HANDBOOK OF EARLY CHILDHOOD INTERVENTION,

Second Edition

The second edition of the much-heralded *Handbook of Early Childhood Intervention* is a core text for students and experienced professionals who are interested in the health, development, and well-being of young children and their families. It is intended to serve as a comprehensive reference for service providers, policy makers, researchers, graduate students, and advanced trainees in such diverse fields as child care, early childhood education, child health, and early intervention programs for children with developmental disabilities as well as for those who live in high-risk environments (e.g., poverty and parental mental illness) that jeopardize their development. This book will be of interest to professionals in a broad range of disciplines including psychology, child development, early childhood education, social work, pediatrics, nursing, child psychiatry, physical and occupational therapy, speech and language pathology, and social policy. Its main purpose is to provide a scholarly overview of the knowledge base and practice of early childhood intervention. With fifteen entirely new chapters and thirteen extensively revised chapters, it is unique in its balance between breadth and depth and its integration of the multiple dimensions of the field.

Jack P. Shonkoff is Dean of the Heller Graduate School and Samuel F. and Rose B. Gingold Professor of Human Development at Brandeis University. He also serves as Chair of the Board on Children, Youth, and Families at the Institute of Medicine and the National Research Council/National Academy of Sciences, Chair of the NRC/IOM Committee on Integrating the Science of Early Childhood Development, and member of the scientific core group of the John D. and Catherine T. MacArthur Foundation and James S. McDonnell Foundation Research Network on Early Experience and Brain Development.

Samuel J. Meisels is Director of the Assessment Projects and Professor in the School of Education and a Research Scientist at the Center for Human Growth and Development at the University of Michigan. He is president-elect of the Board of Directors of Zero To Three: The National Center for Infants, Toddlers, and Families. He is also a senior principal investigator for the national Early Childhood Longitudinal Study and the Center for the Improvement of Early Reading Achievement.

HANDBOOK OF EARLY CHILDHOOD INTERVENTION SECOND EDITION

Edited by

JACK P. SHONKOFF

Brandeis University

SAMUEL J. MEISELS

The University of Michigan

CAMBRIDGE UNIVERSITY PRESS

CAMBRIDGE UNIVERSITY PRESS
Cambridge, New York, Melbourne, Madrid, Cape Town,
Singapore, São Paulo, Delhi, Tokyo, Mexico City

Cambridge University Press
32 Avenue of the Americas, New York, NY 10013-2473, USA

www.cambridge.org
Information on this title: www.cambridge.org/9780521585736

First published 2000
11th printing 2011

A catalog record for this publication is available from the British Library.

Library of Congress Cataloging in Publication Data

Handbook of early childhood intervention / edited by Jack P. Shonkoff,
Samuel J. Meisels. – 2nd ed.
p. cm.
Includes bibliographical references.
ISBN 0-521-58471-X (hbk.)
1. Developmental disabilities – Prevention Handbooks, manuals, etc.
2. Child health services – Handbooks, manuals, etc. I. Shonkoff,
Jack P. II. Meisels, Samuel J.
RJ135.H46 2000
362.1´9892 – dc21 99-25362
CIP

ISBN 978-0-521-58471-5 Hardback
ISBN 978-0-521-58573-6 Paperback

To our families

Contents

Foreword

If the earlier edition of the handbook represented the coming of age of the field of early childhood intervention, the presentation of this edition surely marks the beginning of its maturity. As developmental psychologists know well, each stage of development brings characteristic triumphs and challenges, with occasional setbacks and recurrences of the previous stage's struggles, not entirely abandoned as the young move forward into new stages along their growth trajectory. Our young field is no exception. A decade later, we are stronger, wiser, and capable of more complex tasks and deeper understanding than we were, yet old difficulties reassert themselves and continue to beset us, and there is still much to learn. Just as social expectations increase as the individual reaches maturity, the responsibilities of the field of early intervention have been accruing apace. We know more now; we have a great deal to do.

