

Readiness

School, Family, & Community Connections

Annual Synthesis 2004



National Center for
**FAMILY &
COMMUNITY**
Connections with
SCHOOLS

Readiness

School, Family, & Community Connections

Annual Synthesis 2004

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The following members of the Center's steering committee helped shape the focus for this synthesis and identify both topics and resources for inclusion:

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Executive Summary

This research synthesis is the fourth in a series of reports to help local school, community, and family leaders obtain useful research-based information about key educational issues. This synthesis addresses readiness as it relates to children, schools, families, and communities.

Scope. Readiness is a multifaceted concept with varying definitions and related approaches. Research studies on readiness, however, tend to focus rather narrowly. Because we are bound in this synthesis by the scope of what has been studied empirically, we focus predominantly on *children's* readiness, rather than on *ready schools*, a topic that is of growing interest but little studied. This synthesis explores the research addressing three major questions related to children's readiness and family, school, and community connections:

- What is known about differences in children's skills and performance at kindergarten entry and the contextual factors associated with those differences?
- What is known about early childhood or preschool interventions that include family or community components?
- What is known about children's transition to kindergarten, including transition beliefs and practices and patterns of family-school interactions?

We look first at what is known about children's abilities when they first enter school, factors associated with those abilities, and the implications of those abilities for children's later school success. We then explore available evidence regarding the effectiveness of various interventions that include a family or community focus. These interventions range from large-scale, comprehensive programs to highly targeted strategies addressing specific skills. Some interventions begin in the earliest months of a child's life; others target the preschool years or early elementary years or both. Finally, we address the emerging literature addressing children's transition to kindergarten.

Findings. We identified 48 studies with focuses and methodologies that met our basic criteria. From the array of information among these studies, we identified a set of broad findings related to the three research questions with which we began our exploration of this topic:

What is known about differences in children's skills and performance at kindergarten entry and the contextual factors associated with those differences?

Finding 1: Young children enter kindergarten with a range of cognitive and social skills that appear to make a difference in their achievement during the kindergarten year. This seems to be of long-term importance; children who get off to a good start in kindergarten tend to maintain that advantage as they progress through school.

Finding 2: Young children's home environment—including both family background factors and interactions between children and other family members—is strongly associated with their relative skills and abilities upon entry to kindergarten. Other significant correlations exist as well, including participation in early child care and education.

What is known about early childhood or preschool interventions that include family or community components?

Finding 3: Early care and education programs that include family components can boost children's educational success, both short-term and long-term. However, the impacts of specific features of such programs, including family components, remain largely untested and unknown. In addition, significant issues of cost, quality, and context complicate this finding.

Finding 4: Specific strategies for helping parents support their young children's emerging literacy and numeracy skills *can* produce gains among children from both low- and middle-income families. However, the research base is limited to only a handful of strategies.

What is known about children's transition to kindergarten, including transition beliefs and practices and patterns of family-school interactions?

Finding 5: Families and teachers tend to have somewhat different perceptions about what matters most in children's readiness for kindergarten. The impact of these different perceptions, if any, on children's readiness and their kindergarten achievement has not been documented.

Finding 6: Although families of all types of backgrounds are often involved in their children's preschool educational or child care programs, their involvement tends to decline when the children enter kindergarten. Both the types and frequency of family-school contact tend to change from preschool to kindergarten.

Finding 7: Although a growing body of research describes schools' transition practices, little to no research assesses the effectiveness of specific school supports for children's transition to kindergarten. Descriptions of transition practices and barriers indicate that the most individualized, relationship-building activities tend to be the least used and that differences in transition practices are associated with school characteristics.

Recommendations. As these findings suggest, we still have much to learn about the roles and relationships among children, schools, families, and communities that can help to ensure an effective fit between young learners and the school environment. Research-based knowledge as to “what works” remains limited. For that reason, we are able to make only a few concrete recommendations for local policy and practice—and those we do make should be taken as tentative, subject to the need both for local wisdom and for further research:

- *Provide children with early educational experiences.* Perhaps the strongest conclusion that can be drawn from this research base is that early education for children—including programs for children in poverty who are most seriously at risk for school failure—*can* make a difference when those children reach kindergarten and beyond. Yet, a significant minority of children still lack ready access to early education.
- *Help families provide learning resources and experiences for their young children.* Parent-training strategies that are targeted specifically to strengthen young children’s pre-academic skills have shown good promise in terms of both early literacy and early mathematics skills.
- *Work to ensure fidelity in implementing model interventions.* Ensuring that model strategies are actually implemented as intended is a key, but often overlooked, factor in the effectiveness of interventions.
- *Build kindergarten teachers’ awareness of the long-term impacts of differences in children’s pre-academic skills when they enter school.* Studies suggest that many kindergarten teachers tend to downplay the importance of children’s pre-academic skills at kindergarten entry, emphasizing instead social-emotional traits and capabilities. However, children’s earliest school performance, including their early kindergarten performance, generally sets a pattern for their future success or lack of it.
- *Encourage families to maintain their contact and involvement as their children move from child care or preschool environments to kindergarten.* No matter what their backgrounds are or how involved they are in their children’s preschool or early care settings, parents’ at-school involvement diminishes when their children start kindergarten. The consistency of this pattern suggests that schools must take the initiative to alter families’ perceptions of the roles and levels of involvement expected of them.
- *Provide a variety of supports to help ease children’s transition to kindergarten.* Schools can take specific steps to increase teachers’ use of in-depth transition activities, including providing training, providing supplemental funds for teachers’ transition-related activities during the summer, and providing teachers with class lists as early as possible before the start of school. Particularly in urban schools and schools with substantial populations of low-income and racial or ethnic minority students, school administrators need to emphasize transition activities as a priority and to provide the necessary supports for kindergarten teachers.

This synthesis also includes specific recommendations for strengthening the research base through well-designed randomized controlled trials, and through the design, implementation, and assessment of new model interventions. In designing and conducting intervention studies, researchers need to attend to several issues that have handicapped many previous efforts:

- striking a balance between large-scale demonstration studies (which all too often suffer from inconsistent implementation and attrition) and studies with sample populations that are too small to allow useful analysis of subgroups or to generalize beyond the limited populations studied;
- developing and applying clear, consistent, and adequately complex definitions of readiness, of families, and of family involvement; and
- using assessment measures that are appropriate for young children (particularly in terms of the substantial variations in children’s developmental pace) and that effectively measure critical readiness skills and activities.



Introduction

Chapter 1

Purpose, scope, and intended audiences

This is one of a series of reports that examine key issues related to family and community connections with schools. These research syntheses¹ are intended to help local school, community, and family leaders obtain useful information derived from rigorous research.

The primary audience is practitioner leaders—that is, superintendents, principals, curriculum supervisors, lead teachers, family involvement staff, community leaders, and others who may have responsibility for or interest in helping shape local policy or practice regarding school, family, and community connections. Secondary audiences include local and state policymakers, program developers, professional development providers, and researchers.

The focus of this year’s synthesis is on “readiness,” a concept that has many dimensions and increasingly high-stakes implications for young children. Children’s earliest experiences in school—typically, these days, in the kindergarten classroom—often set the pattern for their later progress. In trying to achieve success for all students, educators have focused increasingly on strategies for ensuring that these early experiences are successful ones. The complexity of the challenge is reflected in the multifaceted conceptions of, and approaches to, readiness. Is readiness an attribute or circumstance of children or of schools? What environments and experiences play significant roles in children’s early cognitive and social development? When should we start to be concerned about readiness?

Although the broad literature on readiness addresses all of these questions, empirical research studies tend to focus much more narrowly. In this research synthesis, we explore readiness as it relates to children, schools, families, and communities. Because we are bound by the scope of what has been studied empirically, our focus is predominantly on *children’s* readiness, rather than on *ready schools*, a topic that is of growing interest but little studied. This synthesis, then, addresses three major questions:

¹ We have used the term *synthesis* to describe this document, recognizing that there are multiple schools of thought regarding the definition and characteristics of research syntheses. We believe this work fits the description by Cooper (1998) in his book on synthesizing research: “Research syntheses focus on empirical studies and seek to summarize past research by drawing overall conclusions from many separate investigations that address related or identical hypotheses. The research synthesist hopes to present the state of knowledge concerning the relation(s) of interest and to highlight important issues that research has left unresolved” (p. 3).

- What is known about differences in children’s skills and performance at kindergarten entry and the contextual factors associated with those differences?
- What is known about early childhood or preschool interventions that include family or community components?
- What is known about children’s transition to kindergarten, including transition beliefs and practices and patterns of family-school interactions?

We look first at what is known about children’s abilities when they first enter school, various factors associated with those abilities, and the implications of those abilities for children’s later school success. We then look at evidence regarding the effectiveness of various interventions that include a family or community focus. These interventions range from large-scale, comprehensive programs to highly targeted strategies addressing specific skills. Some interventions begin in the earliest months of a child’s life; others target the preschool years or early elementary years or both. Finally, we explore the emerging literature addressing children’s transition to kindergarten.

In addition to presenting findings from recent research, the synthesis includes other information to help readers make the most of the research findings. To help lay readers understand both the power and the limitations of the findings, we include a “primer” on what to look out for when analyzing research results. We strongly encourage readers with limited research knowledge to read through this primer (appendix A) before moving to the other chapters. To help put the findings into context, we provide an overview of major concepts, definitions, and issues related to readiness. And to help practitioners put the findings to use, we offer some specific recommendations for local policy and practice, as well as for further research on this topic.

How the synthesis is organized

Chapter 1 briefly outlines the purpose, context, and organization of the synthesis.

Chapter 2 describes the procedures and criteria we used to select the specific studies for review in this report.

Chapter 3 provides background information to help readers put specific research findings into the broader context of ideas and practices related to readiness and the transition to kindergarten.

Chapter 4 provides the meat of the matter—an overview of the major findings from the studies reviewed for this synthesis.

Chapter 5 offers recommendations to help practitioners put the research findings to practical use, as well as recommendations for additional research to address this critical topic.

Chapter 6 presents a more detailed description of each of the individual research studies from which we drew our findings.

The primer on research methods and what to look for in trying to make sense of research results is included in **appendix A**.

Appendix B includes copies of the two screening protocols we used to select material for inclusion in the synthesis.

A complete **index** and **references section** of both the research studies and supplementary background material also appear at the end of the report.

For specific information about any of the studies reviewed, you can

- go to chapter 6, which lists the studies alphabetically by author;
- use the index to look for additional discussions of the study within this report;
- access the Connection Collection bibliography database maintained by the National Center for Family and Community Connections with Schools (www.sedl.org/connections/resources.html), which includes all of the studies reviewed for all four annual syntheses, as well as some of the background documents referenced in the syntheses; or
- go directly to the source (see the references section for information on access and availability).

How the synthesis fits into a larger context

As noted earlier, this report is one of a series funded by the U.S. Department of Education to provide practitioner leaders and others with reliable information they can use to improve local policies and practices. Funding for development and dissemination of the report was provided to the Southwest Educational Development Laboratory (SEDL), one of 10 Regional Educational Laboratories within the United States. SEDL serves the southwestern region, which includes Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.

