and observations. Experts from a variety of fields attended, including faculty from primatology, developmental psychology, psychiatry, education, sociology and pediatrics. Contributions from theoretical experimental perspectives were considered along with analyses of large-scale interventions; synthesis of these findings lead to recommendations for public policy as well as future areas of investigation.

The following important messages emerged from this Round Table. Successful parenting requires active and engaging conversation with young children. Promoting the development of imagination and encouraging friendships contribute to positive developmental outcomes. Even young children need to begin to appreciate diversity and value individuals who are different from themselves. Conflict resolution and problem-solving are key skills for young children to learn. Parent-training programs may educate parents about how to model tolerance and prosocial behaviors and help impart these skills.

Behavior patterns learned as very young children represent the foundations of how people react as adults, including how they interact with small children. Increasing our understanding of childhood social and moral development will ultimately suggest ways to promote effective parenting. Considerable additional research is necessary and is currently underway.

Johnson & Johnson Pediatric Institute, L.L.C.
Social and Moral Development

Introduction
Introduction

The Emerging Moral Sense: Are We Painting on a Blank Canvas?

Professor Sir David M. B. Hall and Lewis A. Leavitt, MD

How and why do children acquire a sense of right and wrong? The study of how children learn to walk and talk is no easy matter, but the challenges inherent in trying to understand the emergence of a moral sense are far more difficult. Definitions are elusive, measurement methods are virtually non-existent and (in contrast with research on language or motor skills) researchers are encumbered with their own moral baggage that threatens objectivity.

Our modern experimental approach to child development is less than a century old, yet we readily assume that our current methodology will lead us to a definitive understanding of the subject. In considering the mass of fascinating but sometimes conflicting evidence discussed in this Round Table, we should remember that each generation probably believed they understood childhood. In his account of the lives of Medieval Children,1 Nicholas Orme noted that for at least the last 1000 years, adults have regarded childhood as a distinct phase of life, parents treated children like children as well as like adults, with care and sympathy, and children had cultural activities and possessions of their own. Children’s duties, religious lives and ways of learning have attracted scholarly interest through the ages.

Of course, our ideas and attitudes have changed dramatically. In our great great grandfathers’ generation, little boys were sent up chimneys, the flogging of little children was considered not merely acceptable but a parental duty and child labor was the norm. In many parts of the world today, child soldiers and child prostitutes are still commonplace. In the “privileged” Western world, violence, family breakup, mental illness and a lifestyle of idleness, vulgarity and heavy drinking are daily themes. Evidently, we have not yet achieved enlightenment but, given the widely held belief that the child is indeed father to the man, it is not surprising that there should be an unprecedented investment in the study of early childhood in search of clues to the origins of socially undesirable behavior. In a largely postreligious society in
which only a minority look beyond human horizons for their moral guidance exists, there is a widespread hope that social, educational and behavioral inter-
ventions will fill the vacuum left by religion.

This is not merely a matter of scientific interest, but an issue that attracts politicians who seek that Holy Grail — a cost-effective way of raising educa-
tional and living standards, reducing crime and cutting demands on mental health services. During the administration of Lyndon Johnson, the United States embarked on the “Head Start” program, which aimed to improve the life chances of children living in poverty. The current Labour government in the United Kingdom, building on the findings of that program, has invested heavily in an early intervention program called “SureStart.” An important component of SureStart is support for parents who find their children hard to manage. The hope is that early intervention will make the children better able to profit from their education when they start formal schooling.

Is that hope justified? We probably know more about the acquisition of language than of any other single developmental function, but the emergence of social behavior and the origins of conflict and aggression are every bit as important in determining medium- and long-term outcomes for children. The study and interpretation of how children behave and the planning of experimental manipulations are fraught with difficulty, so it is easy to understand why most people are fascinated by animal behavior experiments. In a previous Round Table, Stephen Suomi described how genetic traits in rhesus monkeys parallel those seen in humans, drawing some compelling parallels with attention deficit-hyperactivity disorder and with impulsivity. In this volume, Frans de Waal presents his findings on the behavior of chimpanzees. Traditional accounts of animal behavior emphasize conflict and competition, but de Waal has been asking how conflicts are resolved. The process of re-
solving disagreements, quarrels and fights between young chimps provides some important lessons for understanding child development. More recently, de Waal and Brosnan have reported on how chimpanzees may even have a sense of what is fair and what is unfair.

The almost universal fascination with such observations presumably reflects our empathy with our near neighbors in the animal kingdom, but the scientific benefit of this work lies in the way it enables us to detach ourselves from our individual cultural and social baggage. For instance, staff working with young children have a natural instinct to nip conflict in the bud, but the
observations with chimpanzees challenge us to ask whether these impulses should be resisted. Would children learn social competence more quickly if conflicts were managed differently? This question should be answerable by an appropriate experimental design.

Conflict and physical aggression are undoubtedly common and indeed normal in very young children. As they get older children learn to inhibit their aggressive instincts, although they may gradually substitute verbal aggression for physical assault. In this volume, Richard Tremblay has elegantly shown how this progression occurs during childhood and on into adolescence. His findings contrast with the widely held belief that children, and boys in particular, develop aggressive tendencies during later childhood and early adolescence. The reality is that most of the children and young people who develop serious problems with their aggressive behavior have never learned to inhibit the aggressive impulses that were present in the first few years of life. These behavior patterns can be seen, on the one hand, as an excess of undesirable behavior, but they also represent a deficit of linguistic and communicative competence and social skills. There are important practical messages in Tremblay’s work. Aggressive behavior that fails to resolve or becomes more troublesome in a 3- or 4-year old is no laughing matter. Optimistic promises to parents that “he will grow out of it” may turn out to be misguided.

Why do children exhibit these marked temperamental differences? Trying to tease out the reasons is inevitably complex and it may be difficult or impossible to decide on the direction of causality — “x” correlates with “y,” but that does not necessarily mean that “x” causes “y” or that “y” causes “x.” But as Michael Rutter explains in his authoritative overview of the subject, genetic influence must play a part in levels of activity and impulsivity, in social competence and in language acquisition. Emerging evidence suggests that for some important behavioral and emotional traits, such as depression or a tendency to violent behavior, genetic influences may predispose to, but are not solely responsible for, the observed behaviors. The environment in which the child is reared plays a major role as well.

One feature common to all work on child development is the marked difference in behavior and temperament between boys and girls. While cultural attitudes doubtless play a part, it seems now beyond dispute that at least some of these differences are “hardwired.” Simon Baron-Cohen’s work has centered on the causes of autism, but in the process he has gained some new insights
into these gender differences. He speculates that the child with autism may have an extreme version of the male psychological profile. Whether or not this turns out to be the key to autism, his observations do support the notion that male and female brains do indeed work in somewhat different ways. Mars and Venus really are different biologically as well as behaviorally! Time did not permit further exploration of Baron-Cohen's ideas, but one was left wondering about the relevance of the somewhat controversial findings reported by Skuse and colleagues on the psychological profile of girls with Turner’s syndrome, according to whether they received their solitary X chromosome from their father or their mother, as well as the extraordinary artistic ability demonstrated by the autistic girl Nadia.

The inner lives of young children have become a fertile field of study. Parents have always attributed a whole range of emotions to their infants, though perhaps many may suspect that they are overinterpreting what they see. But it seems that children do indeed develop very sophisticated attachments and insights long before they can put these into words or articulate them to others. Thus, Michael Siller and Marian Sigman have mapped out the route from the imitative behaviors of the newborn infant to the social cognitive skills that appear later in infancy, Nancy Eisenberg has studied the ways in which empathizing behaviors develop and Paul Harris has described how children learn to pretend. These behaviors clearly have much in common. They suggest a gradual emergence of that vital ability to put oneself in another’s shoes, without which social interaction must always be superficial and stilted. In the light of this work we should not be surprised by Judy Dunn’s important observations about children’s friends. Like many findings in developmental psychology, these confirm what many of us have learned as parents from our own experiences. There seems no doubt that even children in the toddler age group can form friendships that matter to them. Parents need to recognize and respect these relationships in the same way as they would for older children.

What about interventions? The academic study of childhood needs no justification: It addresses fundamentally important questions and in addition it is endlessly fascinating. But if it can also open up ways of intervention that address the real problems of our times, so much the better. Furthermore, experimental interventions that can be justified on the grounds that they address genuine parental or societal concerns may cast further light on difficult issues.
Ileana Enesco and Alejandra Navarro examined the ways in which racial awareness and racial stereotypes develop and ask: “Is it possible to combat prejudice?” The television program “Sesame Street” is an intervention on a grand scale, an experiment in social change. Lewis Bernstein and colleagues present a fascinating and moving account of how they have used the program to address the stereotyped views of young children growing up in an environment where conflict is the norm; for instance, in the Israeli-Palestinian situation. Broadcasting must surely have much to contribute in these intractable political struggles, and there is an urgent need to harness experimental methodology to the power of television in a search for better ways of seizing the opportunities that mass media could offer.

At a more individual level, Stephen Scott and Kathy Sylva have carried out experimental interventions with families who are concerned about their children’s behavior. Much of the work draws on the research conducted in the United States by Caroline Webster-Stratton. Their results give cause for optimism. Parents who are prepared to work toward the principles set out in these programs can hope to see real improvements. Inevitably, however, there are caveats: the cost of high-quality behavioral interventions; the danger of decreasing effectiveness if quality is compromised; the shortage of suitable individuals to deliver these programs; and the difficulty in reaching the most needy and often the most disturbed families.

We hope and believe that readers will find much to interest them in this Round Table. Of course, there are many gaps. One that strikes us now in retrospect is the lack of work drawing on parental insights into what their children do and why, and how they in turn respond. Perhaps this kind of self-reflective qualitative methodology is out of fashion as a research instrument. If so, we are the poorer for it. Elizabeth Newson used this approach in her seminal longitudinal study of 700 families in Nottingham. In one thought-provoking paper, she illustrated from the reflective comments of a mother how parents adapt their behavior towards their children, not merely on the basis of an immediate situation, but also in the light of their long-term ambitions and goals for the children: “Parents know that in the end real failure (on whatever criterion) will rebound on themselves, both in terms of blame and in terms of having to cope with consequences.”
Newson’s analysis fits well with other work that emphasizes the origins of resilience. It has been said that every child needs to have someone who is crazy about him. That person should, in the natural order of things, be the parent(s), but it can be someone else — a neighbor, a friend, a teacher. “If a parent believes her fate is controlled by external forces, that she does not control the means necessary to achieve her goals, what does this mean for her children?”6 We need more insight into what drives parents — their memories (good or bad) of their own childhood, and their expectations, hopes, religious and cultural beliefs and personal ambitions. Those who offer behavioral advice and guidance to parents of young children need to remember that they are not painting on a blank canvas.

References

Section 1:
Sociality in Nonhuman Primates
Abstract from Section 1: Sociality in Nonhuman Primates

Principles of Primate Sociality: From Conflict Resolution to Sympathy and Quid Pro Quo

Frans B. M. de Waal, PhD

For almost their entire history, both behavioral and evolutionary biology have emphasized competition for resources and dominance within and between species as the primary motivating forces in nature. However, primatology has long recognized that monkey and ape species have evolved complex ways of mitigating aggression and its socially disruptive effects among individuals, including behaviors that had been traditionally viewed as uniquely human characteristics. These behaviors include reconciliation of combatants after conflict and, in ape species, consolation of the “loser” in a fight by others in the group. In addition, some species exhibit instances of quid pro quo, or reciprocity, where resources are shared between individuals as a reward for cooperative effort. This suggests that cooperation is equally as advantageous for survival as competition. Furthermore, research suggests that these behaviors can either be hardwired into a given species’ evolutionary makeup or learned — even “taught” by one species to another. The implication for developmental psychology is that empathy is constructed from a bottom-up model, with simple, biologically inherited emotional mechanisms at its core and more complex filters and cognitive influences built on top. Contrary to the views of many theorists, morality is therefore not a socially constructed and imposed phenomenon but rather generated internally to fulfill a necessary evolutionary function.
Principles of Primate Sociality: From Conflict Resolution to Sympathy and Quid Pro Quo

Frans B. M. de Waal, PhD

Introduction

“... any animal whatever, endowed with well-marked social instincts, the parental and filial affections being here included, would inevitably acquire a moral sense or conscience, as soon as its intellectual powers had become as well, or nearly as well developed, as in man.”

Charles Darwin, *The Descent of Man*¹...

Primate research has traditionally exerted a significant influence on the study of child development, from ethological observation techniques to the now-fashionable theory of mind experiments. This influence has, of course, been particularly noticeable in the study of preverbal children. Once children begin to speak, the temptation is to ask them questions, which permits approaches that have no equivalent for the researcher of primates. However, reliance on the spoken word has its drawbacks: It leads to neglect of what children actually do, relying instead on what they tell us about themselves. For the ethologist, actions speak louder than words: We see many parallels between the spontaneous social interactions of children and those of other primates.

In this chapter, I will highlight several recent advances: For example, the study of aggression has adopted a much more social perspective than it had before and now phrases the issues in terms of conflict and its resolution. Peacemaking skills have been found in a host of different primates as well as outside the primate order. Experimental studies indicate that these skills are learned and subject to evaluations of the social relationship, finding that, for example, reconciliation is most likely between parties who depend on each other for survival.
Other studies concern the processing of emotional information and empathy, which range from emotional contagion and state-matching to the ability of apes to take on perspectives other than their own. Consolation (i.e., comforting body contact provided to victims of aggression) is common in chimpanzees but thus far has not been demonstrated in monkeys, perhaps because alleviation of the distress of others (known in the child literatures as “sympathetic concern”) requires a distinction between self and other that is not found outside the hominoids (i.e., humans and apes). Since sympathy and empathy are pillars of human morality, their presence in our closest relatives hints at continuity in this domain as first proposed by Darwin.1

Conflict Resolution

Reconciliation Behavior

Reconciliation and peacemaking are getting much attention in animal research at the moment. In the summer of 2002, for example, various national European behavioral biology and ethology societies came together for an international conference that dealt solely with animal conflict resolution. This is a field that began with simple descriptive work but is now moving rapidly towards a theoretical framework supported by observational as well as experimental data. (For reviews see references 2, 3 and 4.)

The discovery of reconciliation behavior in chimpanzees was made in the late 1970s. A typical example, shown in Fig 1, concerns 2 male chimpanzees who have been chasing each other, yelling and screaming, and who afterward rest in a tree. Ten minutes later, one chimpanzee holds out his hand, begging the other for an embrace. Seconds after the photograph was taken, they hugged and kissed and then climbed down to the ground to groom each other. This is called a reconciliation — a process defined empirically as friendly contact not long after a conflict between 2 parties. A kiss is the most typical way for chimpanzees to reconcile. Other animals have different styles: Bonobos do it with sex, for example, which chimpanzees rarely do. Stumptail macaques wait till the subordinate presents, then the dominant holds the other’s hips in a so-called “hold-bottom ritual.” Each species has a different way of doing things, yet the basic principle remains the same — former opponents reunite after a fight.
Fig 1. The situation 10 minutes after a protracted, noisy conflict between 2 adult male chimpanzees at the Arnhem Zoo, The Netherlands. The challenged male (left) had fled into the tree, but 10 minutes later his opponent stretched out a hand. Within seconds, the 2 males had a physical reunion.

Photographed by the author.

After van Roosmalen and I first reported this phenomenon in 1979, colleagues outside primatology would tell me that since chimpanzees do many of the things people do, these observations are not surprising but that, in their opinions, other animals most certainly would never do such a thing. At the time, the emphasis in biology was on individual characteristics and competition — who wins and who loses — not on cooperation or ties that bind. This, in turn, explains the skepticism about the wider importance of reconciliation. However, the phenomenon suggested the opposite of pure competition, namely that aggression and its socially disruptive effects need to be mitigated, but the romantic connotation of the term “reconciliation” clashed with the “nature red in tooth and claw” talk of those days.

In primatology, in contrast, social relationships have always been a key area of interest, so the idea of relationship repair, implied by the reconciliation label, was taken seriously quickly. In this regard, primatology was about 2 decades ahead of the rest of behavioral biology, which only in the past decade has developed an appreciation of synergy and overlapping interests between individual animals. Conflict resolution is now suddenly en vogue. In the meantime, primatologists have learned that about 30 different primate species reconcile after fights (reviewed in reference 3), and recent studies show that reconciliation is not at all limited to primates: There is clear evidence for this mechanism in hyenas, dolphins and domestic goats. Therefore, it seems that reconciliation is an extremely basic process found in a host of social species.
Reconciliation is so widespread because it restores relationships that have been disturbed by aggression but are nonetheless essential for survival. Since many animals establish cooperative relationships within which conflicts arise occasionally, many need mechanisms of repair.

One of the standard research methods is the post-conflict/matched-control (PC/MC) method. Observations start with a spontaneous aggressive encounter, after which the combatants are followed for a fixed period of time, perhaps 10 minutes, to see what happens between them subsequently. This is the postconflict (PC) observation. Fig 2, which concerns stumptail macaques, shows that approximately 60% of the pairs of opponents come together after a fight. This is compared with control observations that indicate how these monkeys normally act without a preceding fight. Since control observations take place on a different observation day, but are matched to the

Fig 2. Primates show a dramatic increase in body contact between former opponents during Postconflict (PC) as compared with Matched-Control (MC) observations. This graph provides the cumulative percentage of opponent-pairs establishing friendly contact during a 10-minute time window following 670 spontaneous aggressive incidents in a zoo group of stumptail macaques. Based on de Waal and Ren.5

PC observation for the time of day and the 2 individuals observed, they are called matched controls (MCs). There is always a comparison between these 2 measures — PC and MC — when reconciliation is studied.

Note that in Fig 2, there is far more contact after fights than in the control observations, which is exactly the opposite picture than that presented by the old textbooks that I read as a graduate student. In those days, *On Aggression* by Lorenz was influential. The popular idea at the time was that aggression is a dispersive behavior, which serves to space out individuals. This idea was developed through investigation of territorial species, which were the first to be studied. With social animals, however, things are quite different. In primates, we actually see the opposite pattern: Aggression literally brings individuals together.

When the same observations and analyses were conducted on human children, as Verbeek and I did at a preschool near Emory University, we found familiar PC/MC patterns. An extensive review of recent studies of children by Verbeek, Hartup and Collins confirmed that the data look essentially the same for children, chimpanzees, monkeys or, for that matter, goats. After fights, individuals come together more than they would normally, often with more intense contact patterns, and they do so especially with partners whom they need for one reason or another. The latter is known as the Valuable Relationship Hypothesis, which can be formulated as follows: Reconciliation will occur especially between individuals who stand much to lose if their relationship deteriorates. This hypothesis is well-supported by observational studies as well as by an elegant experiment on monkeys, which manipulated relationship value by inducing cooperation.

**The Relational Model**

According to the above utilitarian perspective, peace is not sought for peace’s sake but rather to preserve mutual interests. The same principle is not unknown in human affairs: For example, the idea underlying the European Community was that nations that had a recent history of mutual warfare might show an increased tendency to keep the peace if they are made interdependent. Europeans have worked on increasing relationship value since World War II, recently culminating in the adoption of a common currency, the Euro.
I have formalized the above ideas in the Relational Model, illustrated in Fig 3, which places conflict in a social context. Instead of aggression being an instinct or an automatic response triggered by frustration, it is seen as one of several options for the resolution of conflicts of interest. Other options are avoidance of the adversary (common in hierarchical and territorial species) and the sharing of resources (common in tolerant species). After having weighed the costs and benefits of each option, conflict may escalate to the point of aggression. The damage to a relationship caused by aggression can be undone, however, by means of reconciliation, the option that will be favored by parties with shared interests.

**Fig 3. According to the Relational Model, aggressive behavior is one of several ways in which conflicts of interest can be settled. Other possible ways are tolerance (eg, sharing of resources) or avoidance of confrontation (eg, by subordinates to dominants). If aggression does occur, it depends on the nature of the social relationship whether repair attempts will be made, or not. If there is a strong mutual interest in maintenance of the relationship, reconciliation is most likely. Parties negotiate the terms of their relationship by going through cycles of conflict and reconciliation.**

The Relational Model thus allows for a cycling through conflict and reconciliation over time, representing negotiations that define or redefine the terms of the relationship. The prototypical example is the relationship between mother and offspring during weaning. The very intense, valuable relationship that neither mother nor child can afford to break is disturbed by rejections of nipple access. The mother’s future reproductive success requires that the offspring be weaned. The offspring’s interests are quite different and would be served by continued nursing. A prolonged series of conflicts plays out between the 2, sometimes involving aggression and often leading to temper tantrums during which the offspring squirms and screams. After having cycled for months through daily confrontations and reconciliations, the new terms of the relationship may be reflected in a compromise: The offspring substitute nurses by sucking on the mother’s lower lip or by taking a skin fold close to her nipple into its mouth (Fig 4). These outcomes show how conflict can shape relationships without permanently disrupting them.

**Fig 4.** A weaning compromise has been arrived at between a mother chimpanzee and her 4-year-old son. After repeated nursing conflicts, the son is permitted to suck on a part of the mother’s body other than the nipple.

Photographed by the author.

The Relational Model is quite different from what I have called the Individual Model of aggression, which was popular in past decades. Various influences, both external (eg, role models, learning, television) and internal (eg, hormones, genes), determine an individual’s propensity to become aggressive. Because social consequences and feedback are not part of the model, which is entirely causal, it is oblivious to social context. The Individual Model
tells us how aggression starts but not how it ends or how it is kept under control. In the real world, however, the vast majority of aggression involves individuals known to each other, which means that aggressors and victims share a past and can be expected to share a future, as emphasized in the Relational Model.

**Reconciliation as Skill**

Now, I will discuss the degree to which reconciliation behavior is considered hardwired or flexible in nonhuman primates. When they look at other primates, people have a tendency to speculate about their “instincts,” whereas they immediately assume that learning and culture primarily modulates behavior for humans. I can no longer say for sure what an instinct is and believe that nonhuman primates develop skills the same way that we do, meaning that they acquire behavioral strategies. To begin to understand this, my colleagues and I conducted an experiment that consisted of taking young rhesus monkeys and exposing them to young stumptail monkeys. Stumptail monkeys normally reconcile 3 or 4 times more often than do rhesus monkeys. We put juveniles of both species together and compared the results with those of a control procedure for another set of rhesus monkeys, who were housed only with other rhesus monkeys.

Cohabitation of the 2 species lasted for 5 months. When we put juveniles of the 2 species together, they were initially segregated: The stumptails would sleep in one corner of the group cage, with the rhesus group in another corner. By the end of the 5 months, however, they were fully integrated — playing and grooming together. We selected stumptails slightly older than the rhesus monkeys so that they would be dominant, on the assumption that such models would have a greater effect. We found that over the period of cohabitation the rhesus monkeys began to reconcile more and more often until they reached levels very similar to those shown by the stumptails. Interestingly, when we removed the stumptails and tested the rhesus monkeys separately, they maintained levels of conciliatory behavior far higher than those seen for control rhesus monkeys.

We thus created a “new and improved” rhesus monkey. We do not know how long the effect of increased conciliatory behavior might have lasted because we measured it for only 6 weeks, but during this period it was dramatic
enough to speak of a change in social culture. We changed the behavioral tendencies of rhesus monkeys by exposing them to subjects who are more conciliatory and easygoing than they are. This demonstrates that rhesus monkeys are capable of an enormous amount of behavioral flexibility.

**Empathy**

**Emotional Linkage in Animals**

When Zahn-Waxler, Hollenbeck and Radke-Yarrow visited homes to learn how children respond to family members who were instructed to feign sadness (sobbing), pain (crying) or distress (choking), they discovered that children a little older than 1 year of age already comfort others. This is a milestone in child development: An aversive experience in another person elicits a concerned response. An unanticipated sidebar to this classical study, however, was that some household pets appeared as worried as the children by the “distress” of a family member. The animals hovered over them or put their heads in the family members’ laps.

Intersubjectivity presents many different aspects in addition to emotional linkage: Such as an appraisal of the other’s situation, experience-based predictions about the other’s behavior, extraction of information from the other that is valuable to the self and an understanding of the other’s knowledge and intentions. When the emotional state of one individual induces a matching or related state in another, we refer to it as an “emotional contagion.” With increasing differentiation between self and other, and an increasing appreciation of the precise circumstances underlying the emotional states of others, emotional contagion develops into empathy. Empathy encompasses — and could not possibly exist without — emotional contagion, yet it goes beyond it in that it places filters between the other’s state and one’s own and adds a cognitive layer. With empathy, the subject does *not* confuse his or her own internal state with the other’s. These various levels of empathy, including personal distress and sympathetic concern, are defined and discussed in detail by Eisenberg and elsewhere in this volume.

Empathy is a social phenomenon that has great adaptive significance for animals in groups. The observation that most modern textbooks on animal cognition do not index empathy or sympathy should not imply that these capacities are inessential, rather that they have been overlooked by a science
focused traditionally on individual rather than on interindividual capacities. Inasmuch as the survival of many animals depends on concerted action, mutual aid and information transfer, selection must have favored proximate mechanisms that evaluate the emotional states of others and provide quick responses to them in adaptive ways. Even though the human empathy literature often emphasizes the cognitive component of empathy, Hoffman rightly noted that “humans must be equipped biologically to function effectively in many social situations without undue reliance on cognitive processes.”

Empathy allows us to relate to the emotional states of others. It is critical for the regulation of social interactions, such as coordinated activity, cooperation towards a common goal, social bonding and the care of others. It would be strange, indeed, if such an essential survival mechanism, one that arises so early in life in all members of our species, would have no animal parallel.

Early Experiments

An interesting older literature by experimental psychologists addresses empathy (reviewed in references 19 and 20). The words “empathy” and “sympathy” were placed between quotation marks, however, because the investigators were skeptical that what they were studying had much to do with shared emotions.

In a paper provocatively entitled “Emotional reactions of rats to the pain of others,” Church established that rats that had learned to press a lever to obtain food would stop doing so when their response was paired with the delivery of an electric shock to a neighboring rat. Even though this inhibition habituated rapidly, it suggested something aversive about the pain reactions of others. Perhaps such reactions arouse negative emotions in those who see and hear them.

During the same year that Church published the rat study, Miller, Murphy and Mirsky published the first of a series of pioneering papers on the transmission of affect in rhesus macaques. They found that monkeys react with avoidance to pictures of conspecifics in fearful poses. Furthermore, they observed that the magnitude of this reaction is stronger than the reaction to a negatively conditioned stimulus. This was an astonishing discovery, as it indicated that seeing the fear of a two-dimensional, soundless representation of another monkey was more disturbing than the anticipation of an actual electric shock.
Perhaps the most compelling evidence for the strength of the empathic reaction in monkeys came from research performed by Wechkin, Masserman and Terris. They found that rhesus monkeys refused to pull a chain that delivered food to themselves if doing so shocked a companion. One monkey stopped pulling for 5 days, and another one would not pull the chain for 12 days after witnessing a companion receive a shock. These monkeys were literally starving themselves to avoid inflicting pain upon another, and they maintained this response to a far greater degree than did rats. Such sacrifice relates to the tight social system and emotional linkages among macaques, as supported by the finding that the inhibition to hurt another was more pronounced between familiar than unfamiliar individuals.

**Anecdotal Reports of “Changing Places in Fancy”**

Qualitative accounts of great ape temperament support the view that these animals show strong emotional reactions to others in pain or need. Thus, Yerkes reported how his bonobo, Prince Chim, was so extraordinarily concerned and protective towards his sickly chimpanzee companion, Panzee, that the scientific establishment might not accept his claims: “If I were to tell of his altruistic and obviously sympathetic behavior towards Panzee I should be suspected of idealizing an ape.”

Ladygina-Kohts noticed similar empathic tendencies in her young chimpanzee, Joni, whom she raised in Moscow at the beginning of the previous century. Kohts analyzed Joni’s behavior in the minutest detail. She discovered that the only way to get him off the roof of her house after an escape — much better than any reward or threat of punishment — was by appealing to his sympathy:

“If I pretend to be crying, close my eyes and weep, Joni immediately stops his plays or any other activities, quickly runs over to me, all excited and shagged, from the most remote places in the house, such as the roof or the ceiling of his cage, from where I could not drive him down despite my persistent calls and entreaties. He hastily runs around me, as if looking for the offender; looking at my face, he tenderly takes my chin in his palm, lightly touches my face with his finger, as though trying to understand what is happening, and turns around, clenching his toes into firm fists.”
These are just 2 of many reports that I have gathered and discussed that suggest that, apart from emotional connectedness, apes have an appreciation of the other’s situation and a degree of perspective-taking.27, 28 Another such striking report concerns a bonobo female empathizing with a bird at Twycross Zoo in England:

“One day, Kuni captured a starling. Out of fear that she might molest the stunned bird, which appeared undamaged, the keeper urged the ape to let it go. . . . Kuni picked up the starling with one hand and climbed to the highest point of the highest tree, where she wrapped her legs around the trunk, so that she had both hands free to hold the bird. She then carefully unfolded its wings and spread them wide open, one wing in each hand, before throwing the bird as hard as she could towards the barrier of the enclosure. Unfortunately, it fell short and landed onto the bank of the moat, where Kuni guarded it for a long time against a curious juvenile.”28

Obviously, what Kuni did would have been totally inappropriate towards a member of her own species. Having seen birds in flight many times, she seemed to have a notion of what would be good for a bird, thus giving us an anthropoid illustration of the empathic capacity so endurably described by Adam Smith as “…changing places in fancy with the sufferer.”29

Primate empathy is such a rich area that O’Connell30 was able to conduct a content analysis of thousands of qualitative reports. The investigator counted the frequency of 3 types of empathy, from emotional contagion to more cognitive forms, including an appreciation of the other’s situation and aid-giving that is tailored to the other’s needs. Understanding the emotional state of another was particularly common in the chimpanzee, with most outcomes resulting in the subject comforting the object of distress. Displays of empathy by monkeys were far more restricted, but they did include the adoption of orphans and reactions to illness, handicaps and wounding.

This difference between empathy shown by the monkey and ape was confirmed by systematic studies of behavior known as “consolation,” first documented by van Roosmalen and me.6 Consolation is defined as reassurance and friendly contact directed by an uninvolved bystander to one of the combatants in a preceding aggressive incident: For example, a third party approaches the loser of a fight and gently puts an arm around his shoulders
Consolation is not to be confused with “reconciliation,” which seems selfishly motivated, for instance, by the imperative to restore a disturbed relationship, as was described previously in this chapter. The advantages of consolation for the actor remain unclear. The actor could probably walk away from the scene without negative consequences.

A substantial amount of quantitative data has characterized consolation among chimpanzees. van Roosmalen and I\(^6\) based our conclusions on an analysis of hundreds of postconflict observations, and a replication study by Aureli and me\(^31\) included an even larger sample in which we sought to test 2 relatively simple predictions: If third-party contacts indeed serve to alleviate the distress of conflict participants, these contacts should be directed more at recipients of aggression than at aggressors and more at recipients of intense than of mild aggression. We found support for both of these predictions by comparing third-party contact rates with baseline levels (Fig 6).

Consolation has, thus far, been demonstrated in great apes only. When Aureli and I\(^31\) utilized exactly the same observation protocols we used with chimpanzees to detect consolation in macaques, we failed to find any. (See also Watts, Colmenares and Arnold.\(^32\)) This came as a surprise, because
reconciliation studies, which employ essentially the same design, have shown reconciliation in species after species. Why, then, would consolation be restricted to apes?

Targeted help in response to specific, sometimes novel, situations may require a distinction between self and other that allows the other’s situation to be divorced from one’s own, while maintaining the emotional link that motivates behavior. It is possible that cognitive empathy cannot be achieved without a high degree of self-awareness. In other words, in order to understand that the source of a vicarious affective state is not oneself but the other and, further, to understand why the other’s state arose (eg, the specific cause of the other’s distress), one needs a clear distinction between self and other. Based on these assumptions, Gallup\textsuperscript{33} was the first to speculate about a possible connection between cognitive empathy and mirror self-recognition (MSR). This view is
supported both developmentally, by a correlation between the emergence of MSR in children and their helping tendencies,\textsuperscript{34, 35} and phylogenetically, by the presence of complex helping and consolation in hominoids but not in monkeys. Hominoids are also the only primates with MSR.

I have argued before that, apart from consolation behavior, targeted helping reflects cognitive empathy. Targeted helping is defined as altruistic behavior tailored to the specific needs of the other, even in novel situations such as the previously described reaction of Kuni to the bird\textsuperscript{28} or the highly publicized case of Binti-Jua, a gorilla female who rescued a human boy at the Brookfield Zoo in Chicago.\textsuperscript{27, 36, 37} Targeted helping responses are common in the great apes (Fig 7), but are also striking in dolphins.\textsuperscript{38} The recent discovery of MSR in dolphins\textsuperscript{39} thus fits the proposed connection between increased self-awareness, on the one hand, and cognitive empathy, on the other.

\textbf{Fig 7. Cognitive empathy (ie, empathy combined with appraisal of the other's situation) allows for aid tailored to the other's needs. In this case, a mother chimpanzee reaches out to help her son out of a tree after he screamed and begged (see hand gesture). Targeted help may require a distinction between self and other, an ability suggested to underlie mirror self-recognition (MSR), such as found in humans, ape and dolphins.}
Russian Doll Model

The literature includes accounts of empathy as a purely cognitive affair, and proposes that apes, let alone other animals, probably lack it. 40, 41 This “top-down” view equates empathy with mental state attribution and theory of mind (TOM), but it assumes that these cognitive processes can take place in the absence of emotional linkage. In this view, empathy is a cognitive, not an emotional, achievement. Interestingly, however, precisely the opposite position has been defended recently in relation to autistic children. Earlier theories suggested that autism reflects a lack of TOM. However, autism is noticeable well before the age of 4 years, when TOM normally emerges. 42 Williams and colleagues 43 have argued that the main deficit of autism concerns the socioaffective level, which then negatively impacts the more sophisticated downstream forms of interpersonal perception. (See also Baron-Cohen in this volume.)

This interpretation of autism is more congruent with the “bottom-up” view adopted here, depicted as a Russian doll in Fig 8. According to this model, empathy covers all forms of one individual’s emotional state that affects another’s, with simple mechanisms at its core and more complex mechanisms, filters and cognitive influences built on top. Autism is expressed in deficient outer layers of the Russian doll, but these most likely refer back to deficient inner layers.

Together with Preston, I have proposed that at the core of the empathic capacity is the reactivation of the subject’s stored representations of states and situations similar to those perceived in the object. 20 This process relies on the subject’s previous experiences with these particular states and situations, as well as on closeness to the object. As a result, bonded individuals will respond more strongly to each other than will distant individuals. This Perception-Action Model (PAM) fits with the somatic marker hypothesis of emotions elucidated by Damasio 44 as well as with evidence for a link at the cellular level between perception and action (eg, “mirror neurons” 45).

The idea that perception and action share common representations is anything but new: It goes as far back in history as the first treatise on “einfühlung”, the German concept translated into English as “empathy.” 46 When Lipps 47 introduced “einfühlung”, which literally means “feeling into,” he speculated about “innere nachahmung” (“inner mimicry”) of another’s feelings along the same lines as proposed by the PAM. Accordingly, empathy is
Fig 8. According to the Russian Doll Model, empathy covers all processes leading to related emotional states in subject and object, with at its core emotional contagion: immediate, often unconscious state-matching. Higher levels of empathy build on this hard-wired socioaffective basis, such as cognitive empathy (requiring an understanding of the reasons for the other’s emotions) and mental state attribution (fully adopting the other’s perspective). The Russian Doll Model proposes that the outer layers cannot exist without the inner ones.\textsuperscript{37}

<table>
<thead>
<tr>
<th>Emotional Contagion</th>
<th>Automatic emotional impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive Empathy</td>
<td>Assess the situation and reasons for other's emotion</td>
</tr>
<tr>
<td>Attribution</td>
<td>Fully adopt other’s perspective</td>
</tr>
</tbody>
</table>


often an automatic, insuppressible process, as demonstrated by electromyographic studies of invisible muscle contractions in people’s faces in response to pictures of human facial expressions.\textsuperscript{48} Accounts of empathy as a higher cognitive process neglect these “gut-level” reactions, which are far too rapid to be under voluntary control.

This is not to say that higher cognitive levels of empathy are irrelevant, but that they are built on top of this firm, hard-wired basis without which we would be at a loss where the emotions of others are concerned. Thus, at the core of the Russian doll we find emotional contagion, around which cognitive empathy and attribution are constructed. Cognitive empathy implies appraisal of another’s predicament or situation.\textsuperscript{27} The subject not only responds to the signals emitted by the objects, but seeks to understand the reasons for the
signals, looking for clues in the other’s behavior and circumstances. Cognitive empathy makes it possible to furnish targeted help that takes into account the needs of the other. These responses go well beyond emotional contagion, yet they would be hard to explain without an emotional motivational component.

Whereas monkeys (and many other social mammals) clearly seem to possess emotional contagion and are capable of some forms of targeted helping, the latter phenomenon is not nearly as robust as in the great apes: For example, at Jigokudani monkey park in Japan, first-time mother macaques are kept out of the hot water springs by park wardens because of their experience that these females drown their infants. They fail to pay attention to the infants when submerging themselves in the ponds. They learn to be mindful of the infants over time, but this example demonstrates that the mothers do not take their offspring’s perspective automatically. Ape mothers, in contrast, respond immediately and appropriately to the specific needs of their offspring.

In conclusion, empathy is not an all-or-nothing phenomenon: It covers a wide range of emotional linkage patterns, from very simple and automatic to very sophisticated. It seems logical to first try to understand the more basic forms of empathy, which are indeed widespread, before addressing the interesting variations that cognitive evolution has constructed on top of this foundation.

**Reciprocity**

Reciprocal help and exchange are absolutely fundamental features of our societies and economies. The study of this area arose as a result of a single theoretical paper by Trivers. It provides a good example of how expectations formulated on the basis of evolutionary considerations can be tested and have proven helpful in guiding our attention.

Chimpanzees and capuchin monkeys — the 2 species that I study the most — are special because they are among the very few primates that share food beyond the mother-offspring context. I have been interested in why and how this food-sharing occurs. Capuchin monkeys are small (easy animals to work with) in contrast with chimpanzees, which are many times stronger than humans. But chimpanzees, like capuchins, are interested in each others’ food and will share on occasion: In fact, sometimes a chimpanzee will even hand
over a piece of food to another chimpanzee. Most sharing, however, is passive, in that one individual will reach for food that belongs to another, who will let it go. But even such passive sharing is remarkable compared with most animals for whom such a situation might result in a fight or in assertion by the dominant animal without sharing.

Berger and I completed a series of experiments recently that investigated whether monkeys cooperate on the basis of mental record keeping of favors. We set up a situation to study tit for tat: “I do something for you and, a while later, you do something for me.” Inspired by a classic study performed at the Yerkes Primate Center during the 1930s, we confronted a pair of capuchin monkeys with a tray that had 2 attached pull bars. The 2 monkeys sat in a test chamber with mesh between them so that they could see each other and share food through the mesh. The tray was counterweighted, such that a single monkey was unable to pull it; both monkeys needed to coordinate their pulling. Only one side was baited, meaning that only one of the 2 would receive a food reward. After successful pulls we measured how much food the possessor shared with its helper. One monkey could easily monopolize the food by sitting in the corner and eating alone. Interestingly, this is not what we observed. We found that food-sharing after cooperative efforts was greater than after solo efforts. That is, the possessor of food shared more with the monkey on the other side of the mesh if his or her partner had been involved with getting the food than if the possessor had acquired the food independently. Thus, capuchins seem to reward helpers for their efforts. This also serves to keep their assistants motivated — comparable to a basic economy.

Conclusion

In this chapter I have presented a few themes from my work on monkeys and apes, such as social integration and the way that social systems are maintained. In humans, these themes are often discussed in the context of morality, since the ultimate function of morality is to create a modus vivendi (a way of life). Moral systems are designed to promote intragroup cooperation by having individuals follow rules that benefit the community as a whole. The obvious common ground between evolutionary and developmental approaches in this regard is that, rather than considering human morality as coming from the outside — imposed by adults upon the passive child, for example, or imposed by culture upon a fundamentally nasty human
nature — it is generated internally. Tendencies that comprise an integrated part of the human genetic makeup cause the child to construct a moral perspective through interactions with other members of its species.

Killen and I\textsuperscript{52} have explored this issue in relation to moral development, and, together with Flack, I have proposed that humans are born with the building blocks of morality.\textsuperscript{27, 53} Thus, instead of human morality representing a cultural innovation, as some contemporary biologists have tried to suggest, morality is instead a natural outgrowth of our sociality, much as Darwin\textsuperscript{1} envisioned. Morality builds on capacities to resolve conflict, to connect with others emotionally, and to engage in reciprocal relationships, all of which we share with other life forms.

References


Section 1: Sociality in Nonhuman Primates


Section 2: 
Early Social Development
Abstracts from Section 2: Early Social Development

The Origins of the Self and Its Role in Development

Michael Lewis, PhD

Development of the self, or the *idea of me*, is critical to a child’s emotional, social and cognitive development. This chapter explores the concept of self; in particular the mental structure that incorporates the observation that *I know I know*, or objective self-awareness. This construct seems to require language capacity and develops around 2 years of age. Self-recognition, pretend play, and use of personal pronouns are all associated with development of the mental state of the *idea of me*. Once this idea is present, a child’s theory of mind continues to develop and is important in the subsequent development of social relationships. Self-conscious evaluative emotions require that individuals compare their own actions with cultural standards; such cognitive processes require that the *idea of me* is present. Objective self-awareness, the result of the development of self, contributes to a child’s consciousness and ultimately to integration of more sophisticated aspects of social, emotional and cognitive development.

Causal Effects of Early Childhood Experiences: Concepts, Issues and Findings

Professor Michael L. Rutter

When considering causal issues, it is important to recognize that several different sorts of questions are involved. These may include effects on individual differences with respect to some trait or disorder, differences in the level of traits or rate of disorder in the general population (or in subgroups) and effects on developmental course and progression. The possible effects of early experiences may be related to brain development, plasticity and responsivity to environmental input. The various routes by which environmental effects might be mediated will be discussed in this chapter and attention will be drawn to the effects of person-environment interplay, including gene-environment correlations and interactions. Key developmental processes during the
early years include the development of selective attachments, cognitive and affective processing of experiences, the growth of language and ideas, the growth of cognitive skills, the development of self-concepts and internal working models, emotional modulation and dealing with feelings of aggression. The evidence on environmental effects during the early years will be considered briefly in relation to a range of research designs that allow rigorous testing of environmental mediation hypotheses. The chapter will conclude with a discussion of the implications in terms of remaining research challenges, as well as lessons for policy and practice.

The Early Development of Prosocial Tendencies

Nancy Eisenberg, PhD

Empathy-related responding is a key factor that mediates the emergence of early prosocial behaviors. Prosocial behaviors exhibited during the preschool years that are based on an other-orientation, in contrast with prosocial behaviors that are motivated by different factors, predict future prosocial behavior in later childhood and early adulthood. Individual differences may contribute to the development of prosocial behaviors, and emotion regulation may also figure prominently in prosocial development. Young children who are securely attached and are not exposed to intense and frequent negative emotion are relatively likely to display prosocial behaviors. Educating parents and caregivers to foster the sympathetic concern of young children may enhance the development of prosocial behaviors.

The Development of Ethnic-Racial Awareness in Childhood: Implications for School Practices

Ileana Enesco, PhD and Alejandra Navarro, PhD

An individual’s perception of his or her identity is shaped by physical appearances as well as by cultural markers, such as language, religion, traditions and national origin. The development of ethnic-racial awareness depends upon children’s cognitive levels as well as on attitudes they assimilate from their environments. This chapter describes the results of several studies that explored ethnic-racial awareness in Spanish children of different ages. A variety of approaches have been utilized to design interventions to combat prejudice in children. To date, most programs have not achieved significant results, but novel strategies need to be developed to facilitate improved communication and understanding of human diversity and race.
The Origins of the Self and Its Role in Development

Michael Lewis, PhD

Introduction

In this chapter, I will discuss the development of the self and how development of the self impacts on a child’s emotional, social and cognitive development. The self provides the scaffolding for the development of the child’s social and emotional development and represents the first step in a child’s development of other mental states, thereby providing the underpinning of a theory of mind.

In this chapter, I propose to first explore what a self is and how it develops and then present how it impacts on a child’s subsequent development in the social, emotional and cognitive domains.

What a Self Is

As I sit here in my study looking out at the garden, the late afternoon sun blinds my sight. The taste of coffee in my mouth lingers as I think about the paper I am writing. I have no trouble recognizing myself. I know where I am and why I am here. I feel my arm and hand move as I write. When I answer my wife’s calls, my voice sounds like me. Sitting here, I can think about myself. I can wonder whether I will go to New York tonight. I wonder about my appearance. Do I need to wear a tie and jacket? Is my hair combed properly? As I get up to leave the room, I pass a mirror; there, I see myself, the reflected surface of my being. “Yes, that is me,” I say, fixing my hair.

I know a great deal about myself. One of the things I know is how I look: For example, there is a scar in my left eyebrow. I look familiar to myself, even though I have changed considerably with age. Pictures taken of me 30 years ago look like me. Nevertheless, I know that when I look at myself in the
mirror I will not look as I did then; my hair and beard are now white, not the brown they were then. My face will be less smooth, and I will have to tuck in my belly in order to look anything like I wish to.

I know that many people might argue that the concept of self is merely an idea. I would argue that this idea of self is a particularly powerful one. It is an idea with which I cannot part. It is one around which a good portion of the network of many of my ideas center. This is not to say that what I know about myself is all I know. In fact, this idea of myself is only one part of myself; there are many other parts about which I know very little, if anything. There are the activities of my body: the joints moving, the blood surging, the action potentials of my muscle movements as well as calcium exchange along the axons. There are many aspects of me of which I am unaware. True, I may know of them as ideas, but I cannot find them in myself. I have no knowledge of many of my motives — organized, coherent thoughts and ideas that are called unconsciousness — that control large segments of my life. I have no knowledge of how my thoughts occur. Nevertheless, I know that I think and feel even without this knowledge. This is my self; it is the idea of me. This idea or mental structure knows itself and knows it does not know all of itself. It is the idea that I know I know. It is this mental structure that is of interest to me.

The Development of a Self

In the last 30 years, we have come to learn about the development of a self. Nevertheless, considerable confusion exists around the term “self-development” since, for some, such a term and its development speak to aspects of a self-system that does not require a mental construct, while for others it represents mostly the development of a mental construct. It is the difference between “knowing” and “knowing I know.” Thus, in order to understand the concept of self, we need to disentangle the common term, self, into at least 2 aspects. I have suggested we call these the idea of me and the machinery of the self. They have been referred to as other terms; ie, objective self-awareness, which reflects the idea of me, and subjective self-awareness, which reflects the machinery of self.1-3 The same objective-subjective distinctions have been considered by Duval and Wicklund.4 In any consideration of the concept of self, especially in regard to adult humans, it is important to keep in mind that both
biological aspects exist. There is, unbeknownst to us most of the time, an elaborately complex machine that controls much of our behavior, learns from experience, has states, and affects our bodies, most likely including what and how we think. The processes are, for the most part, unavailable to us. What is available is the idea of me, a mental state.