Throughout the 1990s, we have witnessed great breakthroughs in the field of brain development. Recent brain research has demonstrated with unprecedented certainty the importance of early experience in influencing the actual growth and development of neural pathways in the individual (Kotulak, 1996). During the years from 3 to 10, the brain is more densely "wired" than at any other time in the child's life. This means that there is literally a profusion of synapses connecting brain cells that are present in the growing child. Moreover, we have learned that the early years are a particularly sensitive time for that portion of the brain that controls such essential complex functions as language acquisition and the processes that facilitate logical thinking. It has been suggested that brain activity in children of this age exceeds that of adults (Shore, 1997).

These revolutionary insights into the workings of the brain have tremendous implications for the field of early childhood intervention. Investigation has shown that as the young child's brain grows, a particular economy of demand and supply prevails: Connections that receive stimulation tend to be reinforced, while unstimulated connections tend to be eliminated. Thus, the human brain is constructed to be quite efficient at acquiring a range of skills early in life and at disposing of neural capacity that is seemingly unneeded. After that time, learning certainly continues, but remediation becomes more challenging once the dense neural net of early life has diminished (Carnegie, 1996). Although scholars and practitioners in the field have long championed the value of intervening early in the child's life, we now know with virtual certainty that the quality of the environment in which young children spend their early years is a critical influence on their capacity to develop an adequate foundation for later learning, as well as for emotional regulation. Over the years, the field has struggled to demonstrate conclusively the efficacy of early intervention as a means to combat the damaging effects of poverty on young children. We have argued that children who are able to form strong, trusting relationships with caregivers in their early years are more likely to learn, develop healthy self-esteem, and acquire the coping skills they will need in later life. With advances in brain imaging research techniques, we are now in a position to begin to support our empirical program research findings

with views of actual brain structures. In the future, there is the potential for comparing the effects of different levels and forms of stimulation on these structures.

Along with advances in knowledge about brain development, the 1990s has brought considerable progress in modes of empirical analysis. In the introduction to the previous edition to this book, I observed that the great empirical task of the future would be to identify what processes mediate the long-term effects of early intervention for economically disadvantaged children. With time, our analytic capacity has evolved to the point that we are beginning to perform this kind of investigation, as well as forms of analysis permitting a far more refined approach to identifying factors that contribute to program efficacy. From its origins in the mid-1970s, with Smith and Glass's (1977) study of psychotherapy outcomes, the era of meta-analysis has reached its prime, enabling us to undertake, as it were, "evaluative studies of evaluative studies" – systematic research on an ambitious scale that affords previously unattainable refinements in our knowledge of treatment effects (Lipsey & Wilson, 1993).

The meta-analysis performed by Lipsey and Wilson (1993) constitutes a dramatic milestone in the statistical evolution of early intervention research. In their masterful study, more than 300 reports of psychological, educational, and behavioral treatment programs were examined. Following an exhaustive and analytically sophisticated investigation of the treatment effects reported, Lipsey and Wilson's meta-analysis revealed "stark, dramatic patterns of evidence for the general efficacy of such treatment" (1993, p.1182). The authors noted that their findings stand in contrast to previous conventional reviews of research dealing with the issue of treatment efficacy, in which considerable variation among studies has prevented firm conclusions about the effectiveness of intervention in a broad sense.

Obviously, the analysis noted here cannot speak to the issue of relative efficacy among treatment models; not all treatments are equally effective. Nevertheless, the Lipsey and Wilson (1993) meta-analysis determined unequivocally that nearly every treatment examined had positive effects, even after the researchers accounted for methodological or availability biases or even placebo effects that may have acted to skew the results in a positive direction. Their conclusions remained firm: Well-developed behavioral, educational, and psychological interventions generally have positive effects in terms of their intended outcomes.