Since December 2000, SEDL has operated the National Center for Family and Community Connections with Schools (the Center) as part of its regional educational laboratory contract. The Center serves as a national resource to schools, community groups, research organizations, policymakers, and families, linking people with research-based information and resources. For more information about the Center and its services, contact

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The Center has published three other research syntheses related to school, family, and community connections:

Emerging issues in school, family, & community connections (annual synthesis 2001), by Catherine Jordan, Evangelina Orozco, and Amy Averett

A new wave of evidence: The impact of school, family, and community connections on student achievement (annual synthesis 2002), by Anne T. Henderson and Karen L. Mapp

Diversity: School, family, & community connections (annual synthesis 2003), by Martha Boethel

All three documents are available at www.sedl.org/connections/resources.html.



The Studies and How We Selected Them

Chapter 2

From an initial set of more than 200 publications, staff from SEDL’s National Center for Family and Community Connections with Schools (the Center) identified 48 research studies and literature reviews or meta-analyses for inclusion in this synthesis.² This chapter describes the kinds of studies we were looking for, the methods we used to search for them, and the methods we used to screen and select studies to be included. The chapter also provides a listing of all the included studies, organized by research method and by the synthesis research question addressed.

What we looked for

Selection criteria

In setting criteria for inclusion in this synthesis, we could have chosen to screen more narrowly in terms of focus (e.g., including only studies that address the specific period of transition from preschool to kindergarten), of methodology (e.g., including only randomized controlled trials or quasi-experimental studies), or of quality (e.g., including only studies published in peer-reviewed journals). Or we could have chosen more relaxed criteria, not worrying about currency or mixing conclusions from policy and practice-based papers with research findings. Both extremes have advantages and disadvantages.

We have chosen a middle path, in the interest of balancing what we perceive as our readers’ needs both for an understanding of the “state of the art” of knowledge related to this critical topic and for reliable information that can help form the basis for sound planning and decision making at the local level. For example, if we had included only randomized controlled trials and quasi-experimental studies, we would not have been able to speak at all to the topics of contextual factors that are linked to readiness or of the transition to kindergarten.

In addressing readiness, we have not restricted ourselves only to studies and intervention strategies that explicitly describe “readiness” as a purpose or goal or to those that explicitly address children’s “transition” to kindergarten. Our review addresses a range of early childhood, preschool, and kindergarten interventions that help develop or strengthen children’s cognitive, social, and/or developmental competencies. We also have included studies of family intervention strategies where those strategies are intended to enhance child readiness outcomes.

² Each individual study is summarized in Chapter 6.

Our first priority was to identify intervention studies that used experimental designs or randomized controlled trials.

We looked for research studies that

- presented up-to-date findings, a factor we assessed by limiting our focus to documents published or made available in 1998 or later (however, note the later discussions about limitations to the currency of research findings);
- addressed the U.S. educational system;
- met basic standards for quality and rigor of research methodology;
- addressed readiness in the context of family, community, and school connections; and
- to the extent possible, addressed both the short- and long-term relationships between readiness strategies and child readiness outcomes.

Our priorities for inclusion

In selecting studies, our first priority was to identify intervention studies that used experimental designs or randomized controlled trials (RCTs). We found and included 12 studies that used RCTs. We identified five intervention studies that used quasi-experimental designs (three of these addressed specific longitudinal components of the same study design). We excluded intervention studies that did not include a comparison or control group. In addition, we identified studies that did not address interventions but provided useful descriptive data, including correlational and survey designs.

We included five literature reviews and one meta-analysis of research. Although these less rigorous forms of research often present problems with quality control, we decided that these reports were important, not only in the contextual background discussion but also in the discussion of findings, for two reasons:

- The reports provide coherent and useful information about research studies that fall outside the time parameters set for this synthesis, information that is important for understanding the implications of more current research.
- In some cases, the reports provide critical perspectives regarding the strengths and weaknesses of studies addressed in this synthesis.

We included only literature reviews that addressed issues of quality in the studies they selected for review. Two of the literature reviews are book-length reports produced by the National Research Council, an agency established by the National Academy of Sciences whose reports are developed by nationally known and respected researchers. These two reports, *From Neurons to Neighborhoods: The Science of Early Childhood Development* (Shonkoff & Phillips, 2000) and *Eager to Learn: Educating Our Preschoolers* (Bowman, Donovan, & Burns, 2001) synthesize a vast array of research from many disciplines.

The one meta-analysis we included in this review did not describe screening criteria related to quality. However, its authors did discuss methodological limitations and problems within the studies from which data were analyzed.

Another priority was to report on studies that explicitly investigated the links between family involvement and readiness outcomes for children—particularly measures of children’s cognitive growth or academic achievement or both. A number of the studies addressed here do, in fact, include such outcome measures. However, in many instances children’s outcomes cannot be attributed specifically to, or even correlated with, family involvement activities or interventions. This is because the interventions being studied tend to be multidimensional, with family involvement being only one of several program components.

We also included a limited set of studies that do not address children’s pre-academic or academic outcomes.³ Instead, these studies provide useful information about current readiness-related beliefs, concerns, and practices.

For the studies that did assess children’s readiness outcomes, measures of cognitive and academic achievement outcome include:

- *for young children:*
 - performance on readiness and skills tests; and/or
 - performance on IQ tests.
- *for school-age children:*
 - report card grades, grade-point averages, and standardized test scores;
 - IQ test scores;
 - special education placement; and/or
 - attendance, staying in school, or promotion to the next grade.
- *for former students (in studies of long-term effects of readiness interventions):*
 - graduation rates; and/or
 - college enrollment.

Inclusion of background material

We were interested also in providing readers with *contextual background*—an overview of current theories, concepts, assumptions, and definitions related to readiness that could place specific research studies and findings in the larger context of thinking in the field. Our rationale for this inclusion echoes that of Baker and Soden (1997), who, in their review of the parent-involvement knowledge base, presented the following justification for their inclusion of “non-empirical studies”:

Including opinion papers, program descriptions, and theory in this literature review allowed a determination of the extent to which current programs and practice build upon theory and existing empirical evidence. This approach also highlights theories and models which have yet to be tested empirically.
(p. 3)

³ Those studies are Brooks-Gunn, Berlin, & Fuligni, 2000; Diamond, Reagan, & Bandyk, 2000; Early, Pianta, Taylor, & Cox, 2001; LaParo, Kraft-Sayre, & Pianta, 2003; Pianta, Cox, Taylor, & Early, 1999; Piotrkowski, Botsko, & Matthews, 2000; Ramey, Lanzi, Phillips, & Ramey, 1998; Rathbun & Germino-Hausken, 2001; Rimm-Kaufman & Pianta, 1999; and Rimm-Kaufman & Pianta, 2004.

Background information is presented most extensively in Chapter 3. The recommendations in Chapter 5 also refer to background documents that may help assess or explain a finding or a recommended strategy. In all instances, we take care to distinguish between findings from research studies reviewed for this synthesis and theories or concepts that are not explored in this research base.

Our search procedures

To identify relevant studies addressing readiness and school, family, and community connections, staff from SEDL's National Center for Family and Community Connections with Schools have taken steps that proved effective in preparing the annual research syntheses for the previous 3 years. We

- reviewed the Center's existing database to identify relevant studies that were included in one or more of the earlier syntheses;
- searched the major education information databases, including the Educational Resources Information Center (ERIC) and Education Abstracts;
- scanned Web sites of organizations and agencies involved in the field, searching for reports or articles available online;
- reviewed bibliographies and reference lists from relevant studies to identify additional publications; and
- contacted researchers in the field and members of the Center's steering committee for recommendations.

Through this search process we identified approximately 220 documents.

Our review process

After we located documents that appeared to address the topic at hand, we screened each document to assess its appropriateness for inclusion. We developed two screening protocols, one to conduct an initial screening of a broad pool of studies and a second to review in depth those studies not eliminated via the initial screening. Copies of both protocols are included in appendix B.

We used the Initial Screening Protocol to determine whether a full examination of the study should be conducted. Did the study meet the basic content criteria we had established (e.g., reflecting recent publication dates, addressing U.S. education, including readiness focus, and including a family or community focus)? Did the study include specific descriptions of its design and methodology (e.g., research questions, sample, and data analysis)? If any of the basic criteria were not met or if required information was missing, we excluded the study.

The In-Depth Screening/Documentation Protocol served a dual purpose: (a) to record detailed information about each study’s theoretical basis, its focus on readiness and family and community involvement, its design, methodology, and findings, and its fit within a larger body of related research; and (b) to determine whether to include the study in the synthesis. A study was eliminated if the in-depth review revealed (a) insufficient information to assess the study’s design or execution or both, (b) problems with the study’s design, methodology, and/or execution that compromised the validity of most or all of the study’s findings (in rare cases a study may have been retained if one isolated element of the study, such as a longitudinal follow-up, was compromised while another, such as an initial assessment of an intervention, appeared sound), and (c) other, more up-to-date or comprehensive report(s) were available that addressed the same research study.

One SEDL staff member served as primary reviewer for all studies. A secondary reviewer examined a limited number of studies as a check on interrater reliability. In addition, when the primary reviewer had questions or concerns as to how to code elements of a particular study, we referred that study to the secondary reviewer. If significant discrepancies were found, the two reviewers discussed and reached agreement as to whether the study should be included or excluded.

It should be noted that, in developing the In-Depth Screening/Documentation Protocol, SEDL staff elected not to use a numerical rating system for assessing the relative quality of specific elements of each research study. Instead, in keeping with our well-established narrative approach to research syntheses—an approach we consider appropriate for the emerging nature of much of the research addressing the topic of family and community connections with schools—we used a simple inclusion/exclusion method. That is, studies were judged to have either met basic criteria or not. A limitation of this method is that it allows the possibility of variations in judgment among individual reviewers. However, the use of checks on interrater reliability and the explicit delineation of criteria help to mitigate this limitation.

The document search process led to the initial identification of approximately 220 documents for consideration. About 50 of these were eliminated from consideration immediately because they were conceptual, practice-based, or advocacy papers rather than research studies. Of the 171 remaining items,

- 91 items were excluded after the initial screening,
- 32 additional items were excluded after the in-depth screening, and
- 48 items were selected for inclusion in this synthesis.

A list and categorization of the studies

Table 1 on page 10 and **Table 2** on page 11 provide lists of the studies and reports included in this synthesis. Table 1 categorizes the documents by the study’s research design. Table 2 lists the documents according to the three broad research questions identified for this synthesis.