Recent research on brain function is particularly impressive, suggesting that different areas of the brain may be associated with these distinct functions. Thus, both the machinery of the self and the mental state involving the idea of me appear to be consequences of different biological processes and locations. For example, the work by LeDoux identifies specific brain regions that may be responsible for different kinds of self-processes. Working with rats, LeDoux found that, even after removal of the auditory cortices, animals were able to learn to associate an auditory signal and shock. After a few trials, rats showed a negative emotional response to the sound, even though their auditory cortices had been removed. These findings indicate that the production of a fear state is likely to be mediated by subcortical sensory pathways, probably thalamic-amygdala routes. Similar findings have been reported in humans, suggesting that states can exist without one part of the self experiencing them. Weiskrantz, among others, has reported on a phenomenon called blind-sighted. Patients were identified who lacked visual cortices, in at least one hemisphere. When these patients were asked if they could see an object placed in their blind spots, they reported that they could not see it, that is, they did not have the experience of the visual event. The self reflecting on itself, “my recognition of what I know,” the “me” — the mental state — in fact, does not see. However, when the patients were asked to reach for the object, they showed that, at least some of the time, they had the ability to reach for it. Thus, they can “see” the event but cannot experience their sight. These findings, as well as Gazzaniga's work on split brain, suggest that separate brain regions are responsible for the production and maintenance of both the machinery of self-processes and the mental state of me. Tulving suggested a similar analysis involving a memory.

The self, then, is greater than the me, because the me is only a small portion of myself. Many features of the self exist early and exist as part of the system from birth or soon after. The idea of me — the knower who knows — is not developed until somewhere in the middle of the second year of life.
A Developmental Model

If we define self as that which knows it knows, then we need to measure self as a mental state. As a result, early imitation, intersensory integration and coordination between infant and mother all cease to be adequate measures of self.

For the most part, the idea of me requires language capacity. If we believe that the emergence of this idea occurs before 2 years of age, we will have difficulty using language as a means of measuring this mental state. To an adult or older child we could say, “Who are you?” or “Tell me something about yourself” or “Tell me something you know that others don’t know.” Alternatively, using the poetics of R. D. Laing11 as a linguistic structural model, we could see whether the child understands statements such as, “I know you know that I know where you put your teddy bear.” As is readily understood, all of these questions imply some idea about me.

Without language, however, the child will have trouble explaining this idea to us. One way to explore this problem is through the use of personal pronouns such as “me” or “mine.” Because parents do not use the label “me” or “mine” when referring to the child or teaching her to recognize pictures of herself, the use of these terms by the child is likely to be a reasonable referent to the idea of me. This appears true when we observe children’s use of these terms and how they behave when using them. One can see a child saying “mine” as he pulls the object away from another child and toward himself. Because moving the object toward oneself does not move the object as far away as possible from the other, the placement of the object next to the body, together with the use of the term “me” or “mine,” appears to reveal the mental state of the idea of me. Children begin to use personal pronouns including “me” and “mine” by the latter part of the second year of life, providing a linguistic demonstration of the emerging mental state.12, 13

Another procedure that can be used to evaluate the idea of me is self-recognition. Around the ages of 15 months to 18 months, infants behave as if they know that the image in a mirror is themselves. This mental state of the idea of me is best captured by children’s use of self-referential behavior. The Nose Direction Rouge test, in which children touch their own noses when they look in a mirror, indicates that children know that it’s “me” in the mirror.14
The Origins of the Self and Its Role in Development

Pretend play is another aspect of this mental state. From a variety of theoretical perspectives, it is apparent that pretense is an early manifestation of the ability to understand mental states, both one's own and others'. Pretense involves double knowledge or dual representation of the literal and pretend situations. The dissociable relation between the 2 allows the child to distinguish between appearance and reality, thereby providing the cognitive basis for a theory of mind. Research by Piaget and subsequent investigators indicates that pretense emerges in children by the middle to latter part of the second year of life. The capacity for pretense not only marks the beginning of a theory of mind but also likely starts the process that leads to the switch at 3 to 4 years of age when children know that what they know is not necessarily what another knows. The mental state in pretense also distinguishes children's early understanding of a theory of mind, including their own, from possible precursors present earlier in development, such as joint attention, social referencing and preverbal communication abilities, since these abilities can occur without the necessity for any capacity of a mental state of the idea of me.

Personal pronoun use, self-recognition and pretend play all indicate the capacity for the mental state of the idea of me or consciousness. It is apparent that, with development, self-representation increasingly becomes a more complex and multifaceted phenomenon that progressively includes other cognitive and evaluative aspects of self-knowledge. Nonetheless, the results suggest that in terms of emergent time, self-recognition occurs earliest in the formation of a complex self-representation. Of these 3 self-abilities, self-recognition is the one most likely to emerge first in development, suggesting that physical self-recognition provides the core aspect of self-representation that continues to develop beyond the second year of life.

Consistent with the present findings is work that indicates children's emerging understanding of a theory of mind by the middle of the second year of life. Meltzoff reported findings that showed the ability of 18-month-old toddlers to understand the intentions of others. After observing adult models demonstrate the intention to act in a certain way by starting, but not completing, a given activity, the toddlers, when given the opportunity, performed the complete acts the adults intended. Similarly, Asendorpf and colleagues found increases in imitative play linked to the presence of self-recognition in 20-month-old infants.
The degree of correspondence between self-recognition, pretend play, language self-referents and object permanence is consistent with a central, organizing role of self-knowledge in cognitive development.\textsuperscript{32, 36}

**The Role of the Mental State of Being**

One problem we encounter in studying development or, for that matter, even adult behavior is that our studies usually divide an individual’s cognitive, social and emotional lives into separate domains. Lost in this epistemological division is the idea of the child herself. While the study of each aspect of the child’s life helps inform us about a particular aspect of her life, it does a disservice by not allowing us to unify these separate domains. Thus, while we shall separate out the role of consciousness in cognitive, social and emotional development, it should be understood that these domains are connected with each other through the child’s developing mental state of herself.

**Theory of Mind and Self-Development**

A “theory of mind” involves an awareness of one’s own and others’ mental states.\textsuperscript{16, 37–39} So, too, does what has been called “social cognition.”\textsuperscript{40, 41} Following Cooley,\textsuperscript{42} Mead\textsuperscript{43} and others, it has been argued that social interaction is the basic unit from which social cognition derives and that knowledge of self and others are related to each other. From a social cognition perspective, children’s perspective-taking or role-taking ability — that is, their ability to “put themselves in the place of the other” — has been examined in various situations, including those that assess children’s capacities for expressions of empathy. It has long been recognized that taking the point of view of another presupposes awareness of one’s own self.\textsuperscript{16, 21}

Let me suggest the brief outline of what a theory of mind involves, especially when we consider the theory from birth on, including the shift at 3 to 4 years of age. To understand this development, it is necessary that we consider the role of the self. As illustrated in Table 1, there are at least 3 or 4 levels in this model. Level 1 is not based on complex mental states; it involves little or no language and is not supported by the particular mental state of the idea of me. It is what I have called the machinery of self: Level 1 refers to knowing (or I know). This level prevails from birth until sometime during the middle of the second year of life. It is likely to be driven by basic processes common to
other animals. Level 4, on the other hand, is the adult-like level since it addresses the interactive and recursive nature of cognition. Each actor has a perspective, and each actor’s perspective can be different and can be recognized that it is different. This allows for the ability to recognize false belief. Once a child knows that he or she can be the subject and also the object of the knowledge of another, the child is capable of recognizing the difference in perspectives between individuals. It is at this final level of perspective-taking that mature meta-knowledge can emerge. Here, the mental states of the idea of me, the other and the relation of me to the other (and the other to me) can be explained.

Social Relationships and Consciousness

When I think about relationships, by definition they involve me. One of the things that I may think about is what the other in the relationship thinks of me. Recursive cognitions can become quite complex, as, for example, when I speculate on what others think that I think of them. In his discussion of interpersonal relationships, Asch makes a similar point: “The paramount fact about human interactions is that they are happenings that are psychologically represented in each of the participants. In our relationship to an object, perceiving, thinking, and feeling take place on one side, whereas in relations between persons, these processes take place on both sides and are dependent upon one another.”

Knowledge about self and other, whether they occur sequentially or at the same time, eventually become a part of the duality of knowledge. For example, Bannister and Agnew note, “The ways in which we elaborate our construing of self must be essentially those ways in which we elaborate our

<table>
<thead>
<tr>
<th>Table 1. Levels of Knowing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1. I know</td>
</tr>
<tr>
<td>Level 2. I know I know</td>
</tr>
<tr>
<td>Level 3. I know you know</td>
</tr>
<tr>
<td>Level 4. I know you know I know</td>
</tr>
</tbody>
</table>
construing of others. For we have not a concept of self, but a bipolar construct of self-not self, or self-other.\textsuperscript{45} The definition of social knowledge involves the relationship between the knower and the known, rather than characteristics of people as objects. By utilizing the self in knowing, we can differentiate when we are treating people as objects from when we are treating them as people. If the self is not involved, then the people are being treated as objects; when the self is involved, people are being treated as people.

**Interactions Versus Relationships**

The developmental issue in social relationships is quite complex, especially given the wide acceptance of attachment theory. In order to describe a higher-level human relationship, we need to include cognitive factors or those mental processes that allow members of an interaction to think of the other member as well as of themselves.

Our model of mature human relationships requires that we consider different levels in the development of a relationship over time, rather than seeing it as existing in its adult form from the beginning. Uniquely mature human relationships arise from interactions only after the development of mental states that involve the self and the other. From this point of view, achievement of adult human relationships proceeds through a specific developmental progression. This progression involves, first, interactions (which may be similar to those shown by all social creatures) and, second, cognitive structures or mental states, including consciousness and skills such as empathy and the ability to place the self in the roles of others.\textsuperscript{46} The relationships of 1-year-old children do not contain these cognitive structures, and therefore may only approximate those of adults. By 2 years of age most children have consciousness and the beginning of skills such as empathy.\textsuperscript{47, 48} Their relationships now resemble more closely those of mature adults. The concept of “individuation” presented by Mahler, Pine and Bergmen is relevant here, for as they observed, only when the child is able to individuate can it be said that a more mature relationship exists.\textsuperscript{49}

Such an analysis raises the question of the nature of the child’s relationships prior to awareness. For me, relationships that are not built on mental states are complex social species-patterned processes, that are imposed by caregivers and which, through adaptive processes, may be wired into the human infant. This imposed (or socialized), complexly patterned system — a lower-level
The Origins of the Self and Its Role in Development

relationship — later gives way to a mature relationship in which the child joins in the socialization process. The nature of the higher-level relationship is dependent upon many factors, including the nature of the socialization practices (the initial interactions imposed on the infant), mental states related to the idea of me or consciousness and cognitions about the interactions of self and others; that is, the meaning given to them by the selves involved. 50

When we consider relationships in terms of mental states or representations, an idea also suggested by Hinde, 51 we need to return to the child’s capacity to reference herself. This, we believe, occurs after the first year of life at some point during the middle of the second year of life. If this is so, then our observation of the attachment relationship at age 1 year reflects both the interactions based on socialization patterns that the child will subsequently use to form a working model of the relationship and the adult caregivers’ relationship, which includes the adults’ working model of their attachment relationship with their parents.

Emotions and Self

Because the relation between emotion and consciousness has received a lot of attention and much has been written about it, 3, 10, 52 I shall only briefly comment on it here. While the emotions that appear early — joy, sadness, fear and anger — are the subjects of considerable interest, the set of later-appearing emotions has received relatively little attention. There are likely many reasons for this: One is that these self-conscious emotions cannot be described solely by examining a particular set of facial movements; rather, it is necessary to observe bodily action as well as facial cues as these emotions occur. Furthermore, there are no clear specific elicitors of these particular emotions, providing a second reason for the limited study of later emotions.

The elicitation of self-consciousness involves elaborate cognitive processes that have, at their heart, self mental states or consciousness. Cognitive processes must be the key elicitors of these complex emotions. 53 It is the way we think or what we think about that become the elicitors of pride, shame, guilt or embarrassment. In some instances, there may be a one-to-one correspondence between thinking certain thoughts and the occurrence of a particular emotion; however, for this class of emotions, the elicitor is a cognitive event. This does not imply that the emotions that emerge earlier — the primary or basic emotions — are elicited by only noncognitive events.
Cognitive factors may play a role in the elicitation of any emotion; however, the nature of cognitive events are much less articulated and differentiated for expression of the earlier emotions.\(^{54}\)

Darwin understood the need for cognitive elicitors having to do with the self\(^9\): He saw these latter emotions as involving the self, although he was not able to distinguish among the various types of emotions. (See also Tomkins\(^{55}\) and Izard\(^{56}\) for similar problems.) His observation regarding blushing indicated his concern with the issues of appearance and consciousness. He repeatedly illustrated that these emotions depend on sensitivity to the opinions of others, whether good or bad.

**Conclusion**

I have attempted to clarify those specific aspects of self that are involved in self-conscious emotions, in particular, the self-conscious *evaluative* emotions.\(^3\) Self-conscious evaluative emotions involve first a set of standards, rules or goals. The standards are inventions of the culture that are transmitted to a child; the emotions involve the child’s learning of and willingness to consider these cultural standards as her own. This process of incorporating cultural standards or goals has been discussed by Stipek, Recchia and McClintic.\(^{57}\) It is apparent from their work that this begins quite early in life. The roles of standards, rules and goals in the development of these emotions imply self-evaluation, for it would not make sense if we accepted standards but had no framework within which to evaluate our actions vis-à-vis them.

Having the capacity for self-evaluation allows for 2 distinct outcomes; we can evaluate our behavior and hold ourselves responsible for the action that is being evaluated, or we can hold ourselves not responsible for that action. Literature on attribution distinguishes between an internal or an external attribution.\(^{58}\) If we conclude that we are not responsible for an action, then evaluation of our behavior ceases. However, if we evaluate ourselves as being responsible for a particular action, then we may evaluate our behavior as successful or unsuccessful vis-à-vis the standard. *Global self-attributions* refer to the whole self, while *specific self-attributions* refer to specific features or actions of the self.\(^{58, 59}\) In every one of these processes, the mental state of the idea of *me* needs to be considered.
These cognitions, which focus on the self, give rise to the self-conscious emotions. My research indicates that these emotions do not emerge until after the onset of consciousness (during the middle of the second year of life) and not until a child is capable of the complex cognitions associated with standards. By 2½ years to 3 years of age, these cognitive capacities are present; this coincides with the emergence of self-conscious emotions. We can see, therefore, that the role of consciousness in this class of emotions is quite elaborate and complex. It involves knowledge of standards, rules and goals; incorporation of these societal standards; evaluation of the individual’s behavior vis-à-vis the standard; distribution of the blame to oneself or to others; and attribution and focus, either global/self-focus or specific/task-focus. In each of these processes, mental structures that center around the idea of me need to be considered.

The development of self during the middle of the second year of life, which is a consequence of brain maturation, constitutes a major developmental milestone. Achievement of the idea of me not only gives rise to consciousness, but it also promotes changes in a child’s social, emotional and cognitive development. Moreover, the emergence of consciousness provides the structural framework necessary to integrate these various domains of human abilities.

References


Causal Effects of Early Childhood Experiences: Concepts, Issues and Findings

Professor Michael L. Rutter

Introduction

The World Health Organization monograph authored by Bowlby\(^1\) in 1951 led many people to consider that family experiences in the first few years of life were both crucially important and had very long lasting effects.\(^2\) As evidence accumulated that the effects were more modifiable than early claims suggested and that later experiences were also strongly influential,\(^3\) thinking about the role of early experiences and psychological development had to be modified. During the last decade or so, 3 other sets of ideas have impacted on thinking about early experiences. First, behavior geneticists argued that experiences within the family had few environmentally mediated effects\(^4\) and that the main influences were genetic.\(^5\) Second, Harris\(^6\) claimed that the effects of peer groups were much stronger than those of families, thereby also implicitly suggesting that the main influences operated after the first few years. Third, conversely, other claims based on research findings on early brain development indicated that experiences in the first 3 years were much more influential than experiences later in life. However, that statement did not derive at all clearly from neuroscience research.\(^7, 8\) It is against that background of claims and counter-claims that we need to consider the causal effects of early psychosocial experiences.

Challenges to Causal Claims

There are 3 main challenges to claims on the environmentally mediated effects of early experiences. First, there is the possibility that the associations between particular rearing experiences and psychological outcomes for children reflect social selection rather than social causation. In other words, it is always necessary to appreciate that experiences, both adverse and positive, are
Section 2: Early Social Development

far from randomly distributed. Thus, what at first sight appear to be the effects of different forms of child care may actually reflect the characteristics of the parents who use different approaches to day care. Second, as Bell pointed out more than 3 decades ago, some associations that seem to reflect socialization experiences may actually stem from children’s effects on their families, rather than the other way around. There is evidence that children do have effects on other people; hence, the issue of which way the causal arrow points is always important. Third, the associations between risk environments and children’s behavior may reflect genetic rather than environmental mediation. Not only do parents pass on their genes to their children, but they also create the family environments in which their children are reared. As a consequence of gene-environment correlations, it is necessary to query whether effects are genetically or environmentally mediated. Genes may influence behavior either directly or indirectly, because genetically influenced aspects of children’s behavior has an impact on the ways that their parents treat them. In addition, genetic factors may be important in modifying individuals’ susceptibility to environmental stressors and adversities.

Although some environmental researchers have been reluctant to accept the evidence that there are genetic effects on virtually all human behaviors, research findings make it clear that this is so. Moreover, it has been found to be true in numerous studies using multiple sources of good measurement, not just in questionnaires. However, the findings also indicate that non-genetic influences are important to a roughly equal extent. Furthermore, genetic effects are stronger in the case of traits that endure over time or of disorders that are chronic or recurrent, rather than on situation- or time-specific behaviors.

By the same token, some geneticists have been reluctant to recognize that many genetic effects operate through coaction with the environment and not directly on behavior. That is, some gene-mediated effects depend upon gene-environment correlations and interactions, with effects critically dependent on the conjunction of genetic and environmental risks. Molecular genetic research is now beginning to show how genetic effects serve to modulate environmental influences through their impact on individual differences in susceptibility.
Some Tests of Environmental Mediation

Although sometimes these challenges to causal claims may be overstated (see Rutter8), they have to be taken seriously. It is crucially important to utilize research designs that can provide adequate tests for environmental mediation of risk effects. Fortunately, a range of research strategies are available for this purpose.22 A few examples may serve to illustrate some of the approaches that may be adopted. The effects of particular experiences may be examined within monozygotic twin pairs. Because both twins share all their genes and gene combinations, any differences found within monozygotic pairs must represent some kind of environmental mediation. Several studies have used this approach to show the effects of family negativity on disruptive, oppositional, and antisocial behavior.23, 24 Alternatively, effects of experiences may be examined within adoptive families. Thus, Duyme, Dumaret and Tomkiewicz25 showed that children who had been removed from their biological parents because of a breakdown in parenting or because of abuse or neglect exhibited an increase in IQ following adoption. Interestingly, the findings showed that the extent to which the children’s IQs rose was a function of the educational and social qualities of the adoptive families.

Another approach is to examine whether or not dose-response relationships exist between duration of early adverse experiences and later outcomes, even when the children have experienced a radical change in rearing circumstances. Thus, the study undertaken with my colleagues on the English and Romanian Adoptees Study Team of children adopted into British families from severely depriving Romanian institutions constitutes an example of that approach.26,27 We observed huge improvements (equivalent to some 40 IQ points) in the children’s developmental functioning following adoption into generally well-functioning families in the United Kingdom — indicating that the initial severe developmental deficit in these children was a consequence of their earlier institutional deprivation. However, powerful additional leverage on the environmental mediation hypothesis was provided by the finding that, against a background of general improvement in psychological functioning, the extent to which deficits remained was strongly associated with the duration of early institutional deprivation. Thus, the general cognitive index score at age 6 years was more than 20 points lower in those children who received institutional care that lasted for at least 2 years as compared with those children whose institutional experiences extended over a period of less than 18 months. Similarly, the rate of disinhibited attachment was more than twice as high in the group of children who had more prolonged institutional care.
Yet another rather different kind of “natural experiment” is provided by a comparison of twins and singletons.\textsuperscript{28, 29} Compared with singletons, it has been found that twins, as a group, tend to lag somewhat behind in their language development — a difference of about 3 months at 3 years of age. Because there is no reason to suppose that twins and singletons differ in genetic background, this difference must be due to some form of environmental effect. Systematic comparisons have shown that the main influence derives from the ways in which having to deal with 2 young children of the same developmental age affects patterns and qualities of parent-child communication and interaction. Thus a twin-singleton difference in language level of some 3 months was obliterated once the group differences in these communication/interaction qualities had been taken into account. Another example concerns the comparison of rearing in residential nurseries versus rearing in foster families for children whose biological parents were unable to care for them. In the study undertaken by Roy, Pickles and I\textsuperscript{30} the 2 groups were closely similar in their adverse family backgrounds, but substantially higher rates of hyperactive-inattentive behavior were observed for the institution-reared children, suggesting strongly that this behavior was environmentally mediated.

Which Early Experiences Matter Most?

Although there are few studies that provide an adequate test of environmental mediation of behavior, some conclusions on the experiences that seem to matter most, as well as those that matter least, are possible.\textsuperscript{31, 32} The 3 main qualities of the psychosocial environment that stand out as being particularly important are listed in Table 1. First, there is the need for consistent, personalized caregiving. Evidence regarding this point is provided by the studies of children reared in residential nurseries where there is frequent turnover

\begin{table}
\centering
\caption{Three Most Important Features of the Psychosocial Environment}
\begin{itemize}
\item Consistent, personalized care
\item Harmonious parent-child relationships
\item Varied, engaging and reciprocal play and conversation
\end{itemize}
\end{table}
among a large group of caregivers. Thus, the Hodges and Tizard follow-up study\textsuperscript{33, 34} showed that even when early residential group care was followed by adoption, children tended to continue to show differences in their peer relationships in terms of their relative lack of committed, confiding relationships with other children. Similarly, Roy, Pickles and I\textsuperscript{30} comparing children in foster families and children reared in group homes, found that institution-reared children, although similar in their severely disadvantaged and deprived biological family backgrounds, differed from children in foster families because they showed more problems in their relationships and displayed a higher rate of inattentive-hyperactive behavior. The findings do not suggest that caregiving has to be provided by just one person. On the contrary, it can be advantageous for child-rearing responsibilities to be shared among several family members because it enables different family members to be mutually supportive to each other and because it enables children to develop several selective attachments, each of which can provide varying degrees of security and support. What does appear to matter is that these relationships are individualized, personal and continue over time. Ordinarily that is most likely to happen in family settings, although the particular type of setting does not seem very important.

Second, children need harmonious parent-child relationships. Numerous studies have shown the ill effects associated with severe family conflict and discord. In particular, poor outcomes are observed when negative patterns of interaction are focused on a particular child, such as with scapegoating. It seems that children can cope reasonably well with a degree of disagreement, quarrelling and even conflict, provided that the overall family context is one of harmony and caring relationships.

The third feature concerns the provision of varied, engaging, reciprocal play and conversation. Children learn from actively exploring their environment, both physically and experientially, and also through talk and the exchange of ideas. At one time, this was thought of in terms of the provision of a “stimulating” environment, but that is really misleading terminology. It implies things being done to the child rather than the child doing things with other people and through active involvement with the environment.

It is worth noting that some environmental features do not seem particularly important. For many years, research on child rearing focused on minutiae about methods of toileting, methods of discipline, timing of weaning and so
forth. Within a very broad range indeed, differences in these features do not seem to matter very much. Controversies continue to surround the possible risks and benefits associated with group day care.35 Findings from large-scale studies of general population samples have shown that, in most circumstances, the effects are rather marginal. There is some suggestion that unusually long periods of group day care in the first year of life may be disadvantageous,36 but even this suggestion requires some qualification. One study suggested that for children from high-risk (but not low-risk) families, care at home by the biological mother might actually carry more risk.10 Somewhat similarly, a study of a slightly older group of young children showed that a high degree of involvement in child care by the fathers was beneficial if each father was ordinarily well-functioning, but this involvement actually increased the risks to children if the father was antisocial.37 It cannot be claimed that we have sufficient evidence for really firm conclusions, but the overall implication is that the quality of early child care is important. However, whether a particular form of care is most advantageous depends very much on the details of home circumstances and what is available.

Issues with respect to family structure and poverty raise a slightly different set of arguments. The overall increased risks associated with children being reared by a single unsupported parent have been much publicized.38 However, to a very large extent, this is because single-parent families are disadvantaged in numerous other ways. Clearly, the mutual support 2 parents can give one another can be very helpful, but it is the overall quality of child-rearing that matters most, rather than whether or not there are one or 2 parents in the home.

Much the same applies to the risks associated with poverty or poor living conditions. For obvious reasons, a poor or stressful overall environment is likely to make good parenting more difficult. As such, it constitutes an important distal risk factor. That is to say, poor living conditions are important because individuals in this setting are predisposed to risk from other features that have a more direct proximal risk effect. However, the direct risks derive from the parenting qualities rather than the poverty as such: For example, it is clear that the improved living conditions that came about in many industrialized countries in the decades following World War II were not accompanied by a reduction in children’s mental health problems as many had hoped. To the contrary, mental health problems in children probably became worse.39
Similar findings are evident from children of divorce. When parents divorce, the financial situation of the woman is almost always much worse; most often this impinges on the children because they usually remain with the mother. Accordingly, if the economic standard of living was the key feature, children ought to do very much better when mothers remarry. However, research findings show that outcomes are much more complex than that. A mother’s remarriage may make things better or worse for children, but it very much depends on consequences arising from relationships in the home — i.e., the mere increase in the standard of living does not necessarily bring psychological benefits.

**Why Might the Effects of Early Experiences Persist?**

Although the ill effects of adverse early experiences do not necessarily persist, follow-up studies have shown quite clearly that in some circumstances, sequelae of early experiences may be quite long-lasting. Accordingly, we need to inquire what it is that leads to persistence of these effects in some cases but not in others. There are numerous possibilities, but I will highlight just 7 here, as summarized in Table 2.

### Table 2. Potential Factors Contributing to Persistence of Negative Effects of Early Adverse Experiences

- Continuity in adverse environment
- Development of maladaptive coping strategies
- Failure to develop a positive internal working model
- Experience-adaptive biological programming
- Experience-expectant biological programming
- Stress-induced alterations to neuroendocrine function
- Stress-induced hippocampal damage
To begin with, the apparent persistence of the effects of early experiences may be a consequence of an adverse environment at one age leading to an adverse environment at a later age. When that occurs, the persistence is to some extent artifactual rather than real because it derives from continuities in adversity rather than from the lasting impact of short-lived experiences in infancy. Nevertheless, on a practical level it is true that one sort of bad experience tends to make it more likely that other bad experiences will follow. This comes about as a result of the effects of people’s behaviors (influenced by the initial adverse experience) on their social interactions with others and on the way in which they deal with their life circumstances. Thus, Champion, Goodall and I showed that antisocial behavior at age 10 years was associated with more than a doubling of the rate of acute and chronic life events at age 28 years. Similarly, almost 30 years earlier, Robins found that antisocial behavior in childhood was associated with a greatly increased rate of adverse social experiences in adult life, including recurrent breakdowns of relationships, lack of social support and unstable employment. Two points need to be emphasized with respect to the importance of continuities in adversity. First, even though long-term effects are sometimes determined by the persistence of environmental hazards, this does not negate the finding of important environmental factors. Second, environments that are brought about by an individual’s own behavior may nevertheless affect their subsequent behavioral functioning. Smoking constitutes a good example of this in relation to environmentally mediated physical sequelae.

The second mechanism by which the effects of early experiences might persist involves the impact of adversity on children’s styles of coping with challenge and change as well as their styles of interacting with other people and with their environments more generally. Such effects may have negative consequences or, of course, beneficial ones. That is to say, successful coping with adversity may result in psychological strengthening. If, on the other hand, adverse experiences lead children to interact with others in maladaptive ways or to adopt damaging styles of coping, they may ultimately result in the persistence of psychological damage.

The third mechanism that might account for the persistence of the effects of early experience concerns cognitive sets or internal working models. Children actively process their experiences and think about what happens to them. Subsequently, they develop their own self-concepts and concepts of how other people treat them and respond to them. Children, like adults, enter new situations with attitudes and styles that will affect what happens to them. It seems particularly important for successful psychological functioning that
individuals have a sense of self-efficacy — an ability to cope successfully with challenges and difficulties, and the ability to plan ahead and take control of one’s own life situation. Such positive concepts are damaged by early negative experiences, and additive effects may predispose affected children to the persistence of negative sequelaes.

A fourth, rather different, mechanism is provided by what might be termed experience-adaptive biological programming. Ordinarily, organisms show a form of development that provides for effective adaptation to the specific environments that they experience at key sensitive phases, during which structure and function are established. For example, babies all over the world are able to make the same phonological discriminations in infancy. However, by approximately the second half of the first year of life, infants’ phonological skills become increasingly adapted to the language environment in which they are reared. Such effects are usually long-lasting. For example, most people are familiar with the difficulty that Japanese people have in discriminating between “r” and “l,” sounds that are crucially important in the English language and many other languages, but not in Japanese. Many other examples are readily found in biology. Both the human immune system and an individual’s metabolism develop in adaptive ways to meet the specific requirements of the environment operating during crucial developmental periods.

Experience-expectant biological programming (the fifth mechanism) operates in a somewhat different way. Some types of brain development are crucially dependent on environmental input during the relevant sensitive period of development. The best-known example of this kind is the requirement for patterned visual input for normal development of the visual cortex. This need is responsible for the clinical consequence that if a young child’s strabismus (visual squint) is not corrected during the first few years of life it is unlikely that normal binocular vision will be possible later. This form of programming is different both because it is required for normal development, not just for adaptation to a particular environment, and because a very wide range of environmental input is adequate for the purpose. It remains uncertain whether there is an equivalent of this for social development, but there may be.

Until recently, it was supposed that biological programming did not occur with the development of social relationships. However, findings from studies of Romanian children reared in institutions for the first 1 to 3 years of life suggest that it does. Children with a more prolonged period of deprived early institutional care were much more likely to show features of disinhibited attachment in middle childhood.
The effects of stress on the neuroendocrine system constitute yet another (sixth) possible mechanism by which early experience influences later life. Studies in animals have shown that acute stress brings about lasting effects on the structure and function of the neuroendocrine system.48 Recent studies of chronic psychosocial stress in humans have suggested that there may be subtle, but possibly important, effects on diurnal hormonal variations.49

Finally, studies using animal models revealed that stressful experiences can bring about damage to the hippocampus (a seventh mechanism).50 The extent to which this may occur in humans remains uncertain and to date little is known about the functional consequences of neural changes after stress. Nevertheless, it is possible that this may constitute an important mediator of long-term effects of early childhood experiences in some special circumstances.

Why Might the Effects of Early Experiences Be Evanescent?

As well as considering the mechanisms by which adverse consequences of negative early experiences may persist over the course of development, we also need to consider why so often the effects of these experiences are evanescent. The evidence is clear that there are huge individual differences in responses to all manner of environmental hazards:51, 52 Even with the most serious chronic adverse experiences, some children nevertheless manage to escape significant psychological sequelae.53 We have only a limited knowledge of the factors that bring about this protective resilience. However, 4 features that are likely to be important are highlighted here.

First, the adverse experiences may have occurred at an age when the infants lacked responsiveness to the effective environmental change. This is probably the reason that, for example, admission to the hospital generally tends to be a much less stressful experience for babies under the age of 6 months as compared with toddlers. Although babies are socially responsive and monitor their environments, they will not have developed the strong selective social attachments that are so prominent during the second half of the first year of life, which continue into the second year of life and beyond. For toddlers, separation from a key individual for whom they have a strong selective attachment is stressful in a way that it is not for babies during the preattachment phase.
A second likely feature concerns the limited cognitive and affective processing and the limited memory capacities that are present in the first 2 years or so of life. Again, infants can and do process their experiences during this early period of life, and they can and do retain memories over periods of at least several months. Nevertheless, the extent to which they are able to develop sophisticated concepts of themselves and of what happens to them is much more limited than it is at a later age. Thus, it is only as children approach the age of 2 years that they develop marked concepts of what is expected and what is right. Equally, most people have few, if any, discrete memories of actual events that occurred before they reached the age of 2 years. It is not that memories are not laid down, but rather it is because their contextual meaning is so different in early childhood from what becomes meaningful later in life that retrieval of the earliest memories is difficult, if not impossible. Because the effects of experiences are largely influenced by how people think about those experiences and on the implications of such experiences for their own self-concepts, on the whole, many experiences in the first year or 2 of life have less-lasting effects than do experiences that occur in the later preschool years.

In addition, there may be protective mechanisms that counter, dilute or ameliorate adverse events that occur at a particular time. Thus, given an overall family climate of conflict and hostility, ill effects are less likely if these negative feelings do not impinge directly on an individual child or if the child has compensatory good relationships either in the home or outside the home.

Finally, the lack of persistence of adverse sequelae of early experiences may be a consequence of compensatory good experiences in middle or later childhood years, or even later. For example, in girls who showed antisocial behavior during childhood, a harmonious marriage to a supportive spouse has been found in both US and UK studies to improve adult social functioning and to reduce the likelihood of persistent criminal activity.

**Clinical Implications**

In conclusion, some inferences are possible regarding the clinical implications that derive from this body of empiric research findings summarized here. First, attention needs to be directed toward the types of crucial experiences that impact upon children’s psychological development. Four features seem to be particularly important: continuity of personalized, harmonious, reciprocal
parent-child relationships (but with no particular implications in relation to a specific family structure or pattern of care); good quality, active conversational and play experiences; an absence of abusive or exploitative experiences; and a child-rearing style that sets limits and provides guidance and feedback, but which is responsive to the individuality of each child.

Second, we recognize that there are implications with respect to children’s processing of their own experiences. This cognitive/affective processing means that children attach meaning to their experiences and thereby develop internalized sets or models of themselves and of their experiences. Also, however, experiences influence children with regard to both their styles of interpersonal interaction and their habits of behavior. These 2 considerations will affect children’s shaping and selecting of their later environments. Many long-term effects of early adversities are dependent on these effects on later environments.

Next, there are clinical implications in relation to the important phenomenon of resilience and recovery. As noted earlier in this chapter, there exist huge individual differences in children’s responses to all types of environmental hazards. Later experiences can do a great deal to compensate for earlier adversities. Use of an active, adaptive coping style at the time of a negative experience is also important. An essential component of the processes involved in resilience and recovery focus on the crucial 2-way interplay between individuals and their environments. Genetic factors exert a significant influence on all aspects of individual variability and modulate long-term development through the operation of gene-environment correlations and interactions.

Lastly, there are implications for preventive strategies. It is necessary to focus on the origins of risk experiences as well as to focus on their effects on psychological development. Strategies need to emphasize children’s potential strengths, as well as on amelioration of risk. We need to be aware of the specific environment as it actually impinges on an individual child. Positive coping strategies and adaptive processing of experiences are important. Both parents\(^{32}\) and schools\(^{58}\) are powerful potential agents of change, but, in both cases, attention must be given to the factors likely to foster and reward adaptive functioning.
It would be satisfying if research findings led neatly to a specific preventive strategy that had a high likelihood of success. Unfortunately, we are nowhere near reaching that point. Furthermore, it is most unlikely that any single strategy will be appropriate in all circumstances for all individuals. However, the evidence does suggest a variety of useful guides and indications that may allow us to promote the development of effective strategies for helping children overcome the persistent effects of early negative experiences.

References


The Early Development of Prosocial Tendencies

Nancy Eisenberg, PhD

Introduction

The development of prosocial tendencies has engendered considerable empirical and theoretical interest during the past few decades, especially during the 1970s and 1980s. Recently, much more attention has been paid to developmental psychopathology, including the development of antisocial behavior, than to prosocial development. Moreover, the existing theory and research on prosocial tendencies in very young children has focused primarily on developmental patterns — for example, the age at which children first show empathy and sympathy or begin to engage in prosocial action. In contrast, the topic of individual differences in young children’s development has received scant attention. In this chapter, both developmental trends and potential sources of individual differences in early prosocial development will be discussed.

Empathy-related responding is a primary focus here because I believe that it plays a major role in the emergence of early prosocial behaviors, especially those that are moral (e.g., other-oriented) in motivation. Additionally, it appears that prosocial behaviors in the preschool years that are based on an other-orientation (in contrast to prosocial behaviors motivated by different factors) predict prosocial behavior across childhood and early adulthood.

This chapter begins with a discussion of definitions and critical concepts. Then I will briefly present theory on early prosocial development and review findings regarding the early emergence of empathy-related responding and prosocial behavior. Next, I will explore the issue of individual differences in greater depth. Relations of empathy-related responding to prosocial behavior and the role of empathy in the continuity of prosocial behavior over time will be examined first. Then I will evaluate the role of emotion regulation in prosocial development. Finally, I will discuss the roles of heredity and socialization in the development of empathy-related responding and prosocial
behavior. This review is illustrative rather than exhaustive. Moreover, because of the limited research on most of these issues in 2- to 3-year-old children, I have included some research conducted with infants and older preschoolers.

Conceptual Issues and Main Findings

Definitions of Critical Concepts

Until the late 1970s, investigators did not differentiate among types of empathy-related responding that involved different affective motivations. Social psychologist Dan Batson\(^1\) first differentiated between empathy and personal distress in the late 1970s. Making yet one more distinction between empathy and sympathy, empathy is defined as an affective response that stems from the apprehension or comprehension of another’s emotional state or condition and that is similar to what the other person is feeling or would be expected to feel. Thus, when someone views a sad person and consequently feels sad, that person is experiencing empathy.

In most situations, especially after early infancy, empathy is likely to evolve into one of 2 related emotional reactions (or both): sympathy and personal distress. Sympathy is defined as an emotional response stemming from the apprehension of another’s emotional state or condition, that is not the same as the other’s state or condition but consists of feelings of sorrow or concern for the other. Thus, when a girl sees a sad peer and feels concern for the peer, she is experiencing sympathy. Such a sympathetic reaction is often based upon empathic sadness, although sympathy also may be based on cognitive perspective taking or accessing information from memory that is relevant to the other’s experience. Empathy also can lead to personal distress. Personal distress is a self-focused, aversive affective reaction to the apprehension of another’s emotion (eg, discomfort, anxiety). Personal distress is likely to stem from empathy if the empathic response is experienced as highly arousing. However, it is possible for personal distress to arise from other processes (eg, guilt) or from retrieving relevant information from mental storage.\(^2\)

It is also important to differentiate among various types of prosocial behaviors. Prosocial behavior has been defined as voluntary behavior intended to benefit another. It is a superordinate category, including behaviors such as helping, sharing and comforting. However, for our purposes, a more
important distinction pertains to the motive underlying a given prosocial action. Prosocial behaviors can be motivated by a variety of factors, including egoistic concerns (eg, the desire for reciprocity, a concrete reward or social approval), practical concerns (eg, the desire to prevent damage to an object), other-oriented concern (eg, sympathy) or moral values (eg, the desire to uphold internalized moral values). We define altruistic behaviors as those prosocial behaviors motivated by other-oriented and/or moral concerns/emotion rather than by concrete or social rewards or the desire to reduce one’s own aversive affective states, although some investigators define altruism more narrowly (eg, excluding prosocial behaviors performed to uphold moral principles).

These conceptual nuances become important when one attempts to predict prosocial behavior from empathy-related responding. For example, the distinction between sympathy and personal distress is important because these emotional reactions predict different motivations for action and, consequently, for different behavior. Batson hypothesized that a sympathetic emotional reaction is associated with the desire to reduce the other person’s distress or need and, therefore, is likely to lead to altruistic behavior (rather than to prosocial behavior motivated by other motives). In contrast, personal distress, because it is an aversive experience, is believed to be associated with the motivation to reduce one’s own distress. Consequently, personal distress is expected to result in the desire to avoid contact with the needy or distressed other if possible. People experiencing personal distress would be expected to assist only when helping is the easiest way to reduce their own distress.

Hoffman’s Theory of Early Emergence of Prosocial/Empathic Responding

Martin Hoffman has presented the most comprehensive theory of the early development of empathy/sympathy and prosocial behavior. In describing the development of empathy and its association with the capacity for prosocial responding, he outlined several levels of feelings that result from the coalescence of vicarious affect and the cognitive sense of the other. Early during the first year of life, before infants acquire a clear sense of others as separate physical entities, Hoffman noted that infants often cry in response to the cries of other infants; such reactive crying is viewed as a precursor to empathy. Beginning around the end of the first year of life, infants experience empathic distress through one or more simple mechanisms (eg, mimicry, conditioning...
or association). This distress reaction is labeled *egocentric empathic distress*; it is a diffuse and generalized state encompassing both the distressed person and the infant herself. At this level, children have begun to develop a sense of self as a coherent, continuous entity separate from others, but they are still very immature (e.g., they cannot fully differentiate between their own and others’ internal states). When exposed to another’s distress, a 1-year-old infant will often seek comfort for herself and will not try to alleviate the other’s distress.

Early in the second year of life, Hoffman argues that infants begin to exhibit *quasi-egocentric empathic distress*. They start to make helpful advances toward the victim, perhaps by touching. Later, as children get older, they may try to help by hugging, giving physical assistance or by getting someone else to help. Although they realize that the other is in pain or distress and that self and other are separate physical beings, their prosocial actions are often egocentric because they do not yet understand that others’ inner states may differ from their own. For example, a child may take a crying friend to his own mother rather than to that child’s mother (even if both are present) or give the distressed child his own security blanket rather than that belonging to the other child.

Hoffman believes that sometime during the second year of life children start to exhibit *veridical empathic distress*. (Hoffman does not differentiate clearly between empathy and sympathy.) As children become increasingly aware that others have inner states (thoughts, wants, feelings) that can differ from their own, they are able to be more accurate in their empathic responses and to help others in a more effective, less egocentric manner.

As toddlers and preschoolers further develop their perspective-taking skills and their understanding of the causes, consequences and correlates of emotions, they show further gains both in the accuracy of their empathy and in their capacity to assist others. However, until sometime during childhood or early adolescence, children’s empathic responses usually are confined to another’s immediate, transitory and situation-specific distress. At some point in childhood, based on the emerging conception that self and other are beings with continuous, separate histories and identities, children develop an awareness that people continue to exist over time in different contexts and have a larger life experience. Consequently, they can respond with empathy to what they imagine is the other’s chronic, general life condition (e.g., suffering from the effects of poverty, racism or a chronic illness). At this point, Hoffman argues, they can respond empathically to the plight of a group or class of people, such as the impoverished or the politically oppressed.
Empirical Findings About the Emergence of Empathy-Related Responding and Prosocial Behavior

There is empirical support for some aspects of this theory on the emergence of prosocial responses as elucidated by Hoffman. For example, there is evidence that newborn infants sometimes display reactive crying in response to the cries of another infant (more so than to a simulated cry), although it is unclear whether such crying reflects primitive empathy, conditioned responses or emotional contagion.5, 6 Also, although infants of about 6 months of age sometimes cry in response to other infants’ cries, they frequently either ignore or simply visually attend to their peers’ distress.7 At 38 to 61 weeks of age, infants sometimes respond to others’ distress that they did not cause with orienting and distress cries, but at times infants of this age show positive affect instead, such as smiling or laughing when another is hurt. Both distress cries and positive emotional responses decrease with age during the first year or 2 of life.8

Studies of social referencing show that by late in the first year of life, children often are affected by the emotional displays of others. For example, they show more fear if another person’s facial and vocal cues suggest that a situation is fear-inducing.9 These findings demonstrate that very young children are affected by the emotions they observe in others.

At 12 to 18 months of age, infants sometimes react to others’ distress with prosocial interventions suggesting concern.8, 10 In the second to third years of life, sympathetic concern and prosocial behaviors are observed in interactions with parents,11, 12 siblings,13 peers10, 14, 15 and strangers,11 often in response to others’ distress.11, 15 Moreover, expressions of concern and prosocial actions tend to be linked, even at this age.12 Of interest, such prosocial and/or concerned responses are less common in maltreated 1- to 3-year-old children than in youngsters who were not maltreated. Aggressive responses to others’ distress are also more common in maltreated children.16, 17 Among nonmaltreated 1- and 2-year-old children, however, prosocial actions (eg, comforting, getting help) and/or empathic reactions seem to occur in about 10% to 20% of the instances during which children observe peers15 or siblings18 in distress. (The rate was about 21% in a study of 3- to 5-year-old children.19) Young children seem more likely to show concern and/or prosocial responses when they have not caused another’s distress than when they have induced it.12, 20
Concern and/or prosocial responses are also more likely to occur when the distressed person is a friend rather than another peer\textsuperscript{15} or the child’s mother rather than a stranger.\textsuperscript{11, 12}

Consistent with the emphasis on the role of self-development in the emergence of empathy as described by Hoffman,\textsuperscript{4} toddlers who recognize themselves in the mirror — ie, who have a rudimentary sense of self — are relatively empathic and likely to help or comfort others in distress\textsuperscript{11, 12, 21} (although this result is not always found\textsuperscript{22}). Further, the understanding of emotion by 2-, 3- and 4-year-old children has been positively related to their prosocial behavior in response to others’ negative emotion.\textsuperscript{14, 23-25} Consistent with the view that advances in rudimentary perspective-taking skills influence the quality of empathy, during the second year of life and at ages 4 to 5 years, children’s attempts to test hypotheses about why another is distressed have been associated with prosocial behavior.\textsuperscript{26, 27}

Some types of early-occurring prosocial actions do not seem to be motivated by empathy or sympathy. For example, even 10- to 12-month-old babies sometimes offer toys to peers during play,\textsuperscript{28} and such sharing has been observed in the interactions of 1- to 2-year-old toddlers with both their mothers and fathers\textsuperscript{29-31} and with an experimenter,\textsuperscript{32} especially if the toddlers are requested to share the object.\textsuperscript{33} In fact, Rheingold, Hay and West\textsuperscript{34} found that 100\% (\(N = 24\)) of their sample of 18 month-old children shared a variety of objects with parents and unfamiliar persons, often without prompting. Sharing of objects by young children may reflect an attempt to include social partners in their exploration when their vocabulary is limited or to sustain a social interaction,\textsuperscript{32} rather than concern for another’s needs. Object sharing may even play a role in the development of their object-naming vocabulary.\textsuperscript{31} In the toddler years, sharing also seems to be affected by reciprocity — whether or not a peer has shared with them.\textsuperscript{33} During the second and third years of life, siblings sometimes help each other with various activities, often in situations that do not involve distress or need, although older siblings tend to help and share with younger siblings more than vice versa.\textsuperscript{18}

Moreover, Rheingold showed that children at 18 months, 24 months and 30 months of age often try to help parents and other adults with common household chores — an activity that seems prosocial because children show an awareness of themselves as actors working with others toward a common goal.\textsuperscript{35}
Although the findings are not highly consistent, some types of prosocial behavior appear to increase during the first 3 years of life. Together with Fabes, I performed a meta-analysis of 265 effect sizes from 125 studies. We found that prosocial behavior increased during childhood and, more pertinent to this discussion, during the first 3 years of life (from a mean age of about 1.4 years to 2.0 years; effect size = .26). There was no significant change in prosocial responding in studies that compared the behavior of children under the age of 3 years with those ages 3 to 6 years, although the effect size of .15 for this comparison just missed statistical significance. No significant difference in the effect sizes of various types of prosocial behavior was found for children younger than 3 years. There was, however, a significant increase with age during the first 3 years of life in instrumental helping and for aggregated indices of prosocial behavior (effect sizes of .34 and .38, respectively), but not for sharing/donating behaviors. (There were no data for comforting.) For the comparison between preschoolers and infants, modest positive effect sizes indicating an increase with age were obtained for instrumental help and sharing/donating (.21 and .27, respectively), but because there were only 2 studies for each comparison, the effect sizes were not significant. (Effect sizes for comforting and aggregated indices were small.) Further, increases with age were found for observational and other-report measures for comparisons within infancy; .21 and .47, respectively. (All studies comparing infants and preschoolers were observational and, as noted previously, revealed no significant change from infancy to the preschool years.) For children under the age of 3 years, an increase in prosocial behavior with age was obtained when the recipient of the prosocial action was an adult (.33) or unknown (.68), but not when it was another child. In the infant versus preschooler comparison, an increase with age was found for child recipients (.19), but there was no difference between infants and preschoolers on prosocial behaviors directed toward adults or unspecified others. Thus, it appears that prosocial behavior generally increases during the first 3 years of life, except for sharing/donating behaviors (especially those directed at other children). Moreover, there appears to be a nonsignificant trend toward more prosocial behavior from infancy to the preschool years. Note, however, that only 10 studies compared infants of different ages and 11 studies compared infants with preschoolers, so these findings were based on relatively small samples.
Individual Differences in Early Prosocial Behavior

The Role of Empathy-Related Responding in Early Prosocial Behavior

Observational research with young children suggests that their prosocial behavior is frequently motivated by concern for others. Hoffman presented numerous anecdotes in which the empathy-related reactions of young children clearly were associated with their attempts to console or help another. Anecdotal evidence also has been provided by others including Dunn and Kendrick. As described previously, Howes and Farver found that children’s exposure to the distresses of peers elicited prosocial reactions about 20% of the time. Zahn-Waxler and Radke-Yarrow reported that prosocial interventions were linked to expressions of concern and efforts to understand and experience the other’s plight. These authors also found that personal distress reactions were negatively related to toddlers’ prosocial behavior if they merely witnessed another’s distress, but were positively related to prosocial behavior (and sympathy) when they caused the other’s distress. This result suggests that children may have experienced distress as a consequence of guilt or fear of punishment. Spinrad and Stifter reported that the concern expressed by 18-month-old toddlers in response to their mothers’ enacted distress was positively related to their prosocial reactions toward them, although similar relations were not found for a crying baby or a stranger’s enacted distress. These investigators also found that observed personal distress was marginally negatively related to toddlers’ prosocial behavior in reaction to the stranger’s distress.