Lest these results make us overly bold, however, we must remember the limits of this form of analysis, which is, as Lipsey and Wilson (1993) pointed out, only as powerful as the studies it attempts to examine in aggregate. In the decade to come, the need for more fine-grained analysis will continue, as will the imperative that we cast more light upon mediating processes. With the advent of this breakthrough work, however, research questions may now be more meaningfully framed. As Wilson and Lipsey, among others, concur, now that we have a clearer picture of general program efficacy, the major task is to identify which programs work best and how these results are achieved, as well as which components of programs are most essential to achieve maximum benefit. This latter question is critical, given the limited funding with which most intervention programs must be mounted and sustained. We still must grapple with the questions surrounding why some participants, albeit in similar circumstances, benefit more than others from similar programs.

Along with advances in knowledge and methodology throughout the 1990s, the intervention field has found itself revisited by some familiar arguments that many workers believed had long ago been put to rest. For decades, we in early intervention have been fighting the good fight over the true goals of Head Start, not to increase IQ per se but to increase social competence, help the child meet social expectancies, and assist children living in poverty to prepare for formal schooling. During these decades, I and my colleagues have resisted formidable attempts to make Head Start a program with solely a cognitive emphasis, and we have encouraged program evaluators to investigate other, broader program benefits for participant children and their families, in addition to possible cognitive gains. To a large extent we have been successful in bringing attention back to the program's original goals, as I and the other founders perceived them. Recent evaluative efforts have expanded the scope of inquiry considerably beyond cognitive achievement-style tests. Notably, the ongoing Family and Child Experiences Survey (FACES) is undertaking an assessment of the

effects and possible benefits of the Head Start program in which a nationally representative sample is being used. The study focuses on both parent and child outcomes and includes such assessment tools as child observation, as well as measures of social awareness and social skills, story concepts, and the ability to engage successfully in activities with peers. The survey will be completed in 2001.

Against this background, in which intervention programs generally and a number of well-known projects (e.g., the Chicago Child Parent Center program [Reynolds, in press] in particular) have been and continue to be shown to have significant far-reaching benefits for children and their families, it is extraordinary to come upon a recurrence of the following two arguments. These are 1) that changes in IQ, academic achievement, or both constitute the only proper measures of an intervention program's success and 2) that no study has revealed that substantial long-term changes in these areas have been produced by early educational intervention (Detterman & Thompson, 1997). Thus, we face a new controversy in the field of early intervention, yet it is reminiscent of the controversies of old, from which we so recently seemed to have emerged.

The 1997 article by Detterman and Thompson that has given rise to the controversy focuses on the field of special education, yet its arguments are extended to all intervention programs, under which category we may place special education. Detterman and Thompson hold that a fair measure of the efficacy of special education and of early intervention programs generally is the programs' ability to raise IQ, the level of academic achievement, or both. As a seasoned worker in the mental retardation as well as the early intervention fields, I must take issue with both the manner in which these authors frame the question of program efficacy and how they purport to answer it. Having stated the avowed and actual purpose of such programs incorrectly, Dettermen and Thompson then assail all special education and other intervention programs in terms of failure to meet goals that they themselves, not those who designed the programs, identify (see Symons & Warren, 1998). The authors stated that there are only two goals special education can have: raising the mean level of performance on IQ tests, reducing the standard deviation of performance, or both (Detterman & Thompson, 1997). Briefly, I believe that few, if any, individuals working in the special education field would countenance such a narrow and even rather mechanistic representation of the field's aspirations for the individuals it serves. Rather than attempt a full refutation of the arguments and research interpretations of Detterman and Thompson here, I refer to the excellent points raised by my colleagues (Ramey & Landesman-Ramey, 1998; Symons & Warren, 1998; Keogh, Forness, & MacMillan, 1998).

This is not the place to enter the fray or rather to re-enter a former battleground. The point I would like to raise is that the field of intervention as a whole has moved beyond the limited considerations of IQ and academic competence. At one time, measures of cognitive performance were, I believe, overused in the evaluation of program effectiveness. More than 20 years ago, I encouraged our colleagues to look beyond the narrow cognitive focus to the broader bases of human functioning in society – the cluster of skills that make up the construct of social competence (Zigler & Trickett, 1978). Early intervention programs that have succeeded in achieving long-term benefits are not narrowly focused. They are typically comprehensive broad-based programs with strong parental involvement components (Center for the Future of Children, 1985; Seitz, 1990). Thus, such programs frequently benefit two generations.