Table 1: Studies and reports by research design

Randomized controlled trials (RCTs)	
Baker, Piotrkowski, & Brooks-Gunn, 1999 (reports on both RCTs and quasi-experimental studies addressing the same intervention)	Lonigan & Whitehurst, 1998 Mathematica Policy Research, Inc., 2001 Ramey, Ramey, Phillips, Lanzi, Brezausek, Katholi, Snyder, & Lawrence, 2000 Starkey & Klein, 2000 St. Pierre & Layzer, 1999 Wagner & Clayton, 1999 Zevenbergen, Whitehurst, & Zevenbergen, 2003
Barnett, Young, & Schweinhart, 1998 (applied structural equation modeling to data from an RCT)	
Campbell, Helms, Sparling, & Ramey, 1998	
Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002	
Huebner, 2000	
Quasi-experimental designs	
Baker, Piotrkowski, & Brooks-Gunn, 1999 (reports on both RCTs and quasi-experimental studies addressing the same intervention)	Miedel & Reynolds, 1999 Reynolds, 2000 Reynolds, Temple, Robertson, & Mann, 2001
Jordan, Snow, & Porche, 2000	
Correlational designs	
Bennett, Weigel, & Martin, 2002	Nord, Lennon, Liu, & Chandler, 1999
Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002	Phillips, Brooks-Gunn, Duncan, Klebanov, & Crane, 1998
Christian, Morrison, & Bryant, 1998	Ramey, Lanzi, Phillips, & Ramey, 1998
Clarke-Stewart & Beck, 1999	Rimm-Kaufman & Pianta, 1999
Connell & Prinz, 2002	Rimm-Kaufman & Pianta, 2004
Denton & West, 2002	Rimm-Kaufman, Pianta, Cox, & Bradley, 2003
Fergus-Morrison, Rimm-Kaufman, & Pianta, 2003	Sonnenschein & Munsterman, 2002
Marcon, 1999	West, Denton, & Germino-Hausken, 2000
NICHD Early Child Care Research Network, 2002	Zill & West, 2001
NICHD Early Child Care Research Network, 2003	
Survey or other quantitative descriptive designs	
Denton & West, 2002	Piotrkowski, Botsko, & Matthews, 2000
Diamond, Reagan, & Bandyk, 2000	Ramey, Lanzi, Phillips, & Ramey, 1998
Early, Pianta, Taylor, & Cox, 2001	Rathbun & Germino-Hausken, 2001
LaParo, Kraft-Sayre, & Pianta, 2003	Rimm-Kaufman, Pianta, & Cox, 2000
Nord, Lennon, Liu, & Chandler, 1999	West, Denton, & Germino-Hausken, 2000
Pianta, Cox, Taylor, & Early, 1999	Zill & West, 2001
Literature reviews or meta-analyses	
Bowman, Donovan, & Burns, 2001	Farran, 2000
Brooks-Gunn, Berlin, & Fuligni, 2000	Gilliam & Zigler, 2000
Brown & Scott-Little, 2003	Shonkoff & Phillips, 2000

NOTE: Some studies may be listed in more than one category.

Table 2: Studies and reports by research question

What is known about differences in children's skills and performance at kindergarten entry and the contextual factors associated with those differences?	
Barnett, Young, & Schweinhart, 1998 Bennett, Weigel, & Martin, 2002 Bowman, Donovan, & Burns, 2001 Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002 Christian, Morrison, & Bryant, 1998 Clarke-Stewart & Beck, 1999 Connell & Prinz, 2002 Denton & West, 2002 Fergus-Morrison, Rimm-Kaufman, & Pianta, 2003	Marcon, 1999 NICHD Early Child Care Research Network, 2002 NICHD Early Child Care Research Network, 2003 Nord, Lennon, Liu, & Chandler, 1999 Phillips, Brooks-Gunn, Duncan, Klebanov, & Crane, 1998 Reynolds, 2000 Rimm-Kaufman, Pianta, & Cox, 2000
What is known about early childhood or preschool interventions that include family or community components?	
Baker, Piotrkowski, & Brooks-Gunn, 1999 Barnett, Young, & Schweinhart, 1998 Bowman, Donovan, & Burns, 2001 Brooks-Gunn, Berlin, & Fuligni, 2000 Brown & Scott-Little, 2003 Campbell, Helms, Sparling, & Ramey, 1998 Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002 Farran, 2000 Gilliam & Zigler, 2000 Huebner, 2000 Jordan, Snow, & Porche, 2000 Lonigan & Whitehurst, 1998	Mathematica Policy Research, Inc., 2001 Miedel & Reynolds, 1999 Ramey, Ramey, Phillips, Lanzi, Brezausek, Katholi, Snyder, & Lawrence, 2000 Reynolds, 2000 Reynolds, Temple, Robertson, & Mann, 2001 Shonkoff & Phillips, 2000 Starkey & Klein, 2000 St. Pierre & Layzer, 1999 Wagner & Clayton, 1999 Zevenbergen, Whitehurst, & Zevenbergen, 2003
What is known about children's transition to kindergarten, including transition beliefs and practices and patterns of family-school interactions?	
Diamond, Reagan, & Bandyk, 2000 Early, Pianta, Taylor, & Cox, 2001 LaParo, Kraft-Sayre, & Pianta, 2003 Pianta, Cox, Taylor, & Early, 1999 Piotrkowski, Botsko, & Matthews, 2000 Ramey, Lanzi, Phillips, & Ramey, 1998	Ramey, Ramey, Phillips, Lanzi, Brezausek, Katholi, Snyder, & Lawrence, 2000 Rathbun & Germino-Hausken, 2001 Rimm-Kaufman & Pianta, 1999 Rimm-Kaufman & Pianta, 2004 Rimm-Kaufman, Pianta, & Cox, 2000

NOTE: Some studies may be listed in more than one category.



An Overview of Key Concepts, Issues, and Limitations in the Research

Chapter 3

Research doesn't happen in a vacuum. It is embedded within the context of specific ideas, theories, and beliefs. Often, people filter their explanations of a particular phenomenon through multiple, sometimes contradictory, ideas or beliefs. These conceptions permeate the research process; they are reflected in the definition and use of key terms, the subjects selected for study and measurement, the research methods used, and the analysis and interpretation of findings. To understand the strengths and weaknesses of particular research studies and findings, then, requires an understanding of the larger context related to a given topic. This section presents background information on some key ideas and issues that are reflected in the conceptual/theoretical and research literature on readiness and school, family, and community connections.

Defining “readiness”

Readiness has been variously theorized as a particular chronological age, as a stage or level of development in children, as a set of skills and competencies, as a process, and as a set of relationships. Each of these conceptions has different implications for the roles and responsibilities of children, families, and schools. Among advocates and policy researchers, readiness is discussed more and more as an interactive process or set of relationships in which the child, her or his family, the community environment, and the school interact in ways that support, or fail to support, the child's physical, cognitive, and social-emotional development. However, in practice, as LaParo and Pianta (2000) and others have pointed out, “readiness is nearly always defined in terms of children's skills or characteristics” (p. 444).

Until relatively recently, children's readiness typically was considered a function of reaching a certain age or of progressing through specific stages of development that were influenced almost entirely by chronological growth and children's inherent characteristics. However, a strong body of research has cast doubt on assumptions that children tend to progress in some lockstep fashion through specific stages of development and that they must reach a particular age or maturity before they are “ready to learn”:

More recent research has led many to reinterpret the stage theorists' views; there is strong evidence that children, when they have accumulated

substantial knowledge, have the ability to abstract well beyond what is ordinarily observed. Indeed, the striking feature of modern research is that it describes unexpected competencies in young children, key features of which appear to be universal. These data focus attention on the child's exposure to learning opportunities. (Bowman, Donovan, & Burns, 2001, p. 5)

The focus on learning opportunities places responsibility on families, schools, and communities to ensure that children are exposed to the experiences and cognitive stimulation they need to flourish. As Jerome Bruner (quoted by Meisels, 1999) explained, “it turns out that one teaches readiness or provides opportunities for its nurture, one does not simply wait for it’ . . . In other words, a child who is ready to learn will not learn unless he or she is taught or unless the conditions are propitious for the child to learn on his or her own” (Meisels, 1999, p. 43).

Echoing this perspective in its report on *ready schools*, the National Educational Goals Panel (1998) stated:

The prevailing view today, endorsed by the National Educational Goals Panel, is that readiness to learn hinges on a range of factors, including a child's health and physical development; social and emotional development; approaches to learning; language and communicative skills; and cognition and general knowledge. Efforts to improve school readiness, therefore, begin long before children enroll in kindergarten. They begin with efforts to support families, educate parents, expand access to health care, and raise the quality of early care and education. Getting all children to start—and continue—school “ready to learn” is a shared responsibility of all adults and institutions in a community. (p. 3)

Factors that may influence children's readiness for success in school

Factors that have been associated most consistently with children's cognitive and/or social-emotional preparedness for school are

- socioeconomic status (which often interacts with race or ethnicity);
- the child's health;
- family background characteristics, particularly the mother's education, single-parent status, and mental health;
- the home and community environment, including risk factors and literacy-related factors; and
- participation in some type of preschool program.

A great deal of the literature on young children's development and readiness references the work of Urie Bronfenbrenner, who conceptualized development as occurring within a set of embedded contexts, from the child's most immediate environment, to institutions and relationships that influence that environment, and beyond to the broad social and

cultural mores, beliefs, and practices that help shape daily life and interactions. However, it is the child's most immediate family context that has been studied most extensively.

Family roles and influences on children's readiness

Researchers and theorists generally agree that family variables are important in the trajectory of a child's development. These variables include not only background characteristics and circumstances, but also families' relationships and interactions:

Across families of diverse racial and socioeconomic backgrounds, it is clear that parents' emotional well-being, positive interparental relations, and consistent parental support, sensitivity, and discipline facilitate children's well-being, often to the point of compensating for economic hardship, family disruption, and other adverse life circumstances. (Demo & Cox, 2000, p. 889)

These authors as well as others, however, note that what are judged to be positive parenting practices may differ according to the background and culture of the household, and they urge caution in making narrow judgments about what good parenting means: "Within and across racial [and cultural] groups, however, there are notable differences in parenting practices and values, urging caution in generalizing about the desirability and effectiveness of particular parenting strategies" (p. 889).

In general, scholars have conceptualized four broad roles that families can play in helping prepare their young children for school (Pianta, interview, 2003):

- **Families as nurturers and supporters**—The family's most basic role is to provide for their children's health, safety, security, and emotional well-being. As the National Research Council concludes, "Children grow and thrive in the context of close and dependable relationships that provide love and nurturance, security, responsive interaction, and encouragement for exploration." The report goes on to note that the consequences of the lack of such basic nurturance and support are physiological as well as psychological: "Environmental threats to the [young child's] developing central nervous system. . . include poor nutrition, specific infections, environmental toxins, and drug exposures. . . as well as chronic stress stemming from abuse or neglect throughout the early childhood years and beyond" (Shonkoff & Phillips, p. 7).
- **Families as teachers**—Families can do many things to support children's learning and their motivation to learn. Family teaching roles include
 - establishing an at-home learning environment for the whole family,
 - expressing high expectations and encouraging learning,
 - providing opportunities for learning and development within the community,
 - providing books and other learning materials,
 - reading and telling stories, and
 - practicing and transmitting cultural traditions (Henderson & Orozco, 2003).

Family variables are important in the trajectory of a child's development. These include background characteristics, circumstances, and families' relationships and interactions.