In nearly all studies with children younger than 3 years of age, concerned reactions have been examined in relation to prosocial behaviors directed towards the target expected to elicit empathy-related responding (e.g., the child in an empathy-inducing film or children with a similar problem). The relation of disposition (personality) sympathy to prosocial behavior seldom has been examined. In a sample of 33- to 56-month-old children (mean age = 44 months), preschoolers’ concerned and/or prosocial responses to peers and to an adult displaying various negative emotions were positively related, suggesting individual, dispositional differences in concern that are associated with prosocial behavior by the age of 3 years.
Moreover, there are findings that more directly demonstrate a relation between preschoolers’ dispositional sympathy or empathy and their prosocial tendencies in other settings. For example, McCreath, Ahn, and 

found that 46- to 68-month-old children’s expressions of sadness/concern in response to 2 different videotapes of distressed children were positively related to prosocial behavior that was spontaneously emitted (rather than requested). Additionally, for girls only, facial concern/sadness was positively related to exhibiting requested prosocial behaviors. Anxious expressions in response to the videotapes were related to frequency but not to proportion of incidents of compliance with peers’ requests for prosocial actions, but were not related to spontaneous prosocial behavior. Children high in frequency of compliant prosocial behaviors also were frequent targets of peers’ requests for sharing/helping. Thus, children who were higher in personal distress seemed to assist others more only because they were asked to do so more often (and did not seem assertive enough to say “no”), not for other-oriented reasons.

In another study in which only naturally occurring, compliant prosocial behavior was observed (spontaneous prosocial behaviors were very infrequent), the facial concern of 46- to 70-month-old children in reaction to an empathy-inducing film was negatively related to their compliant prosocial behavior. Because compliant prosocial behavior has been unrelated to preschoolers’ moral reasoning and has been associated with lack of assertiveness when others try to take objects from them, it generally is not viewed as sympathetically or altruistically motivated (at least in young children) and it was not expected to be related to sympathy. Additionally, in this study, a physiological marker of sympathy (heart rate deceleration during the most evocative scene of the empathy-inducing film) was positively related to helping of the empathy-inducing child protagonists in the film. Further, boys’ (but not girls’) facial sadness (eg, downturned mouth or triangulated eyebrows) in response to the film was positively related to helping the film’s protagonists, whereas their facial personal distress reactions (eg, tension, such as biting the lip or tightening the mouth) were negatively related.

In general, there is some support for the view that situationally-induced sympathy is positively related to young children’s other-oriented prosocial behavior whereas their distressed reactions are only sometimes related to low levels of prosocial behavior — especially if a child did not cause the distress. However, it remains unclear whether 2- or 3-year-old children, who tend to be more sympathetic in general, are also more prosocial across a variety of contexts (as are older preschoolers).
Consistent with the notion that there is a dispositional (ie, personality) basis to prosocial response, some research suggests that dispositional differences in emotionality in young children are linked to empathy-related responding and prosocial behavior. Young children prone to distress tend to remain highly empathic or show an increase in empathy from 14 to 20 months of age, and they tend to assist others (compare with Denham), whereas quickness to anger has been negatively related to young children’s sympathy and prosocial behavior. Further, positive emotionality and sociability have been linked with an increase in empathy in the second year of life and with young children’s prosocial behavior. Such findings support the notion that there is a dispositional (ie, temperament/personality) basis for empathy and prosocial responding. Young children prone to concern and prosocial behavior likely are relatively emotional and, thus, prone to experiencing others’ distress, but they also may be sufficiently well-regulated (see later in this chapter) and/or prone to positive emotion so that they do not become overwhelmed by their empathy.

Other findings of some limited consistency in young children’s prosocial behavior also support the notion of early-emerging prosocial dispositions (although consistency has not always been found). Still, prosocial behavior does become more consistent with age during the first few years of life. One reason for stability in prosocial behavior over time might be the existence of stable individual differences in empathy-related responding that contribute to consistency in prosocial actions motivated by concern. Research undertaken with my colleagues supports such an explanation.

Together with Cameron, Tryon and other colleagues, I conducted a 23-year study of prosocial moral reasoning and prosocial responding. When participants were 48 to 63 months of age, their naturally occurring prosocial behaviors were observed in the preschool classroom. Behaviors were coded as occurring spontaneously (without a peer’s verbal or nonverbal request) or in response to a request (compliant) and as helping or sharing. Little comforting was observed. In general, helping behaviors were low in cost, such as reaching for paint for someone or tying a peer’s apron. Sharing cost more in that it required giving up an object or space in the child’s possession. We found that spontaneous sharing but not other types of prosocial behavior was related to children’s references to others’ needs during a prosocial moral reasoning assessment. Thus, when reasoning about hypothetical moral dilemmas children’s empathic concerns appeared to be associated with prosocial behaviors that
The Early Development of Prosocial Tendencies

were likely to be other-oriented, that did not simply reflect compliance with a request and that had a cost. As noted previously, high levels of compliant prosocial behaviors in children of this age tend to be linked to nonassertiveness and proneness to personal distress.\textsuperscript{40, 44} Moreover, high levels of helping tend to be related to frequency of neutral-to-positive social interactions and may reflect general sociability.\textsuperscript{42, 44}

The sample size in the analysis was small — typically 28 to 32 people and lower for analysis of friends’ reports — so the findings must be viewed with caution. However, we looked for outliers that might have caused the pattern of findings and concluded that they could not account for our findings. Despite the small sample size and the homogeneity of the sample, preschoolers’ spontaneous sharing, as assessed naturalistically in this study, predicted prosocial behavior and values and beliefs across childhood and into early adulthood.

Specifically, several prosocial constructs were assessed every 2 years, starting when children were 9 to 10 years of age and beyond (as well as previously in preschool). In late childhood and adolescence, some behavioral measures of helping or sharing were obtained. Mothers’ reports of children’s prosocial behaviors were obtained during adolescence, whereas friends reported on sympathy and prosocial tendencies in adulthood. Along with several colleagues, I found that spontaneous sharing in preschool was at least marginally correlated with costly donating at 9 to 10 years of age and 10 to 11 years of age; self-reported helping at 15 to 16 years of age; self-reported consideration for others at 19 to 20 years of age; a self-report prosocial aggregate measure at 21 to 22 years of age and 23 to 24 years of age; mothers’ reports of helpfulness at 15 to 16 years of age and 17 to 18 years of age; costly helping at 17 to 18 years of age; sympathy at 13 to 14 years of age, 15 to 16 years of age, 17 to 18 years of age, 19 to 20 years of age and 21 to 22 years of age; perspective-taking at 17 to 18 years of age, 19 to 20 years of age and 21 to 22 years of age; and friends’ reports of sympathy at 19 to 20 years of age, 21 to 22 years of age and 23 to 24 years of age.\textsuperscript{51} Spontaneous sharing in preschool generally was unrelated to self-reported empathy in childhood, self-reported personal distress, low-cost helping in childhood and adult friends’ reports of perspective-taking or prosocial behavior (although it was related to adult friends’ reports of sympathy).
Thus, spontaneous sharing in preschool was fairly consistently related to self-reports of prosocial responding and sympathy in late childhood, adolescence and early adulthood, and sometimes it predicted actual prosocial behavior and mothers’ reports thereof. There were relatively few relations between the other types of prosocial behavior and later measures of prosocial responding, although preschoolers who were higher in compliant sharing sometimes reported “scoring” high in helping in adolescence. Of particular interest, reported sympathy — which was quite consistent across individuals across time during adolescence and early adulthood — generally mediated the relation of preschoolers’ spontaneous sharing to their prosocial tendencies in adulthood.

When the study participants were 25 to 26 years of age, my colleagues and I again examined the relation of preschool prosocial behavior to later prosocial dispositions. Consistent with prior findings, adults’ self-reported prosociality was positively related to observed preschool spontaneous sharing (although the correlation was only marginally significant at ages 23 to 24 years). Moreover, friends’ reports of prosociality were marginally positively related to spontaneous sharing in preschool. Consistent with some findings in adolescence, adults’ self-reported prosocial disposition also was positively related to compliant sharing. (All aforementioned “r”s were .35 to .37.)

In brief, it appears that there is considerable stability in other-oriented prosocial behaviors associated with sympathy from the preschool years into adulthood. Also, sympathy in childhood seems to mediate relations between early spontaneous prosocial tendencies and those in late adolescence and early adulthood. What is not known is when during the first 4 or 5 years of life these tendencies first stabilize. It seems possible, however, that individual differences in sympathetic response and other-oriented prosocial behavior by the age of 3 years (and perhaps earlier) predict later altruistic tendencies.

Relations of Empathy-Related and Prosocial Responding to Regulation

Among older children, there is evidence that both sympathy and prosocial behaviors are associated with regulatory capacities. Fabes and I have argued that children who are well-regulated can modulate their vicariously induced emotion and thereby experience sympathy rather than personal distress, which reflects empathic overarousal. Moreover, well-regulated children would be expected to be able to curb their own selfish tendencies and so be better able to respond to others’ needs.
Thus, the early development of children’s effortful control seems especially relevant for the early development of prosocial tendencies. Effortful control is defined by Rothbart as “…the efficiency of executive attention, including the ability to inhibit a dominant response and/or to activate a subdominant response, to plan, and to detect errors” (personal communication via e-mail, M.K. Rothbart, January 2002). Effortful control is believed to be part of the anterior attentional system and includes the abilities to focus or shift attention and to activate or inhibit behavior, even if one does not wish to do so. Such control is necessary to respond adaptively. Executive attention, which involves effortful attentional control, is believed to show some development in the first months of life (eg, as seen in orienting) and a bit more when children reach approximately 18 months of age. However, it is believed to remain quite immature even when children are 24 months of age. Executive attention appears to develop dramatically during the third year of life. Similarly, changes in inhibitory control (ie, the ability to effortfully inhibit behavior) are dramatic in the early years. The use of gestures or verbalizations to others regarding objects, for example, indicates that infants can inhibit nonessential behaviors (such as grasping an object in front of a desired toy) in order to perform desired actions (like reaching around another object for the desired toy), which is perhaps evidence of very rudimentary inhibitory skills. During the second year of life, infants are better able to control their motor behavior, for example, some can slow their walking or stop an activity when asked to do so. This ability to inhibit behavior during tasks such as “Simon says” appears to improve considerably by the time children reach approximately 44 months of age and is fairly well-developed in 4-year-old children. Nonetheless, effortful regulation, in general, improves through childhood and into adulthood.

There is preliminary, albeit quite limited, evidence of an association between regulation and prosocial tendencies in early childhood: For example, Ungerer and colleagues found that infants who displayed distressed responses (ie, sucking on oneself, one’s own clothing or an object) after viewing a videotape of a peer fretting and crying, presumably a measure of personal distress, were found to show lower levels of optimal regulatory strategies in response to a distressing stimulus (the mother maintaining a still, noninteractive face). In several studies with 3-year-old children, the ability to delay gratification for self-gain (an ability that likely involves effortful control) was related to children’s tendency to delay a choice to benefit another. Additionally, performance on a measure of inhibitory control was related to the choice
made by 3-year-old children to delay gratification so that a peer would benefit.\textsuperscript{65} Although temperamental persistence was not related to prosocial behavior directed toward a sibling in one study of 4-year-old children,\textsuperscript{67} in another study,\textsuperscript{68} performance of preschoolers ages 3 years to 4 years on one of 2 measures of executive functioning (an index of regulation) was associated with their prosocial responses to a friend’s need. Similarly, Kochanska and colleagues\textsuperscript{69} found that the consciences of 21- to 70-month-old children regarding empathic concerns and guilt were related to girls’ (but not boys’) effortful regulation, even when the effects of age were controlled. Although Kochanska, Murray and Coy\textsuperscript{70} did not find the expected positive relation between toddlers’ (mean age, 33 months) prosocial/moral solutions to hypothetical situations and measures of inhibitory control — the ability to inhibit oneself when necessary, assessed using both parents’ reports and a battery of behavioral measures — selfish solutions to these dilemmas were negatively related to inhibitory control. Moreover, both types of solutions were associated with inhibitory control (at least marginally) in the predicted directions about 14 months later when the children were preschoolers (mean age, 46 months).

Further indirect evidence of a relation between prosocial response and regulation is provided by the association between mothers’ ratings of 2- to 3-year-old children’s empathic/prosocial responding and low levels of boys’, but not girls’, externalizing problem behavior\textsuperscript{71} and by the inverse relation between 3- to 4-year-old children’s helpfulness to a friend’s distress and the presence of hyperactive and/or conduct disorder problems.\textsuperscript{68} Although Hastings and colleagues\textsuperscript{72} did not find a relation between concern for others and the behavior problems of 4- to 5-year-olds, children with clinical behavior problems decreased in their concern and were reported by both mothers and themselves to be relatively low in concern by age 6 to 7 years. Moreover, greater concern at age 4 to 5 years predicted a decline in the severity of externalizing problems by age 6 to 7 years. Thus, the inverse relation between sympathy and externalizing problems, which partly may involve individual differences in regulation, seems to begin to be consolidated during the preschool and early school years.

In summary, it appears that an association exists between young children’s developing regulatory capacities and their empathy/sympathy and prosocial behavior. However, relevant data are scant, especially involving measures that clearly differentiate between sympathy and prosocial behavior. Given the clear
association between effortful modes of regulation and sympathy in childhood, it would be useful to assess when this relation emerges and for which aspects of regulation (eg, attention, inhibitory control) it emerges.

The Socialization of Empathic/Sympathetic and Prosocial Responding

Consistent with findings for adults, research with twins suggests that heredity contributes to individual differences in young children’s prosocial tendencies. Zahn-Waxler and colleagues studied toddlers from 14 months to 36 months of age and found that their prosocial behavior and sympathetic reactions to others’ distress (but not their self-distress) had significant genetic bases; their indifference/nonresponsiveness showed evidence of genetic influence only at ages 14 and 36 months. It is likely that part of the heritable basis of prosocial/sympathetic responding is due to genetic contributions to temperamental emotionality and regulation, both of which have been linked to empathy-related responding.

In addition to the genetic contribution to other-oriented behavior, socialization likely contributes to empathy-related and prosocial development. For example, although findings have not been entirely consistent or have been very complex (ie, they interacted with other variables), the security of a young child’s attachment to his or her parent (usually the mother) has been linked to the sympathy that 3-year-olds display at preschool, the sympathetic and prosocial responses to peers’ distress shown by 3- and 4-year-olds and 5-year-olds’ prosocial behavior and/or concern. Waters and colleagues suggested that securely attached children attend to their parents, are positively oriented to their parents’ messages, are familiar with and reproduce parents’ actions, are responsive to parental controls and desire to avoid censure from their parents. These tendencies would be expected to foster the acceptance of parental values and attempts to promote prosocial tendencies.

Consistent with findings that demonstrate that parents of securely attached children are sensitive and warm, parents of sympathetic and/or prosocial 1- to 2-year-olds tend to be warm and supportive. Indeed, Robinson, Zahn-Waxler and Emde found that maternal warmth was associated with increases in girls’ empathy/prosocial interventions on behalf of others from 14 months to 20 months of age. In the same research, positive family adaptation (eg, high marital satisfaction combined with family cohesion, low conflict and
family expressiveness) also predicted maintenance versus decline in prosocial/empathic responding from 14 months to 20 months of age. Similarly, in an experimental study with children 3½ years to 5½ years of age, participants were most likely to respond prosocially to realistic encounters with another’s distress when they interacted with nurturant adults who modeled prosocial behavior at their preschool.85

Consistent with the literature on parental warmth, parents who display intense or frequent anger or other negative emotions tend to have toddlers86 or young preschoolers23 who are low in sympathy and/or prosocial responding. Additionally, mothers who were controlling and expressed negative emotion with their toddlers had 2-year-old children who were more likely to show declines in their prosocial responding.45 However, accurate or rational displays of parental negative emotion may be positively related to 2- to 4-year-olds’ concern and prosocial behavior.23, 87 Although young children may react to parental conflict with attempts to comfort their parents88, 89 and direct positive or prosocial behavior toward a sibling who also is present,90 exposure to adults’ anger is related to increased aggression by 2-year-old children toward peers91 and is not associated with heightened peer-directed prosocial behavior.90

Parental discipline styles also have been related to 1- to 2-year-old children’s prosocial tendencies. In a short-term longitudinal study, mothers who clearly explained, with considerable affective conviction, the importance of kindness with regard to the feelings of others and restraint from hurting others, and who suggested positive actions to their toddlers, had children who were more prosocial, concurrently and months later.84 In this same study, prohibitions without explanations were related to lower levels of prosocial behavior, concurrently and over time. In a study of 39-month-old to 66-month-old children, an adult’s requests for assistance seemed to foster prosocial responding.92 Moreover, paternal, albeit not maternal, valuing of prosocial behavior has been linked to young children’s later compliant sharing with a peer.29 In general, parental communications that emphasize the importance of prosocial responding have been associated with young children’s prosocial tendencies.

Neither parents’ responses to their children’s displays of emotion93 nor parental positive reinforcement of children’s prosocial behaviors have been consistently related to young children’s prosocial behavior. Indeed, in the one study on parental reinforcement of toddlers’ prosocial behaviors, young children whose parents reinforced prosocial behavior after making a request (but who did not reinforce spontaneously emitted prosocial behaviors)
were relatively low in their requested prosocial behavior and defended toys during play with an unfamiliar peer at 3 1/2 years to 4 1/2 years of age. Preschool teachers rarely reinforce prosocial behaviors: Thus, there is little evidence that reinforcement of prosocial responding at school has a positive influence either.

Finally, parental adjustment has been linked to children’s prosocial behavior. Two-year-old children who have a parent who has bipolar disorder appear to experience heightened distress in response to the suffering of others. They also engage in less sharing with and helping of their playmates. Prosocial responses to simulated distresses by mother and the experimenter, as well as responses to a crying baby, did not differ when compared with those of children whose parents do not have bipolar disorder. Of course, such relations could be due to both heredity and socialization. Children, especially girls, who have depressed mothers may empathize too much with their distressed parent and perhaps feel as though they are a cause of maternal depression. Consequently, they may become prone to vicariously induced distress and inordinate levels of guilt and responsibility for others. Thus, children raised by severely depressed parents may not only feel irrational responsibility for others (especially their parent), but they may also feel personal distress (empathic overarousal) that can undermine their prosocial behavior.

Summary

The literature on the early development of prosocial tendencies is scant and spotty in terms of coverage of topics. Whereas numerous investigators have demonstrated the emergence of prosocial tendencies during the second and third years of life, which often but not always appear to be linked with the emergence of empathy and sympathy and increase with age, relatively little is known about factors that foster or undermine their development. Initial findings indicate that young children who are securely attached, are not exposed to intense and frequent negative emotion and have warm parents who use reasoning (delivered with affective force) are relatively likely to show concern for others and to act on that concern. Moreover, concerned, prosocial young children tend to be both emotional and well-regulated. However, additional data are needed that pertain to links between individual personality/temperamental differences and variations in prosocial development. Studies that examine connections between the dramatic changes in regulatory capacities in the first years of life and early moral and prosocial development would be of
special interest. Further, relatively little is known about the early socialization of empathy-related responding and prosocial behavior, particularly prosocial socialization by fathers and people outside the family. The role of parental values and emotional socialization in prosocial development deserves attention. Future work must also ascertain whether current findings concerning the socialization of prosocial responding, which have been compiled mostly in North America and western Europe, generalize to cultures in which prosocial behavior and emotional expressivity may differ. Initial findings with older children suggest that there are both similarities and differences.

The available findings highlight the critical role of empathy-related response in prosocial development. Empathy and sympathy are emergent during the first few years of life and often provide a motivational basis for toddlers’ and preschoolers’ prosocial behavior. Moreover, sympathy appears to underlie consistency in prosocial dispositions throughout childhood. Thus, it seems wise to counsel parents and caregivers to try to foster young children’s sympathetic concern using practices such as inductive reasoning (delivered with affective conviction). Moreover, because early prosocial and sympathetic response is linked with a warm, supportive parent-child relationship and children’s security of attachment, interventions that promote sensitive, warm parenting are likely to enhance children’s prosocial development.

In their book *Bringing Up a Moral Child*, Schulman and Mekler suggest a number of methods for encouraging children to develop empathy and sympathy. These methods, listed in Table 1, generally are consistent with what is known about socialization practices linked to sympathy and prosocial behavior in older children, as well as with most of the limited findings on young children (although the relation of reinforcement to prosocial responding is not very clear and some of these recommendations may not be as effective with young children). With the addition of one more recommendation to this list — “Model sympathy and prosocial behavior, including supportive, sensitive parenting” — Schulman and Mekler have provided an excellent summary of the practical implications of the research literature on the socialization of prosocial tendencies in young children.
Table 1. Methods to Encourage the Development of Empathy and Sympathy in Young Children

- Draw children’s attention to other people’s feelings. Ask them to imagine how they would feel in the other person’s place.
- Let children know the impact of their actions on the feelings of others, including you.
- Explain why people feel the way they do.
- Make clear (or encourage children to discover) what actions can be taken that would be more considerate.
- Let children know that you expect them to be considerate, and make sure that they know that it is important to you.
- Let children know that you understand and care about their feelings, and try to offer a way for them to get at least some of what they want — if not now, then in the future.
- Help children understand other people’s feelings by reminding them of similar experiences in their own lives.
- Help children resist the influence of people who discourage or ridicule their empathic feelings.
- Give children approval when they are considerate, and show disappointment when they aren’t.
- Share your own empathic feelings with children.
- Point out examples of people who are empathic and those who are not, and communicate your admiration for kindhearted people.
- Emphasize the good feelings that come from caring about other people.
- Model sympathy and prosocial behavior, including supportive, sensitive parenting.

Acknowledgments

Work on this paper was supported by grants from the National Institute of Mental Health (1 R01 MH60838) to Nancy Eisenberg and Richard Fabes and from the National Institute of Drug Abuse (DA05227) to Laurie Chassin and Nancy Eisenberg.

References


The Early Development of Prosocial Tendencies


The Development of Ethnic-Racial Awareness in Childhood: Implications for School Practices

Ileana Enesco, PhD and Alejandra Navarro, PhD

Introduction

Promoting smooth relationships among individuals and tolerance of cultural, ethnic and racial differences is critical as societies become increasingly heterogeneous. Prejudice and negative derogatory attitudes resulting in intergroup conflict have occurred throughout history, and these problems remain unresolved at the start of the 21st century.1 Despite efforts to develop social policies to reduce prejudice, there is a stubborn and dramatic persistence of interethnic prejudices, discrimination and conflicts.

Although prejudice is not a new problem, it is noteworthy that until the 1920s, racial domination, discrimination and segregation were viewed as natural responses of white “advanced” people to the deficiencies of “inferior” or “backward” colonial peoples and “racially different” minorities. Only after World War I did the idea of the “superiority” of some races over others begin to be challenged by scientists. As a result, racist beliefs and attitudes were reconceptualized as prejudice instead of natural responses.1 Since then, and during the rest of the 20th century, social scientists have offered different explanations of prejudice, based on distinct theoretical frameworks. For example, during the 1930s, psychoanalytic theorists considered prejudice to be an irrational and unconscious defense process by which frustration was displaced to scapegoats (usually those who differ from the dominant majority and occupy a subordinate position).2, 3 A shift in the conceptualization of prejudice occurred after World War II, when social scientists were unable to explain Nazi ideology and its catastrophic consequences with the old theories. The theory of the authoritarian personality proposed by Adorno was developed during that time, and prejudice, intolerance and racism were reinterpreted as expressions of pathological needs in individuals who had extremely authoritarian personalities.1, 4 Since the 1980s, prejudice has been reanalyzed utilizing
a sociocognitive perspective that emphasizes that the normal and universal processes of social categorization lead to intergroup distinctions, biases, stereotypes and prejudice.

This chapter reviews research into the development of ethnic-racial awareness during childhood. After an initial discussion of definitions for the terms “ethnicity” and “race,” we present an overview of research findings in traditionally multiethnic Western societies where the most influential studies of intergroup relationships and ethnic and racial prejudice have been conducted since the 1930s. Next, we will present studies we have performed in Spain, a country with a notably recent experience of immigration and multiethnicity, and where research on these issues is still in its infancy despite the fast-growing problems arising from multicultural integration in and out of schools. Finally, we will briefly discuss some of the guidelines that have been proposed to reduce intergroup prejudice in schools.

Defining the Issue: Ethnicity and Race

When discussing race and ethnicity, social scientists and laypersons often refer to different things. “Race” and associated terms such as “whites” and “blacks” are social categories usually based on distinctions of physical appearance (eg, skin color, eye shape, physiognomy), whereas ethnic terms such as “Africans,” “Hispanics” or “Asians,” are social categories that refer to distinctions based on cultural markers such as language, religion, traditions and national origin. Therefore, an individual’s internal awareness and experience of race and ethnicity may refer to differing aspects of their identity — one that includes superficial physical traits and the other that includes characteristics that may be less visible at first sight (eg, belief systems, values, customs). Nevertheless, in the recent psychological literature, “racial” terms are increasingly exchanged for “ethnic” terms. There are 2 related reasons for this change. Social scientists strive to avoid the use of racial terms that have been associated historically with hierarchical and subordinated relations of certain groups to others. In addition, the popular distinctions between races have little in common with the genetic definition of human diversity. In other words, there are no such things as nonoverlapping biological categories. The concept of “race” not only lacks the scientific basis it was historically presumed to have but also has derogative connotations due to the historical dominant/subordinate relationships between groups.
The use of racial terms in the psychological literature has become so controversial that the majority of contemporary definitions of ethnic identity make no direct allusion to the physical features that often covary with ethnicity or, at least, those that people usually associate with different ethnic groups. Let us consider one example. Bernal and colleagues have developed a model of ethnic identity that has 5 basic components.\(^6\) Self-identification refers to people’s categorizations of themselves as members of their ethnic group. It implies the use of ethnic labels for identifying one’s own group; knowledge and understanding of the group’s traditions, cultural values, language and behaviors; feelings about the group and preferences for ethnic members, values and traditions; knowledge of role behaviors that are typical of in-group customs; and awareness of ethnic constancy (that is, comprehending that ethnic characteristics remain constant throughout life). Although Bernal and colleagues recognize that the terms “race” and “ethnicity” have been used in confusing ways, as if they were interchangeable labels, their account of ethnic identity is somewhat puzzling.\(^6\) Doesn’t the concept of ethnic constancy refer above all else to the invariability over time of physical features rather than language, customs or values? Indeed, the vast majority of developmental studies assess the different components of ethnic identity by means of drawings or pictures depicting people that vary strikingly in physical appearance (eg, skin color). In our opinion, avoiding the use of “incorrect” terms when describing psychological constructs does not clarify the problem or recognize the important role that physical racial characteristics continue to play — for children and adults alike — in categorizing people. Indeed, even members of the same ethnic group make distinctions among themselves based on differences in physical features and skin color. A recent study has shown that among blacks, for example, skin color is associated with social-economic standing career success and even notions of physical attractiveness.\(^7\)

On the other hand, the use of more politically acceptable terms such as “African American” instead of “black” or “European” instead of “white” is valid only in North American society but not in European countries where such labels lose sense. Therefore, to avoid ambiguity, it is necessary to use terms that refer both to the superficial physical features by which individuals are categorized into “race” — despite the scientific irrelevance of these categories — and to the cultural features that define a specific ethnic group.
General Trends in the Development of Ethnic-Racial Awareness

When do children start noticing the characteristics (ie, physical, behavioral) that society uses to distinguish people in ethnic-racial groups? When do they recognize themselves as members of an ethnic group? What feelings and attitudes do they have towards in-group and out-group members? To what extent do children become aware of their own disposition towards them? All of these questions point at important components of the construction of a personal identity (ie, Who am I?) as much as an ethnic or racial identity.

The problem of forming an ethnic identity and developing attitudes towards different groups dates back to the first developmental studies conducted in the United States with African American and European American children.8-10 Work by the American psychologists Clark and Clark9 had great impact because it was widely circulated in the scientific world and it reported deep differences in ethnic identity development for white and black children. White children appeared to adopt a positive leaning towards their own group and tended to identify appropriately with the in-group early in life (from 3 to 5 years of age). In contrast, black children showed lower self-esteem as evidenced by their preference for white-skinned images, difficulties vis-à-vis racial identification and their tendency to undervalue black figures. These dramatic findings did, at least, prompt the US Supreme Court in 1954 to abolish racial segregation in schools.11

Since the 1960s, developmental research into ethnic-racial awareness has extended to a number of other multiethnic countries, both in the West (ie, Canada, United Kingdom, Australia) and elsewhere (eg, Taiwan, South Africa). These later studies12-18 with children from different ethnic groups show similar results. Broadly speaking, majority-group white children between 4 and 6 years of age recognize the ethnic group to which they belong, prefer it to any other group, and furthermore, tend to reject the out-group. In contrast, it is not unusual for minority-group children (eg, Africans, Asians, Latinos, Native Americans in the US and Canada) to place themselves closer to the white prototype than to their own category. Table 1 provides a summary of the more common techniques that have been employed in the study of ethnic-racial attitudes and self-identification.
Clark and Clark developed a semistandardized method, known as *The Clark Doll Test* to study children’s preferences for skin color, their attitudes — positive or negative — and their racial self-identification. The original procedure included showing the children pairs of dolls (one black and one white) and having them select a doll according to several criteria (eg, “Give me the doll you'd most like to play with”; “Give me what you think is the naughty/good doll”; “Which one is a pretty color?”; “Which one looks like a ‘white’?”) Although this method was later criticized for a number of reasons (eg, the type of material used, forcing the child to make a choice and the children’s sometimes ambiguous responses), similar techniques have been employed in later research. Some authors opted to change the stimuli, using photographs instead of dolls, whereas others have designed more realistic materials that represent not only skin color but other racial traits. An ingenious procedure was developed by Jahoda whereby children were presented with a set of jumbled pieces representing different types of facial features (eg, eyes, mouths, noses, hair) associated with different races. Children were asked to use the pieces to assemble different faces (ie, pretty or ugly, and so on). This particular technique requires children to participate much more actively, while also eliminating the constraints of a forced choice.

Additional techniques have been developed to study children’s abilities to distinguish people according to their racial traits and their knowledge of the verbal labels associated with different groups. For example, a child is shown a batch of photographs representing people with different racial characteristics and is asked to group together those that have something in common or is asked to identify members of different racial groups. Of interest in all these tasks are the criteria that the child uses either to classify people or to identify him- or herself with another individual. (See Aboud for a review.)

Attempts have also been made to evaluate children’s attitudes towards different ethnic-racial groups and to quantify their strength by means of continuous scoring attitude scales. Examples of some of the better-known tests are the Preschool Racial Attitude Measure: (PRAM), the Katz and Zalk Projective Prejudice Test and the Multiresponse Racial Attitude measure.
Research on the development of ethnic prejudice has yielded extremely interesting findings. In general, most researchers report a significant increase in ethnic prejudice between the ages of 4 and 7 years. (For reviews, see Aboud\textsuperscript{13}; Brand, Ruiz and Padilla\textsuperscript{25}; and Milner.\textsuperscript{26}) Studies conducted in the US, Canada and parts of Europe suggest that white majority-group children from the ages of 5 to 8 years hold negative views about blacks, Asians and Native Americans\textsuperscript{21, 27, 28} and that this prejudice peaks when children are 7 or 8 years old. Considering that more recent research continues to find a similar
development pattern in white majority-group children, it may be assumed that this represents a fairly stable development pattern. Children younger than 4 years of age display a diffuse and not-yet-biased ethnic orientation. Between 4 and 7 years of age, white, majority-group children tend to show strong favoritism towards their own ethnic group and negative attitudes towards other groups.

How prejudice develops in later years remains a matter of some debate. In general, research done prior to the 1970s found that prejudice continues to rise slowly and gradually between childhood and adolescence. In contrast, later studies, particularly those conducted over the past 2 decades, usually report a reduction in ethnic prejudice as adolescence approaches. These differences may be accounted for largely by the historic changes that took place in American society during the 1960s as a result of severe interethnic conflict, the rise of great leaders in the African American community and the assassination of Martin Luther King Jr. These events had a great impact in the media, in schools and on society as a whole in regard to the issue of ethnic differences. As a result, values such as tolerance, equal opportunity and respect for diversity did not take root until well into the second half of the 20th century.

Is it possible, however, that the apparent reduction of ethnic prejudice among children older than 8 years of age is, to some extent, not reflective of their actual feelings? As they mature, children become increasingly aware of socially desirable responses and they may become more skilled at responding in a socially appropriate fashion. For example, will children display a negative attitude towards the members of an out-group (eg, African American, if the interviewer actually belongs to that ethnic group? Whereas preschoolers do not change their answers according to the interviewer’s ethnic group, older children are usually more sensitive and seek to provide answers without “hurting” the questioner’s feelings. Of course, this result does not imply that older children lack ethnic prejudice. It may simply be the case that older children are aware of the social significance of skin color and know the answer that should be given to someone from another ethnic group. Does this mean that we should conclude that the only difference between older and younger children is their ability to hide undesirable answers? On the one hand, it seems clear that, as they grow, children have increased knowledge of stereotypes and exposure to prejudices that prevail in their particular society. On the other hand, they also learn more about counterbiases — ideas that
contradict such prejudices. It is likely that increased cognitive skills and flexibility allow children to be increasingly sensitive to these contradictory messages and may lead to the revision of earlier schemas of race and ethnicity. Further evidence that children are not learning simply to hide socially undesirable prejudice comes from another study that reports no correlation between measures of prejudice and measures of social desirability.23

The idea that cognitive progress is essential to the reduction of prejudice comes from cognitive-developmental theory. Empirical support for this view comes from studies that report declines in biases and in egocentric responses around age 7 years or 8 years among several social areas, including ethnic-linguistic and sexual domains.33 as well as in responses to the concepts of “nation” and people from other countries.34, 35 This is the same age at which egocentrism and centration wane and classification based on multiple characteristics improves. A number of recent studies18, 24, 29, 36 have shown a relation between cognitive skills, such as adopting and integrating different perspectives, and the attribution of positive qualities to out-groups. That said, it is clear that cognitive progress does not guarantee a reduction in prejudice and that other variables within the social environment, such as community, parents and peer attitudes,37 may play important roles in shaping development.

**Becoming Aware of Racial Constancy**

When does the idea of racial invariability arise? This question relates less to the process of forming attitudes and stereotypes than to the development of concepts and explanations about social reality. Whereas stereotyping is a means of simplifying reality, or “cognitive energy saving,” the search for explanations implies an opposite and more difficult, or “expensive,” process.

Understanding that race, like gender, is an invariant trait that is not subject to change, either over time or with a difference in appearance, represents a major cognitive achievement. Some authors claim that children can understand the biological nature of race and its permanence only when they are capable of establishing clear differences between psychological and biological domains,38 something that happens when children are around the ages of 7 to 8 years: Semaj,39 Katz,40 Katz and Kofkin41 and Ramsey42 have all collated
data that support this claim. Other investigators suggest that even preschoolers solve tasks in a way that might indicate the existence of an early intuitive biological theory. Hirschfeld in particular maintains that, as early as 4 years of age, children have an intuitive theory of race; that is, a set of related ideas about the biological and inherited nature of race. This conclusion, however, is not completely warranted given the data from the experiments that Hirschfeld performed. In one task, children were shown drawings of adults and children who had different skin colors (eg, blacks and whites), builds (heavy and slim) and working clothes (police officer and taxi driver). The children were asked to pair parents and offspring. In another task, participants were shown a black baby adopted by white parents. Children were asked to predict what the baby will be like as an adult. Hirschfeld assumed that children who paired parents and offspring according to their ethnicity instead of build or dress and who predict that the baby will continue to be black possess an intuitive biological theory of race. This conclusion is problematic. Does the fact that children respond as though they believe in the persistence of racial features (ie, attributing the same race to parents and offspring) mean that they attribute internal, stable biological factors to race? This conclusion is evident neither in the work performed by Hirschfeld nor in other similar studies. It may be that children who successfully pair parents and offspring according to skin color are acting based on a perceived regularity in the environment, not a biological intuition. Indeed, parents and children usually look alike in terms of skin color and being aware of this regularity does not necessarily imply any comprehension of biological inheritance. Studies that we performed with several colleagues attempted to clarify the meaning of these kinds of responses using techniques that concentrate on the children's explanatory framework.

The Development of Ethnic-Racial Awareness in a Homogeneous Society: Studies with Spanish Children

In Spain, we have conducted studies with children and preadolescents with the goal of learning how they develop ethnic-racial awareness. In contrast to countries such as the US, the UK and Canada, Spain has been until recently a homogeneous society from ethnic and racial points of view. Except for the Roma (Gypsy) community, a small minority that has lived in Spain
for centuries and has experienced discrimination from the majority group, Spain is still far from being a multiethnic society. Immigration is a relatively recent phenomenon that has increased dramatically in recent years. As a result, Spanish people are becoming exposed to people whose cultural practices, traditions, languages and physical appearances are different than their own. Further, although Spanish children still have few direct experiences with people of a different ethnicity, they are exposed daily to reports in the media of the conflicts that often arise between different ethnic groups.

Performing developmental studies in Spain allowed us to ask several interesting questions. To what extent do Spanish children show developmental patterns similar to those seen in multiethnic societies? Does living in a fairly ethnically homogeneous society influence self-identification processes and attitudes towards out-groups? How salient are “racial” cues to Spanish children?

We explored distinct elements of ethnic-racial awareness. First, we looked at aspects that are closely linked to the affective and attitudinal components of identification and feelings towards the in-group and out-groups. Next, we studied those aspects that are more closely related to the underlying perceptive-cognitive processes at work in the categorization of individuals and in the understanding that physical traits, such as racial features, belong to the realm of biology, are passed on from parents to offspring and are not susceptible to change.

In this part of the chapter we discuss 3 of our studies. The studies described in this chapter were funded by the Ministerio de Educacion y Ciencia, Direcccion General de Investigacion Cientifica y Tecnica, PB94-0259-CO2-01, and by the Comunidad Autonoma de Madrid, Direcccion General de Investigacion, Consejeria de Educacion, 06/0178/2001. In the first study, performed during 1996–1997, we interviewed 504 children, 3 to 11 years of age from middle and low socioeconomic status (SES) backgrounds. In a second study, conducted from 1997–1998 with 80 children, 3- to 6-year-olds from upper-middle SES homes were interviewed. Finally, 91 Spanish children, ages 4 years to 10 years, took part in a third study about children’s categorizations of people (ie, classifying people from different ethnic-racial groups, forming them into families).
We designed a series of figures depicting people of different ages (infants, children, adults), gender, skin colors and physiognomies (whites, Asians, blacks) who were dressed in clothes of different colors (green, blue, yellow, purple). The materials were designed to allow responses (e.g., in father/son and mother/daughter pairings) based on 2 salient, nonoverlapping perceptual clues: the color of the dress or the racial features. A pairing or classification based on color of clothing would never match a pairing based on skin color and physiognomy.

This methodological approach differs in some respects from traditional procedures developed in this field of research (see Table 1). For example, although we utilize materials similar to those used in traditional studies and include some of the questions typically asked in preference tests, we did not use the forced-choice format. Instead, we employed a semistructured flexible format when interviewing children. This allowed us to ascertain the rationales underlying their choices and helped us evaluate the extent to which they were aware of the criteria that guided their selections. The flexible nature of the interviews enabled us to present countersuggestion situations; that is, we offered children scenario propositions that contradicted their ideas in order to judge consistency of responses. Table 2 summarizes our studies, and Table 3 includes some results from these studies. In the remainder of this chapter, we present a general overview of our results rather than giving details of each study. (Readers are referred to references 47–51.) In general, developmental differences were observed between preschool children (3 to 5 years of age), elementary school children (6 to 7 years of age) and middle school children (8 to 10 years of age), so findings are reported separately for the different age groups.

**Preschool Children**

A number of aspects of ethnic-racial awareness change significantly between the ages of 3 and 5 years; this is not surprising considering that key social and cognitive skills develop during these ages (e.g., theory of mind, rudimentary categorizations, qualitative identities). It is important to keep in mind these developmental changes when considering the results obtained in studies that include preschool children.
**Table 2. Studies Performed Among Spanish Children**

<table>
<thead>
<tr>
<th>Issue</th>
<th>Task</th>
<th>Questions/Directions</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnic-racial self-identification</td>
<td>Self-identification</td>
<td>Do you see anybody that looks like you?</td>
<td>6 figures depicting school-aged children: 3 boys, 3 girls (black, white, Asian)</td>
</tr>
<tr>
<td></td>
<td>Self-reference</td>
<td>What color are you?</td>
<td>No material</td>
</tr>
<tr>
<td>Ethnic feelings</td>
<td>Preferences</td>
<td>Is there someone that you like best? Why?</td>
<td>6 figures: 3 boys, 3 girls (black, white, Asian)</td>
</tr>
<tr>
<td></td>
<td>Rejections</td>
<td>Is there someone that you like least? Why?</td>
<td></td>
</tr>
<tr>
<td>Racial constancy</td>
<td>Related to oneself</td>
<td>Do you think that when you grow up, you’ll be the same color? Why?</td>
<td>No material</td>
</tr>
<tr>
<td></td>
<td>Related to others: black infant is adopted by white parents</td>
<td>What do you think this baby will look like when she’s your age? Why?</td>
<td>8 figures: 2 couples (one black, one white), a black infant, 3 school-age children (black, white, Asian)</td>
</tr>
<tr>
<td>Person categorization, classifications and family groupings</td>
<td>Classification of human figures: spontaneous and directed by racial labels</td>
<td>Put together the ones that go together. Put the “whites” together and the “blacks” together. Why did you put these together?</td>
<td>18 figures: 6 blacks, 6 whites, 6 Asians. 2 adults, 2 adolescents and 2 children in each racial group</td>
</tr>
<tr>
<td></td>
<td>Family grouping</td>
<td>Put together the ones that belong to the same family. Why?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pairing: fathers and sons, mothers and daughters</td>
<td>These are daddies/mommies. Which daddies/mommies are the fathers/mothers of these babies? Why?</td>
<td>14 figures, 7 for each gender situation: 3 male/female adults (black, Asian, white) and 4 male/female children (black, Asian, white, Native American)</td>
</tr>
<tr>
<td>Heritability of racial traits</td>
<td>Biracial couple; eg, white woman/black man get married and have a baby</td>
<td>How will the baby look?</td>
<td>6 figures: 2 adults (white woman/black man or the opposite) and 4 infants (black, white, Asian, biracial)</td>
</tr>
</tbody>
</table>

In some of the tasks (self-identification, ethnic feelings, racial constancy, pairing), girls and boys were interviewed using material adapted to their gender.
Table 3. Percentage of Responses in Spanish Children Based on Racial Cues in All Tasks and Ages

<table>
<thead>
<tr>
<th>Task</th>
<th>3 years</th>
<th>4 years</th>
<th>5 years</th>
<th>6 years</th>
<th>7 years</th>
<th>8 years</th>
<th>9–11 years</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Ethnic self-identification</em> (white figure)</td>
<td>32</td>
<td>35</td>
<td>61</td>
<td>71</td>
<td>77</td>
<td>80</td>
<td>83</td>
</tr>
<tr>
<td>Self-reference† (ethnic-racial labels) “I’m Spanish/white.”</td>
<td>37</td>
<td>70</td>
<td>85</td>
<td>89</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><em>Preferences for in-group</em> (white figure)</td>
<td>45</td>
<td>53</td>
<td>65</td>
<td>78</td>
<td>78</td>
<td>68</td>
<td>53</td>
</tr>
<tr>
<td><em>Rejections of out-groups</em> (blacks or Asians)</td>
<td>77</td>
<td>86</td>
<td>90</td>
<td>95</td>
<td>88</td>
<td>87</td>
<td>76</td>
</tr>
<tr>
<td>Racial constancy† (self)</td>
<td>63</td>
<td>53</td>
<td>78</td>
<td>84</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Racial constancy† (other) (same skin color when grown up)</td>
<td>61</td>
<td>45</td>
<td>78</td>
<td>90</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Racial constancy† (after countersuggestion)</td>
<td>28</td>
<td>21</td>
<td>61</td>
<td>80</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Pairing mother/father and daughter/son‡ (by race)</td>
<td>47</td>
<td>65</td>
<td>85</td>
<td>93</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Pairing by race after countersuggestion‡</td>
<td>37</td>
<td>55</td>
<td>85</td>
<td>75</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Person categorization‡ (spontaneous)</td>
<td>–</td>
<td>0</td>
<td>15</td>
<td>38</td>
<td>58</td>
<td>69</td>
<td>81</td>
</tr>
<tr>
<td>Person categorization‡ (by racial cues)</td>
<td>–</td>
<td>65</td>
<td>92</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Family groupings‡ (by racial cues)</td>
<td>–</td>
<td>25</td>
<td>53</td>
<td>92</td>
<td>100</td>
<td>92</td>
<td>100</td>
</tr>
<tr>
<td>Biracial parents‡ Children deny possibility of marriage (unexpected finding)</td>
<td>53</td>
<td>75</td>
<td>69</td>
<td>44</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Biracial parents‡ Children deny possibility of having offspring (unexpected finding)</td>
<td>33</td>
<td>25</td>
<td>38</td>
<td>19</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

†N = 80. Middle, upper-middle SES. Ages: 3 to 6 years. Urban children (Madrid).
‡N = 91. Middle, upper-middle SES. Ages: 4 to 10 years. Urban children (Madrid).
Preschool Children

A number of aspects of ethnic-racial awareness change significantly between the ages of 3 and 5 years; this is not surprising considering that key social and cognitive skills develop during these ages (e.g., theory of mind, rudimentary categorizations, qualitative identities). It is important to keep in mind these developmental changes when considering the results obtained in studies that include preschool children.