One exemplar among several highly successful programs, the Prenatal Early Childhood Nurse Home Visitation Program, has demonstrated long-term positive effects on the life course of both parents and children. The program's effects include an 80% reduction in child abuse, as well as positive effects on birth spacing and a reduction in substance abuse and criminality (Olds, 1997). Another well-known intervention program, the Perry Preschool Project, has followed its participant children for more than 20 years. The benefits shown include reduced rates of criminality, decreased teen pregnancy, increased high school graduation rates and employment, as well as higher academic achievement (Schweinhart, Barnes, & Weikart, 1993). Particularly when both parent and child reap benefits, program effectiveness is extended to the community as a whole, in economic as well as in quality of life terms. Another advance in the field of early intervention has been the rise of economic cost-benefit analysis of programs. The benchmark study of the Perry

Preschool Project, which identified a $4 savings for every dollar invested in preschool education (Barnett, 1985), marked the beginning of a new era of demonstrable economic advantage associated with high-quality intervention programs. A more recent follow-up of the Perry Preschool children at age 27 determined that the savings totaled $7 for every dollar spent on the program (Schweinhart, Barnes, & Weikart, 1993). A description of the current status of this developing field is found in this edition of the handbook.

As social competence has grown into its rightful place in the world of early intervention, we have welcomed another still somewhat ambiguous construct – school readiness. These two foci are not dissimilar, and I believe the acceptance of school readiness as a focus for organizing our efforts marks a wholesome trend in the evolution of the field. Originally presented as the first of the National Education Goals, school readiness is likely to include, as its definition evolves, many of the abilities we recognize as essential facets of social development: the capacity to communicate and interact positively with peers and adults, a healthy self-concept, the ability to self-regulate, the ability to use language, and the like. Our responsibility must be to watch over the development of the idea of readiness, to guide its progress to insure that it is used in an inclusive manner, and to nurture the growth of all children and not to segregate them.

The publication of this volume is an extraordinary achievement. It is not merely a revision of the former edition; it is a compendium representative of current work by the best thinkers in our field. This handbook builds on the sound foundation of the prior effort, yet it goes well beyond it in examining developing areas of knowledge. Noteworthy among these areas are investigations of topics as diverse and essential as community characteristics, mental health issues in early childhood, and the neurobiology of early intervention. The topics addressed in this volume are clearly at the forefront of our knowledge, in which growth is most vigorous and most exciting to witness. In some cases, as in the study of the economics of early intervention, we eagerly await the newest findings; in others, as in the chapter on transactional regulation and program ecology, we are given the opportunity to deepen our understanding of subtle new ways of approaching and interpreting the life of a program. These are stimulating chapters indeed, which together should have the dual effect of making the field proud of its accomplishments while invigorating its workers for the challenging tasks that lie ahead. The authors have my enthusiastic congratulations, as well as my admiration and gratitude for producing what will certainly prove the essential early intervention guidebook for the next decade.

Edward F. Zigler
Yale University

REFERENCES

Barnett, W. S. (1985). *The Perry Preschool Project and its long-term effects: A benefit-cost analysis*. High/Scope Early Childhood Policy Papers (No. 2) Ypsilanti, MI: High/Scope Press.

Carnegie Corporation of New York. (1996). *Years of promise. The Report of the Carnegie Task Force on Learning in the Primary Grades*. New York: Author.

Center for the Future of Children. (1995). *Long-term outcomes of early childhood programs*. David and Lucile Packard Foundation: Author.

Detterman, D. K., & Thompson, L. A. (1997). What is so special about special education? *American Psychologist*, *52*, 1082–90.