Young children need both nurturing relationships and cognitive stimulation in their child care or preschool environments as well as at home.

- **Families as intermediaries**—As young children grow from infancy and as their world expands beyond the immediate home environment, the family functions as “an important intermediary as young children venture into the neighborhood environment” (Chase-Lansdale, Gordon, Brooks-Gunn, & Klebanov, 1997, p. 80). Family members help negotiate and oversee their children’s ties to neighbors, friends, and the broader community, helping children learn and observe social protocols and function safely and productively within their spheres of existence.
- **Families as advocates**—In helping their children move beyond the home, families select—from the range of choices available, depending on the family’s resources and location—the environments they believe will be most supportive. They seek out and advocate for services and opportunities, and intervene on their children’s behalf when problems arise.

Not all families are able to accomplish all of these supportive roles; the particular family members who carry out different roles also tend to vary across cultural and socio-economic groups and individual family circumstances. Moreover, although we recognize the significance of these roles, the research base is less than definitive regarding both the ways in which specific family supports influence children’s early academic skills and outcomes *and* the specific strategies that can help strengthen these supports.

School and community roles and influences

Individuals and institutions beyond the family also can help fulfill the supportive roles listed above. Where children are at risk, the course of their development “can be altered in early childhood by effective interventions that change the balance between risk and protection” (Shonkoff & Phillips, p. 4). Early child care and education programs are by far the most widespread of such interventions. With more and more parents working long hours outside the home, such programs increasingly serve children from all backgrounds and circumstances.

Traditionally, child *care* and early childhood *education* have been considered to be separate in purpose as well as in approach and in their impact on children’s learning. However, research on child development, including a substantial set of so-called “brain” research that has come to the forefront in recent years, indicates that, for healthy development that prepares them for learning, young children need both nurturing relationships and cognitive stimulation in their child care or preschool environments as well as at home. The National Research Council’s *Eager to Learn: Educating Our Preschoolers* (Bowman, Donovan, & Burns, 2001) states, “A central premise of this report, one that grows directly from the research literature, is *that care and education cannot be thought of as separate entities in dealing with young children*” (p. 2; emphasis in original).

The conceptual literature on readiness suggests important roles for the larger community, roles that are embedded in both institutions (e.g., churches and community centers) and in interpersonal relationships (e.g., neighbors and extended families). Beyond studies of community-based child care and preschool programs, however, community roles in supporting children’s development are not well represented in the current research literature. A research base on neighborhood and community influences on child development suggests that a child’s extended environment can mitigate family

influences, both positively and negatively. However, we were unable to identify related studies for this synthesis (mostly because of a lack of currency in publication dates).

K–12 educational systems are playing a greater role in children’s early care and education. Beyond this early involvement, schools’ roles in supporting readiness are not particularly well documented in the research literature. There is, however, an emerging literature on schools’ roles in the transition to kindergarten.

Readiness and the transition to kindergarten

Entry to kindergarten is the critical point at which readiness becomes a concern with immediate as well as long-term ramifications for school success. The transition to kindergarten is a dimension, or focal point, of readiness that has begun to develop its own literature base and policy and practice debates, though the two concepts are linked closely (Bohan-Baker & Little, 2002). As with readiness, various conceptions and definitions of transition exist:

Some regard transitions as a set of onetime activities, undertaken by children, families, and programs. . . . Others regard transitions as ongoing efforts to create linkages between children’s natural and support environments. . . . Still others regard transition as the manifestation of the developmental principle of continuity (e.g., creating pedagogical, curricular, and/or disciplinary approaches that transcend, and continue between, programs). We suggest that all three interpretations are part of what is meant by transition and that transitions are defined as the continuity of experiences that children have between periods and between spheres of their lives. (Kagan & Neuman, 1998, p. 366)

The continuity, or discontinuity, of children’s and families’ experiences is a major concern in the transitions literature:

Children face enormous discontinuities between preschool and kindergarten as they enter elementary school for the first time. . . . For example, as children enter elementary school after preschool, they and their families experience a substantial shift in culture and expectations, including more formal academic demands, a more complex social environment, less family support and connection, and less time with teachers due to larger class sizes and more transitions during the school day. (Pianta & Kraft-Sayre, 2003, p. 2)

The National Educational Goals Panel (1998) states that “strengthening achievement requires not only getting children ready for school, but also getting schools ready for the particular children they serve.” To that end, the panel convened an advisory group to “delineate the essential attributes of a ‘ready school’” (p. 3). Those attributes include a focus on assisting children in the transition between home or early care/education and elementary school, on addressing community contexts, on ensuring success for every child, and on establishing schools as “learning organizations that alter practices and programs if they do not benefit children” (p. 5). However, as noted elsewhere in this synthesis, these roles and their potential impact on children’s academic outcomes remain largely untested by empirical research.

Entry to kindergarten is the critical point at which readiness becomes a concern with immediate, as well as long-term, ramifications for school success.

Some key issues and concerns in looking at the literature on readiness

Problems in assessing children's readiness

Assessing young children is a challenge due to children's inexperience, their sensitivity to contexts, and a range of cultural and developmental issues.

Assessment is a significant issue in discussing child readiness, both in terms of its use in research studies such as those reviewed in this synthesis and in terms of its use by schools for diagnostic or placement purposes. Assessing young children is a challenge because of children's inexperience, their sensitivity to contexts, and a range of cultural and developmental issues (Bowman, Donovan, & Burns, 2001; Meisels, 1999). Young children's growth patterns are "unstable and episodic," rather than orderly and uniform, so that comparisons of young children at any given time may not accurately reflect their developmental trajectory (Bowman, Donovan, & Burns, p. 256).

Social-emotional competence is important for children's school success (LaParo & Pianta, 2000). However, most assessments of children's social-emotional competencies have failed to yield stable or predictive data (Love, 2003; Zaslow & Halle, 2003). There are also questions as to what pre-academic knowledge, skills, and attributes are important in predicting school success. Researchers have raised many questions about the validity of specific readiness assessments, including some of the measures used in research studies reviewed for this synthesis. Even some widely used standardized measures have been questioned as to their effectiveness in predicting young children's prospects for school success:

Basically, readiness tests can be classified in one of two categories: those that measure developmental milestones (such as the Gesell School Readiness Test. . .) and those that measure academic knowledge (such as the Metropolitan Readiness Tests). . . Other tests represent a combination of the two. . . Many researchers. . . have found that the widely used readiness tests are relatively poor predictors of future school success and that typical assessment practices lack sufficient validity and reliability for making placement decisions. (Carlton & Winsler, 1999, p. 340)

Measures that can provide useful data on English language learners also are very limited (Scott-Little, Kagan, & Clifford, 2003).

Moreover, there is evidence that many readiness measures, no matter what their effectiveness in assessing children's skills, do not do a good job of predicting any individual child's academic performance, even in the early grades. LaParo and Pianta (2000) conducted a meta-analysis of 70 longitudinal studies "that reported correlations between academic/cognitive and social/behavioral measures administered in preschool or kindergarten and similar measures administered in first or second grade" (p. 443). They found that "factors other than the child's skills (even in the same domain) account for the majority of individual variability in academic/cognitive and social/behavioral performance in the early grades" (p. 475). Their findings "support assertions from qualitative and narratives reviews that defining and assessing 'readiness' in terms other than children's skills and abilities would be an important advance in existing practice" (p. 475).

Problems in defining “family” and “family involvement”

Defining “family.” Most researchers are sensitive to the multiplicity of family types and configurations. A majority of the studies reviewed for this synthesis focus on “parent” involvement; however, they often describe “parent” as a child’s primary caregiver, regardless of who that caregiver may be.

Many studies, however, limited their focus to a single caregiver, usually the mothers. Focusing narrowly on a single caregiver, or even on two parents, may be a limiting problem for both researchers and educational practitioners. Research on families in poor neighborhoods has found that “a range of significant others” assist parents in the care of their children (Jarrett, 2000). These include grandparents, great-grandparents, siblings, other relatives, and neighbors. As Demo and Cox (2000) have observed, “Family researchers and child developmentalists need to move beyond a preoccupation with conventional classifications of family structure to explore the rich variety of family members, kin support networks, and neighborhood resources impacting on children’s development” (p. 889).

Defining and assessing “family involvement.” A number of scholars have noted the lack of consistency in the ways in which researchers describe and—most critical for the utility of research findings—measure family involvement. Differences exist both in the broad categorizations of family or parent involvement and in the specific activities used to represent and assess those broad categories. In their critical review of the research base regarding parent involvement, Baker and Soden (1997) observed that, “even when focusing on the same aspect of parent involvement, researchers have operationalized it inconsistently” (p. 13). In the studies addressed in this synthesis, “family involvement” is most often discussed in terms of families’ participation in activities at school or child care centers. A good deal of variability is seen in researchers’ and educational practitioners’ characterization as to what constitutes “high” or “low” incidences or levels of family involvement (see, for example, Marcon, 1999).

Problems in addressing the complexities of readiness

As noted earlier, readiness is a complex concept, with many variables and influences. Even when the focus is on child readiness, making sense of the various factors that help influence a child’s readiness for school is no simple task:

Many factors—child, parent, family, teacher, school, or community characteristics—affect [readiness] outcomes, and no single factor controls so much variance in outcomes that it overshadows all the others. Instead, there are complex interactions of factors that are poorly understood and rarely identified in empirical studies. Even when a study highlights a specific factor, firm conclusions cannot be drawn because that factor does not work in isolation. . . . The complex relationships among factors affecting transition demand that research questions and methods reflect more than simple child-, family-, teacher-, school-, or community-based influences or even bivariate relationships among these influences and outcomes. (Lloyd, Steinberg, & Wilhelm-Chapin, 1999, pp. 307–308)

Research on families in poor neighborhoods has found that “a range of significant others” assist parents in the care of their children.

Problems in the research studies reviewed here

Research addressing the topic of readiness shares many of the limitations found in other areas of educational research. Findings should be assessed with the following broad limitations in mind (more specific discussions of studies' limitations also are included in the following chapter, which describes findings from the research, and in Chapter 6, which presents summaries of individual research studies):

- too few well-designed randomized controlled trials and quasi-experimental studies;
- a tendency toward large-scale demonstration studies, which tend to run into major problems with implementation and evaluation;
- problems with currency, resulting from the fact that a number of studies are longitudinal follow-ups of interventions that were developed and implemented decades ago;
- frequent dependence on parent or teacher self-reports;
- a lack of consistency in defining and assessing readiness, making comparisons of results across studies difficult;
- a virtually complete lack of studies addressing the important concept of *ready schools*;
- limited research on the role of communities in influencing or enhancing readiness and on the concept of “community readiness”;
- poor, fragmentary, and often inconsistent definitions and measurement of family involvement activities;
- the failure of most intervention studies to isolate effects from family involvement components, with data collection and analyses focused minimally, if at all, on those components, making it difficult to impossible to draw conclusions about the relative efficacy of family involvement in general and of specific family involvement approaches; and
- a lack of well-designed studies that address the complex interactions among the various factors that influence child readiness.