We evaluated children with respect to self-identification, asking “Do any of these figures look like you?” Our results suggest that, prior to the age of 5 years, children have not yet constructed stable ethnic categories within which they see themselves as members: Most 3- and 4-year-old children did not use racial cues to make their choices, either denying any likeness or choosing figures from other ethnic groups. Preschoolers who were able to explain their choices tended to rely on similarity of clothes or haircuts. If, for example, they decided that they “look like” the picture of a black child, their justification could be based on the color of the T-shirt (“I’ve got a T-shirt like that [the same color]; I don’t know what you call that color [purple].”). It is only after the age of 5 years that the majority of children chose a figure from their in-group. Interestingly, half of the 5-year-olds still failed to mention ethnic cues to justify their choices. Probably, at the earliest ages, skin color has a strictly individual meaning, similar to the color of clothing or a particular haircut. This may be why, when asked to choose a figure similar to him- or herself, children make interpersonal comparisons that lead to either denying any similarity at all or to seeking specific similarities that usually refer to dress. Note that from age 3 years on, children begin to use other types of social markers, such as gender or age, to categorize themselves. Ethnic cues seem to be much less important in their interactions with others than are gender or age. In fact, young preschoolers lack the vocabulary for ethnic labeling: When explicitly asked, “How about you? What color are you?” most 3-year-olds were either disconcerted by the question or answered by referring to the color of their clothes instead of the color of their skin. About one third of 4-year-olds also made this error. Nevertheless, under certain circumstances even young children are not “color-blind” to the ethnic-racial features of the figures they are shown.

An interesting pattern emerged with respect to ethnic-racial attitudes. Three- and 4-year-old children have no clearly defined ethnic preferences as evidenced by our observation that most subjects either chose figures from
out-groups as “the most liked” or reported no preference. When it came to choosing “the least liked,” however, the children had a more clear-cut orientation. The majority (80%) rejected nonwhite figures. (It is worth pointing out that only one 3-year-old participant chose an identical figure as both preferred and rejected, suggesting that in broad terms the children’s choices were not random.) Children’s justifications, when provided, were mostly anecdotal and on occasion even invented, pointing to nonexistent differences (e.g., saying, “His shoes are really gross!” when all figures shown had the same shoes). It is only by the age of 5 years that likes and dislikes became better defined: Positive orientation towards white figures became the majority response (66%) and rejection of the remaining figures (blacks, Asians) was clearly marked (90%).

A revealing pattern emerged on examination of children’s spontaneous person categorization (“Put together the ones that look alike.”). It is interesting to note that no 4-year-olds (and only 15% of the 5-year-olds) used racial cues to classify the figures. They mixed variables to form several small groups (“This is a boy and a girl,” or “A lady and a little girl; these 2 are wearing the same T-shirt.”), but they overlooked ethnic features. Five-year-old participants, who had greater categorization skills, still focused their attention on qualities such as the color of clothing, the ages of the people depicted or even gender (“These are ladies. These are men.”). However, when children were explicitly asked to form groups according to their ethnicity (“Put the whites together, the blacks...”), responses differed widely. While some 4-year-old children were incapable of using this criterion (some were visibly surprised, saying things like, “I don’t see any blacks here,” or “There aren’t any white T-shirts or any black ones.”), the majority managed to form coherent, but not exhaustive, ethnic groups. Children older than 5 years of age were able to form groups of “blacks,” “whites” and “Chinese.” These results would seem to indicate that racial features, while not yet as important as other salient features, are already recognizable and ready to be applied to person categorization under certain circumstances.

When performing family groupings (“Make families from these figures. Put members of the same family together.”), children were slightly better at detecting the racial features of family members. Although 75% of 4-year-olds still made family groups without considering such features, just over half of the 5-year-olds formed racially homogeneous families. It is worth noting that
all of the subjects in this age group used a variety of kinship terms when describing their family groupings (e.g., father, mother, son, daughter, brother, sister, grandfather), whether or not they applied a criterion of ethnic similarity.

With respect to racial constancy, interesting differences emerged depending on the task. When subjects were asked explicitly about themselves (“When you grow up, will you still have the same color skin?”), 60% of the 3-year-olds answered in the affirmative. When asked why, however, those children who were able to give a reason stated that they “did not want to change” without providing any further explanation. However, when performing other racial-constancy tasks (such as a black baby adopted by white parents), 3- and 4-year-old participants did not consistently predict that the baby will retain its ethnic-racial features once grown up or that a white infant relocated to a black/Asian majority country would still be white when older. Also, preschool children were not driven by racial cues when asked to imagine what a baby born of a mixed marriage (e.g., a white father and a black mother) would look like. In general terms, then, we found that preschoolers have no actual biological intuition regarding the constancy or heritability of racial features. Even children who successfully pair mothers and offspring according to skin color justify this as a social regularity in their environment (“That’s the way it always is.”) and not related to biological factors. Likewise, Spanish children reject the idea of a mother and father with different skin color “because that never happens, parents are always the same” (in reference to skin color). For children who have never had contact with a multiracial family, it is probably just as necessary for husband and wife to have the same skin color as a mother and child.

Young Elementary School Children

Ethnic-racial self-identification continues to increase during the early school years. From the age of 6 years, the vast majority of children selected a figure that matches their own group. However, most of the spontaneous verbal justifications among 6- and 7-year-olds were not coherent with the underlying racial criteria that presumably guided their selections (“We look the same because of our haircuts.”; “We’ve got the same T-shirt.”). Only about 35% of subjects gave racial justifications for their self-identification choices. However, when faced with an explicit question such as “What color are you?” the vast majority responded by defining their own ethnic-racial group.
Ethnic-racial attitudes polarize sharply between 6 and 7 years of age, when the preference for whites and rejection of out-groups peaks (about 80% and 90%, respectively), and children use ethnic labels more often to justify their rejection of out-groups than to explain their preference for the in-group. Even so, there are still some children who justify their choices without mentioning ethnic cues, despite having apparently followed an ethnic criterion during the 3 tasks (eg, choosing the white as their preferred figure and the one most “like” themselves, while choosing the black as the least-liked figure). With regard to racial constancy, a large majority of subjects comprehended the permanence of racial features throughout a person’s lifetime, as much in respect to themselves as in relation to other individuals (eg, adoption tasks). A few children in this group began to express certain biological intuitions about birth and the role of parents (“You’re born like that and you don’t change.”; “If the parents are black, the baby will be black, too, and it won’t turn white.”).

We also observed substantial changes in children’s strategies in person categorization and family groupings. Virtually all of the 6- and 7-year-olds grouped families together according to ethnic criteria, and some of them explicitly spoke about biological family relations (“The brother and sister have the same color of skin because they were born of the same parents who are the same color.”), although most of the explanations were circular or redundant (“They have the same color.”; “They are family.”; or “That’s the way it’s got to be.”). Interestingly, for some children race has become such a salient feature that they have trouble finding criteria to group the pictures in any other way.

Middle School Children

A large majority of children in this age group chose figures using racial cues for ethnic-racial self-identification. Furthermore, they explicitly recognized that they belonged to a particular ethnic or racial group (eg, using ethnic or racial labels: “I’m Spanish.”; “I’m white.”). Strangely enough, however, some children in their preteens “identified” themselves with out-group figures (usually the black figure). Nevertheless, their arguments clearly demonstrated that this was not because they were confused about the group to which they belonged. Instead, they expressed a kind of emotional or affective identification with members of the out-group (“Although I’m white, I feel closer to her [a black child] than to whites.”), a kind of “putting oneself in the shoes of the ‘other’.” It is not rare for children of this age to make judgments against out-group discrimination.
We found a similar pattern for *ethnic-racial attitudes*. Beginning at the age of 9 years, children showed increasing awareness of the social significance of belonging to an ethnic group, as evidenced by their choices and corresponding arguments. Pro-white orientation diminished, and children began to show more frequent preferences for out-group figures, assigning to them positive traits that were previously only given to white figures. Some preadolescents clearly showed *counterbiases*, that is, they offered responses in favor of other ethnic groups and/or against their own group, along with responses that diverge from rigid stereotypes (“In every ‘race’ there are good people and bad people, hard workers and layabouts.”). Aside from this, while many preadolescents persisted in their rejection of out-group figures, several took particular care to emphasize that “It’s not because I’m a racist. I’ve got nothing against ‘Chinks’. I don’t mind how they look. But honestly, I don’t know much about them, and that’s why I like them less.” In other words, they were clearly aware of the unknown and of others who belong to different ethnic or national groups, but they stressed that physical appearance was not important.

In a recent study with preadolescents and teenagers concerning judgments about ethnic exclusion and discrimination of a Roma (Gypsy) child in different contexts (friendship, peer groups, school), we found, in concert with several colleagues, persistent counterbiased responses from at least the age of 9 years on. Spanish students argued strongly against the exclusion of an individual in any of the above-noted contexts on the basis of belonging to a different ethnic group. Indeed, they refused to accept even the right to choose their own friends if such a right was exercised in a scenario of discrimination against a person because of his or her ethnicity. This is a rather intriguing finding considering that, in other interview situations that make no mention of ethnicity, preadolescents affirm their right to choose whomever they like as their friends. In contrast, the results of studies conducted in the US by Killen and colleagues show that unlike their Spanish counterparts, American preadolescents and adolescents make distinctions between different contexts of ethnic exclusion, accepting it in some instances (choice of friends, inclusion in a peer group) and rejecting it in others (school attendance).

**Summary of Findings**

Our findings regarding the developmental pattern of ethnic-racial awareness among Spanish children are summarized as follows. To younger children (3 to 4 years of age), ethnic-racial characteristics were not *relevant*, or at least were
The Development of Ethnic-Racial Awareness in Childhood

less relevant than other personal characteristics (individual or categorical, such as gender or age). This “blindness” to racial cues was evident both in the absence of biases (for or against a group) and in person categorization among children in this age group. Among young elementary school children, we observed an interesting lag between attitudinal and cognitive sides of ethnic-racial awareness. By this age, children already showed favoritism for the in-group and a negative orientation towards the out-group. However, the children seemed to be unaware of their own attitudes. They also didn’t evidence much understanding of the biological nature of “racial features.” They lacked notions related to racial constancy, such as transmission of traits from parents to offspring. In the third developmental phase we studied, ethnic-racial cues became central to person categorization. Children not only became aware of their own attitudes towards different ethnic groups, but they also understood the differences between the biological and the cultural aspects of race and ethnicity. So, they understood that whereas skin color and physiognomy are immutable traits, customs or language are not. Preadolescents also began to comprehend the social meanings of ethnicity and race as they became aware of social stereotypes and even of the contradictory values held by society. Among some preadolescents, counterbiases arose that may eventually transform into a more ideological discourse.

Cross-Cultural Differences

We will now review the differences between our results and those obtained in multiethnic societies, particularly the US. Our studies have shown that favoritism for the in-group is less pronounced among Spanish children than reported among US children. Although negative attitudes towards the out-group are quite similar in children from both countries, beginning around 8 years of age, Spanish children are more likely than American children to express counterbiases (ie, responses that reflect a positive inclination towards the out-groups and a negative inclination towards the in-group). With respect to ethnic-racial self-identification, we found a slower developmental rate among Spanish children compared with children from the US and other Western multiethnic countries. Furthermore young Spanish children up to the ages of 5 or 6 years seem less oriented to racial cues with respect to person categorization than their American counterparts.
American preadolescents and adolescents display different attitudes regarding ethnic-racial exclusion, depending on the particular situation. Ethnic-racial exclusion may be tolerated in a situation in which only 2 persons are concerned and no basic rights are threatened, such as in the context of friendship, but American young people tend not to tolerate such exclusion in a situation where a basic civil right, such as the right of education for everyone, is involved. In contrast, Spanish students seem to face all these situations as if they were restricting a fundamental right; that is, the right to be treated as a person, independent of group membership.

How should these differences be interpreted? Are Spanish children less prejudiced or more tolerant than Americans? Although further studies would be necessary to answer this question, this seems very unlikely in the context of results we have already discussed. In fact, the general pattern in the development of ethnic-racial awareness among Spanish and American children is more similar than dissimilar, despite the differences in the children’s cultural backgrounds.

It seems that the level of interethnic contact has less influence than expected on the development of ethnic-racial awareness. Cross-national similarities are probably due not only to common cognitive processes that lead children to more complex ways of thinking about human diversity but also to the collective aspects of stereotyping and prejudice. As Jahoda noted, “...making a distinction [between other humans is something other than] perceiving a difference.”55 Indeed, despite ambiguities in the categorization of people according to their skin color and other physical attributes, there are widely shared beliefs about those different groups. Although children in Spain may begin to make these distinctions at a later age than children in the US, they rapidly become “inclined” to distinguish categories of people.

Is It Possible to Reduce Prejudice?
Implications for School Practices

Myriad articles are published every year dealing with the problem of how to reduce racial prejudice in children. Many of these articles propose a variety of intervention techniques to achieve this end. We often find, however, that most of the programs are not effective in reducing prejudice.56 In general,
children's biased attitudes towards other ethnic-racial groups persist despite participation in intervention programs. Why do many of these programs fail, and why are racial prejudices so resistant to change?

Several key reasons have been identified to explain the failure of intervention programs to decrease racial prejudice. Many interventions have been criticized for their lack of theoretical motivation. Surprisingly, many programs do not consider the developmental data on attitude formation or the cognitive characteristics of children at different ages. In other cases, interventions fail because investigators have erroneous assumptions or oversimplified views of the development of prejudice and the mechanisms that can be used to overcome it. Such is the case for programs that narrowly view prejudice as a result of association mechanisms, conditioning and imitation. Interventions are also unsuccessful when they focus on a single specific aspect of racial prejudice without taking into account the many different dimensions that make up ethnic-racial awareness (i.e., attitudes, conduct, belief in and knowledge of stereotypes, general knowledge of biological and social domains). In younger children there is little relation between the different dimensions of ethnic-racial awareness, and changes brought about by intervention in racial attitudes in a particular domain do not extend to other racial attitudes or biases. Therefore, interventions should be designed to embrace multiple components of ethnic-racial awareness.

Duckitt recently proposed a prejudice-reduction intervention model that addresses several different levels of ethnic-racial awareness, ranging from the individual and interpersonal to the macrosocial, legal and political. In this chapter, we will examine just the first levels of the model proposed by Duckitt. At the individual level, universal cognitive processes are responsible for the social categorization that inevitably forms the basis for stereotyping of all kinds (e.g., gender, social class, ethnicity, race). Human beings simplify reality by categorizing objects and people. From a developmental standpoint, these categories are initially rigid and nonoverlapping. As children progress cognitively, they become more proficient both in organizing and classifying things and people into multiple categories and in devising broader categories that include other, more restricted subcategories. Developmentally, this becomes possible due to children's increasing ability to think beyond visible, physical features to infer less visible traits and to include individuating information. Changes in logical thinking underlie the ability to overcome rigid
stereotypes. Cognitive progress is one of the essential conditions that enable children to understand human diversity and to transcend inflexible categories such as black-white, man-woman, Arab-Jew or, quite simply, us-them.

Abundant empirical evidence points to the importance of cognitive constraints on the processing and retrieval of information. Bigler and Liben investigated the classifying abilities of children who were at different cognitive levels. They found that children who were less skilled at classifying had difficulty understanding and remembering that an individual can be a member of 2 (stereotypically) nonoverlapping categories, such as “African American” and “scientist.” In contrast, children with more advanced classification skills were better able to remember counterstereotypical information about race.

In addition to emphasizing the role that cognitive constraints play in the development of prejudice, the cognitive-developmental approach recognizes that children do not passively receive environmental input but instead have prior notions of the world that, together with their cognitive abilities at a given time, influence how inputs are perceived and comprehended. Bigler and Liben also examined this issue, evaluating whether children’s prior ideas about other racial groups (i.e., the degree to which they were biased) influenced their memories of counterstereotype information. Children who had significant biases were less able than their peers to recall counterstereotypical information. Some evidence suggests that merely exposing children to information about other cultures may be a completely useless exercise, regardless of children’s prior biases. Day provided school children with an array of materials from other cultures (e.g., Asian cooking utensils, Indian saris) and encouraged them to include these items in their games. However, after a few weeks, the children were unable to identify the origin of each article.

With these findings in mind, it is not surprising that interventions conducted from a simplistic value transmission viewpoint have not resulted in positive effects. Differences in prior cognitive ideas and developmental levels of cognitive processing may lead to situations in which information that is significant and acts to change belief systems for some children is, for other children, senseless and soon forgotten.

Studies designed to compare racial attitudes of parents and their offspring provide additional insight into the constructive nature of beliefs. Contrary to the simplistic expectation that parents’ ideas are adopted or imitated by
their children, a study performed by Aboud and Doyle revealed few significant correlations between the beliefs and racial attitudes of parents and their children. Even the children of actively antiracist parents showed biased beliefs. According to Aboud and Doyle, children possibly construct their own “theories” about ethnic-racial diversity on the bases of models observed in the media. They postulated that children assume that their parents hold the same beliefs because only rarely do parents discuss these issues with their offspring. Perhaps children’s cognitive levels represent a more important factor. If young children’s social categories are inflexible and biased against out-groups, children may be insensitive to their parents’ antiracist beliefs.

Many interventions have been proposed with the primary aim of increasing children’s flexibility in the social categorization process in an attempt to overcome prejudice at the individual level. For example, it would be expected that the encouragement of crosscutting categorizations (i.e., individuals who belong to different groups in one categorization dimension, race, may belong to the same group in a second categorization, a team or peer group), recategorization of members of out-groups by making a common superordinate category or decategorization by means of positive interaction with out-group members (i.e., personalizing individuals) would help children overcome or disconfirm stereotypes and discover similarities between members of different groups. Nevertheless, some authors doubt the efficacy of these strategies. For example, Hewstone and Brown predict that positive individual contact between members of different groups may lead to enhanced positive attitudes towards a particular member but that these attitudes may not necessarily be generalized to the out-group to which the individual belongs. They further argue that generalization only occurs if the individual is a typical representative of his or her group. Although Hewstone and Brown found experimental support for their proposition, Brewer and Miller observed that under normal circumstances (i.e., outside the laboratory) a transformation of attitudes and stereotypes does in fact occur after regular contact with out-group members, provided that such contact is positive. In fact, when children use the different forms of category reorganization described previously, ethnic prejudice is reduced. This experience likely guides attention to individuating characteristics among out-group (and perhaps in-group) members.
Conclusions

Regrettably, there is little cooperation between basic and applied researchers and educators, even though sharing information would seem to provide an ideal way to develop intervention strategies that would have long-lasting benefits. The work of Aboud and Fenwick\ref{57} exemplifies the gains that can be reaped when educators and psychologists partner together. Other authors,\ref{56,60} conscious that prejudice reduction is a lifelong task, propose intervention from the earliest years of education. Furthermore, it is clear that diverse means must be used to achieve this goal. Any program that relies solely on minimizing ignorance about other ethnic-racial groups is insufficient to fight prejudice. Efforts to develop textbooks and audiovisual materials that describe the lifestyles and traditions of different cultures and provide counterstereotype information must be used together with techniques to help children develop the cognitive strategies necessary for flexible social categorization. This skill allows children to detect intra- and intergroup differences and similarities. Finally, some research findings suggest that speaking openly about biases and the social significance of race and describing how prejudice can grow into racism\cite{1,64} can be effective forms of school intervention, at least for children from the ages of 8 to 9 years. For these strategies to be successful, however, children must feel secure that the classroom is a safe place for discussion of delicate topics. Successful multicultural schools cannot exist if we do not openly discuss the issues of human diversity, race and their effects on individuals and interpersonal relations.

References


Section 2A: Learning From Early Social Development in Autism
Abstracts from Section 2A: Learning from Early Social Development in Autism

Sex Differences in Social Development: Lessons from Autism

Professor Simon Baron-Cohen

The key mental domains in which sex differences have traditionally been studied are verbal and spatial abilities. Two neglected dimensions for understanding human sex differences are “empathizing” and “systemizing.” The male brain is defined psychometrically as those individuals in whom systemizing is significantly better than empathizing, while the female brain is defined as the opposite cognitive profile. Using these definitions, autism can be considered an extreme of the normal male profile. The role of prenatal testosterone in organizing these neurocognitive differences is discussed. The chapter explores how a perspective from autism can teach us about typical sex differences in social development.

From Neonatal Imitation to Social Cognition: Social and Cognitive Pathways to Developmental Continuity

Michael Siller, MA and Marian Sigman, PhD

Newborns only a few hours or days old can imitate a range of facial expressions, manual gestures and vocalizations. In this chapter we will explore the functional significance of this capacity with respect to the infants’ emerging social understanding, particularly the origin of joint attention around 9 months of age. Developmental continuity can arise from 2 complementary pathways. First, the cognitive and biological mechanisms that underlie neonatal imitation may continue to be recruited for social-cognitive functions that evolve later in life. Second, an innate capacity for imitation may support
the infants’ participation in interactions with their caregivers, which in turn may provide the infants with the experiences necessary to discover the psychological states of others. Autism is characterized by a specific deficit in joint attention behaviors. Understanding the interplay between biological and social processes is crucial for guiding both our understanding of autism and the development of effective interventions.
Sex Differences in Social Development: Lessons From Autism

Professor Simon Baron-Cohen

Systemizing and Empathizing

“Empathizing” is the drive to identify another person’s emotions and thoughts and to respond to these with an appropriate emotion. Empathizing allows you to predict a person’s behavior and to care about how others feel. In this chapter, I review the evidence that, in general, females empathize spontaneously to a greater degree than do males.

“Systemizing” is the drive to analyze the variables in a system in order to derive the underlying rules that govern its behavior. Systemizing also refers to the drive to construct systems. Systemizing allows one to predict the behavior of a system and to control it. I review the evidence that, on average, males spontaneously systemize to a greater degree than do females.¹

Empathizing is close enough to the standard English definition to need little introduction, and I will come back to it shortly. But systemizing is a new concept that needs a little more definition. By a “system” I mean something that takes inputs and delivers outputs. To systemize, one uses “if-then” (correlation) rules. The brain zooms in on a detail or parameter of the system and observes how this varies. That is, it treats a feature of a particular object or event as a variable. Alternately, a person actively, or systematically, manipulates a given variable. One notes the effect(s) of operating on one single input in terms of its effects elsewhere in the system (the output). The key data structure used in systemizing is “input-operation-output”. If I do x, a changes to b. If z occurs, p changes to q. Systemizing therefore requires an exact eye for detail.

There are at least 6 kinds of systems that the human brain can analyze or construct, as shown in Table 1.
Section 2A: Learning from Early Social Development in Autism

Table 1. Main Types of Analyzable Systems

- **Technical** systems (e.g., a computer, a musical instrument, a hammer)
- **Natural** systems (e.g., a tide, a weather front, a plant)
- **Abstract** systems (e.g., mathematics, a computer program, syntax)
- **Social** systems (e.g., a political election, a legal system, a business)
- **Organizable** systems (e.g., a taxonomy, a collection, a library)
- **Motoric** systems (e.g., a sports technique, a performance, a musical technique)

Systemizing is an inductive process. One watches what happens each time, gathering data about an event from repeated sampling, often quantifying differences in some variables within the event and observing their correlation with variation in outcome. After confirming a reliable pattern of association — that is, generating predictable results — one forms a rule about how a particular aspect of the system works. When an exception occurs, the rule is refined or revised. Otherwise, the rule is retained.

Systemizing works for phenomena that are ultimately lawful, finite and deterministic. The explanation is exact, and its truth-value is testable. (“The light went on because the switch was in the down position.”) Systemizing is of almost no use for predicting moment-to-moment changes in a person’s behavior. To predict human behavior, empathizing is required. Systemizing and empathizing are wholly different kinds of processes.

Empathizing involves the attribution of mental states to others and involves an appropriate affective response to the other’s affective state. It includes not only what is sometimes called “theory of mind,” or mentalizing, but it also encompasses the common English words “empathy” and “sympathy.” Although systemizing and empathizing are in one way similar because they are processes that allow us to make sense of events and make reliable predictions, they are in another way almost the opposite of each other. Empathizing involves an imaginative leap in the dark in the absence of complete data. (“Maybe she didn’t phone me because she was feeling hurt by my comment.”) The causal explanation is at best a “maybe,” and its truth may never be provable.
Systemizing is our most powerful way of understanding and predicting the law-governed inanimate universe. Empathizing is our most powerful way to understand and predict the social world. Ultimately, empathizing and systemizing depend on separate, independent regions in the human brain.

**The Main Brain Types**

In this chapter I will argue that systemizing and empathizing are 2 key dimensions that define the male and female brains.. We all have both systemizing and empathizing skills. One can envisage 5 broad types of brains, as Table 2 shows. This chapter concerns itself primarily with those on the

<table>
<thead>
<tr>
<th>Profile</th>
<th>Shorthand Equation</th>
<th>Type of Brain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals in whom empathizing is more developed than systemizing</td>
<td>E<em>S</em></td>
<td>“Female” (or Type E)</td>
</tr>
<tr>
<td>Individuals in whom systemizing is more developed than empathizing</td>
<td>S&gt;E</td>
<td>“Male” (or Type S)</td>
</tr>
<tr>
<td>Individuals in whom systemizing and empathizing are both equally developed</td>
<td>S=E</td>
<td>“Balanced” (or Type B*)</td>
</tr>
<tr>
<td>Individuals in whom systemizing is hyperdeveloped while empathizing is hypodeveloped (the autistic end of the spectrum) — may be talented systemizers, but at the same time they may be “mind blind”</td>
<td>S&gt;&gt;E</td>
<td>Extreme male brain</td>
</tr>
<tr>
<td>Individuals who have hyperdeveloped empathizing skills, while their systemizing is hypodeveloped — may be “system blind”</td>
<td>E&gt;&gt;S</td>
<td>Extreme female brain (postulated)</td>
</tr>
</tbody>
</table>

*E=empathizing; S=systemizing; B=balanced
extreme male brain end of the spectrum. Individuals who have this psychological profile may be talented systemizers, but they are often, at the same time, “mind-blind.”

The evidence reviewed here suggests that not all men have the male brain and not all women have the female brain. Expressed differently, some women have the male brain and some men have the female brain. My central claim here is only that more males than females have a brain of type S (systemizing) and more females than males have a brain of type E (empathizing). I will review the evidence supporting these profiles. In a later section of this chapter, I will highlight the roles of culture and biology in these sex differences.

The Female Brain: Empathizing

What is the evidence for female superiority in empathizing? In the studies summarized here, sex differences of a small but statistically significant magnitude have been found.

- **Sharing and turn-taking.** On average, girls show more concern for fairness, while boys share less. In one study, boys showed 50 times greater competitiveness, as compared with girls, while girls showed 20 times greater turn-taking, as compared with boys.

- **Rough and tumble play or roughhousing** (e.g., wrestling, mock fighting). Boys show more of this than do girls. Although such activity is often playful, it can hurt or be intrusive. Lower empathizing levels are necessary to engage in rough and tumble play.

- **Responding empathically to the distress of other people.** Girls from the age of 1 year show greater concern for others through sad looks, sympathetic vocalizations and comforting as compared with boys. Also, more women than men report frequently sharing the emotional distress of their friends. Women also show more comforting, even to strangers, than men do.

- **Using a “theory of mind.”** As early as 3 years of age, little girls are ahead of boys in their ability to infer what people might be thinking or intending.

- **Sensitivity to facial expressions.** Women are better at decoding nonverbal communication — picking up subtle nuances from tone of voice or facial expression, or judging a person’s character.
• **Empathy.** Women score higher than men on questionnaires designed to measure empathic response.9

• **Values in relationships.** More women than men value the development of altruistic, reciprocal relationships, which by definition require empathizing. In contrast, more men value power, politics and competition.10 Girls are more likely to endorse cooperative items on a questionnaire and to rate the establishment of intimacy as more important than the establishment of dominance. In contrast, boys are more likely than girls to endorse competitive items and to rate social status as more important than intimacy.11

• **Disorders of empathy.** Disorders such as psychopathic personality disorder and conduct disorder are far more common among males.12, 13

• **Aggression.** Even in normal quantities, aggression can only occur with reduced empathizing. Here again, there is a clear sex difference. Males tend to show far more “direct” aggression (eg, pushing, hitting, punching), while females tend to show more “indirect” (eg, relational, covert) aggression (eg, gossip, exclusion, cutting remarks). Direct aggression may require an even lower level of empathy than indirect aggression. Indirect aggression needs better mind-reading skills than does direct aggression because its impact is strategic.14

• **Murder.** This is the ultimate example of a lack of empathy. Daly and Wilson analyzed homicide records dating back over 700 years from a range of different societies. They found that “male-on-male” homicide was 30 to 40 times more frequent than “female-on-female” homicide.15

• **Establishing a “dominance hierarchy.”** Males are quicker to establish such hierarchies. This in part reflects their lower empathizing skills because often a hierarchy is established by one person pushing others around to become the leader.16

• **Language style.** Girls’ speech is more cooperative, reciprocal and collaborative. In concrete terms, this is also reflected in girls being able to continue a conversational exchange with a partner for a longer period. When girls disagree, they are more likely to express their different opinions sensitively, in the form of questions rather than as assertions. Boys’ talk is more “single-voiced discourse;”: That is, the speaker presents only his own perspective. The female speech style is more “double-voiced discourse”; girls spend more time negotiating with their partner, trying to take the other person’s wishes into account.17
• **Talk about emotions.** Women’s conversations involve much more talk about feelings, while men’s conversations tend to be more object- or activity-focused.¹⁸

• **Parenting style.** Fathers are less likely than mothers to hold their infants in a face-to-face position. Mothers are more likely to follow through with the child’s choice of topic during playtime, while fathers are more likely to impose their own topic. Also, mothers fine-tune their speech more often than fathers to match their children’s understanding.¹⁹

• **Face preference and eye contact.** From birth, females look longer at faces, particularly at people’s eyes, whereas males are more likely to look at inanimate objects.²⁰

Females have also been shown to have better language ability than males. It seems likely that good empathizing would promote language development²¹ and vice versa, so these factors may not be independent.

**The Male Brain: Systemizing**

The relevant domains to explore for evidence of systemizing include any fields that are in principle rule-governed. Thus, chess and football are good examples of systems, but faces and conversations are not. As noted previously, systemizing involves monitoring 3 elements: input, operation and output. The operation is what was done or what happened to the input in order to produce the output.

• **Toy preferences.** Boys are more interested than girls in toy vehicles, weapons, building blocks and mechanical toys, all of which are open to being “systemized.”²²

• **Adult occupational choices.** Some occupations are almost entirely male-dominated. These include metalworking, weapon making, the manufacture of musical instruments and the construction industries, such as boat-building. The focus of these occupations is on creating systems.²³

• **Math, physics and engineering.** These disciplines all require high levels of systemizing and are largely male-dominated. The Scholastic Aptitude Math Test is the mathematics part of the test administered nationally to college applicants in the United States. Males, on average, score 50 points (out of 800) higher than females on this test.²⁴ Considering only individuals who score above 700, the sex ratio is 13:1 (males to females).²⁵
• **Constructional abilities.** On average men score higher than women on an assembly task in which people are asked to put together a 3-dimensional (3-D) mechanical apparatus. Boys are also better at constructing block buildings from 2-dimensional blueprints. Lego® bricks can be combined and recombined into an infinite number of systems. Boys show more interest than girls in playing with Legos. Boys as young as 3 years of age are also faster at copying 3-D models of outsized Lego pieces. Older boys, from the age of 9 years, are better than girls at imagining what a 3-D object will look like if it is laid out flat. Boys are also better at constructing a 3-D structure from just an aerial and frontal view in a picture.26

• **The Water Level Task.** Originally devised by the Swiss child psychologist Jean Piaget, the Water Level Task involves a bottle that is tipped at an angle. Individuals are asked to predict the water level. Women more often draw the water level aligned with the tilt of the bottle and not horizontal, as is correct.27

• **The Rod and Frame Test.** If a person’s judgment of vertical is influenced by the tilt of the frame, he or she is said to be “field dependent”; that is, their judgment is easily swayed by extraneous input in the surrounding context. If they are not influenced by the tilt of the frame, they are said to be “field independent.” Most studies indicate that females are more field dependent; ie, women are relatively more distracted by contextual cues, and they tend not to consider each variable within a system separately. They are more likely than men to state erroneously that a rod is upright if it is aligned with its frame.28

• **Good attention to relevant detail.** This is a general feature of systemizing and is clearly a necessary part of it. Attention to relevant detail is superior in males. One measure of this is the Embedded Figures Test (EFT). On average, males are quicker and more accurate in locating a target object from a larger, complex pattern.29 Males, on average, are also better at detecting a particular feature (static or moving) than are women.30

• **The Mental Rotation Test.** This test provides another example in which males are quicker and more accurate than females. This test involves systemizing because it is necessary to treat each feature in a display as a variable that can be transformed (ie, rotated) and then to predict the output, or how it will appear after transformation.31
• *Reading maps.* This is another everyday test of systemizing, because features from 3-D input must be transformed into a 2-dimensional representation. In general, boys perform at a higher level than girls in map reading. Men can also learn a route by looking at a map in fewer trials than women, and they are more successful at correctly recalling greater detail about direction and distance. This observation suggests that men treat features on the map as variables that can be transformed into 3-D. When children are asked to make a map of an area that they have visited only once, boys’ maps show a more accurate layout of the features in the environment. More of the girls’ maps make serious errors in the location of important landmarks. Boys tend to emphasize routes or roads, whereas girls tend to emphasize specific landmarks (eg, the corner shop, the park). These strategies of using directional cues versus using landmark cues have been widely studied. The directional strategy represents an approach to understanding space as a geometric system. Similarly, the focus on roads or routes is an example of considering space in terms of another system; in this case, a transportation system.32

• *Motoric systems.* When people are asked to throw or catch moving objects (target-directed tasks), such as playing darts or intercepting balls flung from a launcher, males tend to perform better than females. In addition, on average men are more accurate than women in their ability to judge which of 2 moving objects is traveling faster.33

• *Organizable systems.* People in the Aguaruna tribe of northern Peru were asked to classify 100 or more examples of local specimens into related species. Men’s classification systems included more subcategories (ie, they introduced greater differentiation) and were more consistent among individuals. Interestingly, the criteria that the Aguaruna men used to decide which animals belonged together more closely resembled the taxonomic criteria used by Western (mostly male) biologists.34 Classification and organization involves systemizing because categories are predictive. With more fine-grained categories, a system will provide more accurate predictions.

• *The Systemizing Quotient.* This is a questionnaire that has been tested among adults in the general population. It includes 40 items that ask about a subject’s level of interest in a range of different systems that exist in the environment, including technical, abstract and natural systems. Males score higher than females on this measure.35
Mechanics. The Physical Prediction Questionnaire is based on an established method for selecting applicants to study engineering. The task involves predicting which direction levers will move when an internal mechanism of cog wheels and pulleys is engaged. Men score significantly higher on this test, compared with women.36

Culture and Biology

At age 1 year, boys strongly prefer to watch a video of cars going past, an example of predictable mechanical systems, than to watch a film showing a human face. Little girls show the opposite preference. Young girls also demonstrate more eye contact than do boys at age 1 year.37 Some investigators argue that, even by this age, socialization may have caused these sex differences. Although evidence exists for differential socialization contributing to sex differences, this is unlikely to be a sufficient explanation. Connellan and colleagues showed that among 1-day-old babies, boys look longer at a mechanical mobile, which is a system that has predictable laws of motion, than at a person’s face, an object that is next to impossible to systemize. One-day-old girls show the opposite profile.20 These sex differences are therefore present very early in life. This raises the possibility that, while culture and socialization may partly determine the development of a male brain that has a stronger interest in systems or a female brain that has a stronger interest in empathy, biology may also partly determine this. There is ample evidence to support both cultural determinism and biological determinism.38, 39 For example, the amount of time a 1-year-old child maintains eye contact is inversely related to the prenatal level of testosterone.40 The evidence for the biological basis of sex differences in the mind is reviewed elsewhere.41, 42

Autism: An Extreme Form of the Male Brain

Autism is diagnosed when a person shows abnormalities in social development and communication and displays unusually strong obsessional interests from an early age.43 Asperger’s syndrome (AS) has been proposed as a variant of autism. It is seen in children who have normal or high IQ scores and who develop speech at the normal developmental age. Today, approximately one in 200 children have one of the “autistic spectrum conditions,” which include AS.44 Autistic spectrum conditions are far more common in males than in females. Among individuals with high-functioning autism (HFA) or AS, at
least 10 males are affected for every one female. These conditions are also strongly heritable\textsuperscript{45} and neurodevelopmental in origin. Considerable evidence supports structural and functional differences in certain regions of the brain. For example, the amygdala is abnormal in size in many individuals with autistic spectrum disorders, and it may not respond in the usual fashion to cues of emotional expression.\textsuperscript{46}

The extreme male brain (EMB) theory of autism was first informally suggested by Hans Asperger in 1944. According to the 1991 translation by Uta Frith, he wrote, “The autistic personality is an extreme variant of male intelligence. Even within the normal variation, we find typical sex differences in intelligence…. In the autistic individual, the male pattern is exaggerated to the extreme.”\textsuperscript{44} In 1997 this controversial hypothesis was reexamined.\textsuperscript{47} We can now test the EMB theory empirically, as the “female brain” (E> S), the “male brain” (S>E), and the “balanced brain” (S=E) have been defined (see Table 2). According to the EMB theory, people with autism or AS should always fall in the dark gray zone as illustrated in Fig 1.

**Evidence for the Extreme Male Brain Theory**

Initial tests are beginning to provide positive proof of this EMB theory.\textsuperscript{48, 49} A number of studies utilizing different approaches and standard instruments indicate that people with autism show markedly impaired empathizing. Some of the convergent lines of evidence are summarized here.

- **Mind reading.** Girls score better than boys on standard “theory of mind” tests, and children with autism or AS tend to perform even worse than do normal boys.\textsuperscript{7} Children with autism have specific delays and difficulties in the development of “mind reading,” and they are unable to make sense of or predict another’s feelings, thoughts and behaviors. Autism has been referred to as a condition of “mindblindness.”\textsuperscript{3}

- **The Empathy Quotient.** On this questionnaire, females score higher than males, and people with AS or HFA score even lower than males.\textsuperscript{35}

- **The “Reading the Mind in the Eyes” test.** Females score higher on this test than do males, but people with AS do not even score as well as males.\textsuperscript{50}
• *The Complex Facial Expressions test.* Similar to the other tests mentioned, females score higher than males, and people with AS score even lower than do males.\(^5^1\)

• *Eye contact.* Females make eye contact more often and maintain it for longer periods of time than do males. People with autism or AS make less eye contact than do males.\(^4^0,\,^5^2\)

• *Language development.* Girls develop vocabulary faster than boys, and children with autism are even slower than males to develop vocabulary.\(^5^3\)
• **Pragmatics.** Females tend to be superior to males at chatting with others and at understanding the pragmatics of conversation. It is precisely this aspect of language that people with AS find most difficult.\(^{54}\)

• **The Faux Pas test.** Females are better than males at judging what would be socially insensitive or potentially hurtful or offensive. People with autism or AS have even lower scores on tests of this than do males.\(^{55}\)

• **The Friendship Questionnaire.** This instrument assesses empathic styles of relationships. Females score higher than males on this questionnaire, and adults with AS score even lower than do normal males on this instrument.\(^{56}\)

There also exists a growing body of evidence that supports the superior systemizing abilities of individuals with autistic spectrum disorders.

• **Islets of ability.** Some people with autistic spectrum disorders have “islets of ability” in mathematical calculation, calendrical calculation, syntax acquisition, music or memory for railway timetable information to a precise degree.\(^{57}\) For high-functioning individuals, this can lead to considerable achievement in mathematics, chess, mechanical knowledge and other factual, scientific, technical or rule-based subjects. All of these areas are highly systemizable domains, and most are also domains that are more interesting to males than to females in the general population. Even music or drawing technique can be systemized and occasionally can become an islet of ability.\(^{58}\)

• **Attention to detail.** People with autism also tend to pay extra-fine attention to detail. For example, on the EFT, males score higher than females, and people with AS or HFA score even higher than males. This is not a systemizing test per se, but it is a measure of detailed local perception, which is a prerequisite for successful systemizing.\(^{59}\) On visual search tasks, males demonstrate better attention to detail than do females, and people with autism or AS have even faster, more accurate visual search skills.\(^{60}\)

• **Preference for rule-based, structured, factual information.** People with autism are strongly drawn to structured, factual and rule-based information. A male bias for this kind of information is also found in the general population.

• **Intuitive physics.** Males score higher than females on tests of intuitive physics. People with AS tend to score higher than males on such tests.\(^{61}\)
• *Toy preference.* In general, boys prefer construction-type and vehicle toys more than girls do. Clinical reports suggest that children with autism or AS demonstrate a very strong preference towards these types of toys as well.\(^{36}\)

• *Collecting.* Boys engage in more collecting or organizing of items than girls, and people with autism show this characteristic to an even greater extent.\(^{41}\)

• *Obsessions with closed systems.* Most individuals with autism are naturally drawn to predictable things, such as computers. Unlike people, computers follow strict laws. Computers are closed systems; that is, all the variables are well-defined within the system, and they are knowable, predictable and, in principle, controllable. Other individuals with autism may not make computers their target of understanding but may latch on to a different, equally closed system, such as bird migration or train spotting.\(^{62}\)

• *The Systemizing Quotient.* As noted previously in this chapter, males score higher on this test, and people with autism and AS score even higher than do normal males on this instrument.\(^{35}\)

Finally, some evidence rooted in biology and genetics supports the EMB theory of autism.

• *The Autism Spectrum Quotient.* Males in the general population score higher than females, and people with AS or HFA score highest of all on this instrument.\(^{63}\)

• *Sexually dimorphic somatic markers.* Finger-length ratio is a sexually dimorphic somatic marker. In general, males tend to have a longer ring finger compared with their second finger, which is different than the ratio in females. People with autism or AS show an even greater difference in the ratio of ring-finger to second-finger length.\(^{64}\)

• *Familiality of talent.* Males are overrepresented in occupations, such as engineering, which require good systemizing but where a mild impairment in empathizing is not necessarily an impediment to success.\(^{65}\) There is a higher rate of autism in the families of those talented in fields such as mathematics, physics and engineering, as compared with those who are most talented in the humanities.\(^{66}\) These findings suggest that the extreme male cognitive style is, in part, inherited.
Conclusions and Future Research

The evidence in this chapter suggests that the male brain is characterized by type S (where S>E), the female brain by type E (where E>S) and the autistic brain is an extreme of the male brain (where S>>E). Referring to Fig 1, development of an autistic spectrum condition indicates that an individual’s brain type is shifted towards the lower-right quadrant. For males, it is a small degree of shift, from type S to extreme type S. For females, the movement is greater, from type E to extreme type S. The causes of this shift remain unclear, but candidate factors include both genetic differences and prenatal testosterone levels.45

The model in Fig 1 predicts that the extreme female brain (EFB) exists. How would such individuals behave? By definition, their brain type is in the upper-left quadrant of Fig 1. Their ability to empathize is significantly better than other people in the general population, but their systemizing abilities are impaired. This category would include people who have difficulty understanding mathematics, physics, mechanical objects, chemistry and the like as systems1 but who are extremely accurate at tuning in to others’ feelings and thoughts. Would such a profile carry with it any disability? A person with EFB would be “system-blind.” In our society, considerable tolerance remains for such individuals. It is hoped that people who are “mind-blind” will also enjoy the same tolerance by society.

We know something about the neural circuitry of empathizing,67 but at present we know very little about the neural circuitry of systemizing. Research will hopefully begin to reveal the key brain regions involved in systems processing.

Acknowledgments

The following agencies have supported my work during the writing of this chapter: the Medical Research Council (UK), the Three Guineas Trust, the Isaac Newton Trust, the Shirley Foundation and the James S McDonnell Foundation. I am grateful to Sally Wheelwright and Johnny Lawson for the development of Fig 1. Parts of this chapter are based on work published elsewhere.68
References


10. Ahlgren A, Johnson DW. Sex differences in cooperative and competitive attitudes from the 2nd through the 12th grades. Developmental Psychology. 1979;15:45-49.


From Neonatal Imitation to Social Cognition: Social and Cognitive Pathways to Developmental Continuity

Michael Siller, MA and Marian Sigman, PhD

Introduction

The ability to simulate or interpret the psychological states of others is a central aspect of the social and moral development of humans. From very early in life, infants coordinate their interactive behaviors with the social input they receive during interactions with their caregivers. Initially, however, their interactive capacity is limited to the exchange of affect and attention in a face-to-face situation. It is not until 9 months of age that infants also coordinate their interest in external objects or events with other people. This transition from dyadic to triadic competence is frequently referred to as the origin of joint attention and is manifest in a range of new interactive behaviors: infants begin to follow the gaze direction or pointing gesture of other people, alternate their gaze between an interesting event and another person’s face and actively direct the attention of other people to objects that capture their own interest. The infant’s emerging awareness that other people attend to and have intentions towards external objects or events lays a foundation for many important developments during the toddler years: the capacity for cultural learning, the development of an empathic understanding (see Nancy Eisenberg, PhD, this volume), the development of a theory of mind and the development of spoken language.

During recent years, researchers have become increasingly interested in identifying the social capacities, developments and encounters that precede the emergence of joint attention at around 9 months of age. Authors such as Peter Hobson and Michael Tomasello have argued that the infant’s emerging social understanding has its roots in a biological adaptation that allows the newborn to “connect” with other people in a very special way. In this
chapter we will argue that part of this biological adaptation may be manifest in the neonate’s capacity for imitation. We will discuss the cognitive and biological mechanisms that underlie this capacity and explore how neonatal imitation may prepare for the acquisition of joint attention around 9 months of age. In particular, we will discuss 2 complementary developmental pathways, both of which emphasize the continuity between neonatal imitation and joint attention. In the first proposed pathway, neonatal imitation and joint attention share a common set of underlying cognitive mechanisms and neurological structures. The second pathway describes how neonatal imitation supports social interaction between infant and caregiver and, thus, provides the infant with the social experiences necessary to discover the psychological activity of other people.

Developmental theories about the origin of joint attention in typical development have important implications for our understanding of atypical development, particularly the development of children with autism. One of the defining characteristics of children with autism is a specific deficit in joint attention behaviors. Efforts to understand the nature of this deficit are complicated by the fact that autism rarely is diagnosed before 3 or 4 years of age. Consequently, very little is known about the social development of these children during infancy. Given this paucity of knowledge, a thorough understanding of normative development is crucial for guiding both our understanding of autism and the design of effective interventions.