Keogh, B. K., Forness, S. R., & MacMillan, D. L. (1998). The real world of special education. Comment on Detterman & Thompson. *American Psychologist*, *53*, 1161–62.

Kotulak, R. (1996). *Inside the brain: Revolutionary discoveries of how the mind works*. Kansas City, MO: Andrews and McNeel.

Lipsey, M., & Wilson, D. B. (1993). The efficacy of psychological, educational, and behavioral treatment: Confirmation from meta-analysis. *American Psychologist*, *48*, 1181–209.

Olds, D., Eckenrode, J., Henderson, C., Kitzman, H., Powers, J., Cole, R., Sidora, K., Morris, P., Pettitt, C., & Luckey, D. (1997). Long-term effects of home visitation on maternal life course and child abuse and neglect: Fifteen year follow-up of a randomized trial. *Journal of the American Medical Association*, *278*, 637–43.

Ramey, C. T., & Landesman-Ramey, S. (1998). In defense of special education. Comment on Detterman and Thompson. *American Psychologist*, *53*, 1159–60.

Reynolds, A. J. (in press). *Success in early intervention: The Chicago Child–Parent Centers and youth through age 15*. Lincoln: University of Nebraska Press.

Schweinhart, L. J., Barnes, H. V., & Weikart, D. P. (1993). *Significant benefits: The High/Scope Perry Preschool study*

through age 27. Monographs of the High/Scope Educational Research Foundation (No. 10) Ypsilanti, MI: The High/Scope Press.

Seitz, V. (1990). Intervention programs for impoverished children: A comparison of educational and family support models. *Annals of Child Development, 7*, 73–103.

Shore, R. (1997). *Rethinking the brain: New insights into early development*. New York: Families and Work Institute.

Smith, M. L., & Glass, G. V. (1997). Meta-analysis of psychotherapy outcome studies. *American Psychologist, 52*, 752–60.

Symons, F. J., & Warren, S. F. (1998). Straw men and strange logic: Issues and pseudo-issues in special education. Comment on Detterman & Thompson. *American Psychologist, 53*, 1160–1.

Zigler, E. F., & Trickett, P. K. (1978). IQ, social competence, and the evaluation of early childhood intervention programs. *American Psychologist, 33*, 789–98.

Preface

Like the first edition, the second edition of this *Handbook of Early Childhood Intervention* is designed to integrate the science, policy, and practice of early childhood intervention in order to serve as a comprehensive vehicle for communication across the many disciplines and perspectives that contribute to this complex and continually evolving field. Since the 1960s, we have witnessed the transformation of this arena from a modest collection of pilot projects with a primitive empirical foundation, precarious funding, and virtually no public mandate, to a multidimensional domain of theory, research, practice, and policy. Today, the world of early childhood intervention contains a growing knowledge base, a dynamic service enterprise, and a highly significant policy agenda.

Early childhood intervention is based on three underlying assumptions. The first is rooted in a set of fundamental principles of contemporary biological and psychological research – namely, that all organisms are designed to adapt to their environment and that behavior and developmental potential are neither predetermined at birth by fixed genetic factors nor immutably limited by a strict critical period beyond which change is impossible.

The second assumption is that the development of young children can only be fully appreciated and understood within a broad ecological context. Beginning with a core understanding of the family as a dynamic system, this perspective extends outwards to include the complex, interactive influences of the child's immediate community and the broader social, economic, and political environment in which he or she lives. This contextual framework sets the stage for all aspects of intervention from prevention and identification of developmental concerns through assessment, service delivery, program evaluation, and the formulation of policy.

The third assumption reflects the essential interdisciplinary nature of the field. Because the developmental opportunities and challenges confronting young children are so diverse, the range of services and supports required to meet their needs is extensive. Consequently, the practice of early intervention incorporates a host of program models, providers, and systems that combine a wide range of professional disciplines, including education, psychology, medicine, social work, child care, speech and language pathology, occupational and physical therapy, nursing, and public health. A thorough understanding of early childhood intervention requires a willingness to engage in professional pluralism, a recognition that no single prescription can be applied universally, and a realization that a univariate research focus cannot capture adequately all of its dynamics.