What the Research Says (and Doesn't Say)

Chapter 4

Overview

The purpose of this synthesis is to identify and present research findings addressing three major questions regarding the topic of readiness and family, community, and school connections. From the array of information across 48 studies and reports, we identified a set of seven broad findings that address these questions, as noted below.

What is known about differences in children's skills and performance at kindergarten entry and the contextual factors associated with those differences?

Finding 1: Young children enter kindergarten with a range of cognitive and social skills that appear to make a difference in their achievement during the kindergarten year. This seems to be of long-term importance; children who get off to a good start in kindergarten tend to maintain that advantage as they progress through school.

Finding 2: Young children's home environment—including both family background factors and interactions between children and other family members—is strongly associated with their relative skills and abilities upon entry to kindergarten. Other significant correlations exist as well, including participation in early child care and education.

What is known about early childhood or preschool interventions that include family or community components?

Finding 3: Early child care and education programs that include family components can boost children's educational success, both short-term and long-term. However, the impacts of specific features of such programs, including family components, remain largely untested and unknown. In addition, significant issues of cost, quality, and context complicate this finding.

Finding 4: Specific strategies for helping parents support their young children's emerging literacy and numeracy skills *can* produce gains among children from both low- and middle-income families. However, the research base is limited to only a handful of strategies.

What is known about children’s transition to kindergarten, including transition beliefs and practices and patterns of family-school interactions?

Finding 5: Families and teachers tend to have somewhat different perceptions about what matters most in children’s readiness for kindergarten. The impact of these different perceptions, if any, on children’s readiness and their kindergarten achievement has not been documented.

Finding 6: Although families of all types of backgrounds are often involved in their children’s preschool educational or child care programs, their involvement tends to decline when the children enter kindergarten. Both the types and frequency of family-school contact tend to change from preschool to kindergarten.

Finding 7: Although a growing body of research describes schools’ transition practices, little to no research assesses the effectiveness of specific school supports for children’s transition to kindergarten. Descriptions of transition practices and barriers indicate that the most individualized, relationship-building activities tend to be the least used and that differences in transition practices are associated with school characteristics.

The following sections, organized according to the three research questions listed above, discuss these major findings, adding supporting detail from the specific research studies from which we drew the findings. Each section begins with a brief overview of methodological questions or concerns for readers to keep in mind as they try to make sense of the studies and their findings. More detailed summaries of each of the research studies, including descriptions of specific problems and limitations, can be found in Chapter 6.

For help in making sense of the studies and findings examined in this chapter, readers can review the primer (appendix A) on what matters in reading about research.

Findings addressing the question of differences in child readiness and factors associated with them

As noted earlier, readiness is a concept that can be applied not only to children but also to schools and perhaps to communities as well. However, we were unable to identify empirical studies that describe or explore factors related to *ready schools* or to aspects of community readiness. Findings in this category are limited to discussions about children’s readiness for kindergarten and various contextual factors—most of them focused on families—that studies have found to be linked to children’s readiness skills and early school performance.

Things to keep in mind in assessing this research

Studies addressing the readiness skills and early performance of children are generally *descriptive* in their approach; their purpose and methodology are geared to describing particular populations, environments, or circumstances. One significant concern to keep

Readiness is a concept that can be applied not only to children but also to schools and perhaps to communities as well.

in mind when evaluating and using results from these studies is the data source(s) used in each study. With descriptive surveys that collect information from family members or school staffs, for example, questions arise about the reliability of respondents' memories, observations, or judgments, and about the extent to which individuals sometimes adjust their answers to provide responses they feel will be socially acceptable. Unintentional misrepresentations also can occur when asking for judgments about which respondents may not be well informed. The size and composition of the sample population surveyed are concerns as well.

Some studies addressing the long-term implications of differences in children's readiness used *correlational* approaches, testing relationships among variables such as families' socioeconomic status and children's early literacy skills. Similarly, all of the studies addressing contextual factors associated with child readiness employed correlational methods or used correlational data (several applied structural equation modeling to correlational data). As noted in our primer on what matters in reading about research (appendix A), it is important to keep in mind that correlational studies can identify and describe associations, or links, between one variable and another, but they cannot reliably identify causal relationships. Among the studies addressing this category of findings, for example, several found that children's successful academic performance in kindergarten is associated with academic success in later grades. However, this information does not allow us to make reliable predictions about any individual child. Nor does it tell us what causes or influences have resulted in the link between earlier and later school success.

Some correlational studies talk about "predictors" or about outcomes from one variable "predicting" another; for example, one study cited later in this section notes that family characteristics "were the strongest predictors of child outcomes" (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002, p. 431). However, when used in the context of correlational research designs, the term *predictor* (as well as its variations) is *not* intended as a causal reference. Rather, it refers to the fact that outcomes for one variable (the predictor) were measured at an earlier point in time than another. Even though one set of outcomes may follow another in time, the reader should not presume a causal connection.

Among other studies addressing this category are several that used structural equation modeling, a statistical method in which data are manipulated to explore the viability of possible causal links or pathways. As noted in our primer on research methods, this approach, too, is limited in its capacity to establish cause-and-effect relationships. The approach can help rule out specific causal relationships, and it can provide evidence regarding the relative strength of specific associations. However, it cannot rule out the possibility that other, unexplored factors may have influenced a given outcome.

A final concern about studies in this and subsequent categories is the extent to which the particular skills and performance outcomes addressed in each study may or may not reflect what is really important for children's success in school. As noted in a previous chapter, scholars and researchers have identified a number of concerns related to the assessment of young children and the extent to which assessments reflect a child's capacity to succeed in school.

Finding 1: Young children enter kindergarten with a range of cognitive and social skills that appear to make a difference in their achievement during the kindergarten year. This seems to be of long-term importance; children who get off to a good start in kindergarten tend to maintain that advantage as they progress through school.

Surveys of teachers and parents indicate that most children start school with positive social skills and attitudes toward learning.

Differences in children's readiness. A principal source of descriptive information about young children at kindergarten entry is the U.S. Department of Education's Early Childhood Longitudinal Study (ECLS). This study—or more precisely, series of studies—is tracking a nationally representative sample of about 22,000 members of the 1998 kindergarten class from their kindergarten year through the fifth grade. Three of the reports reviewed for this synthesis (Denton & West, 2002; West, Denton, & Germino-Hausken, 2000; Zill & West, 2001) address specific time periods covered by the ECLS.

The ECLS addresses children attending both public and private school. Data sources used in the ECLS studies include surveys of parents and school personnel and reviews of school records. In addition, for each year of the ECLS, trained assessors have conducted a battery of academic skills assessments. The assessments of entering kindergartners, conducted in Fall 1998, focused on children's early academic skills in reading, math, and general knowledge. These assessments showed that

- 66 percent of entering kindergartners can recognize some letters of the alphabet,
- 61 percent “have two or more print familiarity skills such as knowing that English print is read from left to right,” and
- 94 percent of first-time kindergartners “can recognize some single-digit numerals, identify simple geometric figures like squares and circles, and count to 10” (Zill & West, 2001, p. 5).

These proficiencies represent a relatively basic level of early reading and mathematical skills. The ECLS reading and mathematics assessments each address five different proficiency levels. In reading, “the average kindergartner had attained the first level but no more” (Zill & West, 2001, p. 8). In math, a majority (58 percent) of kindergartners had reached the second level of proficiency. In addition, 20 to 30 percent of children “start school with early reading or mathematics skills that are one or two proficiency levels higher than the skills of the modal [average] kindergartner” (p. 8).

In terms of noncognitive abilities and behaviors, ECLS surveys of teachers and parents indicated that most children start school with positive social skills and attitudes toward learning:

- “According to teachers, about three-quarters [of children starting kindergarten] readily accept peer ideas for group activities and form and maintain friendships without difficulty. . . . Parents are more positive [than teachers] about their children's cooperative behavior: 80–89 percent were described as easily joining others in play, forming friendships without difficulty, and helping or comforting others” (Zill & West, 2001, p. 8).

- Teachers indicated that the typical student—between two thirds and three fourths of all kindergartners—“is eager to learn new things, pays attention reasonably well in class, and persists in completing tasks” (p. 8).

A descriptive study by Rimm-Kaufman, Pianta, and Cox (2000) also explored aspects of children's performance at entry to kindergarten. These authors mailed surveys to a stratified random sample of 10,071 public school kindergarten teachers throughout the United States. Approximately 36 percent (3,595) of teachers responded. These teachers reported that “52% of children experienced a successful entry into kindergarten, whereas 32% had moderately successful entries characterized by some problems, and 16% of children had difficult entries to kindergarten characterized by serious concerns or many problems.” Problems included “difficulty following directions, lack of academic skills, disorganized home environments, and difficulty working independently” (p. 155). This study, whose primary focus was on schools' transition practices (see later findings in this chapter), relied exclusively on teacher reports for its findings.

Children who do better in kindergarten tend to maintain that advantage as they move into the first grade and beyond.

The importance of early skills. Differences among children's skills and performance at entry to kindergarten appear to be related to their future prospects in school; children who do better in kindergarten tend to maintain that advantage as they move into the first grade and beyond. This finding is noted in the series of reports on the ECLS; Denton and West (2002), for example, looked at the ECLS assessments of children's skills at three points in time and concluded, “Children's reading and mathematics knowledge and skills that differ by child, family, and school characteristics at the beginning of kindergarten persist into the spring of kindergarten and the spring of first grade” (p. xii). Similarly, in a much smaller correlational study of 122 children entering kindergarten in a single, small-city school district, Fergus-Morrison, Rimm-Kaufman, and Pianta (2003) found that “the pattern a child sets forth in elementary school is also strongly predictive of the child's later academic and social performance” (p. 195). This study used teacher observations and grade reports to assess children's academic and social performance.

This finding is also supported by three studies that addressed the long-term effects of early childhood and preschool interventions, all of which were targeted to low-income, predominantly racial or ethnic minority children. Campbell, Helms, Sparling, and Ramey (1998) reported on a correlational follow-up study of the Abecedarian Project, an early childhood intervention for low-income families. As will be discussed in a later section, the original Abecedarian study was a randomized controlled trial (RCT) involving 111 children from 109 families. After analyzing longitudinal data on former project participants and members of the control group, Campbell et al. noted, “The most powerful predictor of academic performance at age 15 was previous academic performance” (p. 155).

Both Reynolds (2000) and Barnett, Young, and Schweinhart (1998) applied structural equation modeling to longitudinal outcome data from two separate preschool interventions, the Chicago Child-Parent Centers and the High/Scope Perry Preschool Project. (These interventions are described in more detail in later findings.) In both studies, the authors found strong support for what they described as the “cognitive

Correlational research studies consistently indicate that family factors are strongly linked to children's readiness for school.

advantage hypothesis.” As Reynolds explained it, “Preschool participants started kindergarten more cognitively ready to learn than non-preschool participants. . . and this advantage directly carried over to later school achievement, above and beyond the effects of other intervening variables” (pp. 147–148). Or in other words, “early achievement gains appeared to set in motion a cycle of lasting improvements in achievement, motivation and behavior” (Barnett, Young, & Schweinhart, 1998, p. 180).