Cognitive and Biological Bases of Neonatal Imitation

Currently, it is generally accepted that typically developing newborns have an innate capacity to imitate behaviors modeled by other people. Infants only a few hours or days old have been shown to imitate a wide range of facial expressions (e.g., tongue protrusion, mouth opening, widened/pursed lips, eye blinking or happy/sad/surprised expressions), manual gestures (e.g., hand opening/closing) and vocalizations. Despite this general consensus about the existence of the phenomenon, the cognitive and biological mechanisms that underlie the imitative behaviors of neonates are the subject of some controversy. What scientists cannot seem to agree upon is how much cognitive involvement (e.g., goal directedness, representational abilities) should be ascribed to neonates to explain their imitative behaviors.
Early attempts to explain neonatal imitation often referred to innate releasing mechanisms, whereby imitative behaviors like tongue protrusion are directly elicited by a circumscribed set of visual stimuli. However, evidence gathered during the last few decades showed that neonates’ imitative capacities are not limited to a few predefined behaviors, but rather involve a broad range of facial gestures, hand gestures and vocalizations. Considering this evidence, explaining neonatal imitation with a few wired-in reflexes no longer seems valid. Additionally, research on delayed imitation has shown that infants as young as 6 weeks of age are capable of imitating other peoples’ gestures after a 24-hour delay. Again, a capacity for delayed imitation is not compatible with an explanation based on innate releasing mechanisms. Neonatal imitation appears to be mediated by representations rather than by wired-in reflexes.

Andrew Meltzoff, Keith Moore and Rechele Brooks propose a more generative process underlying neonatal imitation. These authors argue that the design of the newborn’s representational system supports integration across organ relations that are observed (e.g., a protruded tongue, a pursed lip) and organ relations that are executed. Importantly, Meltzoff, Moore and Brooks view this integration as an active and goal-directed comparison between representations of self and representations of other people. This comparison is possible because infants are born with a basic appreciation for the similarity between self and other (i.e., that others are “like me”). In a microanalytic study of imitative responses, Meltzoff and Moore showed that infants as young as 6 weeks of age gradually modified their imitative behavior toward more accurate matches over successive trials. The authors interpreted this finding as evidence that neonatal imitation is the outcome of a purposeful and goal-directed matching-to-target process.

Similarly to Meltzoff and Moore, Daniel Stern argued that neonatal imitation has its roots in the design of the newborn’s perceptual and representational system. According to Stern, information is cognitively represented in terms of global, amodal qualities like intensity, rhythm, motion or affect. This amodal representational code enables the newborn to integrate within and across different domains of experience, including observation and execution of actions. However, in contrast to Meltzoff and Moore, Stern does not assume that this integration is innately goal-directed and purposeful. Along the same lines, Kenneth Kaye argued that “…there is no reason to suppose infants are in any way aware that their own action is similar to the model’s; they may simply mistake the model’s movements for movements produced by a schema of their own.”
Despite their differences, Meltzoff/Moore and Stern share a common emphasis on the innate design of the newborn’s representational system, particularly the representation of human actions. This emphasis is paralleled by a growing biological literature on the neurological networks involved in the representations of actions. Important findings in this regard come from animal research, particularly with macaque monkeys.

Using intracortical microstimulation and single neuron recordings, researchers have identified neurons in the premotor cortices of macaques that are active not only when actions are executed but also when someone else is observed performing a motor act. Neural activity of this kind is frequently referred to as “mirror neuron activity.” Of particular interest is area F5, located in the rostral part of the ventral premotor cortex. The neurons in area F5 were shown to represent hand and mouth movements. Interestingly, the great majority of neurons in area F5 encode actions according to the intended goals rather than the specific movements that are involved. For example, the same neurons may discharge when the monkey is grasping an object independent of whether he uses his left hand, right hand or mouth to do so. Besides their involvement in the execution of goal-directed actions, a subgroup of neurons in area F5 also discharges when the same goal-directed motor acts are observed being performed by another individual. Giacomo Rizzolatti and Maurizio Gentilucci suggested that area F5 is best understood as representing a vocabulary of “motor ideas.” These motor ideas become activated during both execution and observation of actions.

Although intracortical microstimulation and single neuron recordings are the methods of choice in animal research, this methodology cannot be applied easily to humans. Instead, electromyographic and imaging studies are used. Converging evidence from this work indicates that mirror neuron activity can be identified in the human brain.

**Electromyographic Studies**

For several centuries, scientists have been intrigued by the observation that human adults have the tendency to mimic the facial expressions, postures, voices and behaviors of one another. Very often, these acts of mimicry are not the result of a conscious attempt to imitate another person, rather they occur involuntarily. In some cases, mimicry involves an overt copy of another person’s behavior. In others, however, these acts involve only a slight
From Neonatal Imitation to Social Cognition

activation of the cortical motor systems or muscle groups that correspond to those activated in the model. Researchers have visualized this activation using electrical recordings from muscles (ie, with electromyography; EMG), sometimes amplified with an unspecific transcranial magnetic stimulation of the motor cortex.\textsuperscript{50-57} Results show that perceptual information that emanates from observing an action performed by another individual is accompanied by activation in the observer’s motor system. This activation is specific to the effectors activated in the model. When observing another person demonstrating motor acts, like facial expressions, talking or arm and hand movements, human observers typically show a specific activation in the corresponding motor systems.

**Imaging Studies**

A range of imaging technologies was applied to study the neural activation of the human brain when observing biological movement. Studies using functional magnetic resonance imaging (fMRI)\textsuperscript{58, 59} and positron emission tomography (PET)\textsuperscript{60-62} yielded 2 important findings. First, the observation of human movement is accompanied by a specific activation of Brodman area 6 (premotor cortex), area 44 (Broca’s area) and area 45 (inferior frontal gyrus).\textsuperscript{63} This activation tends to be stronger in the left as compared with the right hemisphere. Both areas 44 and 45 have been suggested to be the human homologue of area F5 in monkeys.\textsuperscript{58, 62} Second, the specific pattern of activation varies according to the effectors activated in the model. Giovanni Buccino and colleagues reported a topographic shift in activation from the ventral to the dorsal parts of the premotor cortex when the effector used in the observation moves from mouth to hand and to foot.\textsuperscript{59} In addition to these fMRI and PET studies with adults, quantified electroencephalography (EEG) has been used to investigate the perception of human movement in 2- to 8-year-old children.\textsuperscript{64} Consistent with the adult work, researchers reported a decrease in theta power values in the frontotemporal and central regions of the left hemisphere that was specific to the observation of human movement.

Understanding the cognitive and biological mechanisms that underlie the social behaviors of newborns allows us to explore the continuity between neonates’ innate characteristics and their subsequent development. Both Meltzoff and Stern have argued that the mechanisms that underlie the newborns’ imitative behaviors involve an innate capacity to integrate across observed and executed actions. The core difference between the 2 accounts
lies in the nature and function that is ascribed to newborns’ sense of self: Meltzoff equips neonates with a rather mature sense, allowing for an active, goal-directed and purposeful comparison between their own actions and the actions displayed by other people. For Stern, the neonatal sense of self is still “emerging,” and the matching across observed and executed actions is rather automatic and direct. This contrast presents a potential basis for empirically discriminating between the 2 accounts. That is, neurological evidence for a direct matching between observed and executed actions would comport nicely with the account presented by Stern but would not be predicted by Meltzoff. We argue that the mirror neuron activity identified in both macaque monkeys and humans provides evidence for a direct matching mechanism. Independent of whether an action is observed or executed, the same neural event is triggered. Additionally, as indicated by the EMG studies on mimicry in human adults, this matching appears to be a rather automatic process that does not involve a purposeful comparison between observed and executed actions.

Linking Neonatal Imitation and Joint Attention: A Cognitive Pathway

Many neonatal capacities continue to be recruited for functions that evolve much later in life. Andrew Meltzoff and Rechele Brooks argue that during all stages of development the ability to understand other people is based on the awareness of a basic analogy between oneself and other people: “Empathy, role taking, and all manner of putting oneself in someone else’s shoes emotionally and cognitively seem to rest on the equivalence between self and other.” Moreover, Meltzoff and Brooks argue that this notion of others as “like me” is innate, providing the newborn with an interpretive framework for understanding other people’s behavior. That is, in appreciating that other people are “like me,” infants can use what they know about themselves to interpret other people’s actions. For example, the infant’s experience of grasping to satisfy desires may help them to understand the subjective states that underlie the grasping behaviors of other people. Similarly, infants’ experiences with “turning their heads in order to see” may help them make inferences about other people’s visual points of view. In essence, Meltzoff and Brooks provide the newborn with an innate cognitive mechanism — the notion that others are “like me.” They argue that this notion not only allows neonates to
imitate other people’s behavior (see discussion of neonatal imitation earlier in this chapter), but it also enables 9-month-old babies to discover the equivalence between their own intentional states and the intentional states of other people (joint attention).

The proposal that a single cognitive mechanism underlies both neonatal imitation and joint attention faces at least 3 fundamental challenges. The first challenge arises because, as Stern suggests, a capacity for cross-modal matching seems insufficient to explain the process of self-other generalization described by Meltzoff and Brooks. Rather, what this process requires is a reflective agent who can actively compare representations of self with representations of other people. In other words, only if the infant has a sufficiently mature sense of self will he or she be able to use knowledge of self to interpret other people’s behavior. Meltzoff and Brooks resolve this issue by proposing that, along with the capacity for cross-modal matching, the capacity to actively compare representations of self with representations of others is innate and present at birth. Their argument is based on their interpretation of neonatal imitation as an active, goal-directed, matching-to-target process. However, as emphasized previously, such a rich explanation of neonatal imitation is quite controversial.

The second challenge to the proposal of a single underlying mechanism for neonatal imitation and joint attention is related to the age of emergence of the 2 functions. If both functions are based on a single cognitive mechanism, why do infants imitate other people’s behaviors from birth but are not aware of other people’s intentions until 9 months of age? Tomasello suggested that the origin of joint attention might depend on additional capacities that work in conjunction with the infant’s innate notion of others as “like me.” Specifically, he argued that it is not until 9 months of age that infants represent their own actions in terms of underlying intentions. In turn, it is not until 9 months of age that infants can utilize their innate awareness of others as “like me” to attribute intentions to other people. Even if one proposes an innate mechanism shared by social-cognitive functions at various levels, it remains important to specify the nature and developmental course of those capacities that work with this innate mechanism to trigger new functions. A similar argument has been made with regard to neurological accounts that emphasize the functional significance of mirror neurons for a range of social-cognitive functions such as imitation, joint attention, empathy.
spoken language69 and theory of mind.65 Vittorio Gallese and Alvin Goldman emphasized that mirror neurons themselves do not constitute a full-scale realization of the human ability to simulate other people's subjective states: “Our conjecture is only that mirror neurons represent a primitive version, or possibly a precursor in phylogeny, of a simulation heuristic that might underlie mind-reading.”65

Finally, the proposal that neonatal and subsequent social-cognitive functions recruit the same underlying mechanisms is challenged by research on stability and change of imitative behaviors during infancy. Cross-sectional studies have shown that the complexity and abstraction of infants’ imitative behaviors increase dramatically during the first years of life. That is, imitative behaviors displayed by newborns are largely limited to the imitation of simple organ relations such as tongue protrusion. In contrast, 18-month-olds are capable of inferring and imitating an adult’s action goal, even when the infant observes the adult trying but failing to perform an act.70 Interestingly, longitudinal studies that tracked the imitative behaviors of infants during the first year of life demonstrated an apparent discontinuity in the infant’s imitative behaviors.21, 71, 72 Generally, these studies have reported a peak in imitative behaviors around the second month. Subsequent to this peak, infants seem to slowly lose their imitative capacity. After performing at chance level around 6 months of age, the capacity for imitation does not reappear in the behavioral repertoire of the infant until the ninth month. This apparent discontinuity in imitative behaviors during the first year has been interpreted as evidence for a discontinuity in underlying mechanisms.19

Stern has argued that the innate design of the perceptual system enables the infant to “connect” with other people at a very basic level — the domain of emergent relatedness.34, 40 Like Meltzoff and Brooks, Stern believes that this early mode of relatedness influences interpersonal relationships throughout the life span. However, Stern also emphasized that new modes of relatedness emerge developmentally. According to Stern, the primary function of the emergent mode of relatedness is to assure social interactions. It is the experience within these interactions that enables infants to discover new ways of relating to others, including advances in social understanding, such as joint attention.
Linking Neonatal Imitation and Joint Attention: A Social Pathway

Children’s social understanding develops during interactions with other people. The success of their attempts to understand other people’s intentions and emotions ultimately depends on their ability to assimilate, organize and structure the information available during interactions with their caregivers. Given the complexity of the social world, children’s learning may depend on some degree of guidance in the selection and representation of the available information. Such guidance could come from sensitive caregivers who carefully adapt their interactive behaviors to children’s learning needs. Guidance could also result from a set of innate assumptions, organizing principles or constraints that bias children’s behaviors and information processing in ways that are adaptive for social learning. For example, Meltzoff and Brooks have argued that an innate capacity for imitation gives special meaning to human acts and makes them distinguishable from experiences that emanate from the nonpersonal world. Similarly, Kenneth Kaye argued that the temporal organization of newborns’ sucking behaviors, which he characterized as an alternating pattern of bursts and pauses, enables parents to incorporate turn-taking into early feeding interactions. Finally, many authors including David Bjorklund, Daniel Stern, Kenneth Kaye, Olga Maratos, Jacqueline Nadel and colleagues, Ina Užgiris and Mikael Heimann have argued that an innate capacity for imitation may enable infants to participate in social interactions with their caregivers.

Emphasizing children’s social experiences as a basis for the acquisition of joint attention creates a fundamental theoretical problem. The problem arises because other people’s intentions and emotions cannot be experienced firsthand. While infants have at least a basic awareness of the psychological activity that governs their own actions, infants’ experiences with other people’s actions are limited to behavioral observation. Given this lack of direct information, Chris Moore has argued that a special social situation is required for the child to understand the correspondence between these 2 sources of experience. Moore and Barresi suggested that situations in which infant and caregiver are engaged in the same psychological activity provide infants with the information necessary to discover that their own subjective experiences may be shared by other people. Shared experience between infant and caregiver has been emphasized during all stages of early social development: shared rhythms and regulations during early feeding interactions, shared
attention and affect during early face-to-face interactions and shared engagement with toys during early play interactions. Further, various longitudinal studies have linked the ability of the parent-child dyad to establish shared meaning to the subsequent development of communication skills in the child. In these studies, the time spent in joint engagement during parent-infant play interactions reliably predicted the rate of children’s subsequent acquisition of nonlinguistic and linguistic communication skills.

Despite the significance of shared experiences, Tomasello has argued that it is equally important for the infant to participate in situations in which infant and caregiver interact reciprocally; that is, take turns and complement each others’ behavior. He proposed that reciprocal interactions enable infants to discover that, even though their experiences may be shared by other people, they are still separate and distinct experiences.

So far, we have argued that innate constraints — particularly the capacity for imitation — may bias children’s interactive behaviors in ways that facilitate their participation in shared and reciprocal interactions with their caregivers. We have also argued that shared and reciprocal interactions with caregivers may promote children’s understanding of other people’s intentions and emotions. However, it is important to emphasize that this chain of arguments is built upon one key assumption: Infants are not only capable of imitating other people’s behavior but they frequently implement this capacity during interactions with their caregivers. Empirical support for a link between the capacity for imitation and the capacity to participate in social interactions comes from a longitudinal study conducted by Mikael Heimann. In this study, 2- to 3-day-old infants’ ability to imitate facial gestures such as tongue protrusion and mouth opening was assessed. Children were followed up at 3 months of age, and an episode of parent-infant face-to-face interaction was observed. Heimann found that infants who were more likely to imitate facial models during the first days of life were less likely to show gaze aversions during face-to-face interactions at 3 months.

Despite this evidence, attempts to document how infants apply their innate imitative capacity during interactions with their parents have been challenged by a number of practical problems. First, as mentioned earlier, researchers have found that infants’ imitative capacity peaks during the second month but disappears subsequently. Also, the face-to-face encounter does not become the primary mode of interaction until the middle of the second month of life.
For these reasons, the age range during which infants potentially can use their innate imitative capacity to manage social interactions is rather constrained. Second, the few empirical studies that have evaluated the imitative behaviors of infants during naturally occurring interactions have shown that infant imitations occur at rather low frequencies. Ina Užgiris followed a sample of 17 infants between the ages of 2 1/2 and 11 1/2 months, recording 11 minutes of parent-infant face-to-face interactions once every 3 months. Although she observed imitative behaviors in infants of all ages, the 2 1/2-month-olds imitated their parent on average only once per session. The rate increased to 3 1/2 times per session in 11 1/2-month-olds. In sum, although infants are capable of imitating other people’s behavior from very early on, the practical significance of this capacity as a means of establishing social interactions has been questioned. The scope of the discussion of this issue should, however, be widened.

First, imitation has been defined by the similarity between parents’ and infants’ behavior. However, it is not clear how close this similarity must be to be explained by the processes underlying neonatal imitation. Stern has argued that newborns perceive actions in terms of amodal qualities like intensity, rhythm or affect. In turn, behavioral matching of interactive partners may be expected to occur primarily with regard to these amodal perceptual qualities even though the content of the acts may differ considerably. For example, Meltzoff and Moore presented infants with the model of an adult sticking his tongue out of the corner of his mouth. They found that in 70% of the cases, infants responded to this model with a straight-tongue protrusion while simultaneously turning their heads to the side. Imitative behaviors are never perfect and match models only in certain ways. If such a broader definition of behavioral matching is adopted, higher base rates could be expected.

Second, the innate mechanisms underlying neonatal imitation may enable infants not only to imitate other people but also to recognize when they are being imitated. Evidence for this argument comes from research conducted by Field, Guy and Umbel. As part of this research, 3 1/2-month-old infants and their mothers participated in 2 experimental conditions. In the first condition mothers were instructed to interact with their children as they normally would in a face-to-face setting. In the second condition mothers were instructed to imitate their children’s behavior as frequently as possible. Field and colleagues found that infants showed more gaze contact, smiles and vocalizations during the imitative as compared with the spontaneous encounter,
indicating that infants reliably distinguished between the 2 situations. Obviously, an innate capacity to recognize the imitative behaviors of other people would promote the infant’s ability to participate in social interactions. Hanus and Mechthild Papoušek argued that, from the first days of life, parents provide what they called a “biological mirror.” Through imitation, parents give their children the chance to learn about the similarity between their own actions and those performed by other people. Empirical support for this observation comes from a longitudinal study conducted by Ūzgiris and colleagues. The results suggested that mothers were much more likely to imitate their infants’ behavior rather than the other way around. Also, during 11 minutes of face-to-face interaction, mothers imitated their 2½-month-olds about 5 times. This number was nearly doubled by the age of 11½ months.

The final reason why the practical significance of neonatal imitation may have been underestimated is related to the social function it serves. Most authors have argued that imitation supports the sharing of experience between parent and infant. That is, imitation functions to establish a similarity of interest, activity or affect. The fact that most imitative behaviors are embedded in reciprocal exchanges has received much less empirical attention. Frequently, the matching of the partner’s act functions as a turn and continues the interaction. Consequently, an innate imitative capacity not only supports the experience that other people’s private states may be shared but also that other people have intentions and emotions that are separate and distinct from one’s own.

Joint attention plays a pivotal role in social development. It seems surprising that such a critical developmental function would be dependent on social experiences as specific as shared or reciprocal interactions with the caregiver. Skepticism has been raised particularly by cross-cultural work that indicates distinct differences in mother-child interaction across developed and less-developed countries. In particular various studies have reported that maternal caregiving in underdeveloped countries such as Kenya involves much lower levels of both face-to-face interactions and verbal involvement. However, as recently argued by Shannon Whaley and colleagues, these cultural differences may be an artifact of the social milieu in which infants are raised, particularly patterns of shared caregiving by multiple family and community members. Based on evidence collected in Kenya and the United States the authors were able to show that when all caregivers are taken into account, the similarities across cultures become much more apparent. This evidence supports the idea that the participation in shared and reciprocal interactions is a...
universal characteristic of human experience and development. Morphology and behavior of both caregiver and infant may have evolved specifically to assure the frequent occurrence of social encounters of this kind.35

**Implications for Children with Autism**

This chapter is concerned with 2 complementary pathways that link neonates’ innate capacities to their subsequent social-cognitive development. The first pathway involves innate capacities that continue to be recruited for social-cognitive functions that evolve much later in life. The second pathway describes the inborn capacities and constraints that support infants’ participation in social interactions with their caregivers and, thus, provide the context for the infants’ emerging social understanding. In discussing the deficits and potentials of children with autism it seems important to carefully consider both developmental pathways.

Authors such as Meltzoff and Brooks33 and Tomasello, Kruger and Ratner5 have repeatedly used the example of children with autism to illustrate the first developmental pathway. Children with autism are portrayed as lacking the otherwise innate ability to perceive other people as someone “like me.” This innate deficit is thought to block a broad range of social-cognitive outcomes: the understanding of other people’s intentions (joint attention) and emotions (empathy), the ability to learn via imitation and the ability to participate in cultural learning. However, as Sally Rogers has pointed out, this account paints a rather bleak picture of the potential for development in children with autism.94 Partial accomplishments of children with autism that are commonly reported for imitation, joint attention, theory of mind and language are not easily integrated. Also, this account offers little information that could be helpful in designing interventions.

Along the second developmental pathway described in this chapter, the innate neuropathological deficit of children with autism is viewed as an obstacle to establishing shared and reciprocal interactions.95-98 In turn, the failure to establish shared meaning between parent and infant is thought to interfere with the child’s subsequent social development. Given that in typical development shared meaning emerges from both partners, this framework may be useful for designing interventions that would allow parents to compensate, in part, for the interactive deficits of their young children with autism.
Kenneth Kaye provided a detailed discussion of how parents manage shared and reciprocal interactions with their young, typically developing infants. He argued that during the first year of life, the roles of managing shared or reciprocal encounters are not distributed evenly between parents and infants. Initially, it is the primary responsibility of parents to adjust to the infants’ built-in rhythms and contingencies, to interpret and complete their intentions, to imitate certain aspects of their behavior and to be responsive to their actions. Similarly, Roger Bakeman and Lauren Adamson found that before infants are able to actively coordinate their attention between an object and the parent (joint attention), a shared interest in a toy or event is usually established by the parent following the child’s attentional lead and joining the infant’s spontaneous toy engagement (e.g., by imitating the child’s actions). Moreover, various longitudinal studies have linked this parental strategy to a superior subsequent development of communication skills in children. Specifically, the parental tendency to describe aspects of the environment occupying their child’s current focus of attention reliably predicted the child’s subsequent rate of language acquisition.

The few studies that have contrasted the interactive behaviors of parents of children with autism and parents of typically developing children report that the former tend to be more directive and controlling. Similar findings are reported when the behaviors of parents of developmentally delayed children are contrasted with the behaviors of parents of typically developing children. At this point we do not know why parents assume a more directive role during interactions with their young children who have autism. Part of the reason may be that the spontaneous play behaviors of young children with autism are often narrow in content, involve many repetitions and lack functional or symbolic play acts. By communicating clear expectations about what the child should do and how the child should do it, parents may be attempting to advance their child’s play behaviors. Despite the good reasons that parents may have for assuming a more directive and demanding interactive role, such behaviors may compromise an important goal of parent-child interaction: the mutual managing of shared meaning.

The idea that adults can establish shared meaning with young children who have autism by following the children’s attentional lead and joining their ongoing activity and that such an interactive style may promote social-cognitive and communicative development is supported by at least 3 mostly recent developments in research and intervention. First, many interventions that
specifically target communication skills consider the child’s motivation and the sharing of control over material and tasks as basic parameters of intervention. These programs include Pivotal Response Intervention\textsuperscript{111, 112} Natural Language Teaching Paradigm,\textsuperscript{113} Incidental Teaching Approach,\textsuperscript{114-116} Functional Development Approach,\textsuperscript{117} the Child's Talk Project,\textsuperscript{118, 119} the Relationship Development Intervention,\textsuperscript{120} the Hanen Early Language Program\textsuperscript{121} and the Do-Watch-Listen-Say Intervention.\textsuperscript{122}

Second, experimental studies have demonstrated that the social responsiveness of children with autism increases during and after social interactions in which the experimenter imitates the child’s behavior.\textsuperscript{123-125} In a recent experimental study, Jacquelin Nadel and colleagues presented a sample of low-functioning children with autism with a modified version of the still-face paradigm.\textsuperscript{125} The children entered a familiar room alone and found an unfamiliar adult who remained still-faced. After 3 minutes, the adult engaged the child in a brief social exchange during which the adult imitated everything the child did. Finally the adult moved back to his chair, remaining still-faced for another 3 minutes. The results showed that during the first still-face episode, the children showed very little concern, that is, they rarely looked at the person, sought his proximity or displayed negative affect. However, subsequent to the imitative exchange, the children with autism showed reliably elevated levels of concern when the stranger became still-faced.

Finally, evidence for a developmental link between parental interactive behaviors and the children’s subsequent development of communication skills comes from a 16-year longitudinal study conducted in our lab.\textsuperscript{126} Twenty-five children diagnosed with autism and their parents participated in this study. At 4 years of age, an episode of parent-child interaction was videotaped and coded for the extent to which the parent’s interactive behavior was synchronized with the child’s focus of attention and ongoing activity. Overall, the results revealed that caregivers of children with autism who showed higher levels of synchronization during initial play interactions had children who developed superior joint attention and language over a period of 1, 10, and 16 years compared with children with autism whose caregivers showed lower levels of synchronization initially. This predictive relation could not be explained by variation in initial characteristics of the child such as intelligence quotient, joint attention or language skills. Most importantly, verbal utterances by the caregiver that were both synchronized with the child’s attention (referring to toys that the child was currently looking at) and undemanding in
quality reliably predicted the child’s subsequent 10-year \( R(17) = .67; P<.005 \) and 16-year \( R(19) = .79; P<.001 \) language gains. Interestingly, verbal utterances that were synchronized with the child’s attention but communicated a verbal demand were negatively correlated with the child’s subsequent 10-year \( R(17) = –.54; P<.05 \) and 16-year \( R(17) = –.51; P<.05 \) language gains. That is, even when parents talked about a toy that the child was currently attending to, high levels of verbal demands were associated with small subsequent language gains.

The account on early social development and its implications for children with autism presented in this chapter includes several speculative elements. At this point, we do not know whether mirror-neuron activity is innate or learned for typically developing children. We do not know what role, if any, mirror-neuron activity plays during the imitative behaviors displayed by neonates. And we have only limited evidence showing a mirror-neuron deficit in children with autism. Moreover, it is important to keep in mind that an innate capacity for imitation is not the only predisposition that supports children’s participation in social interactions with their parents. Even with these caveats, our account provides a concrete example of a transactional model of atypical development. This model illustrates how an innate neuropathological deficit can interfere with the ability of the caregiver-child dyad to successfully manage social exchanges and, consequently, can impede the child’s emerging social understanding. To what extent it is possible to assist parents in managing shared meaning with their young children who have autism and to what extent such an intervention would promote the children’s social and communicative development are empirical issues that require further investigation.

**Acknowledgments**

Thanks to Ting Wang and Mirella Dapretto for their comments on an earlier version of this manuscript. Preparation of this chapter was supported by Program Project Grant HD-DCD3570 and the Medical Investigation of Neurodevelopmental Disorders (MIND) Institute Research Program at the University of California, Davis.
From Neonatal Imitation to Social Cognition

References


Section 3: Peers and Play
Abstracts from Section 3: Peers and Play

Early Friendships and Children’s Social and Moral Development

Professor Judy Dunn

The nature of friendship and intimacy in the toddler and preschool years provides important information on how children understand others and on their emerging moral sensibility. Children as young as ages 2 to 3 years, or even younger, can develop friendships. These relationships can form an internal representation of friendship that children continue to draw upon later in life. Shared pretend play is a core feature of early friendships and represents a key element of how children understand others’ mental states. In addition, individual differences in cognitive abilities regarding others’ emotions may affect later social and moral development. Friendship interactions also provide a context within which to understand problem behavior during the toddler and preschool years, particularly for children who have difficulty with emotion control and sustained connected communication, and for those preoccupied with violence.

Pretending to Be Someone Else

Paul L. Harris, DPhil

Both Freud and Piaget offered a negative account of children’s early imaginative capacities. They implied that objectivity can only be achieved in the course of development as the imagination is brought under control. However, the conceptual analyses offered contemporaneously by Bleuler and Vygotsky suggested instead that the imagination need not interfere with objectivity and is an integral part of normal, mature functioning. Recent empirical research supports this more optimistic assessment of the imagination. Very young children and adults display 3 common dispositions: adoption of the perspective of fictional protagonists; construction of a causally coherent mental representation of narrative events; and emotional engagement by
such fictional events. This early-emerging capacity to consider the world from another person's perspective is most evident in the pretend play of normal children. Moreover, among normally developing children, frequent participation in joint pretend play is associated with the ability to understand and talk about mental states. Among children with autism, in contrast, infrequent participation in such play is associated with marked limitations in the ability to talk about and understand mental states. Future research should establish whether participation in pretend play can improve children's interpersonal understanding.
Early Friendships and Children’s Social and Moral Development

Professor Judy Dunn

Introduction

The relationships that very young children have with their friends are revealing both in regard to children’s understanding of other people and in relation to their emerging moral sensibility. Relationships are also important indicators of later development. In this chapter, the nature of friendship and intimacy in the toddler and preschool years will be discussed first, using evidence from research on both normative development and individual differences. Second, the developmental significance of early friendship will be considered within the context of evidence from longitudinal studies carried out in the United States and the United Kingdom. The links between early friendship, emotional and moral understanding in the preschool period and later moral understanding and friendship in the school years will be discussed. Evidence for “carryover” from preschool friendships to later friendships will be considered in terms of implications for children’s representations of relationships. Finally, I will examine the role of friendship as a window through which we can study problem behavior in the toddler and preschool years. The significance of violent fantasy, teasing and bullying in the preschool years will also be discussed for its effects on later moral sensibility.

Friendship and Moral Sensibility in the Early Years

The idea that children’s relationships with other children are developmentally significant has held a key place in the major theories of psychology. However, until quite recently it had been assumed that children younger than 6 or 7 years of age had only very limited abilities to relate to other children in an intimate way and that friendship in early childhood was inevitably fleeting and transitory. Consider, however, the observations made by Dorothy Burlingham and Anna Freud on children brought up together in the Hampstead Nursery during World War II:
“Reggie (18 months) and Jeffrey (15 months) had become great friends. They always played with each other and hardly ever took notice of another child. This friendship lasted for about 2 months till Reggie went home. Jeffrey missed him very much; he hardly played during the following days and sucked his thumb more than usual.”

Burlingham and Freud commented that “…we observe many instances of friendships among infants which last weeks, or even months. Playmates are certainly not chosen indiscriminately; in playing together the partner often seems no less important than the game.” Do such social relationships reflect the exceptional circumstances in which these babies were developing? Or do the capabilities that these babies showed reflect capacities for friendship that other children also possess? Research in this area has led to 2 relevant and important changes in the earlier view that children younger than 6 or 7 years of age are not capable of forming friendships. First, we now know that even during the toddler years children have some understanding of the feelings and intentions of others — a characteristic central to the quality of close relationships — and these powers grow rapidly during the preschool years. Some children bring considerable sensitivity of feelings to their early friendships. Individual differences in emotion understanding are closely linked to the quality of early friendships: Understanding when and why friends are distressed or angry, and what will comfort or amuse them plays a central part in friendship in early childhood, just as it does in older people. Second, evidence from longitudinal studies, such as the important research done by Howes (see also Dunn and Park, Lay and Ramsay), has established that friendships, even among 2- and 3-year-olds, can be maintained for several years. Longitudinal studies of friends, carried out jointly with my colleague Cutting, showed that among 4-year-olds, the average length of the relationship between friends was more than 2 years — that is, the friendships had begun before the children were 2 years of age.

The Nature of Early Friendships

Studies of the social processes central to early friendships highlight a number of key themes that characterize close relationships. These include the young friends’ shared imaginative play, their connected communication and the extent and management of conflict between them. Shared imaginative play is frequently central to preschool friendships and is closely associated with the development of social understanding. Conversations about feelings
and inner states, which we know contribute to the development of understanding of those states,\textsuperscript{16} are especially likely to take place in the context of shared imaginative play with another child.\textsuperscript{17} Howes and colleagues\textsuperscript{18} have argued that cooperation in the creation of an imaginative world and accompanying narrative reflects a kind of intimacy. Howes makes a convincing case for shared fantasy as a context within which children begin to explore emotional closeness, trust and self-disclosure. The world of shared pretend that unfolds as children develop friendships is not only enormously exciting to them, but it reflects a special understanding and skill on their part. Gottman and Parker comment on this in their book on children’s friendships:

“Friends can create a world of great involvement and high adventure, and they can do it at the tender age of 3 or 4. They must coordinate their efforts with all the virtuosity of an accomplished jazz quartet, and they must manage the amount of conflict between them. These things require enormous social skill.”\textsuperscript{11}

Two- and 3-year-olds commonly do not tell us with any elaboration what they value in their friendships. They most often simply say, “We play together.” But we should not take this as evidence against the importance of their friendships to them. Clearly, friendships matter hugely to children as any parent or preschool teacher knows. The subtlety of these friendships is clear as well. The establishment of a shared world of play is an achievement that depends on a close meshing of interests, goals and intellectual excitement. Moreover, it requires children to subdue some of their own interests in order to maintain the joint play.

Connectedness of conversation, which reflects a “tuning in” of each speaker to the other’s interests, has also been highlighted as an important marker of the quality of children’s friendships\textsuperscript{19} and is linked to early social understanding.\textsuperscript{20} This capability of tuning in to the other is an important predictor of later friendship quality and of social understanding.

Concern and support for friends is also observed as early as the toddler years. The famous examples of the concern and empathy for their companions shown by the children who as toddlers were looked after in the Hampstead Nursery by Burlingham and Freud\textsuperscript{4} are echoed in more recent observations. For instance, Blum cited several examples of the concern and practical support that his 3-year-old child Sarah showed towards her 3-year-old friend.
Clara.\textsuperscript{21} He noted that Sarah “…responds not to an immediate state of distress of the other child but draws on her memory and knowledge of the other child’s condition…” It is responsiveness to “…what she believes Clara wants or would like…” and involves “…the taking of action to address another’s condition. It thus involves a kind of initiative and is not merely a passive response to another person.”\textsuperscript{21}

In general terms, children interact differently with their friends than with those who are not their friends. When there are disputes between children, established friends are more likely to attempt conciliation. Howes’ and Phillipsen’s detailed studies of young children’s friendships showed that 4-year-old friends engaged in more self-disclosure than did children who were not friends and that pairs of children who had been friends for a long time were more likely to self-disclose than were “contemporary” friends.\textsuperscript{22} Intimacy, self-disclosure and emotional support become more prominent features of the relationship between friends as they grow through middle childhood, but they are evident even in the early preschool years. Three-year-old friends provide significant support for children coping with the birth of a sibling.\textsuperscript{23} Furthermore, children show clear signs of distress at separation from their friends, even as preschoolers, and they exhibit anxiety at impending separation from them.\textsuperscript{24}

**Friendship and moral sensibility**

Observations such as those made by Blum\textsuperscript{21} suggest that children’s moral sensibility is heightened when they are considering moral breaches that involve their friends. This finding was supported by systematic research in which children were asked about moral transgressions involving either their friends, children who were not friends or siblings. Slomkowski and Killen showed that even as young preschoolers, children’s views of what constitutes a moral transgression towards another child differed notably in the relationships between friends and “nonfriends.”\textsuperscript{25} Consider the replies given by Kevin, a 5-year-old in a study undertaken by my colleagues and I,\textsuperscript{26} first in relation to questions about moral issues and then in relation to his friend Jeff:

*Interviewer*: “What if your sister took a toy from you — would that be okay or not okay?”

*Kevin*: “Not okay! I would be pissed off, and I would kick her!”

*Interviewer*: “Why?”
Kevin: “Because she’d be taking something from me. Because she’d be stealing it! A CRIME!”

Interviewer: “What if Jeff took something from you?”

Kevin: “That would be okay because I wouldn’t mind.”

Interviewer: “What if you took a toy from Jeff?”

Kevin: “I would never do it because he’s my best friend — my best, best, best, best friend!”

Interviewer: “What if you took a toy from your sister? Would that be okay or not okay?”

Kevin: “Okay … because she’s my sister and I hate her guts. Well, I don’t actually hate her, but…”

Children are considerably more forgiving of friends than of “nonfriends,” and one study reported that 4-year-olds who were good friends more frequently solved a Prisoner’s Dilemma (a nonzero sum game designed to test levels of cooperation) with moral sensitivity than did friends who were less close.27

**Individual differences**

Friendships in the toddler and early preschool years differ notably in each of the dimensions already considered: in the frequency of shared imaginative play, in the connectedness of their conversation, in the concern and empathy children show for each other, and in the ways that young children manage conflict. These differences in friendship quality are related to the characteristics of both children in the dyad. For instance, Cutting and I10 showed that the social understanding and the verbal ability of each child in a friendship pair contributed independently to the quality of their relationship. Are these differences in their friendship relationships linked to differences in their moral sensibility and to their understanding of emotion?

Together with Demetriou, Cutting and I examined this issue in a study in London.28 Children ages 3 to 4 years were initially studied by Cutting and I.10 We observed them together in their nurseries. We filmed them when they were alone in a room playing with toys and dress-up clothes; We tested them extensively on theory of mind, understanding of emotion and verbal ability; We observed them at home with their mothers and siblings, and we interviewed their mothers and their teachers. In addition, we studied the children’s moral sensibilities, both when they were preschoolers and during their school
years, by asking a series of questions about common moral issues and transgressions that friends face on a daily basis, including issues involving sharing, cheating, exclusion from play, teasing and rule-breaking. Our results showed that the children whose friendships were particularly close and intimate and were characterized by shared imaginative worlds and infrequent conflict were more likely to talk about moral issues in terms of the feelings, welfare and interpersonal relationships of the people involved. The associations we found are correlations, and we cannot draw conclusions about causal influences from them: That is, it cannot be inferred either that the quality of the friendship contributed to the growth of moral sensibility or that friendship between preschool children is more likely to flourish if the children themselves are sensitive to the moral concerns of their friends. To clarify the direction of effects in these associations and to investigate further the developmental significance of early friendships, we need longitudinal studies. It is to the evidence from such research that we turn next.

**Links Between Early Friendship and Later Friendship and Moral Sensibility**

Friendships can offer children rich opportunities to understand the feelings, ideas and perspectives of another person and to appreciate the views and concerns of another child. How are the marked individual differences in children’s friendships during the preschool period linked to later development — in particular, the quality of friendships in the school years and children’s developing understanding of other children and of moral issues? Several of my colleagues and I have investigated these issues in a series of studies that have followed children from the preschool years through the transition to school. We had the opportunity to study not only children who made the transition to school with their friends from preschool years but also children whose preschool friends did not make this transition with them. (Children in this latter group formed new friendships at school.) Therefore, it was possible for us to investigate whether children’s preschool experiences show systematic relations to the quality of their “new” friendships at school. On the basis of her research on toddler and preschool friends, Howes has argued that young children form internal representations of friendship relationships during the preschool years that they then can draw upon when they develop subsequent friendships, much as it is assumed that they draw on internal models of relationships with caregivers for adult relationships.
We investigated 2 possibilities concerning the “carryover” from very early friendships to later years. The first focused on the importance of characteristics of not only the child herself but also of the child’s friend during their preschool years. We know that the characteristics of both children in a friendship pair influence the quality of their relationship; for instance, that the social understanding of both children contributes to the friendship. We predicted that children whose preschool friends had shown relatively high levels of social understanding and prosocial characteristics would show more insight and liking for their friends — including “new” friends — in later friendships.

The second possibility that we explored concerned the significance of the social processes that were key to early friendships. Specifically, we predicted that children whose preschool friendships had been characterized by smooth, effective communication, high levels of shared pretend and relatively low levels of conflict would, as schoolchildren, enjoy particularly close friendships and show much liking for and insight about their friends, including “new” friends. In the study, we followed 64 pairs of children, initially studied as 3- to 4-year-olds in the research discussed above, from working- and middle-class families, who had diverse ethnic backgrounds. After the children had made the transition to school, 84 of the children were still friends with their preschool friends; 28 of the children had identified new friends as their “closest” friend, so the 28 new friends were recruited to the study.

Children at 5 years of age spoke freely about their friends, about what upset them, what they liked or disliked about their friends and about conflicts within their friendships. We were most interested in the links between the insights of these 5-year-olds and their earlier friendships and sociocognitive skills. Three developmental points deserve emphasis.

The first main finding concerns the shared interactive experiences in the preschool friendship. Children who had enjoyed friendships in the preschool years that were distinctively low in conflict and high in shared cooperative pretend play and successful connected communication expressed particularly warm liking of their school friends 1 year later; further, they showed particular insight into these friends. The preschool experience of shared cooperative pretend play, successful communication and friendships with little conflict contributed important variance to the children’s expressed liking for their friends at school, independent of their social understanding and language abilities at school age.
Of special interest is the finding that the “carryover” from early friendship experiences was evident in those children who had formed new friendships at school. This pattern of findings supports the argument that the experience of sharing an imaginary world in pretend play provides a potent context for talking and learning about why other people behave the way they do and contributes to an understanding of the links between inner states and human action.

A second set of key findings were the positive correlations between children’s early social understanding skills, preschool language abilities and later friendship measures; these remind us how important children’s conversational exchanges are in the social processes implicated in the development of their relationships. These contribute to children’s abilities to cooperate effectively in play, resolve conflicts and explore feelings and shared experiences.

The third developmental point my colleagues and I identified concerns the significance of certain characteristics of the preschool friends. Children whose preschool friends had been, according to their preschool teachers, particularly prosocial were more likely to express especial liking for their new friends at school and to have particular insight into their new friends. Children who had remained friends through the transition to school were most likely to describe their school friendships as low in conflict when their friends from the preschool years had been high on the prosocial assessment. Research on middle-childhood friendships has emphasized the significance of the identity of a child’s friends. Our findings show that the significance of the individuals with whom you are friends begins in the preschool years.

Howes has argued that children form internal representations of friendship relationships during the preschool years and that they draw upon these ideas in subsequent friendships at school. Our research showing the links between friendship experiences in the preschool years, the sociocognitive characteristics of children and their friends as preschoolers and children’s later friendship quality and insight into their friends supports Howes’ thesis. These observations raise further questions: What are the consequences for children who have problems in forming close friendships in the preschool years and do not enjoy experiences of shared pretend play and successful communication about inner states? Are problems in friendship interactions in the preschool years predictive of later troubled relationships? This is the third topic to be considered here, as I provide evidence from a longitudinal study of children at risk for attention problems and who have troubled dyadic interactions.
Early Friendship as a Window on the Difficulties of Troubled Children

As part of a broad program of research centered on the nature of and individual differences in friendship, Hughes, White and I conducted a study of children recruited as “hard-to-manage” preschoolers. This term was coined by Campbell and Ewing to describe inattentive, restless preschoolers who are at high risk (approximately even odds) for meeting diagnostic criteria for disruptive disorders when they reach school age. The prevalence and predictive significance of poor peer relations among children with disruptive behavior problems have been highlighted in recent research on children in middle childhood. Typically, these studies have not evaluated friends but rather have been based on children’s encounters with unfamiliar peers in laboratories or summer camps. We were particularly interested in studying very young children at risk for disruptive behavior in the context of their interactions with friends and using these relationships as a window on the kinds of social experiences the children had (or did not have) with conflict management and emotional behavior, while identifying the implications of such experiences on the development of key social competencies.

Forty 4-year-old children who scored above the 90th percentile for hyperactivity and conduct disorder on the subscales of the Strengths and Difficulties Questionnaire (SDQ) were selected from a screening pool of children from 15 nurseries in south London. Forty children from the same schools who scored below the 50th percentile on the identical SDQ subscales were individually matched for gender, age and school/neighborhood and were recruited to serve as controls. Each hard-to-manage child was studied with a playmate; that is an individual named by at least 2 nursery teachers as a regular companion or friend of the target child. Friends of children in the control group were identified on the basis of the 3 criteria described in the friendship study reported previously. These criteria were those used in Howes’ research: Friends were children who were named as reciprocal friends by their teachers and by their mothers, and were behaviorally identified as friends following the observational criteria of Howes: Children were identified as friends if they were observed to maintain proximity within 3 feet of each other, if they were to be engaged in interactive social play and if they were to engage in shared positive affect during at least 30% of observations. Two observations were conducted for each child (ie, 4 observations for the friendship pair), 1 week apart. The same methods were used as in the friendship study.
were filmed playing alone with their friend and tested on a battery of cognitive tests, including the ability to discern mental states, the understanding of emotion, executive function and language assessments. Teachers reported on the children’s friendship quality.

Videotapes of the pairs of 4-year-old children playing alone were transcribed. Contextual information was recorded for the topics of “physical aggression,” “intimidating behavior,” “rule-breaking” (eg, stealing objects from the observer’s bag), “snatching from the other child,” “damage to toys” and “sexual behavior,” as well as for “helpful actions” and “expressions of positive and negative affect.” Themes of the children’s pretend play, their responses to emotions expressed by their companions and other nonverbal behaviors were also coded from the tapes.

Differences between the hard-to-manage and control-group children were striking. Hard-to-manage children were significantly more likely to engage in antisocial behavior such as bullying, teasing, violence and rule-breaking, as shown in Fig 1. They were more frequently angry and upset, less helpful and concerned at distress shown by the other child and more likely to refuse requests for help. They were less likely to engage in coordinated play with their friends, and their communication was relatively poor: There were many more failed attempts at communication among these children and their friends than among the control-group 4-year-olds and their friends.

Of particular interest were the findings on the pretend play of the hard-to-manage children. Relatively little research has focused on the themes of children’s fantasy play, although it has been suggested that differences in children’s pretend goals may be linked to their personal goals in social situations. Specifically, those who are less concerned with harmonious collaborative play and more concerned with pursuing their own interests may choose to enact more fantastic rather than domestic themes. There has also been a revival of interest in the use of elicited doll play as a technique for revealing children’s representations of relationships, with the presumption that the pretend narratives children develop will differ for disturbed or insecure children, as compared with those of secure and well-adjusted children.

What we found was that the themes of the fantasy play of the hard-to-manage children differed notably from those of the control children. Among the hard-to-manage children, fantasies about killing, death, physical violence and
Early Friendships and Children’s Social and Moral Development

arrests were common. Among the control group, such violent pretend play was very uncommon. Furthermore, the friendships of the children who engaged in violent pretend were more conflicted, had poor communication and had less-coordinated play between the friends. Their friends were unlikely to join in shared pretend if the theme was one of violence. “Violent play” children were more frequently angry and were less positive in their responses to their friends than were other children, and they engaged in more frequent antisocial acts outside the context of the violent pretend play.

It would not be warranted to draw causal conclusions from these positive correlations about the significance of the children’s interest in violence and the development of their friendships. However, the preoccupation with violence in the fantasies of these 4-year-olds is a sign to be taken seriously because this

---

*Fig 1. Percentage of each group displaying at least one antisocial act, by category.*

Reproduced with permission from *Journal of Child Psychology and Psychiatry.* (2000;41:169-179.)
Copyright 2000. Blackwell Publishing.
interest in violence was significantly associated with poor interactions with their friends and with antisocial and aggressive behavior. It thus carried significance for current and later peer relationships. The significance of the early violent pretend play for later development was highlighted by the follow-up investigations of these children at ages 5 and 6 years. Two points from these later studies are noteworthy in relation to the themes included in this volume.  