These three assumptions inform the following general definition for the field:

Early childhood intervention consists of multidisciplinary services provided to children from birth to 5 years of age to promote child health and well-being, enhance emerging competencies, minimize developmental delays, remediate existing or emerging disabilities, prevent functional deterioration, and promote adaptive parenting and overall family functioning. These goals are accomplished by providing individualized

developmental, educational, and therapeutic services for children in conjunction with mutually planned support for their families.

The basic design and organization of this handbook reflect these underlying assumptions and definition. Designed as a core textbook for those who are interested in young, vulnerable children and their families, this volume is addressed to a diverse audience involved in academic training programs, research and scholarly endeavors, policy development, and sevice provision.

The book is divided into seven sections. The first consists of an introductory chapter that places the concept of early childhood intervention in a historical context and identifies new challenges to be addressed by the field in the coming years. The second section examines multiple sources of vulnerability (biological, familial, and sociocultural) that can have deleterious effects on human development, as well as protective factors that serve as buffers against risk. The next section explores four theoretical frameworks that present a strong rationale for early childhood intervention, including transactional, psychodynamic, behavioral–educational, and neurobiological approaches. The following section examines current challenges to assessment in four domains: the child, the parent–child relationship, the family, and the community.

Next, several models of service delivery are explored in depth. These chapters reflect the multiple approaches to systems organization that mark the contemporary landscape of early childhood intervention. They range from universally required services (e.g., preventive health care), to high prevalence societal needs (e.g., early child care and education), and to specialized programs for targeted populations (e.g., developmental disabilities and mental health services). The section concludes with chapters on the roles of paraprofessionals and current approaches to personnel preparation.

Although every chapter in the handbook carefully reviews relevant research in depth, the sixth section identifies four discrete areas of efficacy and effectiveness research for more systematic scrutiny. The first chapter in this section critically analyzes a range of investigative approaches to the evaluation of service impacts. The second comprehensively reviews current knowledge about the effects of programs on children. The third chapter in this section examines research on family outcomes, and the last considers research concerning the economic costs and benefits of intervention.

The book's final section explores a selection of policy and programmatic challenges facing the field. Included are chapters on international approaches to early childhood policies, services, and family support programs; reflections on evolving models of family–professional relationships; and a comprehensive analysis of the multidimensional concept of developmental resilience. These chapters are intended to highlight emerging issues and to examine some of the complex interactions among knowledge, policy, and advocacy that are central to the future development of the field's scope and impact.

The contributors to this handbook include many of the most distinguished leaders in the field. The breadth of scholarship contained in this volume reflects the diversity and the richness of the early childhood knowledge base at the dawn of the twenty-first century. Our hope is that this book will cast both the past and the present in sharp relief and will promote a dynamic interaction between science and practice that will assure the continued vitality and growth of the field and will lead to improved outcomes for vulnerable young children and their families.

One of the special pleasures of working in the world of early childhood intervention is the opportunity it affords to develop an abundance of personal and professional relationships, reflected in no small measure by the equally shared editorial responsibility (and alternating order of authorship) that has characterized the creation of both the first and second editions of this handbook. To the many mentors, colleagues, trainees, students, parents, and children who have taught us so much over the years (and whose names, if listed, would fill many pages), we want to express our deepest gratitude. Above all, we are highly indebted to the talented contributors to this book, without whom this project could not have come to fruition. Finally, to our families, Fredi, Michael, and Adam Shonkoff and Alice, Seth, and Reba Meisels, we express our deepest appreciation for teaching us about the magic of parenting and the treasures of family relationships – from conception through the emergence of adulthood.