Finding 2: Young children’s home environment—including both family background factors and interactions between children and other family members—is strongly associated with their relative skills and abilities upon entry to kindergarten. Other significant correlations exist, as well, including participation in early child care and education.

A range of correlational research studies⁴ consistently indicate that family factors are strongly linked to children’s readiness for school. Sixteen of the research studies reviewed here included findings that support this conclusion, and no studies that explored such links failed to find some relationship. This association was noted both broadly and in terms of specific family factors.

Broadly stated findings include the following:

- Burchinal, Peisner-Feinberg, Pianta, and Howes (2002) looked at data from a major study of child care programs, the Cost, Quality, and Outcomes (CQO) Study. The CQO Study involved a nonrandom sample of 828 children; Burchinal et al. focused their research on 511 children from that study for whom at least 2 years of data were available. Differences between the CQO participants who were included and those excluded from this study were relatively slight, except that children included in this study were more likely to be white (75 percent compared with 54 percent of children in the CQO).

The authors concluded, “Overall, in the present study as in many others. . . , family characteristics were the best predictors of children’s outcomes” (p. 431). The study’s results showed that “family characteristics such as maternal education and parents’ caregiving practices and parenting attitudes were the strongest predictors of child outcomes, even among those children who experienced full-time nonparental child care” (p. 431). Child outcomes were measured via standardized assessments of children’s language and academic abilities.

⁴ Barnett, Young, & Schweinhart, 1998; Bennett, Weigel, & Martin, 2002; Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Campbell, Helms, Sparling, & Ramey, 1998; Christian, Morrison, & Bryant, 1998; Clarke-Stewart & Beck, 1999; Connell & Prinz, 2002; Fergus-Morrison, Rimm-Kaufman, & Pianta, 2003; Marcon, 1999; NICHD Early Child Care Research Network, 2002 and 2003; Nord, Lennon, Liu, & Chandler, 1999; Reynolds, 2000; Rimm-Kaufman, Pianta, Cox, & Bradley, 2003; Sonnenschein & Munsterman, 2002; Zill & West, 2001.

- The National Institute of Child Health and Human Development's study of early child care (NICHD Early Child Care Research Network, 2002 and 2003) found that "children with varied experiences of child care are consistently influenced by the quality of parenting they receive" (2002, p. 117). This study, involving a nonrandom, opportunity sample of 1,264 families, looked at "cognitive, language, and social and emotional domains of children's development" (p. 117).
- In their longitudinal study of the Abecedarian early childhood program (discussed in more detail in both previous and subsequent findings), Campbell, Helms, Sparling, and Ramey (1998) noted, "One conclusion to be drawn from this study is that intensive educational intervention, even if it began in infancy, does not eliminate the early home environment as an important contributor to academic success" (p. 164).
- As noted earlier, Barnett, Young, and Schweinhart (1998), using structural equation modeling, found that children's early achievement gains were the strongest predictor of their academic performance later in school. However, they also noted that "mothers' participation in the child's education, academic motivation, and personal behavior were all found to be powerful influences on achievement and educational attainment" (p. 180). This study used correlational follow-up data from studies of the High/Scope Perry Preschool Project, whose original design (as discussed in greater detail in a subsequent finding) was a randomized controlled trial.

Some of the 16 studies cited above explored links between family background characteristics or contexts and children's readiness; others looked at families' interactions and behaviors with their children; and several explored both these types of family factors. Both background and behavioral factors were found to be associated with children's readiness. These associations are discussed in the subsections below.

Family background characteristics and contexts. In seven of the studies reviewed here⁵, as well as many studies predating the scope of this synthesis (see Fergus-Morrison, Rimm-Kaufman, & Pianta, 2003, for a discussion of these), a number of family background variables have been linked to children's early cognitive abilities. The studies cited here in relation to these family background factors—all of them using correlational methods—addressed varied sample sizes and populations, from the nationally representative samples of the ECLS (Zill & West, 2001) and National Household Education Surveys (Nord, Lennon, Liu, & Chandler, 1999) to an extremely small sample of 47 African American kindergartners from low-income families (Connell & Prinz, 2002). The studies used family and/or teacher reports for family background data and, in two studies (Nord et al. and Rimm-Kaufman, Pianta, Cox, & Bradley, 2003), for outcome data as well. Child outcomes included a range of language, academic, and social-emotional competencies.

⁵ Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Christian, Morrison, & Bryant, 1998; Connell & Prinz, 2002; Nord, Lennon, Liu, & Chandler, 1999; Phillips, Brooks-Gunn, Duncan, Klebanov, & Crane, 1998; Rimm-Kaufman, Pianta, Cox, & Bradley, 2003; Zill & West, 2001.

Strongest among the associations between family background and children's readiness-related outcomes are the family's socioeconomic status and the parents' education.

Strongest among the associations between family background and children's readiness-related outcomes are the family's socioeconomic status, noted in four studies included in this synthesis (Christian, Morrison, & Bryant, 1998; Nord, Lennon, Liu, & Chandler, 1999; Rimm-Kaufman, Pianta, Cox, & Bradley, 2003; Zill & West, 2001) and the parents' (particularly the mother's) level of education, noted in three recent studies (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Christian et al., 1998; Connell & Prinz, 2002).

Other background factors that have been linked with early child outcomes in studies reviewed here include the number of parents living at home and the primary language spoken at home. Both these factors were noted in studies by Nord, Lennon, Liu, and Chandler (1999) and Zill and West (2001). Some earlier studies identified other factors, most notably the incidence of depression among mothers of young children, family violence, and other forms of family psychopathology (see the literature review by Shonkoff & Phillips, 2000, for a discussion of these).

Researchers also have explored the extent to which the accumulation of household stressors, or family risk factors, may be linked to children's early academic skills. Most of these studies, however, fall outside the parameters of publication date and children's age established for this synthesis (see the literature reviews by Farran, 2000, and Shonkoff & Phillips, 2000, for discussions of these). Among the specific studies reviewed here, the ECLS found that differences in kindergartners' early academic skills are associated with differences in "high-risk versus more ordinary family circumstances" (Zill & West, 2001, p. 9). The ECLS identified four family risk factors: "having a mother with less than a high school education; living in a family that received food stamps or cash welfare payments; living in a single-parent household; and having parents whose primary language is something other than English" (p. 17).

The ECLS assessment of kindergartners indicated that "children with one [or more] of the four risk factors have early reading and mathematics skills that lag behind those of children with none of the four risk factors" (Zill & West, 2001, p. 20). The study found that nearly half (46 percent) of kindergartners have at least one of these risk factors, and 16 percent have two or more. Children from urban areas and from racial or ethnic minorities are more likely to have one or more of these risk factors than are children from White families and children from suburban and rural areas. In another study reviewed for this synthesis, Nord, Lennon, Liu, and Chandler (1999) (discussed in more detail later in this chapter) found multiple family risk factors associated with child outcomes.

Race or ethnicity also has been linked to differences in child readiness outcomes in some studies, notably Nord, Lennon, Liu, and Chandler (1999), though again, most are beyond the scope of this review (see the literature review by Shonkoff & Phillips, 2000). Racial or ethnic factors often interact with other factors, making it difficult to assess the extent to which race or ethnicity per se may be a significant link to child outcomes (Shonkoff & Phillips, 2000). For example, in a correlational study included in this synthesis, Phillips, Brooks-Gunn, Duncan, Klebanov, and Crane (1998) obtained data on African American and European American children and families from two national research projects: the Children of the National Longitudinal Survey of Youth

(using a subsample of 1,626 5- and 6-year-olds who had taken a standardized vocabulary test) and the Infant Health and Development Program (using the control group sample of 315 children). The authors hypothesized that racial differences in children's vocabulary scores were associated with differences in environmental factors, such as parents' educational opportunities. They used statistical analyses to isolate specific contextual variables and explore their relationships. The study found links between children's vocabulary scores and racial inequalities in several family and child variables, including household size, education, and children's birth weight. The authors concluded,

This chapter cannot tell us the true effect of family environment on children's vocabulary scores. Nor can it settle the question of whether the black-white test score gap is entirely or only partially environmental in origin. But it does. . . suggest that eliminating environmental differences between black and white families could go a long way toward eliminating the test score gap. (p. 128)

Family behaviors and interactions. Researchers increasingly stress the limited utility of focusing broadly on family background factors and the importance of looking at the quality of life among individual families:

Notwithstanding the strong predictive validity of demographic markers, they have relatively limited utility as guides for designing effective interventions because they tell us relatively little about the causal mechanisms that explain their impacts on child development. Thus, researchers and service providers are focusing increasingly on the importance of within-group variability and individual differences among children and families. . . As a source of risk, the home may reflect an atmosphere of disorganization, neglect, or frank abuse. As a source of resilience and growth promotion, it is characterized by regularized daily routines and both a physical and psychological milieu that supports healthy child-caregiver interactions and rich opportunities for learning. (Shonkoff & Phillips, 2000, p. 354)

Eleven of the studies reviewed here⁶ include findings supporting this conclusion, suggesting that what families do with their children is strongly associated with children's readiness. As was the case with findings related to family background factors, the correlational studies cited in this category derived their findings from a variety of sample sizes and populations. Half the studies also relied on family member reports for data regarding the types and frequency of specific behaviors and interactions. However, five studies collected data via direct observation of family members' (most frequently mothers') interactions with their children. Of these, Clarke-Stewart and Beck (1999), Fergus-Morrison, Rimm-Kaufman, and Pianta (2003), and the NICHD Early Child Care Research Network study (2002 and 2003) drew their participants from a common

⁶ Bennett, Weigel, & Martin, 2002; Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Christian, Morrison, & Bryant, 1998; Clarke-Stewart & Beck, 1999; Connell & Prinz, 2002; Fergus-Morrison, Rimm-Kaufman, & Pianta, 2003; NICHD Early Child Care Research Network, 2002 and 2003; Nord, Lennon, Liu, & Chandler, 1999; Rimm-Kaufman, Pianta, Cox, & Bradley, 2003; and Sonnenschein & Munsterman, 2002.

sample population—participants in the NICHD longitudinal study of early child care—and conducted their observations in a laboratory setting. Sonnenschein and Munsterman, using a small nonrandom sample of 30 families, conducted observations in participants’ homes. As noted in the preceding section, the studies by Nord, Lennon, Liu, and Chandler (1999) and Rimm-Kaufman, Pianta, Cox, and Bradley (2003) relied on parent and/or teacher self-report for child outcome data; other studies employed a range of standardized assessments.