One finding concerns moral development, studied when the children were 6 years of age. Children who engaged in a high proportion of violent pretend as 4-year-olds were less likely as 6-year-olds to give empathic explanations of the feelings of those involved as victims of transgressions by others and of the emotions of those involved in prosocial incidents. It was also notable that the violent pretend play measure made a significant unique contribution to individual differences in moral understanding, beyond the contribution of group status (hard-to-manage or control), verbal ability or the other variables studied when the children were 4 years of age. Of these, the quality of the children’s friendships at age 4 years, as reported by teachers, also made a substantial and independent contribution to moral understanding at age 6 years of age. Overall then, follow-up findings show that disruptive children exhibit early and multifaceted problems in sociomoral reasoning and that these issues are associated with difficulties in relationships with family and peers. The quality of early friendships and the themes of their pretend play are important predictors of later problems in moral sensibility.

Another key finding concerns the children’s responses to competitive situations with their friends, first as 5-year-olds and then later as 7-year-olds. My colleagues and I were interested in children’s responses to real-life situations of threat within the context of their friendship. One prominent account of peer problems of disruptive children hinges on their characteristic response to perceived threats, however this has rarely been studied using direct observations (see, however, Underwood et al). One situation utilized a rigged card game. Children first had a “winning streak” but then ultimately lost to a friend. Children who had been identified as “hard-to-manage” at age 4 years were more likely to insult, whine, cheat, attempt to control the other or make gloating and self-aggrandizing comments than were children in the control group. Group differences in this negative behavior in the face of the threat of losing a game to a friend were stable on assessments between the ages of 5-years and 7-years. What predicted such negative behavior? Both poor social
cognition in the preschool years and the engagement in violent pretend play with a friend as 4-year-olds were correlated positively with the negative behavior shown by the children as 5- and 7-year-olds. Regression analyses showed that violent pretend play at age 4 years made a significant independent contribution to the variance in later negative behavior towards the friend.31

Conclusions

Friendship is a relationship that can develop among children as young as 2 to 3 years of age. Even with such young children, the interaction between friends reveals children’s understanding of their close friends and their sensitivity to their friends’ feelings. Through shared pretend play and discourse about inner states, such friendship is likely to foster children’s understanding of mental states and their grasp of why people behave the way they do. In the context of close friendships, children show particular moral sensibility; the links between friendship and moral sensibility show us that a relationship can be fine-tuned to the needs and welfare of another person.

Evidence from research regarding friendship demonstrates the significance of early understanding of mind and emotions; in particular, individual differences in these cognitive domains carry wide implications for later social and moral development.

Friendship interactions also provide a key context for revealing the problems that troubled children have with emotional control, in sustaining connected communication and with their preoccupation with violence. These are important predictors of later problems in peer relationships and moral sensibility. Research indicates that children who are unable to develop early friendships may miss experiences that carry significant potential to enrich later development.

References


Pretending to Be Someone Else

Paul L. Harris, DPhil

Introduction

In developmental psychology, the status of pretend play, and more generally of the imagination, has had a checkered history. Both Jean Piaget and Sigmund Freud were inclined to think of the young infant as dominated by his or her fantasy life. According to their views, it is difficult for the young infant to achieve either genuine communication with other people or an objective understanding of the world. Communication and objectivity are only gradually attained in the course of development as the infant becomes less fantasy-prone and less egocentric. This negative assessment of early childhood was described by Piaget at the beginning of his research career. He expounded upon his theory at a meeting of the International Congress of Psychoanalysis, where Freud was among his audience, and this theory continued to influence the way in which Piaget studied communication and cognitive development throughout his long intellectual career.1 Piaget went on to devote more than 50 years of research to the proposition that development can be characterized in terms of an increasing capacity for making an objective connection with other people and with the world. The distortion and irrationality to which the fantasy-prone infant is allegedly susceptible are increasingly set aside in the course of development.

It is interesting to note that an alternative conception of development and of the role of fantasy and imagination was available and indeed known to Piaget. Immediately after World War I, Piaget spent some time in Zurich, where he attended lectures by Eugen Bleuler, the distinguished psychiatrist and director of the famous Burghölzli clinic. Bleuler, reacting against the earlier proposals of Freud, argued that fantasy and imagination could scarcely characterize the earliest or most primitive stage of child development.2 Surely from the point of view of evolutionary adaptation, it was plausible to assume that the infant was actually well-attuned to reality, be it the physical or the social world, even if the nature of that attunement was quite narrow and restricted. For Bleuler, it was a mistake to suppose that fantasy and imagination were the provinces of early development. As he dryly pointed out, newborn infants
Section 3: Peers and Play

could scarcely survive if they were absorbed in a world of fantasy. Instead he argued that the ability to conjure up a world of fantasy was something that emerged later in development, only after a simple understanding of reality and its regularities was in place. Moreover, he did not think of the imagination as something to be subordinated or overcome in the course of cognitive development but rather as an important human capacity throughout the lifetime. He recognized that it may sometimes give rise to irrational thinking in the context of psychopathology, but under normal circumstances, the imagination played an essential role in our mental lives.

This more positive conception of the imagination was taken up by Lev Vygotsky and articulated in his book *Thought and Language*. Citing the theoretical approach proposed by Bleuler, Vygotsky took Piaget to task for supposing that the infant could begin life radically disconnected from reality. With respect to the social world, Vygotsky argued that young children begin with a capacity for social engagement: That is, they do not display the type of radical egocentricity that Piaget had assumed. Vygotsky also echoed the claim made by Bleuler that a child’s imagination is not a source of irrationality or wish-fulfillment. Rather, it is an emerging and liberating mental capacity.

In this chapter, I explore this more optimistic assessment of the imagination. I argue that there are important continuities between the imagination of the young child and the imagination of the adult. In particular, I claim that children and adults alike readily identify with the protagonist in a pretend or fictional narrative, strive to create a causally coherent representation of the events that take place in that narrative, and react emotionally to such events, even though they are known to be mere fictions. I will then begin to consider the larger psychological implications of this capacity.

**Adopting the Protagonist’s Perspective**

From around the age of 2 years, children start to engage in role-play. They can achieve this in various ways. First, they themselves can act out the part of another person: they speak the lines and carry out the actions that belong to the other person. Second, they can act a part by using a prop, such as a doll or toy animal. In this case they speak the lines but carry out the actions indirectly by animating the plaything. Finally, children can conjure up a character
from thin air and enter into a dialogue — sometimes speaking for that character and sometimes speaking for themselves. Irrespective of the particular role-playing technique that children use, they often show clear signs of their temporary shift in identity: They refer to themselves by a different name and speak in a different tone, suitable to the character that they are playing.⁴

Such shifts in perspective emerge in a different context. When children listen to a story, they may subsequently reenact parts of it at a later date, pretending to be the main protagonist.⁵ Experimental evidence shows that such identification with the story protagonist actually takes place as children listen to stories: It is not just an attitude that they adopt when they subsequently act them out. Rall and I told 3- and 4-year-olds simple stories involving well-known fictional characters such as Little Red Riding Hood or Cinderella.⁶ Children listened to successive parts of the stories and were asked to retell them in their own words. Their retellings displayed a subtle but systematic bias. Children tended to narrate the events as if from the perspective of the main protagonist. For example, if children were told that “Cinderella was sitting on the chair by the fireplace, dreaming about the ball. Then her fairy godmother went into the cottage,” they frequently made a revealing error. They retold the episode by saying that the fairy godmother “came” into the cottage. Our interpretation was that the children imagined themselves alongside Cinderella, sharing her perspective, and from that point of view the godmother’s appearance was appropriately encoded as an arrival — a “coming” rather than a “going.” More generally, we found that children tended to imagine themselves in the same situation as the story protagonist and encoded story events from his or her point of view.

It is interesting to note that this bias is not confined to young children. It is also found among adults. Black, Turner and Bower⁷ gave adults stories to listen to and recall. Just like the 3- and 4-year-olds who were tested by Rall and I,⁶ the adults frequently made errors on deictic verbs such as “come” and “go.” They replaced “go” with “come” or vice versa whenever the verb in the story did not reflect the way that the main protagonist would have perceived the movement in question. Strong evidence that this bias intruded at the moment of comprehension and not just during subsequent recall came from the adults’ reading times. When the deictic verb was consistent with the point of view of the protagonist, adults read the relevant sentence more quickly than when it did not.
Summing across this series of findings, it appears that very young children who are engaged in overt role-play, preschoolers who are listening to a story about Little Red Riding Hood and adults who are reading about an incident in a newspaper all display a similar flight of the imagination. They momentarily set the real world to one side, they imagine themselves in the same situation as the protagonist and they view the events being enacted or described from the protagonist’s point of view. To be sure, there are important differences among these activities. In particular, when children engage in role-play they act out the role that they have adopted. By contrast, when children and adults are presented with a narrative, their imagination is not translated into any overt action. Nonetheless, from a cognitive point of view, it appears that a similar covert process takes place: Processing of the actual world is momentarily overlaid by an act of the imagination in which another person’s perspective is assumed.

Creating a Causally Coherent Representation

When children play together in constructing a make-believe world, it is not enough for them to successfully act out a pretend action or episode. They must also make sense of what their play partner is doing. This interpretive activity relies heavily on causal understanding and interpolation. For example, when one child seats a doll in a box and turns on an imaginary faucet at one end, the child’s partner should understand the meaning of the gesture and its implications for the unfolding narrative. Specifically, the onlooking partner should grasp that the doll is being given a bath, even if no water is visible and the doll remains dry throughout.

My research with Kavanaugh and Dowson has shown that children begin to show this type of interpretive understanding from about 24 months of age⁸,⁹: For example, in one illustrative experiment, children watched as the researcher tipped pretend liquid from a container over one of 2 toy horses. The children were then handed a paper towel and invited to dry the horse that was “all wet.” Of course, because the pouring had simply involved pretend rather than real liquid, the children needed to use their imagination to work out what the experimenter intended. Thus, they needed to realize that since the container had been tipped above only one of the 2 horses, it was that horse and not the other horse that was — at least from a make-believe point of view — “all wet.” To assess the children’s comprehension, we looked at the proportion of children who wiped the “wet” horse and ignored the
other one. Children below the age of 2 years were relatively indiscriminate — they were just as likely to dry either horse. By contrast, 2-year-olds (mean = 28 months) were predominantly correct — they typically wiped the “wet” horse and ignored the “dry” one.

In a follow-up test of this same capacity, we did not ask children to respond to a verbal description of the outcome provided by the experimenter. Instead, we gave children pictures to choose from. For example, the experimenter pretended to squirt ketchup onto the back of a toy pig. Next, children were shown 3 different pictures: one showed the pig unchanged (pink all over with no marks); a second picture showed the pig with an irrelevant change (such as a white mark on its back); and the third picture showed the pig with the relevant change (a red blob of ketchup on its back). Children were then invited to point to the picture that showed “what happened to the pig.” As in the experiment described previously, Kavanaugh, Dawson and I found a clear age change. Children under the age of 2 years tended to choose among the pictures indiscriminately, but children over the age of 2 years correctly pointed to the picture that illustrated the pig having undergone the pretend change. By implication, when children watched the experimenter “squirt” ketchup onto the pig, they worked out in their imagination what was happening. Even though they saw no ketchup emerge from the container and even though nothing actually happened to the pig, they nevertheless realized that in the make-believe world being acted out by the experimenter, the pig had changed — it now sported a dollop of ketchup on its back.

Both of these experiments underline a further point that is easy to overlook. We normally think of language as a useful tool for describing reality. Particularly in the case of young children, whose language is often described as embedded in the here and now, it is tempting to ignore the fact that they readily understand and produce language that refers to events that have not actually happened — events that have taken place only in the world of the imagination. For example, when children were invited to dry the horse that was “all wet” they would not have responded correctly if they had looked around for a horse that was actually wet. Instead, they needed to understand that their play partner — the experimenter — intended to refer to the status of the horse in the make-believe world that they were constructing together. Similarly, when children were asked to say what had happened to the pig and were presented with the 3 picture choices, they needed to realize that the researcher was not asking what had actually happened to the pig but rather
what had happened in the make-believe world. The accuracy with which the 2-year-olds performed shows that children of this age can readily treat both words and pictures as representations of imaginary events. In that sense, young children's symbolic capacities are not tied to the “here and now.”

The experiments described thus far are quite circumscribed because they illustrate children's understanding of a single, make-believe change. However, make-believe play as well as fictional stories typically depend on a whole sequence of changes: The outcome of an initial change sets the scene for yet another change, which in turn provokes a third, and so forth. Are 2-year-olds able to keep track of such successive changes in their imagination? To explore this issue, Kavanaugh, Meredith and I conducted another study.10 We showed children a 2-step incident of mischief. To interpret what had happened, children needed to work out the causal links between successive actions. For example, in one episode, a duck hand puppet was made to pick up an empty milk carton. With a tipping movement, it poured make-believe milk into the tray of a matchbox. Then, the duck picked up the matchbox tray, carried it over to a toy horse and inverted it, thereby pouring its pretend contents over the horse. Children were good at describing the outcome in their own words: They described the horse as “wet” or “milky.” Hence, they understood that milk had been tipped over the horse. By implication, they were able to imagine the pretend milk pouring out of the milk carton and into the matchbox tray, being carried in the matchbox tray toward the horse and then being tipped over the horse. More generally, children could keep track of a sequence of pretend changes akin to those that make up a simple narrative.

One additional implication of these various findings should be highlighted.8-10 Throughout the various experiments, children saw only empty containers being picked up, tilted or inverted. The make-believe consequences of these interventions were obviously not visible changes. This means that when children made sense of the pretend changes, they must have utilized their knowledge of everyday physics. For example, they must have realized that if a milk carton was suitably tipped, milk would pour out of it onto the receptacle or surface directly underneath. Thus, children must have summoned their understanding of liquids and gravity to work out the make-believe consequences of the various pretend actions because none of these outcomes was actually visible. Paradoxically, therefore, these experiments illustrate ways in which children's imaginations do not lead to a complete dissociation from everyday reality. Rather, when children conjure up imaginary possibilities they do so in the light of what they know to be possible in the real world. Of
course, Piaget emphasized that children sometimes imagine outcomes that are forbidden in the real world. Some outcomes that children invent, in fact, depend on extraordinary, magical processes. Mostly, however, children’s fantasies are governed by their understanding of ordinary, real-world causality. Thus, as they cooperate with a play partner, they interpolate into the pretend world many of the causal forces that constrain happenings in the real world.

Do adults display a similar process of causal interpolation? Previously, I argued that there are important parallels between the ways that young children engage in pretend play and the way in which adults approach a narrative. Extending that parallel, we may ask, therefore, whether adults display a process of causal interpolation when they read a narrative. Experimental studies of reading have, in fact, provided convincing evidence for such a process. In one such experiment, readers were presented with the following pair of sentences: “Dorothy poured the bucket of water on the bonfire. The fire went out.” In this simple narrative, 2 successive events are described, but the causal connection between them is not explicitly stated. Nevertheless, readers who engage in causal interpolation would be likely to infer that it was the water in the bucket that caused the fire to go out. Consistent with that expectation, readers who had just read these 2 sentences were quick to answer a test question that tapped into their causal understanding: “Does water extinguish fire?” By contrast, readers who had just read a control pair of sentences (“Dorothy placed the bucket of water by the fire. The fire went out.”) answered the same test question more slowly.

Given this continuity between pretend play among preschool children and adults’ comprehension of a narrative, it is not surprising that children exhibit a similar type of causal interpolation when they are old enough to read stories fluently. More specifically, reading speed is modulated by the ease with which children can causally link a given segment of the story with what has gone before. In an experiment undertaken with several colleagues, for example, we gave 8- and 11-year-old children stories that included the following sentence: “He saw his hair getting shorter.” Children read this sentence more or less slowly depending on the context of the story that they had been given earlier. If children had been reading about a boy who was waiting for his turn at the hairdresser, they read this sentence relatively quickly: After all, it made sense that the protagonist’s hair was now getting shorter. On the other hand, children who had been reading about a boy waiting for his turn at the dentist read the test sentence more slowly: It made little sense to them that the boy’s hair was getting shorter if he was at the dentist. This experiment clearly
illustrates how reading — or more generally narrative comprehension — is not simply a question of decoding each successive word: After all, all of the children in the experiment were given exactly the same sentence to read, yet their reading time varied. Rather, narrative comprehension calls for a more complex process of imaginative construction in which the storyteller offers selected elements of the narrative and the reader uses his or her imagination to flesh out those elements into a larger, causally coherent sequence of events. Thus, storytelling, like pretend play, depends upon a finely tuned collaborative process in which the person who is carrying the story forward relies on the imagination of his or her partner if the make-believe episode is to be fully shared.

**Emotional Responses to Fiction**

Casual observation of toddlers or preschoolers engaged in pretend play, of school children engrossed in a book or of adults watching a film or a play suggests that each displays a similar process of absorption. In each case, the real world is temporarily set aside and purely imaginary events dominate the consciousness of the participants. In addition, however, the emotional preoccupations of the real world are also temporarily suspended. As long as the narrative remains absorbing, events taking place within the fictional world drive the emotional system. As I argue later in this chapter, the fact that children and adults are moved in similar ways by fiction places interesting constraints on the way that this type of emotional engagement can be explained.

Many young children invent an imaginary companion. Their interaction with this companion offers convincing evidence that children’s engagements with the world of make-believe include their emotional repertoire. Children who invent an imaginary companion typically have a rich, emotionally charged relationship with the companion. They comfort, miss, contradict and admonish their companion. In certain respects, this gamut of emotions is illogical. If children miss their imaginary companion, because for example he is lost or delayed, why don’t they — by some kind of imaginative fiat — decide instead that he was never lost or that he showed up on time? Equally, if their imaginary companion is quarrelsome or aggravating, why don’t children invest her with a more complaisant and accommodating character? Like good storytellers, it appears that children allow the characters that they invent considerable latitude and autonomy. Stating the matter differently, the
characters that children invent are not simply the product of wish fulfillment. In their imaginations, children continue to grapple with various undesirable aspects of the real world and its inhabitants.

The negative faces of children’s imaginary worlds are especially evident in a different context. In addition to inventing imaginary companions, young children also conjure up more frightening creatures — monsters, ghosts, witches and the like. Some children complain that these creatures are chasing them, threatening them or keeping them awake. Parental reassurances that such creatures do not exist are rarely sufficient to dispel these fears. Given that children generate such unpleasant and disturbing fantasies, it is misleading to think that their fantasy lives are the products of desires that cannot be satisfied in real life. In some respects, real life is more satisfying and less disturbing than the creatures and events that children create in their imaginations.

One possible explanation for children’s involvement with imaginary beings, whether a benign companion or a frightening creature, is that they become unable to distinguish between what they have imagined and what is real. Thus, children invent an imaginary creature, they embed that creature in various episodes, but then during the course of their elaboration, they forget that the creature originated in their imagination and is not something that they have ever actually encountered. There are, however, 3 objections to this argument, despite its intuitive plausibility.

First, children sometimes talk about the status of the people or creatures that they invent; that is, they acknowledge that an imaginary friend is not the same as a real friend, or they admit that monsters do not really exist. Despite these acknowledgments, children are still emotionally involved with their inventions. Second, a series of experimental studies has established that when questioned systematically, children admit that imagined entities have a different status than do real entities. They acknowledge that the real entities can normally be seen or touched whereas imaginary entities cannot. Conversely, they understand that imaginary entities, unlike real entities, can be altered simply by virtue of a mental act: An imagined pig can be made to fly whereas a real pig cannot. Third, even if we argue that children are moved by imaginary beings and events because they are prone to confusion about the distinction between fiction and reality, it is not clear that we can adopt a similar explanation for adults’ emotional involvement with fiction. Everyday
experience suggests that when adults are absorbed in a book, a play or a film, we, too, are emotionally engaged by what befalls the characters. However, as adults we surely remain quite lucid about the fact that the protagonist and the events being described are mere fictions. More generally, it again appears that young children and adults are similar in this respect. Not only can young children imagine another person’s perspective and create a coherent mental representation of a sequence of imaginary events, children, like adults, are similarly moved by imaginary events despite being aware of their imaginary status.

How should we explain this paradoxical aspect of our emotional lives? We might insist that the emotions aroused by fiction are pale imitations of the real thing. Arguably, we only appear to be scared or delighted by the fate of the story’s protagonist. Thus, such emotions might be more accurately described as pretend emotions or “as if” emotions. After all, we routinely acknowledge that we can imagine or pretend to experience a particular sensation. By the same token, perhaps we can also imagine or pretend to feel a particular emotion. In this way, the responses that children and adults have in relation to fiction are not so paradoxical after all: They can be seen as a predictable extension of the normal capacity for imagining actions and scenes.

This explanation, however, is ultimately unsatisfactory. First, from a phenomenological point of view, the emotions that are aroused by fiction appear to have greater authenticity than do genuine cases of pretend emotion. For example, when we are delighted by the achievements of the story’s protagonist, our feelings have an automatic, unreflective quality. By contrast, when we pretend to be delighted with a gift that actually disappoints us or we congratulate a rival whose success we secretly envy, the pleasure that we seek to display has an inauthentic and deliberate aspect. Outwardly, we may express positive feelings, but we do not genuinely experience them. This mismatch between outer and inner experiences does not seem to arise when we are moved by a book or film.

Indeed, the automatic and authentic nature of the feelings that are aroused by fiction has also been shown in laboratory investigations. Experimental research has established that the startle reflex — the involuntary reaction that is displayed upon hearing a sudden, loud noise, for example — is intensified for individuals who are already in a state of anxiety. Filmmakers put
this phenomenon to good effect. They elicit a state of tension in their audiences with the help of a frightening setting and disturbing background music. They then suddenly confront the audience with something unexpected—a door slams shut or a cat leaps through a window. Our startled reaction to this unexpected stimulus is all the more intense given the state of nervous anticipation that has been evoked in us. Vrana and Lang asked whether simply thinking about an imaginary situation could elicit such a state of nervous anticipation. They presented adults with 2 different types of sentences that they were asked to read and remember. One type of sentence described a relatively disturbing situation, such as: “I tense as the nurse slowly injects the sharp needle into my upper arm, and beads of sweat cover my forehead.” The other type of sentence described a more pleasant situation, for example: “I am relaxing on my living room couch looking out of the window on a sunny autumn day.” Subjects were then instructed to bring back to mind either of the types of sentences. Having done so, they were unexpectedly presented with a loud click—loud enough, in fact, to provoke a startle reaction. When subjects were concurrently thinking about the anxiety-provoking situation, rather than the pleasant, relaxing situation, they displayed a stronger startle reaction. Thus, even though subjects were actually seated comfortably in the laboratory and merely thinking about a potentially unpleasant injection, such thoughts appeared to trigger a state of background anxiety; these thoughts were sufficient to magnify their reaction to an unexpected stimulus. Moreover, the startle reactions were especially pronounced if subjects had been instructed to imagine being in the situation described. They were less pronounced if they had been asked to repeat the sentence silently to themselves or simply to ignore the sentence and relax.

Overall, this experimental study validates our everyday experience: The simple act of imagining a tense situation is sufficient to trigger some of the physiological changes and predispositions that would be set in motion were we to encounter that situation in real life. In this respect, the emotional life of the adult appears to be similar to that of the child. Although we are inclined to think that it is only young children who are easily “carried away” by their imaginations, the experimental results that I have described suggest that a close relationship between imagination and emotion is a stable feature of our mental lives.
Discussion

Evidence discussed here indicates that children’s pretend play is not something that wanes or disappears during the course of development. Although the type of overt role enactment that very young children enjoy may not often feature in the lives of most adults, it is clear that the cognitive capacity that underpins such pretend play endures throughout life, albeit in a different guise. In particular, it is reflected in the way that adults enter into the narrative worlds of novels, films and plays.

Given the early appearance and longevity of this imaginative function, we may reasonably ask whether it is associated with any developmental benefits. This issue is all the more acute if we acknowledge that pretend play is characteristic of healthy, normal development. It is notable, for example, that one of the defining symptoms of autism is an absence or impoverishment of pretend play.21, 22

Recent evidence strongly suggests that the ability to engage in role-play is closely linked to the ability to think about and make sense of the mental states of other people. Several studies have shown that normal children vary in the extent to which they engage in role-play: Such variation appears to be linked to differences in the understanding of mental states. More specifically, children who engage in more role-play tend to perform in a more advanced fashion on tests of mental-state understanding.23-26 In addition, this link between role-play and mental-state understanding is present even when experiments are designed to control for the potentially confounded effects of language ability.27 It also emerges in a related but different context: Children who engage in more joint pretend play are more likely to refer to people’s feelings and welfare when reasoning about moral misdemeanors, such as whether a friend might or might not refuse to play.28

What is the basis for this relationship between pretend play and mental-state understanding? One plausible argument contends that pretend play is a distinctive, uniquely human capacity that is akin to conversation: It calls for the establishment of a shared topic or theme with another person and the ability to jointly elaborate on that theme. It is plausible to suppose that children bring different degrees of interpersonal sensitivity to this cooperative endeavor. Some children are relatively adroit: They suggest themes that are acceptable to their partners, they understand the ways in which their partners
elaborate on those themes and they are cooperative when a shift or transformation is requested. Such children might reasonably be expected to display a larger interpersonal awareness when given tests of mental-state understanding.

Evidence supporting this line of interpretation has emerged from observational studies that have taken a more fine-grained look at communication between friends and siblings. Brown, Donelan-McCall and Dunn looked at the frequency with which 47-month-old children talked about mental states such as thinking and knowing. They found that talk about mental states was more frequent when children were conversing with a friend or sibling than with their mother. It was especially frequent if the child enjoyed a cooperative and positive relationship with the friend or sibling. These data hint at the possibility that pretend play — a common activity between siblings and friends — is a context in which children are required to think and talk about mental states. Evidence in support of this interpretation was obtained by Howe, Petakos and Rinaldi. They studied 2 groups of children: pairs of children who often engaged in pretend play and pairs of children who rarely engaged in such play. As expected, the 2 groups differed in their talk about mental states. In the course of a play session, frequent pretenders made many more such references than did infrequent pretenders. This difference between the 2 groups of children was especially evident at particular junctures during the play session. Frequent pretenders were more likely than infrequent pretenders to engage in fairly sophisticated negotiations about how to initiate (“Let’s play spaceship”), direct (“You be the farmer”), develop (“And I get angry and you get mad”) or terminate (“Let’s not play anymore”) an episode of pretend play. References to mental states often occurred during such negotiations, and these were especially noticeable among frequent pretenders. In summary, these studies highlight the fact that pretend play is an activity that calls for cooperation and negotiation between 2 children. As such, it prompts children to reflect on other people’s mental states.

This research points to a tantalizing and important possibility. Arguably, when children engage in pretend play with a partner, they arrive with a certain degree of interpersonal sensitivity that determines how effectively they participate with this essentially collaborative activity. This interpretation is consistent with the findings that I have described. However, it is also possible that pretend play does not simply make use of and reflect young children’s interpersonal sensitivity: It may be a context in which children’s interpersonal sensitivity is increased. To make this point more explicit: it is possible that
children who engage in frequent pretend play have benefited from the give-and-take interaction that is essential to such play. In the course of negotiations with their play partner, these children may have gained greater sensitivity to their partner’s thoughts and feelings. This increased sensitivity may eventually be reflected in results of various classic tests of mental-state understanding that researchers have deployed. Indeed, there is an earlier tradition of intervention research that supports the claim that sustained involvement in dramatic role-play with other children does indeed promote interpersonal understanding. As a substantial number of children spend many hours each week in day care, we can expect to see increasing research attention to the issue of whether play in general, and pretend play in particular, have long-term effects on children’s development — notably their ability to cooperate with other people.

References


Section 4: Problems in Social Interaction
Abstracts from Section 4: Problems in Social Interaction

Behavioral Inhibition and Attachment as Predictors of Peer Social Competence and Social Anxiety at Early School Age

Professor Gunilla Bohlin; Professor Berith Hageküll; Ann-Margret Rydell, PhD; Lisa Berlin, PhD and Kerstin Andersson, PhD

In this chapter we present 2 longitudinal studies — one that included children from infancy and the other that began when children were 5 years old. For both studies, we measured outcomes when children were school age (8 to 9 years of age). The relationship construct attachment security and the temperament construct behavioral inhibition (ie, tendency to withdraw in response to novelty) were used as predictors in both studies. Outcome measures were social competence and social anxiety. Behavioral inhibition showed continuity in both studies. Attachment security, measured when children were 15 months of age using the Strange Situation, predicted social competence at 8 to 9 years of age. The measure of behavioral inhibition at 4 years of age was predictively related to later social competence; the infancy measure was not. Behavioral inhibition in infancy did interact with attachment security, suggesting that secure attachment is more important for inhibited infants if they are to develop high social competence. In the study that began when children were 5 years old, both behavioral inhibition and attachment security (measured by means of story stem completion in a doll-play situation) were related to social anxiety at 8 years of age (measured by teacher ratings and observations). The 2 variables contributed independently to developmental outcomes.

The Development of Human Physical Aggression: How Important is Early Childhood?

Richard E. Tremblay, PhD, FRSC

While proportionally more adolescents than adults resort to physical violence, physical aggression appears very early in life. Longitudinal studies confirm that younger children are more physically aggressive than older children. As
they grow older, children generally resort to less and less physically aggressive behavior. In early childhood, physical aggression increases during the first 3 years after birth, coinciding with significant physical, cognitive and emotional development. As children begin to explore social interactions with their newly acquired language and mobility skills, aggressive behavior often occurs in the context of taking objects from others, and pushing and hitting others. The abilities to delay gratification and to use language serve to prevent the development of chronic aggression. Conversely, physical aggression is likely to continue and cause more harm for children who do not learn prosocial skills. Children of parents who lack self-control are most at risk.
Behavioral Inhibition and Attachment as Predictors of Peer Social Competence and Social Anxiety at Early School Age

Professor Gunilla Bohlin; Professor Berith Hageküll; Ann-Margret Rydell, PhD; Lisa Berlin, PhD and Kerstin Andersson, PhD

Introduction

The idea that a child’s peer relationships affect socioemotional development has generated much empirical interest in the mechanisms of peer interaction and in possible antecedents of successful peer interaction. The construct of social competence, often defined as the ability to coordinate resources in order to reach adaptive goals, is central to these research efforts. Behavioral indicators of social competence have varied across studies and have encompassed phenomena such as social initiative and prosocial behaviors as well as peer popularity.

In this chapter, we first consider factors associated with social competence at early school age. Social initiative and its opposite, social withdrawal, are components of social competence that will be considered separately. A related phenomenon, social anxiety, will be discussed as well. Social anxiety is defined as “…anxiety resulting from the prospect or presence of personal evaluation in real or imagined situations.”

Theoretical Perspectives on Social Competence and Anxiety

Attachment theory provides a useful theoretical perspective on social competence by focusing on links between early family interactions and later relationships with peers. Temperament research, specifically studies that are
focused on behavioral inhibition, provides a second approach to understanding the development of social competence and social anxiety. The construct of behavioral inhibition refers to a constitutional tendency to react with fear towards and withdrawal from social and nonsocial novelty. The effects of nonparental care on social competence with peers is yet another viewpoint from which to explore social competence.

Attachment theory proposes that internal working models created during early interactions and shaped through later interactions with significant caregivers influence a child’s approach to current social interactions and relationships. The internal working model of a securely attached child includes high self-worth and positive social expectations and, therefore, will set the stage for development of high social competence and low social anxiety. Empirical evidence supports the idea that early attachment is related to later social competence with peers. However, links to social anxiety have not been the focus of much empirical work.

Researchers who study behavioral inhibition argue that an inhibited child who tends to withdraw from novel experiences will obtain fewer opportunities to practice and learn about social interactions than will an uninhibited child and, therefore, will develop less social competence during the preschool years. There exists a body of evidence to support this position, as high levels of behavioral inhibition have been shown to be negatively related to successful peer interaction. Most of these studies, however, have described concurrent rather than predictive relations, and all but one have assessed social competence with unfamiliar peers, which is but one aspect of social competence. Asendorpf questioned the existence of predictive and causal relations from temperamental inhibition to inhibition with a group of familiar peers, proposing instead different origins and specificity for inhibition with strangers and with familiar peers. Regarding the relationship between behavioral inhibition and social anxiety, Turner, Beidel and Townsley suggested that stable behavioral inhibition may increase vulnerability for anxiety disorders, especially social anxiety disorders. The empirical evidence is limited, but links between behavioral inhibition and social anxiety/social phobia have been demonstrated.

Attachment security and behavioral inhibition may interact to influence the development of social competence. Both Calkins and Rubin have outlined developmental pathways in which reactivity to novelty, or behavioral inhibition, acts in concert with experiences in the caregiving relationship to
influence later social behavior. Stansbury also implied an interactive effect by referring to data that suggest that the attachment relationship regulates adrenocortical responses to stressful events. Still, data that assess a direct relation between social competence and social anxiety are sparse.

A discussion of the influences of attachment security and behavioral inhibition on peer competence taps into arguments about the extent to which individual differences in temperament are reflected in attachment organization. Vaughn and Bost indicated that an association between behavioral inhibition and attachment could be addressed from different theoretical positions. From a temperament perspective, attachment classifications could be assumed to reflect differences in temperament. Relationship theorists could argue that a securely attached child, due to a history of caregiver availability and responsiveness, would develop positive social expectations, which would manifest in novel social encounters. A slightly different perspective is that maternal interactive behaviors conducive to security would influence a child’s expression of his or her basic temperamental disposition. Empirical evidence on this issue is sparse and inconclusive. Kochanska reviewed the findings on certain temperamental measures (e.g., fearfulness and proneness to distress) and their relation to attachment security and concluded that empirical support for a relation is mixed. Plunkett, Klein and Meisels studied behavioral inhibition in relation to attachment security and found a longitudinal association between insecure attachment and later behavioral inhibition.

Finally, the third framework for describing the development of social competence concerns experiences of nonparental care. Evidence concerning the effects of nonparental care on socioemotional functioning have been divergent. Many older studies showed negative effects of nonparental care (for review, see Belsky). Some newer studies indicate no effect, or even positive effects, of such care. The theoretical basis for anticipating negative effects has largely derived from attachment theory and argues that early nonparental care risks disrupting the parent-child attachment relationship. Positive effects of nonparental care are readily explained by social learning and social cognition perspectives. Social training in peer interaction is provided on a daily basis, especially in high-quality settings in which competent teachers support competent behaviors. Perhaps high-quality nonparental care serves as a compensatory factor for insecurely attached children and/or for children high in social inhibition.
Aims of Our Studies

We performed 2 longitudinal studies that included children from infancy to 9 years of age in one study and children from 5 to 8 years of age in the other study to evaluate the following questions:

- Is there a prospective or concurrent relationship between attachment classification and social inhibition?
- Are social inhibition and/or attachment longitudinally related to social competence/withdrawal?
- Is nonparental care prospectively related to social competence/withdrawal?
- Are behavioral inhibition and/or attachment classification longitudinally related to social anxiety?
- Do behavioral inhibition and attachment security interact to predict social outcomes?
- Do social and nonsocial inhibition converge to predict social anxiety?

Procedures, Methods and Main Findings of Our Studies

Study 1: Longitudinal Study From Infancy to Early School Age

Summary of procedure and methods

This investigation included 96 children (48 girls, 50 boys) who were studied longitudinally from infancy to 9 years of age. Social inhibition was measured during infancy (ie, at 12 months, 15 months and 20 months of age), at 4 years and at 8 years of age. Attachment security was assessed when children were 15 months of age, and social competence was measured at 8 and 9 years of age.

When the children were 12 months of age, an observational measure\textsuperscript{30, 31} of social inhibition was obtained during 2 home visits. Infants were exposed to a gradually approaching friendly female stranger. Immediately after the encounter, the female stranger (a research assistant) rated the infants’ reactions on a 9-point scale that ranged from “1”, very friendly, outgoing and smiling to “9”, quite unfriendly, fussy and fearful. At 15 months and 20 months of age, parental ratings of Approach-Withdrawal\textsuperscript{32} and reactions to unfamiliar persons were obtained. These 3 measures were standardized and averaged to yield an infant social inhibition score for each child.
Behavioral Inhibition and Attachment as Predictors of Peer Social Competence

When children were 4 years of age, a measure of social inhibition was constructed from 2 sources: parental ratings of responses to novel social situations\(^{33, 34}\) and laboratory observations of reactions to 2 encounters with strangers\(^{25}\) that occurred during separate visits. Standardized measures of observations and ratings were aggregated to yield a social inhibition measure for 4-year-olds. When the children were 8 years of age, mothers rated the 8 items of the Shyness scale (5-point response scales) in the Swedish version\(^{34}\) of the Buss and Plomin\(^{33}\) Emotionality, Activity, Sociability questionnaire.

Infant attachment was studied when children were 15 months of age using the Strange Situation\(^{35}\) with the mothers. Attachment classifications were made from the video recordings according to the following categories: insecure avoidant (A; n = 16), secure (B; n = 53), insecure-ambivalent (C; n = 18) and unclassifiable (n = 9).

An index of peer social competence was created using school observations, parent ratings and teacher ratings. Observed components were social initiative-withdrawal and positive social behaviors,\(^{36}\) whereas ratings included initiative-withdrawal, prosocial orientation and peer popularity. Parents and teachers completed the Social Competence Inventory\(^{5}\) when the children were 8 and 9 years old. An overall measure of social competence with peers was constructed by averaging the \(z\)-transformed values for the observation and rating components of the inventory. A separate measure of social withdrawal was obtained by aggregating observations and ratings for this component.

Information about nonparental care was available up to the age of 4 years. The amount of nonparental care was calculated as the number of months that the child had participated in nonparental care with other children that exceeded 10 hours per week. The quality of care was generally high, although naturally there was some variation.\(^{37}\)

**Findings**

- **Is social inhibition stable from infancy to the ages of 4 years and 8 years?**

  Social inhibition assessed in infancy was related to the 4-year social inhibition measure (\(r = .25, P<.05\)) and to the 8-year social inhibition measure (\(r = .27, P<.05\)). The relation between social inhibition in infancy and at 8 years was,
to a large extent, mediated by social inhibition at the age of 4 years. The correlation ($r$) was reduced to .13 (NS) when inhibition at 4 years of age was controlled.

- **Is there a concurrent or prospective relationship between attachment classification and social inhibition?**

Reliable relationships between social inhibition measures and attachment classification were found for the infancy assessment (12 to 20 months of age) ($F_{2,78} = 4.06, P<.05$) and when the children were 8 years of age ($F_{2,78} = 3.18, P<.05$), but not when children were 4 years of age. During infancy, children with insecure-ambivalent attachment were the most socially inhibited, and children with avoidant attachment were the least inhibited. Only children with insecure-ambivalent attachment differed significantly from the secure group. The main effect did not achieve statistical significance. When they were 8 years of age, children from both insecurely attached groups evidenced higher inhibition scores than did children who had been securely attached as infants; however, these differences were not statistically significant. Because the direction of effect was the same for both insecure groups, the main effect of attachment classification on later social inhibition was significant ($r = -.25$).

- **Is social inhibition longitudinally related to social competence/withdrawal?**

Social inhibition in infancy was not related to either the general measure of social competence at 8 to 9 years of age or to the subcomponent of social withdrawal. Social inhibition measured at 4 years of age, however, was significantly related to both measures ($r = .24$ and .25, respectively; $P<.05$ for both).

- **Is attachment security longitudinally related to social competence/withdrawal?**

There was a significant difference between attachment groups in social competence ($F_{2,78} = 4.25, P<.05$) and also in social withdrawal ($F_{2,78} = 5.65, P<.01$). Children who had been securely attached as infants were significantly less withdrawn and more socially competent than children in either group of insecurely attached infants.

- **What is the interplay of social inhibition and attachment security in predicting social outcomes?**

We noted a significant interaction between infant attachment and infant social inhibition in predicting social competence and social withdrawal ($t_{83} = 2.71$ and 2.80, respectively; both $P<.01$), such that the difference in
Behavioral Inhibition and Attachment as Predictors of Peer Social Competence

social outcome was greater for more inhibited children. Over time, attachment security during infancy and social inhibition measured at 4 years of age independently contributed to school-age social competence and social withdrawal. As previously mentioned, infant social inhibition was no longer a reliable predictor when social inhibition at 4 years of age was included in the equation.

• Is experience of nonparental care prospectively related to social competence/withdrawal?

The amount of nonparental care during the first 4 years of life was related to both peer social competence and social withdrawal at school age ($r = .31$ and $-.30$, respectively; both $P<.01$). Children who experienced more nonparental care were more socially competent and less socially withdrawn. Nonparental care was also negatively related to social inhibition at ages 4 years and 8 years ($r = -.19$ and $-.29$, respectively), but only the latter effect reached significance. The amount of nonparental care was not related to infant social inhibition ($r = .09$), which suggests that parents who have more inhibited children do not necessarily avoid nonparental care.

Summary

Fig 1 presents an overall picture of the independent contributions of infant attachment security, social inhibition during infancy and at 4 years of age and experience of nonparental care to social competence/social withdrawal at 8 years and 9 years of age. Infant attachment security and experience of nonparental care contribute independently to later social competence. The effect of social competence of 4-year-olds was reduced to a trend when nonparental care was entered into the regression equation. The results were similar for social withdrawal.

Study 2: Longitudinal Study From 5 to 8 Years of Age

Summary of procedure and methods

This study included 130 children (65 girls, 65 boys) who visited our laboratory at 5 years, 6½ years and 8 years of age. Data from parent questionnaires were obtained at the same visits. Teacher questionnaire data were obtained when children were 7½ years of age.
Behavioral inhibition was studied at ages 5 years and 6½ years using parental ratings of the children’s reactions to social and nonsocial novelty. At 5 years of age, observations of social and nonsocial inhibition were made. Questionnaire information on social inhibition was the same as in Study 1. We also included 4 questions pertaining to fear or withdrawal in nonsocial situations, yielding a score for nonsocial inhibition. Parental ratings of behavioral inhibition were the averages of the social and nonsocial components. Observations of social inhibition were obtained from a videotaped Stranger Encounter Situation, which consisted of 5 episodes of increasingly interactive efforts from the stranger towards the child. Ratings were obtained for each separate episode, but an overall rating on a 5-point scale was used for statistical analysis. We observed nonsocial inhibition in a videotaped “risk room” situation, similar to that used by the Garcia Coll, Kagan and Reznick. The observed behavioral inhibition score was an average of the standardized values of the ratings from the 2 observations. An aggregate of rating and observation data yielded a total behavioral inhibition score.

Fig 1. Predictive relations to social competence shown as bivariate correlations and as beta coefficients (within parentheses) for the regression with all predictors included. Social competence was independently predicted by attachment security, social inhibition (at 4 years) and nonparental care.

1–2 Years 4 Years 8–9 Years
Social Competence

Social Inhibition

Social Inhibition

Social Inhibition

Attachment Security

Nonparental Care

R² = .22

* P<.05
† P<.10
‡ P<.01
Attachment was measured at the visit when children were 5 years of age using an Attachment Story Completion Task.\textsuperscript{39, 40} By completing story stems, children were assumed to reveal internal representations of their relationships with their parents. The following stories were used: child’s bike being stolen; child having done something forbidden, then saying “I’m sorry, Mom”; child waking up and seeing a monster in the bedroom; and a separation and a reunion in which parents were depicted as going away for a few days. Children’s stories were scored and classified into secure, insecure avoidant and insecure bizarre/ambivalent.

Teachers rated social withdrawal with the instrument used in Study 1. A measure of social anxiety was obtained by aggregating parental ratings on 7 items (eg, “Does not like to be the center of others’ attention”), teachers ratings on 5 items (eg, “Speaks with a low voice when talking in front of the class”) and lab observation of the child’s behavior when retelling a story in front of the video camera (an overall rating on a 5-point scale). An aggregated measure of social anxiety was used in the analysis.

**Findings**

• Do behavioral inhibition and attachment security at age 5 years independently predict social withdrawal at age 8 years?

The results from Study 1 were replicated, as both attachment security and behavioral inhibition independently contributed to the explanation of social withdrawal ($\beta = .19$, $P < .05$ and $\beta = .35$, $P < .001$, respectively). Comparison of attachment groups showed that the children with bizarre/ambivalent attachment showed reliably more social withdrawal than children who were securely attached, whereas the difference for children with avoidant attachment was not significant.

• Is behavioral inhibition longitudinally related to social anxiety?

Behavioral inhibition at ages 5 and 6\textfrac{1}{2} years predicted social anxiety at age 8 years ($r = .48$ and .56, respectively; $P < .001$ for both). Behavioral inhibition was moderately stable from ages 5 to 6\textfrac{1}{2} years ($r = .51$). Regression analysis showed that social and nonsocial inhibition at the age of 5 years contributed independently to predicting social anxiety.
• Is attachment security longitudinally related to social anxiety?

Attachment security as assessed from the transcribed completed story stems was related to social anxiety. Children whose story completions indicated higher insecurity were more socially anxious than their peers 3 years later. The 3 attachment groups differed in social anxiety levels ($F_{2,118} = 4.69, P < .05$). Both groups of children with insecure attachment showed higher levels of social anxiety than did children who were securely attached.

• What is the relationship of social inhibition and attachment security in predicting social outcomes?

Inhibited temperament and insecure internal representations of the attachment relationship at the age of 5 years were independently predictive of social anxiety 3 years later. The interaction of behavioral inhibition and attachment security did not reach significance.

Fig 2 summarizes these results.

---

**Fig 2.** Predictive relations to social anxiety shown as bivariate correlations and as beta coefficients (within parentheses) for the regression with all predictors included. Social anxiety was independently predicted by attachment security and social inhibition measured at 5 and $6^{1/2}$ years.

<table>
<thead>
<tr>
<th>5 Years</th>
<th>6½ Years</th>
<th>8 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Inhibition</td>
<td>Social Inhibition</td>
<td>Social Anxiety</td>
</tr>
<tr>
<td>Attachment Security</td>
<td>.45†</td>
<td>.48†(.25†)</td>
</tr>
<tr>
<td>- .07</td>
<td>- .45†</td>
<td>.62†(.47†)</td>
</tr>
<tr>
<td>- .22†</td>
<td>- .29†(-.17*)</td>
<td></td>
</tr>
</tbody>
</table>

$^* P < .05$

$^† P < .01$

$^{‡} P < .001$
Discussion

Attachment Security and Social Inhibition

Data obtained when children were infants indicate that those with insecure-ambivalent attachments were significantly more inhibited than were children who were securely attached. Children with avoidant attachment were less inhibited also, although this difference did not reach statistical significance. Because the 2 groups with insecure attachment differed from each other, there was no relation between attachment security and inhibition. These results are similar to those reported by Calkins and Fox\textsuperscript{41} who studied attachment at 14 months of age and behavioral inhibition at 24 months of age. Such findings are consistent with the idea that temperamental characteristics contribute to the kind of insecurity that develops, given that other conditions have set the route towards insecurity, but more research is needed. At age 4 years (Study 1) and age 5 years (Study 2), attachment and inhibition were not found to be related. However, maternal ratings of social inhibition at age 8 years (Study 1) and age 6\textfract{1}{2} years (Study 2) were related to earlier attachment security, such that children who had been insecure were rated as more inhibited. Children with insecure attachment from both studies were found to be more inhibited than were securely attached children although in Study 1, the comparison with children with avoidant attachment failed to reach significance. These results suggest that, over time, secure attachment relationships help children to better handle withdrawal tendencies rooted in their temperamental dispositions.