Jack P. Shonkoff
Samuel J. Meisels

Contributors

Sally Atkins-Burnett, School of Education, The University of Michigan

Kathryn E. Barnard, Ph.D., Child Development and Mental Retardation Center, University of Washington

W. Steven Barnett, Ph.D., Graduate School of Education, Rutgers University

Lisa J. Berlin, Ph.D., Teachers College, Columbia University

Jeanne Brooks-Gunn, Ph.D., Teachers College, Columbia University

Stephen Buka, Ph.D., School of Public Health, Harvard University

Cynthia García Coll, Ph.D., Department of Pediatrics, Brown University

Paul H. Dworkin, M.D., Department of Pediatrics, Saint Francis Hospital and Medical Center, University of Connecticut School of Medicine

Felton Earls, M.D., School of Public Health, Harvard University

Robert N. Emde, M.D., Department of Psychiatry, School of Medicine, University of Colorado Health Science Center

Dale C. Farran, Ph.D., Peabody College, Vanderbilt University

Barbara H. Fiese, Ph.D., Department of Psychology, Syracuse University

Allison Sidle Fuligni, Teachers College, Columbia University

James J. Gallagher, Ph.D., Frank Porter Graham Child Development Center, University of North Carolina-Chapel Hill

Barbara Ganzel, Family Life Development Center, Cornell University

James Garbarino, Ph.D., Family Life Development Center, Cornell University

Linda Gilkerson, Ph.D., Erikson Institute

Robert Halpern, Ph.D., Erikson Institute

Gloria Harbin, Ph.D., Frank Porter Graham Child Development Center, University of North Carolina-Chapel Hill

Penny Hauser-Cram, Ed.D., School of Education, Boston College

Sharon Lynn Kagan, Ph.D., Bush Center for Child Development and Social Policy, Yale University

Sheila Kamerman, Ph.D., School of Social Work, Columbia University

Jean F. Kelly, Ph.D., Child Development and Mental Retardation Center, University of Washington

Nancy K. Klein, Ph.D., College of Education, Cleveland State University

Jane Knitzer, Ph.D., National Center for Children in Poverty, Columbia University

Marty Wyngaarden Krauss, Ph.D., The Heller Graduate School, Brandeis University

Katherine Magnuson, Institute for Policy Research, Northwestern University

Paul C. Marshall, M.D., Department of Pediatrics, University of Massachusetts Medical School

R. A. McWilliam, Ph.D., Frank Porter Graham Child Development Center, University of North Carolina-Chapel Hill

Samuel J. Meisels, Ed.D., School of Education, The University of Michigan

Judith Musick, Ph.D., Ounce of Prevention Fund

Charles A. Nelson, Ph.D., Institute of Child Development, University of Minnesota

Michelle J. Neuman, Bush Center for Child Development and Social Policy, Yale University

Joy D. Osofsky, Ph.D., Departments of Pediatrics and Psychiatry, Louisiana State University Medical Center

JoAnn Robinson, Ph.D., Department of Psychiatry, School of Medicine, University of Colorado Health Science Center

Sir Michael Rutter, M.D., MRC Child Psychiatry, University of London

Arnold J. Sameroff, Ph.D., Center for Human Growth & Development, The University of Michigan

Jack P. Shonkoff, M.D., The Heller Graduate School, Brandeis University

Frances Stott, Ph.D., Erikson Institute

M. Dewana Thompson, Departments of Pediatrics and Psychiatry, Louisiana State University Medical Center

Vicki Turbiville, School of Education, University of Kansas

Ann Turnbull, Ph.D., School of Education, University of Kansas

H. R. Turnbull, J.D., School of Education, University of Kansas

Carole C. Upshur, Ph.D., University of Massachusetts-Boston

Marji Erickson Warfield, Ph.D., Department of Pediatrics, University of Massachusetts Medical School

Thomas S. Weisner, Ph.D., Departments of Psychiatry & Anthropology, University of California at Los Angeles

Emmy E. Werner, Ph.D., Department of Human & Community Development, University of California at Davis

Mark Wolery, Ph.D., Frank Porter Graham Child Development Center, University of North Carolina-Chapel Hill