Among the studies reviewed for this synthesis, two broad types of family behaviors and interactions have been linked to aspects of children’s readiness. One is families’ use of cognitive stimulation strategies, including literacy-related activities such as reading or telling stories with the child, noted in six studies (Bennett, Weigel, & Martin, 2002; Christian, Morrison, & Bryant, 1998; Clarke-Stewart & Beck, 1999; Fergus-Morrison, Rimm-Kaufman, & Pianta, 2003; Nord, Lennon, Liu, & Chandler, 1999; Sonnenschein & Munsterman, 2002). (As will be discussed in a later section, several experimental intervention studies in which family members were trained in specific cognitive stimulation strategies also produced gains in children’s readiness-related skills.) A second type is the use of a range of positive parenting practices, most notably the sensitivity with which parents respond to their children’s interactions and emotional states; those were noted in seven studies (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Connell & Prinz, 2002; Fergus-Morrison, Rimm-Kaufman, & Pianta, 2003; NICHD Early Child Care Research Network, 2002 & 2003; Rimm-Kaufman, Pianta, Cox, & Bradley, 2003; Sonnenschein & Munsterman, 2002).

The links between family background and family interactions. Some evidence suggests that families’ background characteristics, such as socioeconomic status and education, may be linked to the ways in which they interact with their children, particularly in terms of activities that directly support children’s cognitive development. However, most of this research is beyond the parameters identified for this research synthesis. In describing this research literature, Farran (2000), as well as others, has noted that “parenting grows out of the contexts in which families are functioning” (p. 525). When those contexts are characterized by economic deprivation and multiple stressors, the task of providing a supportive and cognitively stimulating home environment becomes that much more difficult.

Among the research included in this synthesis is a study sponsored by the National Center for Education Statistics (Nord, Lennon, Liu, & Chandler, 1999). This study used data from the 1993 and 1999 National Household Education surveys—both of which employed nationally representative samples—to explore the links between home literacy activities and “signs of children’s emerging literacy” (p. 1). The surveys rely entirely on parent self-reports. The authors caution, “Parents may overestimate both their involvement in home literacy activities and their children’s skills because they recognize that such activities and skills are socially desirable” (p. 2). As with the ECLS, this study looked at family risk factors; risk factors identified in this study included “having a mother whose home language is other than English, having a mother with less than a high school education, living with fewer than two parents, living in a family with an income below the poverty threshold, and having a race/ethnicity other than

white, non-Hispanic” (p. 5). The study found that children with one or more family risk factors were, to a statistically significant degree:

. . . less likely than other children to have frequently engaged in literacy activities with their families. This is especially true for reading to children, telling them stories, doing arts and crafts with them, and visiting the library with them. The differences between those at risk and those not at risk are smaller for teaching letters, words, or numbers, and teaching them songs or music. (p. 5)

Research suggests that families' supportive behaviors can sometimes transcend risk factors such as poverty.

The authors pointed out, however, that “even though children with multiple risks are less likely than other children to be read to frequently”—that is, three or more times each week—“it is noteworthy that a majority of them are being read to frequently by their families.” Results showed that 66 percent “of children with two or more risk factors were read to three or more times in the last week compared to 91 percent of children with no risk factors” (p. 5).

As noted earlier, research also suggests that families' supportive behaviors can sometimes transcend such risk factors. Among the studies reviewed for this synthesis, Christian, Morrison, and Bryant (1998) used structural equation modeling to analyze data from a sample of 538 kindergarten students within a single, small-city school system. Their findings were consistent with earlier studies that found a range of literacy practices and literacy-related materials among working-class and minority families; within the sample these authors studied, “there was a group of less-educated mothers who scored high on the Family Literacy Environment Scale. Children of these mothers actually outperformed children whose better-educated mothers engaged in fewer literacy-promoting activities with their children” (pp. 515–516).

Families' at-school involvement. As noted above and in earlier SEDL research syntheses, there appear to be strong links between specific types of families' at-home support and their young children's cognitive development. However, there is much less available evidence regarding families' at-school involvement and their children's readiness-related outcomes—and the results are mixed. Among the studies addressed here, only four⁷ specifically explored the associations between families' at-school involvement and children's readiness outcomes. Two of the studies found positive links, while two did not.

The research design for three of the four studies employed structural equation modeling. Bennett, Weigel, and Martin (2002) used structural equation modeling to explore three possible relationships between family factors and preschool children's early language and literacy skills. They collected data from a nonrandom sample of 143 families and their preschool-age children, using a variety of measures to assess family factors and two published assessments to assess children's “book knowledge, writing skills, receptive language skills, and expressive language skills” (p. 304). The authors found that only the Family as Educator model—which “encompasses parental reading

⁷ Barnett, Young, & Schweinhart, 1998; Bennett, Weigel, & Martin, 2002; Marcon, 1999; Reynolds, 2000.

We cannot reliably conclude that families' involvement with their children's preschool or school does or does not bear any systematic relationship to children's readiness outcomes. More research is needed.

beliefs, literacy activities, joint book reading, and parental education” (p. 309)—was related significantly to children’s assessed language and literacy outcomes. Other family roles, including partnering with schools, failed to show significant associations. In their analysis of the variables related to this model, the authors suggest that “literacy-related activities and parent reading beliefs are the most important components of the Family as Educator model” (p. 305). (The findings regarding the significance of parents’ specific literacy-related activities are consistent with findings from previous studies.)

As noted earlier, in their analysis of data from the High/Scope Perry Preschool Project, Barnett, Young, and Schweinhart (1998) used structural equation modeling to explore three theories or explanations for the project’s long-term positive outcomes. One of these possible explanations was that the project’s family support components had effects on parents that, in turn, boosted children’s cognitive abilities. Results from the data analysis showed no significant effects, however, and the parent involvement theory was “strongly rejected” (p. 180). In contrast, Reynolds (2000), in his use of structural equation modeling to explore alternative causal pathways for the long-term achievement of children from the Chicago Child-Parent Centers (CPC), found that “parent participation in school also was a pathway through which preschool participation affected school achievement” (pp. 148–149). Both of these interventions addressed low-income, predominantly racial or ethnic minority children and their families. One possible explanation for their different findings is that parents’ at-school involvement was far more extensive in the Chicago CPC program than in the Perry Preschool Project. In addition, the original study of the Perry Preschool Project was a randomized controlled trial, whereas the Chicago CPC study used a quasi-experimental design with a well-matched comparison group. For both programs, longitudinal follow-up studies tracked participants from kindergarten through grade 12 and beyond.

Besides the Reynolds study, one other study found positive links between families’ at-school involvement and children’s readiness outcomes. Using a correlational design, Marcon (1999) studied a stratified random sample of approximately 700 African American preschoolers who were enrolled in either public prekindergarten or Head Start programs in Washington, DC, over a 3-year period. She found that “for preschoolers in this study, increased parent school involvement and more active types of parent involvement were both associated with more positive development in all domains and greater mastery of early basic school skills in all subject areas” (p. 407). This study relied solely on teacher reports of parent involvement, and the criteria used for both categorizing and assessing levels of parent involvement were exceedingly broad, weakening the explanatory power of the findings.

Given these mixed results, the limited number of studies addressing this factor, and the limitations of some of these studies, we cannot reliably conclude that families’ involvement with their children’s preschool or school does or does not bear any systematic relationship to children’s readiness outcomes. More research is needed to shed light on this topic.

Nonfamily factors. Although family factors appear to be significant, they are by no means the only ones that have been linked to child readiness. Characteristics of the child, ranging from age at kindergarten entry to birth weight, have been linked to

differences in readiness outcomes, both in studies addressed here (Nord, Lennon, Liu, & Chandler, 1999; Phillips, Brooks-Gunn, Duncan, Klebanov, & Crane, 1998; Zill & West, 2001), and in others outside the parameters of this review (see Shonkoff & Phillips, 2000, for a discussion of these). Detailed discussion of these factors is beyond the scope of this synthesis. Participation in child care or preschool also has been linked to children's readiness, although child readiness outcomes vary according to the quality of such programs (Shonkoff & Phillips, 2000; see also the information on a range of preschool and early education programs under the next major finding).

Findings addressing the question of readiness-related interventions and their effectiveness

As is true of studies exploring factors related to readiness, studies of readiness-related interventions focus almost exclusively on helping prepare children to be ready for school, rather than on helping prepare *ready schools*. Interventions fall under two broad categories: those that are broad or comprehensive in scope, addressing a range of readiness-related competencies and, in some instances, child and family health and well-being as well; and those that are narrowly targeted to supporting or developing specific knowledge or skills. Among the broadly focused programs are a range of intervention strategies, including both home-based and school- or center-based programs. The more narrowly targeted programs focus generally on children's early literacy or numeracy skills.

Things to keep in mind in assessing this research

As noted in our primer on reading about research (appendix A), studies that address the effectiveness of educational interventions are seeking answers to questions about cause and effect. We have included studies using three types of research designs: RCTs, quasi-experimental designs with intervention and comparison groups that are well matched on key variables, and studies using structural equation modeling to analyze data collected through longitudinal RCTs or quasi-experimental designs. In describing some studies, we also have included supplementary information drawn from literature reviews.

RCTs provide the greatest explanatory power in assessing the extent to which a particular intervention produces a desired effect. Long-term follow-ups add to our confidence in a program's effects, as does the existence of multiple trials addressing the same intervention or approach.

One valuable feature of RCTs—and, with some limitations, quasi-experimental designs—is that they provide a means of controlling for variables that may have causal influences on the kinds of outcomes being studied. However, as discussed in more detail below, most existing studies of broad or comprehensive early child care and education programs limited their designs to assessing the effects of the overall intervention. They did not isolate variables in the study to the extent that they could test for the effects of specific components of the program, such as a family involvement or education component. With studies that examined more narrowly targeted interventions, we are better able to assess the impacts of family education strategies.

Finding 3: Early child care and education programs that include family components can boost children’s educational success, both short-term and long-term. However, the impacts of specific features of such programs, including family components, remain largely untested and unknown. In addition, significant issues of cost, quality, and context complicate this finding.

There appears to be broad consensus that early care and education programs can make a difference in improving children’s readiness for school.

There appears to be broad consensus, based on a number of sizeable intervention studies, that early child care and education programs can make a difference in improving children’s readiness for school. Findings from the research studies and critical reviews included in this synthesis generally confirm the conclusion of the National Research Council (NRC) in its book-length review of research, *From Neurons to Neighborhoods: The Success of Early Childhood Development*. “The overarching question of whether we can intervene successfully in young children’s lives has been answered in the affirmative and should be put to rest” (Shonkoff & Phillips, 2000, p. 10; see also Brown & Scott-Little, 2003, and Gilliam & Zigler, 2000). In another literature review on educating preschoolers, the NRC further concluded,

Young children who are living in circumstances that place them at greater risk of school failure—including poverty, low level of maternal education, maternal depression, and other factors that can limit their access to opportunities and resources that enhance learning and development—are much more likely to succeed in school if they attend well-planned, high-quality early childhood programs. (Bowman, Donovan, & Burns, 2001, p. 8)

Although these conclusions by the NRC did not specifically address family components, the major programs that have been studied most extensively all include components addressing, to one degree or another, family involvement, education, and/or support.