Social Inhibition as a Precursor of Social Competence and Social Anxiety

Study 1 adds to the existing data that address the idea that temperamental disposition of behavioral inhibition is a precursor to differences in social competence.\textsuperscript{7, 19, 20} Although Asendorpf\textsuperscript{15} suggested that there is little reason to expect a predictive relation from inhibition with an unfamiliar adult to peer social behavior beyond the initial months of group socialization, our data showed predictive relations across more than 4 years. Interestingly, our findings were parallel for both the more global measure of social competence and the more specific measure of social withdrawal.
Can social inhibition be equated with behavioral inhibition, which, as a construct, concerns responses to nonsocial as well as social novelties? Are our results valid for behavioral inhibition? Several authors\textsuperscript{11, 14} expressed doubts about the consistency of inhibition across social and nonsocial settings, and they warn against generalizations. Although data from our own earlier studies\textsuperscript{42} and from the Kagan group\textsuperscript{38} have failed to distinguish between social and nonsocial inhibition at the age of 2 years, it is still possible that the developmental courses for social and nonsocial inhibition differ. In Study 2 we found that social and nonsocial inhibition, assessed when the children were 5 years of age, predicted both social withdrawal and social anxiety. Furthermore, the effects were to some extent independent of each other. Thus, results here indicate both consistency and independence between social and nonsocial inhibition. Based on studies conducted when the children were 4 years old, our results tend to represent the general phenomenon of behavioral inhibition, although additional information could have been obtained by studying the nonsocial aspect of inhibition directly.

**Independent Contributions of Attachment Security and Social Inhibition**

Results reported here demonstrate that attachment security and social inhibition contribute independently to explain social competence with peers and social anxiety at school age, as observed by others. For children with inhibited temperament, however, predictive relations were found for early childhood (not infancy), presumably because by then behavioral dispositions had become more firmly established as a combined effect of biological disposition and experience. Our data are consistent with both temperament aspects and the relationship perspectives on the development of social competence.

We demonstrated an interesting interaction between infant attachment and infant temperament to explain social competence. Our results suggest that if a child is to develop social competence a secure attachment relationship is more important, especially for infants who have a temperamental disposition of high social fearfulness. Similarly, Rubin, Burgess and Hastings concluded that toddler inhibition among unfamiliar peers was predictive of anxious-solitary behavior 2 years later, but only for children whose mothers displayed negative parenting.\textsuperscript{43}
Effects of Nonparental Care

The predictive relation between the amount of nonparental care and later social competence and social withdrawal suggests the importance of extrafamilial social experience for the development of behaviors required for successful peer interaction. The absence of significant interactions with the attachment or temperamental variables means that we cannot assume differential effects due to attachment quality or high versus low social inhibition. These results are somewhat similar to those of Bost and colleagues, who found independent and noninteracting concurrent effects of attachment and social network on social competence with peers. It should be noted, however, that individual differences in social inhibition at age 4 years reflected care experiences, in that the results showed a near-significant relation between experiences of nonparental care and social inhibition. As a consequence, the predictive power of inhibition was weakened when the amount of nonparental care was entered into the equation explaining social competence. This finding, which suggests that the malleability of the characteristic of social inhibition is an effect of social experiences outside the family, is reminiscent of the interpretations of Fox and colleagues, who found that inhibition was more stable from infancy to the age of 4 years for children who had not experienced nonparental care during their first 2 years. The results can be interpreted to mean that preschool experiences with peers and adults outside the family influence the behavioral expression of basic temperamental characteristics. Later, by 4 to 5 years of age, however, the individual characteristic itself, expressed in behavior, seems to be enduring enough to significantly predict social outcomes such as competence and social anxiety by the ages of 8 and 9 years.

Conclusions

Our results suggest the following conclusions:

- During infancy, children with insecure-ambivalent attachment show more social inhibition than do children with secure attachment and insecure-avoidant attachment. Longitudinally, there is either no relation (suggested by the data from Study 1 on 4-year-old children) or a tendency for children with both types of insecure attachment to be rated as more inhibited than children who are securely attached (data from Study 1 on 8-year-old children).
• Although there is a considerable amount of stability over time in behaviors that reflect inhibition, there are also indications of malleability in these behaviors. Among the factors that may contribute to change are experiences of nonparental care (especially when the care is of good quality) and a secure attachment relationship.

• Social withdrawal, as well as the wider phenomenon of social competence, seems to have an early antecedent in the attachment relationship and also in behavioral inhibition manifested during toddlerhood and the early preschool years.

• Social anxiety, the fear of being evaluated, seems to have roots that are similar to those of social competence. Both high behavioral inhibition and insecure attachment representations predispose children to develop social anxiety at school age.

References


The Development of Human Physical Aggression: How Important is Early Childhood?

Richard E. Tremblay, PhD, FRSC

Introduction

The “age-crime curve” is one of the most robust research findings in criminology. First identified in the early 19th century by the Belgian astronomer-statistician-social scientist Adolphe Quetelet,1 the age-crime curve suggests that humans most often engage in antisocial behavior during adolescence and early adulthood (see Fig 1a). The Quetelet age-crime curve can be observed in all industrialized countries.2 (See, for example, Fig 1b for data concerning the United States.) During adolescence humans become physically stronger, their cognitive competence increases (eg, they are better at hiding...
their intentions), they become sexually mature and they ask for and obtain greater freedom from adult supervision. Further, adolescents have access to resources, such as money and transportation, that increase their capacity to satisfy their needs. This rapid biopsychosocial development might be sufficient to explain why adolescence provides more opportunities and motives for antisocial behavior than do other periods of life. Adolescents lack life experience and feel pressured to choose a career, to perform in school and to be successful with peers and possible sexual partners. These factors may explain why proportionally more adolescents than adults resort to violent behavior.

Although a majority of adolescents commit some delinquent acts, most of these are minor legal infractions. Population-based surveys have systematically shown that a small proportion of adolescents (between 5% and 15%) account for the majority of violent acts and arrests. The challenge is to explain why some adolescents, as well as some adults, frequently resort to physically aggressive behavior while others do not. Although they are relatively few, violent adolescents frighten a large part of the population, and they

---

**Fig 1b. Age-specific arrest rates for the United States in 1980, as reported by FBI.**

FBI = Federal Bureau of Investigation

Index offenses include homicide, forcible rape, robbery, aggravated assault, burglary, larceny, and auto theft.
represent a heavy burden of suffering for their victims, their families and themselves. Adolescents with behavior problems are also much more likely to be unemployed, suffer poor physical health or have mental health problems.

**Physical Aggression During Childhood**

A number of high-profile cases have made it clear that extremely violent behavior does not appear suddenly with adolescence. For example, in February 1993, two 10-year-old boys bludgeoned to death a 2-year-old boy whom they had lured from his mother in a Liverpool (England) shopping center. In 1994, the world was again shocked to hear that in peaceful Norway a 5-year-old boy, and two 6-year-old boys had kicked and stoned to death a 5-year-old girl. In March 2000, a Michigan kindergarten-age boy used a semiautomatic handgun to kill a female classmate.

These rare cases serve as a reminder that young children can be extremely violent. In fact, longitudinal studies of large samples of boys and girls followed from school entry to the end of adolescence show clearly that younger children are more physically aggressive, and that as they grow older, they generally resort less and less to behavior that is physically aggressive. Cross-sectional data from the National Longitudinal Survey of Children and Youth (NLSCY), a random sample of 16,038 Canadian children ages 4 to 11 years, confirm this developmental pattern. As seen in Fig 2, boys and girls at the age of 4 years have the highest levels of physical aggression, while 11-year-old boys and girls have the lowest levels of physical aggression. As expected, at each age girls have lower levels of physical aggression than boys. These data are based on mothers’ reports of their children’s behavior. However, studies using teacher-, peer- and self-reports have found the same developmental trends.

Interestingly, these patterns are completely reversed in the case of indirect aggression, which is defined as behavior aimed at hurting someone without the use of physical aggression. For example, a child who is mad at someone may say bad things about them behind the other’s back or may try to get others to dislike that person. As shown in Fig 2, girls have higher levels of indirect aggression at each age, from 4 to 11 years, and the level of indirect aggression increases with age for girls and boys. Thus, the process of socialization may involve learning to use indirect means of aggression rather than physical aggression.
When shown the type of data presented in Fig 2, most people will accept that the majority of children become less and less physically aggressive with time, but they will continue to believe that a minority commence or increase the frequency of physically aggressive acts as they grow older. Recent analyses of longitudinal studies have addressed this issue by attempting to identify the developmental trajectories of physical aggression in large samples of boys and girls living in Canada, New Zealand and the US. Results were very similar for all groups studied. With a sample of boys from low socioeconomic areas in Montreal, Nagin and obtained the following results, which are used here as an example. The boys were assessed regularly from kindergarten to high school (Fig 3): 17% of the boys appeared never to have been physically aggressive; 4% showed a high frequency of physical aggression from 6 years to 15 years of age; 28% started with a high level of physical aggression at age 6 years and became less and less physically aggressive with time; the majority (52%) had a low level of physical aggression at age 6 years and also became less and less aggressive over time. In contrast to hypotheses concerning the
late onset of antisocial behavior,16, 17 Nagin and I15 did not find any group of boys in which there appeared to be an “onset” and maintenance of moderate or high levels of physical aggression for a significant number of years after the age of 6 years. We also observed that, for every group of boys, the peak level for frequency of physically aggressive acts occurred during the kindergarten year.

These results clearly challenge the idea that the frequency of acts of physical aggression increases with age. They also challenge the notion that there is a significant number of children who show chronic physical aggression during late childhood or adolescence after having successfully inhibited physical aggression throughout childhood. If, between the kindergarten and high school years, physical aggression peaks during kindergarten, when do children actually start to aggress physically?

**Physical Aggression During Early Childhood**

Surprisingly few longitudinal studies have addressed the development of physical aggression during the preschool years. This lack of attention to physical aggression during the early years appears to be the result of a long-held belief that physical aggression appears during late childhood and early adolescence as a result of bad peer influences, television violence and increased levels of
male hormones.\textsuperscript{18-21} This view of antisocial development was described more than 200 years ago by Jean-Jacques Rousseau. The first sentence of his book on child development and education, \textit{Emile: Or On Education} makes the point very clearly: “Everything is good as it leaves the hands of the Author of things; everything degenerates in the hands of man.”\textsuperscript{22} Later he is still more explicit and appears to be writing the agenda for 20\textsuperscript{th} century research on the development of antisocial behavior: “There is no original perversity in the human heart. There is not a single vice to be found in it of which it cannot be said how and whence it entered.”\textsuperscript{22} The strong stance taken by Rousseau was in clear opposition to Hobbes,\textsuperscript{23} who, a century earlier, described infants as selfish machines striving for pleasure and power, declaring in \textit{De Cive} (On the Citizen): “It is evident therefore that all men (since all men are born as infants) are born unfit for society; and very many (perhaps the majority) remain so throughout their lives, because of mental illness or lack of disciplining…. Therefore man is made fit for Society not by nature, but by training.”\textsuperscript{24}

This debate has far-reaching consequences, not only for child development investigators and educators, but also for political scientists, philosophers and policy makers. Because the underlying debate is clearly grounded in our views of human nature, it is not surprising that investigators are likely to prefer the origin of aggressive behavior that best fits their view of human nature and their political orientation. Given that most political philosophers agree that society must be built on the natural tendencies of humans, it is surprising that research on early childhood development, and aggression in particular, has not received more attention.

Longitudinal studies of small samples of preschool children have found that toddlers who are the most physically aggressive tend to become the most aggressive preschoolers.\textsuperscript{25, 26} However, mothers’ reports of their children’s physical aggression from the first wave of the NLSCY indicate that the mean frequency of physical aggression peaks at the end of the second year after birth and then steadily declines (see Fig 4).\textsuperscript{11}

So, if the frequency of physical aggression is highest at the end of the second year after birth, at what age does physical aggression begin? Within a longitudinal study of a large sample (N = 2120) of babies born in the Canadian province of Quebec in the mid-1990s (Québec Longitudinal Study of Child Development; QLSCD), mothers were asked to rate the frequency of their children’s physical aggression at ages 17 and 30 months and to indicate at
what age such behavior began. At 17 months of age, close to 90% of the mothers reported that their child, at least sometimes, used physical aggression towards others.

Fig 5 shows the cumulative age of onset of children taking away objects from others.) It can be seen that, according to mothers’ reports, very few children use this behavior before the end of their first year of life. However, the number of children who start to take away objects from others increases rapidly during the first part of the second year after birth (from 10% at 11 months of age to 75% at 17 months of age), and by the middle of the third year, almost all children have started to take away things from others. Also, from approximately 15 months of age more boys than girls use that behavior. Taking things from others is not an act of physical aggression, but if children continue to engage in this behavior as they grow older, in adolescence they will be arrested because that behavior is then defined as “stealing.”
**Fig 5.** Cumulative age of onset of taking things away from others.

**Fig 6.** Cumulative age of onset of pushing others to get what child wants.
Figure 6 shows the cumulative age of onset of children pushing others to get what they want. Note that, from a criminological perspective, the difference between taking things from others surreptitiously and physically pushing others to take things away from them is the same as between stealing and robbery. The largest increase in the number of children who use this behavior occurs, again, during the first part of the second year after birth (from 5% at 11 months to 50% at 17 months of age). As was observed with taking away things from others, fewer children initiate this behavior after 17 months of age. However, pushing others to get what children want appears to start later than the simple act of taking away things, as the cumulative percentages are lower at each age. Between the 2 behaviors there is a difference of 5% at 11 months of age and 25% at 17 months of age. Sex differences also begin at approximately 15 months of age.

Figure 7 illustrates the cumulative age of onset of threatening to hit others. Four curves are presented to differentiate boys from girls and to differentiate those who have at least one sibling at home from those who live alone with their parents. One can again see an important increase in the number of
children who use this aggressive behavior during the first part of the second year of life. However, this aggressive act differs from the 2 described previously in 4 important ways: First, fewer children initiate this behavior at every age up to 30 months of age; second, a rather substantial number of children initiate the use of threats to hit others between 17 and 30 months of age; third, the sex differences appear to be more important; and fourth, having a target (i.e., a sibling) makes a difference. Boys younger than 30 months of age with siblings are most at risk to initiate the use of threatening to hit others. That difference first appears at 15 months of age (25% have initiated the behavior) and remains until 30 months of age when 50% have initiated the behavior. From age 16 months onward, there is almost a 20% difference between boys who have and boys who do not have siblings. Boys and girls who do not have siblings tend to have a similar rate of initiation, while, from age 15 months onward, boys with siblings have a higher rate of initiation than girls who have siblings.

Figure 8 shows the cumulative age of onset of actually physically attacking others. Results are similar to those for threatening to hit others. Children with siblings tend to initiate the behavior earlier than those without siblings,
and the difference between these 2 groups increases at 24 months of age. However, the sex differences within the groups with and without siblings appear only during the first part of the third year after birth. The available longitudinal data from the NLSCY indicate that by 48 months of age the frequency of physical aggression will have started to decrease and that it decreases much more rapidly for girls than for boys (S. Côté, T. Vaillancourt, A. Farhat, J. LeBlanc, D.S. Nagin, R.E. Tremblay, unpublished data, 2003). (Also, see Fig 4.)

One of the interesting results of the QLSCD is that mothers, having reported that their children at 17 months of age had started to hit others, appeared to have forgotten this early onset because they reported at age 30 months that their children had started to hit others when they were older than 17 months of age. This memory failure as their children grow older, taller and bigger may in part explain why parents of physically aggressive adolescents report that the aggression problems started only 1 or 2 years before.28

Why Are the Early Years So Important?

The evidence from longitudinal and cross-sectional studies presented in this chapter suggests that, for the majority of children, the frequency of physical aggression increases during the first 3 years after birth and then decreases steadily until adulthood. How can this increase and decrease in physical aggression during early childhood be explained? One would expect that physical, cognitive and emotional development all play important roles. Within the first 24 months after birth, babies grow in height by more than 70% and almost triple their weight. At birth babies can hardly lift their heads; 9 months later they can move on all fours, by 12 months they can walk and by 24 months they can run and climb stairs. Compared with other periods of development, the early years are on “fast-forward.”

The ability to grasp objects is an important development for social interactions. At birth babies do not control their arms, but by 6 months of age they can reach out and grasp for objects. If they see an interesting toy in the hands of another 6-month-old baby, they will reach out and grasp the toy. A struggle for the toy will occur if the other child does not let go. Note that, at 6 months of age, the child does not have the language skills to ask the other child for the toy — this ability comes much later — but the frequency and complexity of interactions between babies and other persons in their
environment increase at least as rapidly as their physical growth. Infants’ waking time is spent exploring the physical environment. Before 12 months of age, they spend most of their playtime exploring one object at a time. Between 12 and 18 months of age, they imitate real-life activities alone. By the end of the second year of life, they are “pretend playing” with others.29

Thus, over the first 15 months after birth, as physical mobility and cognitive competence increase, children also become more and more able to explore their environment. The frequency of their interactions with peers increases with age, and playing with others increases dramatically from the end of the first year to the end of the second year of life.30 This is also a period when the rate of physical aggression increases to its maximum. At this age, children are exploring social interactions with their newly acquired walking, talking, running, grasping, pushing, kicking and throwing skills. Most of their interactions are positive, but conflicts become more frequent.31, 32 Most of these conflicts concern possession of objects. During these conflicts children learn that they can hurt and be hurt. Most children will quickly learn that a physical attack on a peer will provoke a physical attack and that adults will not tolerate these behaviors. Most also learn that waiting for the toy to be free and asking for toys, rather than taking them, is more likely to prevent negative interactions.

Learning to wait for something you want (ie, delay of gratification)33 and learning to use language to convince others to satisfy your needs may be the most important protective factors against chronic physical aggression. Stattin and Klackenberg-Larsson34 showed that language skills between the ages of 18 months and 24 months were a good predictor of adult criminality in a Swedish sample of males followed from birth to adulthood. In fact, numerous studies have shown an inverse correlation between verbal skills and impulsivity and criminal behavior.35 We need to understand the mechanisms underlying these associations. They are clearly operating during the first 2 years of life.36

By 12 months of age, children have the physical, cognitive and emotional means to be physically aggressive towards others. It appears that most children will at some point hit, bite or kick another child or an adult. Children’s individual characteristics can explain part of the variance in the frequency and
stability of this behavior, but the quality of children’s relations with their environment and the environment’s reaction to this behavior are also likely to be important factors. If children are surrounded by others who are physically aggressive, they will probably learn that physical aggression is part of everyday social interactions. On the other hand, if a child lives in an environment that does not tolerate physical aggression and rewards prosocial behavior, the child likely will learn to use means other than physical aggression to obtain what he or she wants or to express frustration.

A number of studies suggest that chronic physical aggression is the product of interactions between genetic factors and social interactions in the family. For example, analyses of a longitudinal study of a birth cohort in New Zealand indicate that the risk for violent behavior in children who were maltreated was low when they had a genotype that led to high levels of monoamine oxidase expression. A study of nearly 600 pairs of 18-month-old twins has also shown that approximately half of the differences in frequency of physical aggression in the sample could be attributed to genetic effects, while the other half appeared to originate from environmental factors that were specific to each child rather than common for each pair of twins. Thus, although most infants will use physical aggression, some will use such behaviors much more often than others. Analyses of developmental trajectories of physical aggression during early childhood indicate that infants who often use physical aggression are more at risk of continuing to use this behavior at a high rate. The best predictors of high levels of physical aggression during early childhood are strikingly similar to the best predictors of chronic physical aggression during later childhood and adolescence: mother’s youth at birth of her first child, mother’s conduct problems during her adolescence, mother’s smoking status during pregnancy, parents separated at birth, low income, mother’s coercive behavior toward the child at 5 months of age and a dysfunctional family at 5 months of age. Thus, children born to parents who have a history of problem behaviors are at high risk of chronic physical aggression because they accumulate different types of risk factors — genetic, toxic (nicotine during and after pregnancy), economic (poverty) and relational (coercion) — that are present early in life when children are learning to regulate their behavior.
Conclusion

Clearly, Plato, St. Augustine, Erasmus and Hobbes understood the importance of early education in creating a civil society. Rousseau correctly described Plato’s *Republic* as a book on education. In the chapter entitled “Law,” Plato defined early education as learning suitable habits in response to pleasure and pain. Some 750 years later (1600 years ago!), St. Augustine of Hippo may have written the most sensible pages on the development of aggression. In the first book of his, *The Confessions of St. Augustine*, he describes the physical aggressions of infants and concludes: “Thus it is not the infant’s will that is harmless, but the weakness of infant limbs…. These things are easily put up with, not because they are of little or no account, but because they will disappear with increase in age. This you can prove from the fact that the same things cannot be borne with patience when detected in an older person.” More than 1000 years later in *De Cive*, Hobbes makes a similar statement when he refers to a wicked man as a robust child.

In his attempt to blame the arts, sciences and civilization, in general, for inequalities among people, Rousseau invented a human child, born innocent, who had to be kept far away from society until early adolescence. Living alone with nature was the best way for a child to follow his instincts and avoid becoming corrupted by society. Children had to be kept away from peers and from books. Whatever led Rousseau to this romantic perception of child development appears to be an extremely common experience. Many late 20th century adults, including psychologists, psychiatrists and pediatric specialists, appear to be convinced that social behavior is natural (“God-given” or “genetic”) and that antisocial behavior is learned. For example, social learning has been one of the most influential theories in child development over the last 30 years. In his 1973 book *Aggression: A Social Learning Analysis*, Albert Bandura, one of the leading social learning theorists, starts his chapter “Origins of aggression” with the following phrase: “People are not born with preformed repertoires of aggressive behavior; they must learn them in one way or another.”

If Rousseau’s attitude is present in the later writings of others, it was also clearly in existence before his time as well. Consider the fact that 200 years before the publication of *Emile: or On Education*, Erasmus in his “A declamation on the subject of early liberal education for children,” criticized those who, like Rousseau “…maintain out of a false spirit of tenderness and
compassion that children should be left alone until early adolescence…” and argued that “…one cannot emphasize too strongly the importance of those first years for the course that a child will follow throughout his entire life.”

Twentieth century longitudinal studies of thousands of participants from childhood to adulthood have confirmed the old philosopher’s experience. Children who fail to learn alternatives to physical aggression during the preschool years are at very high risk for a number of problems. They tend to be hyperactive, inattentive, anxious and fail to help when others are in need; they are rejected by the majority of their classmates, get poor grades and are disruptive in school. Thus, these children are swiftly taken out of their “natural” peer group and placed in special classes, special schools and institutions with other “deviants,” — the ideal environment to reinforce marginal behavior. They are among the most delinquent from preadolescence onward, the first to initiate substance use, the first to initiate sexual intercourse, the most at risk of dropping out of school, the most at risk of having a serious accident, the most likely violent offenders, the most likely to be taken to court for delinquent behavior and the most at risk for a psychiatric disorder.

From this perspective, failure to learn alternatives to physical aggression in the early years has the long-term negative consequences on individual social adjustment that Hobbes described in *De Cive*. Modern studies that have followed aggressive children into their adult years have indeed shown that there are extremely negative consequences not only for the aggressive individuals, but also for their mates, their children and the communities in which they live. The stage is set for early parenthood, unemployment, family violence and a second generation of poor children brought up in a disorganized environment. Failure to teach children to regulate violent behavior during the early years leads to poverty much more clearly than poverty leads to violence.

**Acknowledgment**

References


Social and Moral Development

Section 5: Interventions to Optimize Social Development for Young Children
Abstracts from Section 5: Interventions to Optimize Social Development for Young Children

“Sesame Street”: “R” is for Race Relations, “B” is for Breaking Stereotypes and “D” is for Diversity (It’s Never Only Been About Letters and Numbers)

Lewis J. Bernstein, PhD; Gail David, MPH; Rosemarie T. Truglio and Charlotte F. Cole

“Sesame Street” utilizes a unique integration of creative, educational and research expertise to help children demystify differences and value diversity, in addition to teaching them letters and numbers. In the Sesame Workshop Model, producers, researchers and educational-content specialists collaborate to develop entertaining programs that are educationally sound, appealing and comprehensible to the target audience. A recent emphasis has included programming to help children dispel stereotypes and develop social-reasoning skills to promote cross-cultural respect and understanding. Segments discussed in this chapter highlight issues of race relations within the United States, the Israeli-Palestinian conflict and tolerance and understanding of “others” in response to the attacks of September 11th. Programming is developed to reinforce positive behaviors and model prosocial problem solving to provide real-life contexts in which tolerance, inclusion and empathy produce socially desirable outcomes.

Will Interventions to Prevent Excessive Aggression Ever Prove Cost-Effective?

Dr Stephen Scott

Excessive aggression in children manifests early as antisocial behavior. Children with severely disturbed behavior are at high risk of becoming chronic adolescent offenders and criminal adults. The long-term financial costs to society of excessive aggression are tremendous. Numerous interventions have been
designed to improve antisocial behavior in young children, thereby altering this trajectory. However, most interventions are developed in university settings and are generally ineffective when applied in community settings. Parenting skills can be enhanced by structured programs, and, at least in the short term, are associated with a decrease in children’s antisocial behavior. Programs that enhance child literacy also contribute to improved outcomes for excessively aggressive children.

Interventions That Work

Professor Kathy Sylva

Two main approaches have characterized early interventions for children with behavior problems. In general, programs that seek to train children to obey rules are not especially effective at improving child behavior. In contrast, programs that focus on improving family relationships have resulted in a reduction in behavior problems. Cognitive behavioral interventions aimed at parents are designed to improve children’s behavior through enhanced parenting skills. The High/Scope curriculum is a structured, center-based program which includes enhanced cooperation and conflict resolution with peers — that contributes to positive social outcomes for children,
“Sesame Street”: “R” is for Race Relations, “B” is for Breaking Stereotypes and “D” is for Diversity
(It’s Never Only Been About Letters and Numbers)

Lewis J. Bernstein, PhD; Gail David, MPH; Rosemarie T. Truglio and Charlotte F. Cole

Introduction

“Haneen, the exuberant orange Palestinian puppet in Rechov Sumsum/Shar’aa Simsim, the joint Israeli-Palestinian coproduction of Sesame Street, begins to eat a falafel. ‘You like falafel?’ asks Dafi, her Israeli counterpart in purple. ‘I like falafel too!’ And so it begins. From this simple discovery, a sense of possibility takes root and grows. A sense that maybe there are other things these two have in common, that perhaps, while their worlds are different, they can learn to appreciate those differences and value what they share. Small beginnings. Profound possibilities”.1

We know of course that it’s never that simple. But we also know that media can be used effectively to foster respect and understanding among children across and within cultures and countries. For the last 3 decades, Sesame Workshop has been at the forefront of this effort — using “Sesame Street” to help children worldwide demystify differences and value diversity, in addition to its more widely acknowledged role of teaching letters and numbers. This chapter highlights 3 such examples, addressing a range of issues across a variety of settings. They include race relations in the United States; intercommunal conflict in Israel, the West Bank, and Gaza; and posttraumatic responses
to the attacks of September 11th. This chapter begins with a brief section on
the origins of “Sesame Street” and its unique approach to developing and test-
ing media content. A discussion of each example follows, focusing on empiri-
cal evidence of efficacy with respect to helping children develop skills to
challenge ignorance, dispel stereotypes and champion diversity — skills that
contribute, in no small way, to sustaining peace in an increasingly complex
and interconnected world.

“Sesame Street” and the Sesame
Workshop Model

“Sesame Street” was born in the late 1960s, a time when Joan Ganz Cooney
and its other founders believed they had “…both the responsibility and the
power to make the world a better place, even if only just a little better.”
Lyndon Johnson’s Great Society programs were in full swing, the civil rights
movement was changing hearts and minds and Cooney, then a producer for
New York City’s educational television station, had just finished A Chance at the
Beginning — a film documentary on the work being done with young
children in Harlem by noted educator Martin Deutsch — which was a pre-
cursor to the Head Start program. Convinced of the importance of early
childhood education as a means for reducing poverty, committed to the use
of television as an educational medium and sparked by the intellectual and
financial support of Lloyd Morrisett, then a vice president of the Carnegie
Corporation of New York and subsequently the cofounder of “Sesame Street,”
Cooney set out across the US interviewing experts in a range of disciplines
about the potential of television to help preschoolers learn. Her findings in
1966 led to the formation of the Children’s Television Workshop (now
Sesame Workshop*) in 1968 and to the premiere of “Sesame Street” in
November 1969.

“Sesame Street” is now the “longest street in the world,” benefiting more chil-
dren in more countries across more cultures than any program in history.
Over the years, through dubbing, customized adaptations and — unique to
the Workshop — 20 indigenous coproductions reflecting locally defined edu-
cational needs, “Sesame Street” has served millions of children in more than
120 countries, including, most recently, Egypt, South Africa, Russia and China.

*Children’s Television Workshop and Sesame Workshop are trademarks of Sesame Workshop Corporation.
Key to its success (and to subsequent projects at the Workshop) is a unique integration of creative, educational and research expertise. In a process now known as the Sesame Workshop model, producers, researchers and educational-content specialists collaborate closely throughout the life of a project. Originally a *forced marriage* between television talent trained in comedy and researchers trained in child development, this process evolved quickly into a successful dynamic in which members of each discipline now work together to ensure that every program is both entertaining and educationally sound appealing and comprehensible to the target audience.\(^4,5\)

The original mandate — revolutionary for the time — was to use television to prepare young children, particularly low-income and minority children, for school. No less radical was the context in which messages were to be delivered — a world in which people (and puppets) of all kinds would get along. “Sesame Street” broke ground as the first preschool television show to feature a multicultural cast, the first to be explicit about differences and similarities and, perhaps most importantly, the first to model respect for differences, whether they originated in race, gender, ethnicity, language or ability.

Early research on the impact of “Sesame Street” made clear that in addition to helping children develop literacy and numeracy skills, its celebration of diversity also had its intended effect. As Fisch\(^6\) reported in a review of the assessment of the second season (1971) of “Sesame Street” by Bogatz and Ball\(^7\), African American and white preschool viewers expressed more-positive attitudes toward other groups of children (ie, African American and Latin American) than did nonviewers.

**Race Relations Curriculum**

Almost 2 decades later, racial harmony took center stage on “Sesame Street” with a 4-year curriculum focused on improved race relations. In 1989, in response to increasing racial unrest in the US, “Sesame Street” set out to explicitly promote positive interactions among 5 groups: African Americans, Latin Americans, Asian Americans, Native Americans and white Americans. The curriculum was clear about physical and cultural differences, emphasizing an appreciation for these differences and the common humanity among all groups. Preschoolers were encouraged to perceive people who “look different” from themselves as possible friends and to bring a child who had been rejected because of physical and/or cultural differences into the group.\(^8\)
In keeping with the Sesame Workshop model, the curriculum was informed by research, including baseline data on preschoolers’ perceptions of self and other children, parental perceptions and world views. One striking finding was that, while children expressed interest in forming interracial friendships, they perceived that their mothers would be considerably less likely to encourage such relationships. This may explain why in further studies, children as young as 3 years of age tended towards segregation. When given the opportunity to create a neighborhood, for example, white preschoolers, particularly 5-year-olds, segregated African American and white children in all structures: homes, schools, playgrounds, churches and stores. In a subsequent study among a different cohort, white children agreed with their earlier counterparts that African American and white children should be separated, but they also indicated that separation would lead to sadness for both groups.

These and other findings led the Workshop to develop explicit curricula and corresponding television segments to directly address children’s perceptions in these areas. Among them were 2 live-action segments: “Visiting Ieshia,” in which a white girl visits her African American friend at home, and “Play Date,” a similar scenario featuring boys. In warm and welcoming contexts, both segments consciously modeled activities the friends had in common (eg, brushing teeth, washing hands) as well as those that might be new (eg, eating foods, such as collard greens and grits, that were not familiar to the white child).

Subsequent research with approximately 150 African American, white and Puerto Rican children, ages 3 years to 5 years, confirmed that both segments appealed to them, regardless of race or gender. Moreover, preschoolers identified with and remembered the common experiences children in the segments shared. Most also perceived that the white children in the segments felt good about visiting their African American friends at home and about trying new foods. Perceptions of mothers’ negative views, however, proved tenacious: Consistent with baseline data, preschoolers sensed that their mothers would not feel as positively about forming other-race friendships. In subsequent analyses, producers speculated that these segments could have been more explicit about showing white parents approving of and interacting with their child’s African American friend. The segments modeled African American parents welcoming their child’s white friend into the home but overlooked interactions between white and African American parents and white parents and their child’s African American friend.
Television is only one factor in a child’s education. The effects of “Sesame Street” are understandably mediated by the “real” world — the experiences and attitudes that children encounter in their families and in the world around them. Nonetheless, its presence is pervasive — each week 8 million children view “Sesame Street” — and the evidence is sufficiently compelling to continue applying its power in positive ways. Such is the case with the second example presented here, the Israeli-Palestinian coproduction of “Sesame Street,” known as “Rechov Sumsum/Shara’a Simsim” (“Sesame Street” in Hebrew and Arabic, respectively).

“Rechov Sumsum/Shara’a Simsim”

“Rechov Sumsum/Shara’a Simsim” was inspired by what now seems like a century rather than a decade ago, the famous handshake on the White House lawn between the late Israeli Prime Minister, Yitzhak Rabin, and Palestinian Authority Chairman Yasser Arafat. The sense of hope embodied in that handshake opened the way to a unique partnership among Israel Educational Television, the Al-Quds University Institute of Modern Media (a Palestinian educational media initiative) and Sesame Workshop (then called Children’s Television Workshop) to create a television series with the express goal of fostering tolerance and mutual respect among Israeli and Palestinian children.

The challenge was enormous: Two peoples, Israelis and Palestinians, speaking 2 languages, Hebrew and Arabic, representing 3 religions, Islam, Christianity and Judaism, in an unending conflict over one piece of land were trying to find a way to negotiate a television project with puppets and “monsters” on behalf of children. It was indeed an ambitious agenda, carried out amidst constant political and personal challenges: Rabin’s assassination, escalating violence, suicide bombings and border closings.

Despite the challenges, or rather perhaps because of them, the partners persisted and together created 2 bilingual versions of the series — the only “2-street” series in the franchise’s history. Beginning in April 1998, the Israeli street, “Rechov Sumsum”, was broadcast throughout Israel and the Palestinian Territories in Hebrew with some Arabic material. The inverse held, although to a somewhat lesser extent, for the Palestinian street, “Shara’a Simsim”, broadcast in Arabic with some Hebrew content in 5 Palestinian cities (Ramallah, Nablus, Bethlehem, Hebron and Jenin). Both versions included “crossover”
segments in which characters from one street invited characters from the other to visit, providing critical opportunities to model positive interactions among curious, open-minded characters, who could tentatively play with and begin to learn from each another.14, 15

Findings from studies conducted before and 4 months after these series premiered indicated that exposure to the programs was linked to an increase in children’s use of both prosocial justifications to resolve conflicts and positive attributes to describe members of the other group.14 Researchers interviewed 275 Palestinian, Palestinian-Israeli and Israeli preschoolers, 4 and 5 years of age, using the Social Judgment Instrument developed by Fox, Killen and Leavitt (unpublished data, 1999) to assess postbroadcast changes in 4 areas: children’s stereotyping of “the other,” their knowledge of the everyday lives of people from the other culture, their application of social-reasoning skills to intergroup peer-conflict situations and their knowledge of cultural symbols.

Researchers saw statistically significant increases in children’s positive descriptions of people from the other culture and enhanced understanding that children from the other culture participated in activities similar to their own.14 Further, some Israeli and Palestinian children showed increased abilities to identify symbols (such as a menorah or a mosque) from their own, as well as the other culture. And perhaps most profound, after only 4 months of viewing, children did not revert to stereotypes when making decisions about whom to play with or how to resolve social conflicts. Pretest data had indicated that even at these young ages, children articulated negative stereotypes about the other group: They “want to put us in jail” and “shoot us” were characterizations of Jews expressed by Palestinian children; “want to take our land” and “terrorists” were how Jewish children described Arabs. Instead, these children showed signs of willingness to play with those from the other community and offered prosocial strategies to resolve hypothetical childhood conflicts (eg, taking turns on a playground swing as opposed to bullying).6, 14, 15

In addition to having an impact on children, researchers found that parents were positively affected by the broadcasts as well. While differences occurred in viewing patterns among Israeli, Palestinian-Israeli and Palestinian parents, all perceived the series’ “social resonance” clearly. The majority of parent-respondents in each of the 3 groups agreed that the series “…teaches children mutual respect, that it shows how Arabs and Jews could live in peace, and that it could enhance peaceful relations in real life” (M. Cohen and F. Francis, unpublished data, 1999).
Clearly, effects like these do not exist in a vacuum; they cannot counter escalating hatred unless they are accompanied by other changes in society as well. Further, no evidence indicates whether these effects have lingered in the context of today’s continuing conflict. Nonetheless, the data speak to the power of the media to present positive social images to young children and its potential to enhance children’s social cognition and knowledge of other cultures. Beyond this, the project is credited with “doing more” (M. Cohen and F. Francis, unpublished data, 1999). The very fact of the program’s existence, despite the deteriorating peace process, the very real economic benefits of technology transferred and people trained, the reality of Israelis and Palestinians working shoulder to shoulder — quite literally when manipulating Muppets* — all speak to a deep desire amongst even the most estranged and entrenched to find “common ground” and to build a better future for their children and grandchildren (S. Schoffman, unpublished data, 1999).

This same sensibility is driving a new effort in which Jordanian television producers have joined with Israeli and Palestinian partners to develop a separate series aimed at promoting respect and understanding among children in the region, “Hikayat Simsim/Sipuray Sumsum” — “Sesame Stories” in Arabic and Hebrew, respectively. Like the Israeli-Palestinian coproduction, “Sesame Stories” will present young viewers with messages that, while demystifying “the other,” go beyond to model nonviolent alternatives for dealing with anger and frustration. Of course, we do not pretend that a television show can solve a problem, but we do maintain that it can contribute to a solution. Further, the ability of Sesame Workshop to provide sustained opportunities for Israeli, Palestinian and Jordanian professionals to share ideas, resolve problems and lay the groundwork for future cooperation holds the potential to support rapprochement, even in difficult times.16

**September 11th**

The final case presented in this chapter addresses the use of “Sesame Street” to respond to issues arising after September 11th. At the time of the attacks, 46 of that season’s 50 shows had been written. Sesame Workshop decided immediately to devote the remaining 4 shows to helping children cope with what many in the child development and posttraumatic stress syndrome communities advised would be critical issues. One important goal was the need to convey messages related to tolerance and understanding — the very messages “Sesame Street” has been modeling in various forms for more than 3 decades.

*Muppets is a trademark of Jim Henson Company, Inc.
After careful consultation with experts in a range of related fields, and mindful of appealing to and being understood by the young viewers of “Sesame Street,” we chose not to refer directly to the events of that day. Rather, consistent with our history and appropriate for our preschool audience, we embedded life lessons about coping with fear and loss, as well as standing up to intolerance, in the context of more common, everyday experiences. Thus, in one show, we addressed emotions and coping strategies associated with loss by having Big Bird lose his pet turtle. In another, a grease fire in Mr. Hooper’s store traumatized Elmo, providing opportunities to consider issues related to fear, firefighters and fire safety. The consequences of, and coping strategies for, bullying were the focus of a third show in which Telly’s cousin refused to return Telly’s beloved triangles. Lastly, and perhaps most relevant to this discussion, Big Bird’s encounter with discrimination in the guise of his pen pal’s refusal to play with anyone other than a bird provided the context for modeling inclusion, tolerance and respect for others. In that episode, Big Bird is delighted to welcome his pen pal, a seagull named Gulliver, to “Sesame Street” to meet his friends, especially his best friend, Snuffy, a “Snuffleupagus.” Gulliver, equally excited, becomes progressively agitated as he realizes that not a single one of Big Bird’s friends is a bird — and Gulliver only plays with birds. A showdown ensues when Gulliver finally meets Snuffy:

GULLIVER

(Turns and sees Snuffy, and is shocked)
Snuffy is not a bird!

SNUFFY

Me? No! (Chuckles)

GULLIVER

But he’s your best friend!

BIG BIRD

(Proudly) He sure is!

SNUFFY

(Referring to Big Bird)
And he’s mine!

BIG BIRD

That’s right, old pal. Snuffy, this is Gulliver. He’s been waiting to meet you so we could all play together. Right, Gulliver?
GULLIVER

No!

BIG BIRD

(Surprised) What?

GULLIVER

Well, I wanted to meet him before, but not anymore!

BIG BIRD

(Shocked) Gulliver! Why not?

GULLIVER

Because he’s not a bird, and I don’t want to play with him.

SNUFFY

(In shock) But…but…

BIG BIRD

Wait a minute! You don’t want to play with Snuffy because he’s not a bird?

GULLIVER

You got it.

BIG BIRD

(Appalled) That’s no reason not to play with someone!

GULLIVER

It is where I come from! In my neighborhood, birds only play with birds, so I’m not playing with a Snuffleupagus.

SNUFFY

(Looks down at his feet, sadly) This doesn’t feel good…it hurts my feelings…

BIG BIRD

It doesn’t feel good to me either, Snuff. Gulliver, if you don’t want to play with Snuffy, then I don’t want to play with you!17

Commanding terms. Clear simple statements empowering children to be accountable — to take a stand, like Big Bird, against bias and discrimination. But the story doesn’t end here; what happens next is equally instructive. Rather than stomping away from each other, an angry, awkward silence is followed by Gulliver’s struggle to understand the basis of Big Bird’s and Snuffy’s friendship. He asks questions: How can this be?… He doesn’t have feathers or a beak.… A friend who’s so different.… How do you play together?…
What do you do?” Big Bird, in turn, responds to each of Gulliver’s concerns, making it clear that it doesn’t matter what a friend looks like. What matters is that you care about one another and enjoy doing things together. Ultimately, Gulliver joins Big Bird and Snuffy at play (all 3 love to recite the alphabet), and Gulliver makes the important discovery that Snuffy is a “…great alphabet-sayer, feathers or no feathers.” Moreover, although still somewhat unsure — (because, after all, he’s “…never met people or monsters or bears before and doesn’t know what to say” — Gulliver is able to openly greet Big Bird’s other, “nonbird” friends on “Sesame Street”.17

As of this writing, Sesame Workshop is in the process of analyzing data on the impact of this and of 2 the other post-September 11th episodes. (The fear/firefighters/fire safety episode was written more as an appreciation of firefighters and was not included in the analysis.) Pre- and 2 postviewing samples were collected from approximately 100 three- to five-year-olds at 1 mixed-income preschool site. Early analysis indicates that, overall, children comprehended the episodes — the problems, the strategies to cope with the problems and their resolutions. Understanding the nature of their problems is typically a good indicator that segments are having the desired effect, but it is still premature to comment on children’s ability to apply the strategies modeled on the shows to comparable hypothetical situations. If past work and analyses are any guide, however, we are optimistic.

Conclusion

Conventional wisdom no longer disputes that children learn from television, but it typically ascribes that learning to negative attributes only: That is, that children learn violence from television, or they learn crassness and out-of-control consumerism. The examples provided in this chapter and in numerous others make clear, however, that television can be used in the service of children. “Sesame Street,” in particular, is an effective instrument for helping young children develop skills that promote cross-cultural respect and understanding. And, as necessitated by a post-September 11th world, it is doing so in ever more explicit ways.

New for the 34th season of the program, for example, every other show will devote almost 5 minutes to helping American children gain a better sense of, and a greater appreciation for, how people live beyond the shores of the
US. Grover, the Street’s sincerest-of-sincere, always well-meaning but often bumbling Muppet, will morph into “Global Grover,” inviting viewers to learn about other cultures in a kind of travelogue featuring live-action segments from “Sesame Street” coproductions worldwide. Each segment will profile various aspects of daily life that are at once familiar and new: eg, a little girl’s first day of school in rural South Africa, a Mongolian child learning to balance bowls on her head for a special dance and a visit to an Egyptian fava bean farm. Global Grover will be followed by “Global Thingy,” a charming, new animated character who models ways to disagree agreeably and to resolve conflicts peacefully. This same package of segments will soon be available to international “Sesame Street” partners, as well, creating, when broadcast worldwide, a kind of informal cross-cultural exchange benefiting children everywhere.

Sesame Workshop is also applying these lessons more broadly, moving beyond “Sesame Street” with the new global Initiative to Foster Respect, Knowledge and Understanding among children 2 to 14 years of age. Launched in May 2002, the Initiative will result in research, production and distribution of multiple media that promote these qualities across and within national boundaries.

For more than 30 years, “Sesame Street” has been channeling children’s natural attraction to media in ways that serve the children’s best interests and highest potential — teaching letters, numbers and, equally important in today’s world, social-reasoning skills that promote cross-cultural respect and understanding. By reinforcing positive behaviors and modeling prosocial problem-solving, and by celebrating what unites us and demystifying what divides us, it provides real-life contexts in which tolerance, inclusion and empathy produce socially desirable outcomes. This is the heart of “Sesame Street,” a place where each child watching can recognize him- or herself, and appreciate others and, in so doing, find a place for us all. As noted in the quote that begins this chapter, small beginnings perhaps — but with profound possibilities, indeed.

References


Will Interventions to Prevent Excessive Aggression Ever Prove Cost-Effective?

Dr Stephen Scott

Introduction

This chapter will address 3 questions regarding interventions for excessive childhood aggression and describe studies designed to elucidate answers. First, what is the financial cost to society of children who are antisocial? Second, are there effective interventions for everyday, real-life conditions that help children who display persistent, severe antisocial behavior? And third, can interventions that work in a clinical setting be attractive and effective more universally to a wide range of children in the community who display difficult behavior?

The Emergence of Aggression and Its Causes

Many young children exhibit hitting fighting and defiance. Tremblay has shown that these behaviors peak at the age of 22 months, then decline. But, for some children this decline does not happen, and these children remain far more aggressive, defiant and difficult to manage than their peers. Furthermore, there is a strong continuity of antisocial behavior during childhood that reaches antisocial behavior and criminality in adulthood. Among 7- or 8-year-old children who show antisocial behavior, about 40% will go on to become chronic adolescent offenders who will commit 3 or more offenses by the age of 17. But, a retrospective view indicates that fully 90% of those who were chronic offenders at age 17 years were very antisocial early in childhood. Thus, most serious antisocial behavior has its roots early in childhood, or stated another way, very few individuals become seriously antisocial for the first time as teenagers.
In addition to the observation that early childhood disruptive behavior predicts later antisocial behavior, there is clear evidence of 3 other powerful childhood factors that add to the likelihood of persistent aggression. First and foremost, parenting style, even from very early in life, is crucial. Parents who are harsh, inconsistent in their discipline, lack warmth, are critical and hostile, fail to encourage and supervise poorly are far more likely to have antisocial children. Second, children who fail at school and perform badly on examinations also are more likely to display antisocial behavior and may have difficulty getting jobs as adults. Third, children who spend time with other children who are troublesome and who engage in rule breaking are themselves more likely to become involved in criminal activity. Theoretically, we can consider interventions that target each of these 3 factors. Later in this chapter, I will present evidence about the effects of intervening to improve parenting and to enhance children’s reading ability.

The Long-Term Cost of Children Who Behave Antisocially

To establish the total cost of antisocial children to society, children who were identified as antisocial at the age of 10 years were followed up 18 years later when they were 28 years of age. Originally, 1689 children at 10 years of age were screened by teacher questionnaire in the Inner London Longitudinal Study. At the time, using a semistructured interview, investigators spoke to parents of a subsample of this group. Among this subsample, the diagnosis of conduct disorder (persistent, disabling antisocial behavior) was established in 3% of the children, and a further 9% had conduct problems, defined as antisocial behavior as assessed by the teacher, but not severe enough on parent interview, to warrant a diagnosis of conduct disorder. It was determined that 80% of the children had no significant behavior problems, while 7% had emotional problems.

These findings indicate that there are 2 levels of antisocial behavior in childhood — the most severe 3% can be diagnosed as having a conduct disorder and a further 9% with conduct problems. Two hundred individuals were followed up when they reached 28 years of age, and they were interviewed about several aspects of their lives. Together with my colleagues Knapp, Henderson and Maughan, we calculated costs for each individual across 6 domains: foster and residential care received in childhood, special educational provision, state benefits received in adulthood, relationship breakdown (domestic violence
and divorce), health and crime. Costs were allocated for every service reported as used above the basic provision prevailing at the time, whether or not utilization of such service appeared to arise as a consequence of antisocial behavior. For example, the cost of extra remedial teaching was included but basic schooling was not. Costs were applied only if there was good quality information about service use. We applied 1998 price levels for services as they would have been provided in 1998, using our best approximations to long-run marginal opportunity costs. Unit costs were taken from national sources for health and social care services, criminal justice and benefit receipts. Other costs were calculated from first principles using agencies’ data.

Many costs could not be assessed since the original survey was not designed for an economic study. No costs were allocated for the following: use of social services; voluntary organizations; primary health care; lost employment; divorce, other than public legal costs; undetected crime (which is several times more common than detected crime, and would increase costs substantially); negative financial consequences for crime victims (which can be large); parents’ or partners’ use of services arising from the subject’s behavior; indirect financial obligations for families; the psychological impact, such as distress and lack of friends, for individuals with antisocial behavior; and the unhappiness of their siblings. For some events the data set did not include frequency, so only one episode was costed (eg, foster care, residential child care, exclusion from school, divorce, victim of domestic violence, abortion). No assessment was made of economic contributions, such as paying income tax.

The total extra public cost was calculated for the 200-individual subsample at 28 years of age. Among those who had no significant problems, the total extra public cost was about $10,000. This excess cost arose because some individuals had, for example, been to the hospital, or others may have had dyslexia without being antisocial. The children with conduct problems cost an extra $34,000, but individuals with conduct disorder cost an extra $100,000 in public expenditures. Keep in mind that these costs are very conservative. If victim costs and failure to contribute to society by paying income tax were included in the cost, the final sum would have been several times greater. To ensure that the costs were a direct result of the antisocial behavior rather than excess cost merely serving as a marker for growing up in socially disadvantaged circumstances or being male, a multiple-regression analysis was performed that included gender, family socioeconomic status and child reading ability. Our results remained consistent: The presence of conduct disorder
Section 5: Interventions to Optimize Social Development for Young Children

contributed markedly to the greatest part of the cost. Put another way, children of families living in poverty did not result in significant costs to society, provided that they were not antisocial. Conversely, antisocial children, even if they came from advantaged families, nonetheless cost society a great deal.

In conclusion, individuals who were seriously antisocial in childhood went on to cost society 10 times more than well-behaved children. Therefore, even if interventions were only modestly effective and improved behavior so that children moved, for example, from the 3rd percentile to the 12th, the economic savings would be very large. If the savings was only half of the $66,000 difference between the cost of conduct disorder and the cost of conduct problems, a savings of $33,000 is realized. The parenting program, to be described later in this chapter, costs about $700 to $800 per family. The modest cost of this intervention suggests a potentially very large cost-benefit ratio. The assumption made above about the size of the change in antisocial behavior is realistic insofar as it was similar to the change found in the trial to be described later in this chapter. When assessing claims for effectiveness of trials, a dose of skepticism is in order. Some trials only report on participants who attended all of the treatment, or on those they could contact afterwards. In our trial, the change reported is the mean for the group as a whole, and it takes into account the facts that some subjects do not get better and some families drop out of treatment and are lost to follow-up (22% in our trial; more in some other trials). The analysis presumes the dropouts didn’t make any improvement — a so-called “intention-to-treat” analysis. Nonetheless, such savings may not be made across the board in a total population if such a program were offered to all families in an area, since there are some parents (often the parents of the most antisocial children) who cannot or will not attend any treatment at all. For this minority of antisocial children and their families, other approaches are necessary, including school-based programs.

Can Parenting Groups Delivered in Real-Life Settings Work for Severe Child Aggression?

Several interventions for childhood aggression — such as parent training and child social-skills training — have proven effective in trials conducted in university centers. Results of intervention trials are given as mean effect size, which is a general measure of effectiveness. It is the difference between raw score means divided by the standard deviation (SD). A mean effect size of
0.2 is considered “small,” 0.5 is considered “moderate” and 0.8 is a “large” effect size. The mean effect size of interventions conducted in laboratory settings is usually 0.7 SD. This is an encouraging result. However, in “real-life” clinical settings where nearly all therapeutic interventions and treatments are delivered, the mean effect size, at best, is 0.2 SD; in many studies, the effect is zero. As Weisz and colleagues noted, “The good news is that child psychotherapy works. The bad news is that it doesn’t in real life.”

Why might that be? First of all, in a university center, the children are often less severely affected and often only have “pure” problems — more complex cases are excluded from trials. Some children may have been recruited by advertisements. This requires that the family has a phone and that the parents have the ability to sufficiently mobilize themselves to make a phone call to attend the center, a level of organization not necessarily present in harassed parents who may have mental health problems. However, in clinical practice, children are referred for intervention by their local physician or teacher because they have severe problems. Furthermore, comorbidity is the rule, and several problems typically occur together in the same child. Common conditions associated with conduct disorder include attention-deficit/hyperactivity disorder (ADHD), depression, language problems, medical disorders, parents who are mentally ill and other complex issues. Usually, the presence of these coexisting problems makes treatment harder to give, and, therefore, treatment effects are smaller. The treatment administered in a university center will generally consist of a special program, delivered according to a manual and supervised closely by enthusiastic, specially trained therapists involved in this particular intervention. In the clinic, by contrast, the treatment will typically be more general and last for a shorter period. In addition, “real-life” clinical interventions are usually not supervised in any detail and are given by a therapist whose last training session may have been in the distant past. Such therapists have to treat a wide variety of conditions on any particular day, ranging from depression to sexual abuse to obsessive disorder. As a result, therapists in general practice cannot be highly specialized. There is therefore an enormous challenge to see whether treatments developed under the rarified conditions of the university clinic can ever work in everyday clinical practice.

In the United Kingdom, as in the United States, antisocial behavior by children and young people represents a major and growing problem. A recent authoritative government survey administered by the Office of National Statistics in Great Britain found that fully 5% of children and adolescents in
England and Wales met the criteria for conduct disorder and were substantially impaired. Clearly, there is an urgent need for effective treatments. My colleagues and I therefore hoped to determine whether we could make one of the treatment strategies shown to be effective in the university setting work in real life. We designed a trial that would be performed in 4 regular National Health Service clinics. The trial would include typical referrals with few exclusion criteria. The therapists were to be regular clinic workers rather than individuals who were hired specifically for this project.

Our choice of program to employ was guided by the research literature on effective interventions. Main findings from this literature include the observations that: behaviorally based parenting programs are the most effective treatment approach by a large margin; in order to improve antisocial behavior, parenting programs must last for at least 20 hours; the most effective style of therapy is one in which therapists collaborate with parents, showing respect for their abilities and points of view, rather than telling parents what to do and where they went wrong; therapists should provide practical assistance, where necessary, to facilitate change in other agencies, such as arranging and perhaps accompanying parents to meetings with their child’s teacher; optimal programs offer both skills and support. Programs that offer only general support for parents without including skill-building are often appreciated by parents, who rate them “high” in terms of satisfaction, however, objective measures of child behavior usually show “no improvement” after such programs. The best programs intervene before children reach adolescence — by the teenage years, it is very difficult to eradicate entrenched, serious antisocial behavior — and most programs that focus on this age group show no effect, with only few exceptions. Effective programs must be delivered with fidelity, without any deviations from the approved protocol. This underscores the need for a manual, rather than an informal description, that explains how the intervention program is to work.

In our trial, we included 141 children, ages 3 to 7 years, who had been referred mostly by family physicians (general practitioners). They displayed severe, persistent antisocial behavior, scoring above the 98th percentile as measured by a semistructured interview. Children were randomized to receive either the Incredible Years parenting program developed by Carolyn Webster-Stratton or they were allocated to remain on the waiting list for 6 months, after which they received treatment. This was ethical since the wait for treatment was at least 6 months anyway.
Will Interventions to Prevent Excessive Aggression Ever Prove Cost-Effective?

The basic videotape parenting program developed by Webster-Stratton was used, with voices dubbed into English accents. Parents of 6 to 8 children met together as a group for 2 hours each week for 12 weeks; the children were not included in the meetings. Topics covered in the program included play, praise and rewards, limit-setting and handling misbehavior. In each session, 2 group leaders showed videotaped scenes of parents and children together that depicted “right” and “wrong” ways of handling children. Parents discussed their own child’s behavior and developed alternative ways of managing it. Therapists set tasks for parents to practice during the week, and they phoned parents before the next meeting to encourage progress.

Interestingly, this program does not begin by focusing on antisocial behavior. Rather, during the first 3 weeks, parents develop skills for how to play with their children. During the next 3 weeks, praising children and rewarding positive and prosocial behaviors are the topics emphasized. Notably, parents learn how to let children know what they should be doing rather than just stopping bad behavior. Most parents want their children to grow up to be independent, socially skilled with friends, reasonably creative and possessing maximal potential. To achieve these ends, parents are taught to emphasize constructive pastimes and give their children clear instructions about desirable behaviors. Parents learn that a child who is behaving well is not behaving badly, by definition, so increasing good behavior will, in itself, reduce bad behavior.

The final 6 weeks of the program focus on guiding parents to give clear commands, set boundaries and devise logical consequences for misbehavior. Consequences include punishments such as “time-out,” during which children are sent to their rooms for a few minutes rather than being spanked.

For our study, we first addressed the effectiveness of this approach by determining whether parenting behavior was changed. To measure this, parents were videotaped playing with their children for 18 minutes. The tapes were rated by a researcher who was unaware of whether parents had been on the waiting list (controls) or if they had participated in the parenting program. We found that those allocated to the program (including the 18% of parents who dropped out during the 12 weeks) were more facilitative with their children. Changes in parental behavior included increased attention, following the child’s lead and describing what the child was doing. Furthermore, parents were less child-directive. For example, they were criticizing less and
issuing fewer (but more effective) commands, and they became angry less often. We learned that, clearly, parental behavior had changed with this intervention. But what about the child’s behavior around the home?

Child behavior was measured using a semistructured interview that included queries about behaviors such as lying, stealing, tantrums, defiance, physical aggression, destructiveness and the like during the preceding month. Among children whose parents were on the waiting list (control group), negative behavior did not decrease at all. Among children whose parents participated in the program, however, negative behavior decreased by 1.06 Standard Deviations (SDs) — a very large difference. This improvement meant that these children went from being the worst behaved children (in 50 or 100 children) to being amongst the most difficult one in 5. This change was maintained at follow-up 1 year later. In personal terms, these are striking differences. Prior to the intervention, these children were typically excluded from mainstream school because of their behavior, they had no friends and they were in daily fights with siblings. They were usually in constant conflict with their parents who were frequently nagging, if not hitting, these antisocial children. Following the intervention, formerly poorly behaved children were secure in their school placement, they often had a friend or 2, their relationships with siblings improved and they had parents who could find things to praise them about and were once again freely able to feel love towards them.

In summary, we demonstrated that such an intervention could indeed be made to work in everyday life to help severely aggressive children. This finding has enormous implications for policy makers, especially considering the expense and personal distress caused by antisocial behavior.

**Predictors of Outcome and Mechanisms of Change**

We attempted to identify factors that were associated with less marked change. Children with ADHD showed somewhat less change, but they still changed substantially, not only in antisocial behavior but also in the core symptoms of ADHD — the abilities to concentrate and to remain still. We wondered whether younger children might change less, since children with an early onset (at 2 or 3 years of age) of persistently elevated aggression tend to do worse. However, that was not what we found. Although we saw a trend for younger children to do less well, it was not statistically significant.
Importantly, the program was equally effective for the following subgroups: children with severely, as well as mildly, disturbed behavior; for families living in poverty; for families of ethnic minorities; with parents who had “dropped out” of school; and for single-parent families. Thus, it was not only effective for “privileged” families with mildly affected children but also for “hard-end” families.

What were the mechanisms of change? The intervention affected 3 different factors, one of which could plausibly be the main mediator of change. First, participation in the program altered the emotional atmosphere at home, as measured by the number of critical comments the mother made about the child during a 1-hour-long interview. Critical comments were reduced from an average of 7 per hour to 3 per hour. It is possible that negative comments arouse angry feelings in the child, making aggression more likely, and making it more difficult for the child to organize a constructive response.18 Second, involvement in the program affected maternal depression, as measured by the Beck Depression Inventory. Before participating in the program, we noted a mean score of 17 for mothers of aggressive children, indicating mild to moderate depression. This score decreased to 13 at the end of the program, which indicates mild depression or the upper limit of normal. Depressed mothers have been shown to respond differently to their children than do healthy mothers. In general, depressed mothers are less engaged, and their flattened responsiveness may lead their children to feel more hopeless and frustrated, potentially leading to tantrums and antisocial behavior.19 Alternatively, the mechanism of change could be parenting skills. With improved parenting skills, parents learn to respond to their children in positive ways and remain calm but firm when faced with difficult behavior. This was measured by direct observation, as described above. Considerable evidence indicates that parental skills when interacting with children and handling disciplinary encounters have a significant impact on children’s antisocial behavior.20

Which of these was the crucial ingredient to improving child aggression? The answer is of more than theoretical interest because such information could directly guide interventions. If criticism at home is the main factor, then interventions should target this behavior, and work should ensue towards helping parents to avoid making negative remarks — training them literally to keep their mouths shut when previously they might have been critical in a nonsupportive way. If the main mechanism mediating change is maternal depression, then interventions could be designed to target this, including cognitive-behavioral therapy or antidepressant treatment, both of which have
been shown to be effective. If, however, improving parenting skills is the critical factor in decreasing child aggression, then courses that teach these skills may be the best way forward.

We tested the impact of each of these factors on change using multiple regression analysis. We found that critical comments and maternal depression were only weakly associated with changes in child behavior, whereas parenting skill had a major main effect. Put another way, there were mothers who remained depressed but changed their parenting style with their children and found that their children became less antisocial. We also saw other mothers whose depression lifted but who did not change their parenting style — their children remained antisocial. This finding agrees with the epidemiological data on the impact of parental depression and mental illness. For example, Rutter and Quinton examined mentally ill parents and their children. The relationships of these parents with their disturbed antisocial children were mediated through the parents’ behavior towards their children, rather than alternative explanations, such as the mental illness, per se. This study suggested that in order to reduce antisocial behavior in childhood it is necessary to change parenting style. This is not to say that improvements in the home atmosphere and the treatment of maternal depression are not important, but rather that these factors are not the final common pathway to mediate change in child behavior.

Can Parenting Programs be Applied Preventively in the Community?

Having demonstrated that a parenting program can improve serious childhood aggression in the conditions of everyday clinical practice, one wonders whether such programs can be made to work preventively in the community. Such an approach may have several advantages. Problems could be addressed earlier, before they become entrenched and cause even more distress and trouble. In addition, preventive programs could potentially reach a far greater number of children.

However, applying a preventive approach to whole populations is not a trivial matter. Even the availability of large amounts of money does not necessarily guarantee results. The Fort Bragg (North Carolina) project represents an instructive example: Mental health professionals following a defined population of children from military families were offered several million extra
dollars for preventive interventions. Outcomes of children from these families were compared with children from a similar population that had only the usual resources. There was no improvement in outcomes for the better-funded population, even though there was far more use of services, especially expensive in-patient units. It seems likely that the explanation for this disappointing result was that the interventions employed were not evidence-based or effective. Nevertheless, even when using the approaches that have proven effective in clinical interventions, results are often disappointing when programs are applied to total populations. Cunningham, Bremner and Boyle carried out a trial of large parenting groups in the community and saw no change. Perhaps these negative results were observed because including up to 25 parents in a group makes it more difficult to ensure a high quality of service for each parent. A clinically proven parenting program was administered for a whole year by Barkley and colleagues to families of antisocial children. They also organized a special classroom for the children where the teachers were trained in behavioral management techniques. Again, results of their study showed almost no difference. One reason for this may be because only about half of the parents attended the majority of scheduled sessions. The Conduct Problems Prevention Research Group has carried out the largest preventive trial of all. It included nearly 1000 children. The intervention had several elements, including a 1-year-long parent-training course, which the parents were paid to attend, and classroom management skills for teachers that included instruction of prosocial skills to the children while helping them improve their relationships with peers. Remedial teaching and general family work were also included. Nonetheless, the mean overall effect size on antisocial behavior was approximately 0.2 SD — far smaller than the effect size observed for just one of the components (parent training) when applied for a shorter time to a clinical population. It is not clear why this well-thought-out project had only modest effects. Nevertheless, it should be pointed out that a small effect size, if applied to an entire population, can mean significant improvements in public health overall.

Against this background of rather modest results in preventive trials, my colleagues and I were interested to determine whether we could devise an effective program that would target multiple risk factors but only involve parents — in order to keep costs down. We wanted to implement our program in schools because we believed that parents would perceive schools as normal places to learn about children, thereby minimizing the stigma of participating in such a program. Rather than offering a program that only addressed child behavior, which could seem threatening to some parents, we believed that
nearly all parents might be interested in improving their child’s reading skills, since reading is seen by many as such an important life skill and the gateway to good school performance. From a theoretical standpoint it made sense too, since poor reading skills are associated with drop out from school and a criminal lifestyle, long-term unemployment and a host of poor emotional and psychological outcomes later in life, such as drug use and teenage pregnancy.4

The project, called SPOKES (Supporting Parents on Kids Education), was codirected by Kathy Sylva, Professor of Educational Psychology at the University of Oxford, England. A total of 110 children, ages 5 years and 6 years, were identified as antisocial using teacher and parent reports and questionnaires from 433 children in 8 schools. Their parents were randomized to receive either an extensive parenting program that lasted for 28 weeks or they were given an “access helpline” telephone number through which they obtained advice on how to access local services. The parenting program met for 2 hours each week. It consisted of one 12-week period of the Incredible Years program described previously. The next 10-week period of the parenting program included a literacy development program that taught parents how to read with their children. In the third segment of the program, parents spent 6 weeks learning how to problem-solve with their children and consolidate the skills learned throughout the entire course.

To date, our results have been subjected to a preliminary analysis only, but they are encouraging. We found a reduction in children’s antisocial behavior, with an effect size of 0.51 SD.26 Overall, children from the intervention group began the program in the 15th percentile for antisocial behavior, but ended the program in the 40th percentile, a useful and important change. Compared with the control group, children in the intervention group increased their mean reading age by 7 months, an effect size of 0.43 SD that boosted them from the 38th percentile to the 77th percentile. Although mean attendance at parent sessions was only 14 of the 26 sessions offered, the above results indicate that even this level of participation was sufficient to bring about substantial changes. Parental satisfaction with the program was “high.”

Conclusion

Parenting programs can substantially improve children’s antisocial behavior and can be made acceptable and effective on a population-wide basis. Parents can be taught to enhance reading skills. The next stage of this work will be to
implement such programs on a wider scale. This will require that agencies such as health and education, be convinced of the value of these programs.

Many unresolved issues remain, such as an effective way to engage the most reluctant parents, the optimal duration of parenting programs, the integration of parenting programs and classroom management and social skills programs delivered by teachers and whether the good effects noted immediately after the completion of these programs persist in the longer term. Lastly, new interventions need to be developed and tested that start earlier in life, with the goals of improving emotional and social functioning during the toddler years.

References


Interventions That Work

Professor Kathy Sylva

Introduction

This chapter considers early childhood interventions for children who have, or who are at risk of developing, behavior problems. It contrasts 2 approaches to interventions aimed at children who have behavior problems: teaching them to obey “rules” versus improving relationships between troubled children and those who care for them.

Although there are many programs that are good at improving children’s language and cognition, there are fewer interventions that have been shown to lessen behavioral problems.1, 2 The purpose of this chapter is not to provide an extensive review of interventions for young children (see Shonkoff and Meisels,3 and Shonkoff and Phillips,4), but rather it is to discuss examples of interventions known to work and consider why. I will argue that interventions that prevent or lessen behavior problems (or even that increase social harmony) need to be intensive and targeted firmly at behavior. However, the most effective programs aim also at the enhancement of positive relationships. These dual aims are so ambitious that only a few programs come near to achieving them. Which ones are effective and why?

Environments Linked to Adverse Social Outcomes

Using a developmental model to explain the origins of conduct problems in young children, Shaw, Bell and Gilliom5 outlined the contributions of multiple risk factors. The first includes the biological characteristics of child and caregiver; next are the ways in which children and parents influence each other, especially through the parenting of adults; and third are the potentially disruptive characteristics of the community. When designing interventions, Shaw and colleagues argued that since problems develop over time and are shaped by transactions between children, families and communities, interventions must take into account this “eco” complexity.
The transactional model advocated so strenuously by Shaw and colleagues and others suggests that successful interventions need to be wide-ranging and address the social environment of the home (eg, parenting skills, relationships) and of the surrounding environment (eg, poverty, lack of safety). Shaw and colleagues remind us that children who grow up in “multiproblem” family contexts are the most likely to develop conduct problems. The evidence presented in this volume and in hundreds of studies elsewhere tells us that poverty, criminality and mental illness in families all increase the chances of a child developing antisocial behavior.

But where should we begin? Should intervention aim at transforming communities? Should it help parents improve their parenting skills? Or is it more effective to focus attention directly on the child through specially designed center-based programs? Evidence to date suggests that changing communities is very difficult and that changing parenting is hard but achievable with intensive group programs. The strongest message put forth by Brooks-Gunn is that changing children’s development has been achieved quite consistently with high-quality, well-structured, center-based interventions. During a recent policy briefing to the United States Congress, she reviewed the evidence for programs that changed the lives of disadvantaged children. She concluded that high-quality, intensive preschool programs for children between the ages of 3 and 5 years improved cognitive and social development. Brooks-Gunn stated it in a nutshell: “...almost all of the programs [that] reported positive results on childhood outcomes have involved center-based early childhood intervention.” I will consider these first.

**Center-Based Programs**

**The Effects of “Ordinary” Activities at Preschool or Home: Evidence from the United Kingdom**

Although some center-based interventions may decrease behavior problems, the ones that do are always structured, well-funded programs, usually administered at a single site. There is little evidence that ordinary preschool settings do much to improve social behavior in preschoolers. Research conducted in a study of 141 randomly selected preschool settings in the UK show that most preschool settings have little effect on children’s antisocial behavior. They do, however, make a significant difference to intellectual
development. This new British research on a nationally representative sample of preschools has shown that while center-based programs consistently improve and enhance cognitive development, they have much less effect on antisocial behavior.

The Effective Provision of Pre-school Education (EPPE) project followed the development of more than 3000 children in various types of preschool settings and used a value-added school effectiveness cohort design. It found that individual centers have only a weak effect on modifying behavior but exert a much stronger effect on cognitive skills and language development. Staff at the preschool center completed a social-emotional profile of each child at entry to preschool and at exit when the child began primary school. The EPPE study evaluated the contribution of pedagogy to children’s cognitive attainment and social/behavioral outcomes. The center’s pedagogy and staff-child relationships were found to be strongly related to children’s cognitive development, but were only weakly related to social behavior. This investigation showed that preschool settings had a weaker effect on children’s social/behavioral development than did home-learning environments. The EPPE team identified the specific “learning” activities provided at home that are related to improved behavior; i.e., increased cooperation and lessened antisocial behavior. These include daily reading with children, language play with rhymes and song, painting and drawing and even trips to the library. All of these were related to the development of cooperation and the lessening of antisocial behavior, even after correcting for demographic variables. The home-learning environment was much more important for the development of cooperation than were parental qualifications, social class or even rule-setting by parents. The EPPE findings suggest that parent-child conversations that are embedded in shared reading and language play may contribute as much (or more) to social development as do techniques designed for managing behavior or the setting of consistent and clear rules. This finding is based on correlational evidence; interventions are needed.

The EPPE longitudinal study conducted in the UK concluded that preschool attendance at ordinary programs for children ages 3 years to 5 or 6 years is clearly linked to improving children’s intellectual skills, but is much less effective in changing social outcomes. Sadly, few center-based programs (with the exceptions of those implementing targeted curriculum, such as High/Scope presented on the next page) lead to positive behavioral and social outcomes.
High/Scope Center-Based Curriculum: 3 to 5 Years of Age: US and Other Countries

High/Scope (formerly called the Perry Preschool Program) was targeted at children who had risk factors associated with behavior difficulties. These risk factors included those described by Shaw that were introduced earlier in this chapter (eg, low family income, stressful environment and low level of parent education).5 First implemented in 1962 in Ypsilanti, Michigan, for children “at risk,” the High/Scope program continues to evolve and produce positive outcomes in children’s behavior. Many evaluations have shown that adults who attended High/Scope as children have far better outcomes than those in control groups.11, 12 The most convincing data were collected from adults who had participated in the Ypsilanti Demonstration Project.13 By the time the participants in the experimental and control groups were 27 years old, many advantages were found in the group who had participated in the preschool intervention. For example, the intervention group had higher educational levels, lower criminality and better employment, earnings and marriage rates. Cost-effectiveness analyses demonstrate that for every $1000 invested in this program, the return (taking into account rates of inflation) to society is $7160 in money “saved” on services.

In a more recent study of children in classrooms that use the High/Scope curriculum, Epstein14 observed 93 High/Scope children and 103 control group children. Youngsters in the High/Scope program were noted to show higher levels of cooperation with peers. They also showed greater adeptness at social problem-solving with others. These observational results in young participants in High/Scope corroborate the demographic data on crime statistics and high school grades that were demonstrated for adults who had attended High/Scope 2 decades earlier.

How does the High/Scope intervention achieve positive social outcomes for children? Practitioners are trained in specific techniques to deal with conflict between children in the classroom.15 The steps for adults to follow when conflicts occur with children are listed in Table 1.

High/Scope developed an intervention to use with children younger than 3 years of age. It, too, is demonstrating improved social outcomes for the youngest children. All High/Scope programs are structured, have excellent training manuals and courses and conduct regular internal monitoring of outcomes.
Early Head Start for Children from Birth to Age 3 Years: In the US

In 1994 the Early Head Start program was created to supplement Head Start for older (i.e., preschool) children. The Early Head Start program aims at positive outcomes in 4 areas: child development, family development, staff development and community development. Families involved in the program are offered center-based services, home-based services or a mixed approach offering a combination of center- and home-based services. This range of approaches is being evaluated and the issue remains regarding which will work best.

A national evaluative study\textsuperscript{16} assessed 17 randomly selected Early Head Start programs; they were representative of all those funded between 1995 and 1996 with respect to demographic and program characteristics. Of the 17 programs, 7 were home-based, 4 were center-based and 6 were mixed in their approach. All directly targeted parenting behavior with specific programs included in the “package” offered by the center or in the home-based service.

Parents participating in all types of Early Head Start programs scored significantly higher than did parents in the control group ($P<.05$, two-tailed) on a measure of the quality of parenting (i.e., the Home Observation for Measurement of the Environment\textsuperscript{17}). Parents whose children were enrolled in the Early Head Start program were also observed to be more emotionally

---

\textit{Table 1. High/Scope Steps for Staff When Dealing With Conflict}\textsuperscript{15}

1. Approach situation calmly
2. Recognize children’s feelings and gather information
3. Restate the problem according to what the children say
4. Ask for ideas for solutions
5. Restate the suggested solution(s) and ask children to make a decision about which one to use
6. Encourage children to act on their decisions
7. Be prepared to give follow-up support

supportive of their children than were parents in the control group. In relation to parenting behaviors, parents enrolled in Early Head Start reported that they employed a wider range of disciplinary strategies and that those strategies were milder and less punitive than those employed by parents in the control group. The parents taking part in Early Head Start were less likely to engage in negative parenting behaviors and were less detached than parents in the control group. Fewer parents in the Early Head Start program reported spanking their children in the last week as compared with the control group parents (46.7% vs 53.8%, respectively).

Some groups were included in research directed at the fathers. Significant positive changes were seen for fathers’ warmth and father-child interactions. Fathers of children participating in the Early Head Start program were also less intrusive, and their children were found to be more able to engage their fathers and to be more attentive to their fathers during observed play sessions. Fathers of children in Early Head Start were also significantly more likely to participate in program-related activities such as meetings, home visits and parenting classes. Importantly, fathers of children in the Early Head Start program reported fewer instances of spanking their children than did those in the control group (25.4% vs 35.6%, respectively).

Some types of intervention had greater impact than others. Large effect sizes were found in the center-based, but also in the mixed-approach programs. As with other infant programs, the work with parents seemed more successful if they were part of a center-based program rather than a stand-alone entity.18,19

Research on Early Head Start has shown clearly that parenting behaviors were improved when the children reached 2 years of age. These same children had better social outcomes later at 3 years of age. With respect to behavior, children who received greater levels of warmth at 2 years of age, or whose parents used less physical punishment and were less stressed, tended to display lower levels of aggression when they were 3 years old.

**Programs Directed Exclusively at Parents: Not Center-Based**

It has been argued that center-based programs show the best results for improving children’s intellectual progress, although only highly structured and intensive programs such as High/Scope (3 to 5 years of age) and Early Head
Interventions That Work

Start (birth to 3 years of age), seem to have a strong impact on social behavior. We turn now to programs that are aimed directly at parents, without a daily center program for children.

**The “Incredible Years” Program: US, UK and Other Countries**

A host of studies show that parent training is an effective intervention for children who have conduct disorders.\(^{20-22}\) The Webster-Stratton parent-training program discussed by Scott in this volume works on the hypothesis that the techniques employed by parents whose children display antisocial behavior may actually cause the troublesome behaviors. Cognitive-behavioral interventions aimed at parents are designed to modify children’s behavior through improved parenting skills, especially those concerned with child management.

However, the Webster-Stratton programs are broader than “mere” behavior management. Webster-Stratton suggests that interventions should be customized to meet the demands within the particular environments in which a child operates. This includes the use of consistent techniques by parents and teachers (or caregivers), that focus in early sessions on positive play and engagement, followed in later sessions by child management. Although these programs are sensitive to the (often) impoverished conditions that characterize the lives of many families in the programs, they aim directly at parenting in the early sessions before “branching out” to family or community processes.

The “Incredible Years” program is one of the most cost-effective interventions studied to date. It utilizes group-training sessions with videotaped modeling activities. These modeling sessions, which include role-play, aim to teach parents various techniques to improve parent-child interactions and lessen antisocial behavior. The Webster-Stratton program\(^ {23}\) includes a video series that contains 250 parent-child interactions addressing topics such as letting children take the lead in play, using praise and rewards, setting limits and handling misbehavior. Additionally, to address parental and marital stresses, vignettes offer examples related to topics such as personal self-control, communication skills, positive problem-solving skills, teaching children social problem solving and ways to strengthen social support. While the core of the program is designed to enhance parenting skills, there is an additional focus on personal development for the parents, including improving family relationships and supporting parents to become advocates in the community for their own children.\(^ {24}\)
In an early randomized controlled trial designed to investigate the effectiveness of parent-training programs, Webster-Stratton\textsuperscript{25} compared 2 intervention cohorts — one receiving individual therapy sessions and behavior modeling from a trainer and the other receiving group therapy sessions while viewing the videotaped modeling behavior program — against a control group. Both intervention cohorts showed improved parenting behavior by the participating mothers, as compared with the control group. In addition, children of the mothers in the 2 intervention cohorts showed a reduction in noncompliance ($P<.05$, individual therapy vs control group; $P<.05$, videotape session vs control group). Improved maternal behavior was sustained over 1 year, and reductions in children’s noncompliant and deviant behaviors were also sustained ($P<.001$, for the group with the videotape sessions; $P<.01$, for the individual therapy group). There were no significant differences between the 2 intervention groups, thereby confirming the desirability of the less-costly, therapist-led group sessions receiving videotaped modeling programs. It is also important to note that parents who took part in these programs rated their experiences highly. This first evaluation has been followed by many more trials, all demonstrating positive effects on child behavior and parenting skills.\textsuperscript{26, 27}

**Head Start Programs That Include an “Incredible Years” Component: In the US**

The most recent investigations by Webster-Stratton included a subsample of Head Start programs in the US that incorporate the “Incredible Years” parent-training component.\textsuperscript{28, 29} The results of these studies have been very encouraging. They indicate that the “Incredible Years” package is effective not only for children referred to clinics for behavior problems but that this program can also serve as a prevention strategy for preschool children at the community level.

**The Crux of Intervention: Changing Behaviors or Changing Relationships?**

The detailed review by Scott\textsuperscript{20} concluded that interventions for lessening anti-social behavior aimed primarily at changing relationships are much less effective than those aimed at altering parental behavior. In his review of key environmental influences on development, Rutter\textsuperscript{30} concluded that children need “harmonious” parent-child relationships for sound development.
Moreover, he also suggested that “…good-quality, active conversational and play experiences…” have a vital role in enhancing development. These characteristics of a child’s environment are related to positive engagement between parents and children across a range of activities — not to “micro” behaviors, such as rule setting. The Webster-Stratton program has changed dramatically over the past decade, as it has moved away from a specific behavioral approach. It now deals with relationships and positive engagement (eg, praise, joint play) and focuses on positive interactions with children, thus going beyond management strategies to be used when the child is noncompliant. Gradually it has evolved to include support for parents (through the group work), while coaching them to become effective advocates for their children at school and in the community. Parent-training programs originated within a narrow Skinnerian framework, but now many have complex aims and methods that address the family relationships and community difficulties that complicate child management for many families at risk.

But what about relationships with peers? The importance of relationships to young children can be seen in the context of friendship (discussed in depth by Dunn in this volume). Children who develop successful friendships early in life have higher levels of social understanding as they enter school. Through shared interaction and communication, friendships are forged and maintained. However, while some children are able to achieve this friendship negotiation, others are less able to do so. This leads to the question: Do friendships lessen antisocial behavior? Or do some children simply have the skills for developing friendships, and these skills rarely occur in antisocial children? We do not know the answers to these questions, although Dunn suggests that there may be a causal role for friendships in lessening antisocial behaviors. She has argued persuasively that children who are unable to develop early friendships miss experiences that provide rich potential for later development. I believe that center-based programs for toddlers ought to experiment with innovative ways to encourage friendship and the kind of cooperative, “peaceable” pretend play that may foster empathy and pleasure in shared activity. The High/Scope “rules” for resolving conflict are fine when things go wrong, but they do very little to attract children, especially disruptive ones, into shared play. The “Incredible Years” program works quite deliberately on techniques for parents that can lead to positive, shared play between them and their children. Preschool staff might use equally specific techniques to encourage positive peer interactions, especially pretend play.
Improving Future Interventions

It has been argued that ordinary, center-based programs for preschoolers have achieved success in improving intellectual outcomes, but only a very few interventions improve social outcomes. Exemplary programs such as High/Scope have been successful at reducing children’s antisocial behavior, doing so through explicit, structured techniques that train children to resolve conflicts. Programs of parent training and support such as “Incredible Years” are also effective at improving children's social behavior — partly because they target it directly — especially as reported by teachers and evaluated in observational research.

How might interventions be improved? The most successful interventions to date have focused mainly on changing the “micro” behavior of children (eg, High/Scope “rules” for resolving peer conflicts; Webster-Stratton techniques for “ignoring” and “time out”). Some of the chapters in this volume suggest that programs may benefit if they strive to enhance social relationships, as well. Perhaps enhancing the quality of parent-child or peer-peer relationships will also be effective in minimizing behavior problems. The Webster-Stratton program has specific techniques for enhancing parent-child interaction, especially with play. Parent-training programs have become more successful as they broaden their focus from an exclusive orientation towards parental “micro” behaviors (eg, rule setting, being consistent, not allowing children to “win”) to a wider spectrum of areas. These include improving marital and parenting relationships and developing skills at events in the community, such as parent-teacher conferences. It seems that the most effective interventions for improving child behavior “are like an onion”: The inner layers focus on specific caring and parenting behaviors, but they are surrounded by other layers that consist of more global means for enhancing family relationships and supporting parents in their role as child advocates.

At the beginning of this chapter, I deliberately contrasted 2 approaches to early childhood intervention: changing “micro” behaviors through child training or improving family relationships through global support. The latter approach alone does not work. (See Scott in this volume.) However, the former approach will be much more effective when child-training techniques are embedded in programs that have specific structured means for enhancing relationships between parents and children and, perhaps, between children as well.
References


30. Rutter M. Causal effects of early childhood experiences: concepts, issues, and findings. Paper presented at: Johnson & Johnson Pediatric Round Table; July 3-7, 2002; Rome, Italy.

Social and Moral Development

Summary
Moral Development: Looking to the Future

Professor Sir David M. B. Hall

Introduction

Parents eagerly await the visible milestones of their child’s development — the first smile, the first step, the first word. These can be monitored, recorded and compared with population data using any one of a myriad of psychometric instruments, ranging from very simple to very sophisticated. But the age at which these early milestones are achieved is poorly predictive of what kind of adult the child will become. It is more important to consider how the child learns to relate to others, to develop a sense of right and wrong, to accept responsibility, to make and sustain friendships and to collaborate with others. Yet we know surprisingly little about these vital aspects of development. We have no robust methods of measuring them. Also, there have been very few intervention studies that included long-term outcomes. The most obvious outcome of this Round Table is recognition of the need for more research on these topics; in particular, for more cross-discipline and cross-cultural work. Any conclusions that we draw as to what parents ought to do must necessarily be presented with care and humility.

What do We Know?

Our starting point is perhaps a statement about what we do know and can recommend with reasonable confidence. There is good evidence that different parenting styles do, in fact, produce different outcomes. Harsh, inconsistent parenting associated with much criticism and negative comments, and with physical punishment, produces children who are less secure, less confident and less able to sustain relationships. The converse is also true. These outcomes probably hold true across a broad range of cultures. It seems likely that harsh parenting that is lacking in warmth would be viewed with disapproval by the great majority of societies. We can also say with some justification that
different styles of child rearing make a difference in the acquisition of language and preliteracy skills, and that well-planned parent education training programs can alter children’s behavior.

The Politics of Cognitive Development

In many parts of the Western world, parents’ main preoccupation is with their children’s cognitive skills, as they believe with some justification that the articulate, literate, well-informed child, who has a strong sense of self-worth and independence, is more likely to succeed in the highly competitive world of the 21st century. Governments support this view and, notwithstanding the rhetoric about all children being equally valued and all talents being important, education policies are geared toward academic excellence as measured by a narrow set of outcomes. Not all nations adopt such policies; in some parts of Europe, notably Scandinavia, there is a greater emphasis on sharing, developing the school as a community and encouraging emotional literacy. It may not be coincidence that these countries are also those that have the most equitable distribution of wealth and lowest levels of crime.

Research in Moral Development

When it comes to moral development, however, we are on more shaky ground. How do children acquire these complex insights into what is appropriate behavior within their particular family and social group? There seem to be 2 related difficulties in researching this question. The first is that the observer has to make value judgments about the desired outcome and these judgments are inevitably based on his or her own expectations. For example, if it is assumed that children should grow up to be confident and independent, then parenting styles that produce this outcome will be favored.

Parental Perspectives

The second difficulty is that parents, too, have their expectations and their own moral framework. These may be highly developed, for example, in a family that has a long tradition of sporting or business success or in a family
that has a strong religious faith. It would be naive to imagine that parents would be as ready to accept advice from any professional about the shaping of their child’s behavior as they would about the prescribing of an antibiotic.

It also seems likely that circumstances will affect the parents’ wishes and abilities to shape their child’s moral development. Parents who live in a peaceful, stable political system and are content and prosperous can think ahead and ponder their child’s future. Their child-rearing style is undoubtedly influenced by their concept of the kind of adult they want their child to become. But it is difficult or impossible to think ahead 10 years or 20 years in situations of extreme poverty or stress, or where there is continuing civil unrest and racial tension between rival communities. Programs like “Sesame Street” portray scenarios that children (and their parents) can identify with and may help them see their peers and their communities in a more positive light.

Some examples illustrate this point. In traditional Chinese society, it is said that children are expected to be quiet and shy and not to initiate approaches to adults. It would not be surprising if children reared in this way were less likely to be hyperactive and more likely to repress anxieties and fears. Conversely, mothers of daughters growing up in tough areas seek to equip their daughters with the life skills necessary to survive bullying, threats and peer pressures. This may entail an approach very different from what would be considered “normal” or desirable for girls in a middle-class area. A third example exists in some traditional African societies where strength, courage and stoicism in the face of pain are highly valued, but independence is less important or even undesirable because the strength of the social group lies in mutual support and collaboration. Lastly, a devoutly religious family will rear its children according to the customs, rituals and beliefs of their faith.

The following are features that all of these examples have in common: a belief (whether articulated or not) that early child rearing has a profound influence on future development, a goal-directed approach to managing children and a sense that the family and community have a responsibility to work towards those goals. Perhaps the important issue is the opportunity for a child to grow up within a framework where there is a concept of morality and of mutual obligations; it may be that the precise nature of that framework is less crucial.
Researchers may not share the perspectives of any of these approaches, but it would be arrogant in the extreme to seek to interfere with them unless there were issues of child abuse or cruelty.

**Why Study Moral Development?**

What then is the justification for studying the emergence of a moral sense? Leaving aside the intrinsic scientific wish to understand the origins of these higher human functions, it may be helpful to understand normal development so that atypical behavior patterns — for example, persistent aggressive behavior — can be identified as such. More ambitiously, we want to know more about the origins of crime, violence and racism among young people. Perhaps if we had a better understanding of how conscience and empathy are formed, parents and teachers might be more successful in helping children avoid the historical hatreds that plague so many countries.

**Shame**

One element of moral development is a sense of embarrassment and shame. Michael Lewis proposed that this is dependent on the young child developing first a sense of self and second an understanding that other people have feelings and insights, as well — the “theory of mind.” Negative feelings about one’s own behavior result from the supposed negative perceptions of others. This implies that the capacity for development of a moral sense is closely linked developmentally with these other functions — as indeed one might expect.

**Aggression**

The aspect of moral development for which we have the most information is aggression. Of course, in itself “aggression” is a pattern of behavior or, perhaps, an attitude. But how aggression is shaped, controlled and harnessed in young children must relate to the expectations of parents and caregivers. Furthermore, as a child grows and matures he or she must take responsibility for his or her own behavior and relationships.

Aggression is readily conceived as an unpleasant and undesirable trait, something that an aggressive child has too much of. Indeed, some parents think that the way to work off this excess aggression is to buy a punching bag or to
teach the child martial arts. But aggression is more complicated than this. In some children, aggression is better seen as a deficit — a lack of more productive social skills. In other words, it represents the only way a young child has of interacting in the absence of language skills and of empathy with others. Thus one expects that there should be a reciprocal relationship between aggression and linguistic competence and that aggression should decline with advancing age, as, indeed, it does in most children. But this, too, is an oversimplification, because in some children the skillful use of language can become in itself a means of using controlled aggression to dominate a group. Verbal dominance in turn can become a positive virtue, with potential for leadership, or it can be negative, as seen in the tendency of girl gangs to bully their peers by the use of cruel and abusive language.

How should aggressive behavior be managed in the young child? There are 2 possible reasons for intervening when a young child is aggressive to another. First, it may be important to avoid immediate harm and distress. Second, there is the issue of long-term outcomes. In general, aggressive behavior is at its peak in early childhood and declines thereafter. It is unusual for problematic aggression — sufficient to bring a child for professional attention — to emerge for the first time in later childhood: There usually exists a history of this behavior pattern that can be traced back to early childhood. Often parents can provide examples of aggression when the child was in preschool. We need to know whether different ways of managing such behavior in the first few years of life can alter this worrying life course.

**Reconciliation**

Observations of primates have taught us a great deal about these complex behaviors. In particular, we know that the act of reconciliation is as important and as interesting as the aggressive act that preceded it. Reconciliation seems to be driven, at least in part, by the need for cooperation with regard to the longer-term interests of both parties. Arguably, encouraging children to reconcile after an aggressive act might in the long run enable them to acquire vital social skills, whereas immediate intervention to stop the aggressive behavior and elicit a forced and grudging apology might deprive them of that opportunity. Perhaps there is a useful analogy in studies of adult relationships. The absence of conflict is not a universal finding in happy marriages: Some long-married couples are known to have frequent intense quarrels. What seems to be more important here are the mechanisms for resolving conflict.
Single Parents and the Role of Fathers

A striking feature of child rearing in the 21st century is the high frequency of single-parent families. Most often this means that a child is brought up by the mother without the support of any male figure. Yet there is remarkably little high-quality research on the role of fathers or on the impact of growing up without a father figure. The lower income and poorer employment prospects of single mothers compared with 2-parent families confound many attempts to study the issue. Even defining what is meant by a father figure is difficult: Depending upon the precise question being asked, it might be confined to the biological father, or it might also include a permanent male partner or a series of relatively short-term partners.

The limited research that exists suggests that fathers do perceive and articulate their role somewhat differently from mothers. This remains true even for “modern” fathers who routinely share most or all of the child-care and home-management duties. They provide for young children a role model for how a father ought to behave. However, it is not easy to unravel what this means. Fathers provide a different style of discipline, they model adult relationships in how they interact with the mother and they engage in more physical play than do mothers. Anecdotally, it is striking how many successful people in different walks of life refer to their fathers as having been an influence for good in regard to their own moral framework and attitudes. But still it is too often true that fathers are marginalized in many studies of child care and probably in the majority of early childhood interventions. Clearly, we have much to learn about how fathers figure in this field.

Further Research

One function of Round Table gatherings is to identify what we do not know. A number of themes for further research emerged during this Round Table. Perhaps the most immediately obvious is the question of how one might best manage episodes of aggressive behavior in day care and preschool settings. Primate evidence suggested that prompt intervention might produce different results than would a more circumspect approach that allowed for reconciliation to occur without interference. This ought to be susceptible to experimental study. A review of what might be learned from cross-cultural studies would
be timely, drawing in particular on the anthropological literature. Parental attitudes and the influence of culture on how parents seek to inculcate a moral sense may also be a fruitful field for study.

Intervention studies will undoubtedly figure in further research programs. The elegant work of Webster-Stratton in the United States and of Scott and Sylva in the United Kingdom, as reported in this Round Table, shows what can be achieved, but issues of affordability and generalizability remain to be tackled on a public-health scale.

**Optimism in the Face of Moral Challenge**

The most frightening illustrations of what happens when moral development is stunted or deliberately distorted are to be found in the slums, ghettos and neglected rural areas of the world, particularly in the developing world. Discrimination in many forms exacerbates poverty. The HIV pandemic is creating a generation of orphans. Rates of unemployment in many city slums exceed 60%. Recruitment into gangs or the armies of local warlords is commonplace. In such settings, parents fight a losing battle. Even if parents succeed in inculcating a moral sense during early childhood, the onset of adolescence gives the young person more insight into the extent of their poverty which leads, in turn, to fury, bitterness and hopelessness — a fertile breeding ground for violence and acts of savage and apparently pointless brutality.

Yet even for those facing such grim realities, there is some cause for optimism. Young people often exhibit a wonderful resilience, an optimism and a generosity of spirit that enables them to shake off the baggage of their parents’ generation and make successes of their own lives. We know a good deal about the factors that promote resilience, increase tolerance and improve outcomes even in adverse circumstances. The challenge now is to take the results of research and apply them. That is a much tougher assignment than doing the research, but eventually it is also a more rewarding one.