That’s the good news. Behind this broadly positive conclusion, however, is a complex reality that makes it much more difficult to draw firm conclusions about what interventions may work well with what groups, under what circumstances, and with what resources. Here are some of the issues that complicate our understanding about effective interventions for young children and their families:

- In the research on early childhood and preschool interventions, the magnitude and duration of intervention effects tend to vary considerably; many studies show relatively modest gains, and some show little or no gains beyond those of control group participants (Brown & Scott-Little, 2003; Farran, 2000).
- As the literature review by Shonkoff & Phillips (2000) noted, “Interventions that work are rarely simple, inexpensive, or easy to implement” (p. 10). Studies of most model intervention programs have not been replicated in settings where resources and expertise are more typical—and limited—than those found in demonstration programs.
- Identifying the effects of specific strategies or program components is difficult, and specific effects from family support and involvement components are almost never

assessed (Brown & Scott-Little, 2003; Shonkoff & Phillips, 2000). We have little data that can “pull apart” the effects of family involvement from those of the program generally, and we have virtually no research that tests the “added value” of family involvement above and beyond the direct, child-focused components of early child care and education programs.

- Most of the major early child care and education programs that have been studied extensively were publicly funded programs targeted to low-income children and families. Several of the most extensively studied programs were implemented decades ago, with the most recent research addressing long-term follow-up of former participants and/or using statistical modeling techniques to take a fresh look at older data. Although some of these older programs have produced strongly positive long-term results, we must consider the caution mentioned by Farran (2000) in her discussion of the High/Scope Perry Preschool Project: “The High/Scope curriculum was developed in the early 1960s; much has changed for children in poverty in the nearly forty years since its inception. It is important to determine what the effects of the curriculum are now” (p. 517). A similar observation can be made regarding the families of children in poverty and the approaches that have been used to engage them.

We have virtually no research that tests the “added value” of family involvement above and beyond the direct child-focused components of early child care and education programs.

A look at individual programs. Early child care and education programs generally follow either a family education approach, attempting to support families as they work with their children within the home environment, or a preschool approach, providing child care, educational, and enrichment programming in a school or community environment. Within these broad categories, however, programs’ intervention strategies vary considerably. The following paragraphs provide separate descriptions for each of the programs studied.

Family education programs. Family education programs most often are geared to reaching children and their families as early as possible in the child’s development. Some begin providing services prenatally, while others begin within the child’s first year. The Home Instruction Program for Preschool Youngsters is an exception, working with families of 4- and 5-year-old preschoolers.

- Comprehensive Child Development Program (CCDP)—St. Pierre and Layzer (1999) reported on a randomized controlled trial of the CCDP, a 21-site, 5-year federally funded demonstration program addressing 4,410 families. The CCDP was a “two-generation program that employed case management and home visiting to assure low-income children [from birth through age 5] and their parents of a range of educational, health, and social services” (p. 134). The program used home visits “as the primary means of delivering both case management and early childhood education” (p. 137).

The study found positive changes in children’s vocabulary and achievement scores, in family employment and income, and in rates of depression among mothers in the study. “However, the same changes observed in CCDP families occurred in control group families” (p. 142); therefore, there were no significant differences

attributable to the program itself. Only in one of the 21 sites were there statistically significant and moderately large positive effects in “children’s cognitive development; families’ employment, income, and use of federal benefits; and parenting attitudes” (pp. 143–144). The study did not identify any single factor that explained the differences for this site and the other 20 sites; however, the authors noted that the program at this site was managed by a school district, “had a particularly strong project director and senior staff” with low turnover, and served a population “somewhat less at risk than the population served in many (but not all) other sites” (p. 144).

- Home Instruction Program for Preschool Youngsters (HIPPO)—Baker, Piotrkowski, and Brooks-Gunn (1999) reported findings from several related research studies that explored the effectiveness of HIPPO. HIPPO was “a two-year home-based early intervention program that aims to help parents with limited formal education prepare their four- and five-year-old children for school” (p. 116). Using a structured curriculum approach, the program involved home visits that were supplemented by group meetings with parents. Parents, in turn, were taught to work with their children on activities that were “designed to enhance children’s cognitive skills” (p. 118).

The authors reported on a two-cohort, randomized controlled trial involving 182 families that was conducted in New York City, and a two-cohort, quasi-experimental study conducted in Arkansas with 126 families. In the Arkansas study, children in the comparison group were closely matched on a number of characteristics; the intervention group included a slightly higher percentage of African American children and a higher percentage of adult caregivers who had at least a high school education (64 percent compared with 53 percent). Children in the New York study also participated in a preschool program during the first year of HIPPO and attended kindergarten in the second year; in Arkansas, none of the participants attended preschool, though most were enrolled in kindergarten in year 2.

The studies produced mixed results. In the New York study, statistically significant positive cognitive effects were found for children in the first cohort; however, “none of these effects was replicated in Cohort II,” and additional data analyses could not account for the differences (p. 122). In the Arkansas study, positive effects were found for children in the first cohort in terms of classroom adaptation but not in cognitive outcomes. In the second cohort, however, the comparison group “outperformed the HIPPO group on school readiness and standardized achievement at the end of kindergarten” (p. 124).

In seeking to understand these findings, researchers looked at qualitative data and found that levels of family involvement varied significantly within the program. They found that, overall, “parents received fewer home visits, participated in fewer group meetings, and probably spent less than the 15 minutes each day that was intended in the model” (p. 130). As other researchers have done, they noted the complexities of working with families with multiple challenges and needs.

- **Parents as Teachers (PAT)**—Wagner and Clayton (1999) reported on studies of the PAT program in two demonstration sites. PAT was a parent-education program that relied on home visits to strengthen parenting skills and parents' ability to teach their young children. Services began either prenatally or at birth. The program, which began in Missouri in the early 1980s and spread to sites throughout the United States, was relatively inexpensive to implement “compared with interventions that rely on nurses or that have center-based, child-focused components in broader two-generation program models” (p. 92).

The two studies both used RCTs. One of the two studies focused on 497 Latino families, comparing outcomes for participants in the PAT program with those for participants in a control group. In the other study, which focused on teen parent families, approximately 700 participants were assigned randomly to one of four groups: PAT services alone, case management services alone, combined PAT and case management services, or a control group.

The authors noted that, although results showed little effect on parents, there was “some evidence” that the PAT services “improved children’s cognitive development” (p. 100). However, this evidence was mixed; statistically significant cognitive effects emerged only with the use of multivariate analyses and only on one of several cognitive measures used. In addition, the authors reported that “children of Latina mothers derived greater benefit from the program than did children of non-Latina mothers, for whom program effects often were negative” (p. 104).

- **Infant Health and Development Program (IHDP)**—In her review of a number of interventions for young children living in poverty, Farran (2000) reported on findings from a randomized controlled trial of the IHDP, a program targeted to low-birth-weight children, aged 0 (birth) to 3, and their families. The IHDP’s approach was based on that of the Abecedarian Project and its offshoot, Project Care (see next section on preschool programs). The intervention consisted of home visits providing parent education, center-based care and education for the children aged 1 to 3, and parent groups that met bimonthly while children were enrolled in the center-based program.

Early assessments, conducted when children were 2 and 3 years old, showed significant positive effects for children in the intervention group. However, later assessments, at ages 5 and 8, showed no significant effects. Farran noted that “the lack of effect for such an ambitious, well-run, and expensive program was unanticipated and troubling” and that a number of analyses have been undertaken to help understand the reasons for the “no-effect” finding (p. 521). The explanations she described focus primarily on the multiple risks faced by children with low birth weight and living in impoverished circumstances.

Preschool programs. Preschool programs generally target children aged 3 to 5, although some (e.g., the Abecedarian Project) begin much earlier. Some offer services for 1 to 2 years before the child enters kindergarten; others provide continued programming through kindergarten and sometimes beyond. These programs are school- or center-based, providing partial-day or full-day educational and enrichment activities and offering a range of family services and supports.

Preschool programs generally target children 3 to 5 years of age, although some — such as the Abecedarian Project — begin much earlier.

- Abecedarian Project—Two research studies (Campbell, Helms, Sparling, & Ramey, 1998; Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002) and one of the literature reviews (Farran, 2000) examined data on the Abecedarian Project, which began in the early 1970s. The study design was a randomized controlled trial, with outcomes assessed both in the short term and longitudinally. The two studies addressed here were part of the succession of longitudinal follow-ups.

The Abecedarian Project provided intensive early childhood education via center-based programming for children from low-income families, almost all of whom were African American. The average age of children entering the program was 4 months. Although the project did not have an explicit family support component, “parents were invited to visit the classroom as often as they could and were also offered an optional series of programs focused on parenting skills, nutrition, and health. Some parents served on the Center’s Advisory Board. Supportive social work services were available to families in both the treatment and control groups on an emergency basis” (Campbell, Helms, et al., 1998, p. 146).

The original study involved 111 participants randomly assigned to an intervention or control group. The initial study found significant positive effects for children in the intervention group on standardized reading and math tests. The studies reviewed for this synthesis collected and analyzed longitudinal follow-up data, with the most recent study following former participants into adulthood:

Those in the preschool treatment group earned significantly higher scores on intellectual and academic measures as young adults, attained significantly more years of total education, were more likely to attend a 4-year college, and showed a reduction in teenaged pregnancy compared with preschool controls. Preschool treatment was associated with educationally meaningful effect sizes on reading and math skills that persisted into adulthood. (Campbell, Ramey, et al., 2002, p. 142)

To say what, if any, role the family-related activities included in this intervention played in these positive outcomes is impossible because the possible effects of family support activities were not specifically assessed. Farran (2000) noted that an adaptation of the Abecedarian Project, called Project Care, added a home visiting component to the center-based intervention. Based on her review of studies of Project Care, she reported that “the parent [home visiting] component does not appear to have provided any particular additional benefit to the center-based program,” although “no data beyond preschool have been provided for Project Care” (p. 515).

Farran also documented concerns regarding earlier studies’ reports of data regarding the Abecedarian Project, noting that more detailed presentations of statistical information were needed to allow readers to assess the authors’ interpretation of the data. (Her concerns did not reference the two studies described here; she did not include the 1998 study reviewed here in her list of sources, and her article predates the 2002 study.) However, Farran also concluded that “the Abecedarian and Project Care programs are perhaps the most scientifically controlled and thoroughly reported early intervention efforts in social science,

certainly more so than any other programs implemented in the 1960s and 1970s” (p. 515).

- **Early Head Start**—Head Start is by far the most enduring, broadly implemented, and widely studied preschool intervention in the United States, although the tremendous local variability in the program’s implementation, as well as methodological issues, have limited the results of many studies. In recent years, the federal government has funded several studies of variations on the Head Start model. One of these (Mathematica Policy Research, Inc., 2001) focused on the Early Head Start program, a “two-generation” approach that works with new mothers and their children up to age 3. Program activities include “home visits, center-based care, case management, and/or group parenting activities” (p. 8). The study was a randomized controlled trial involving some 3,000 children and their families in 17 sites nationwide. The study found:

After a year or more of program services, when compared with a randomly assigned control group, 2-year-old Early Head Start children performed significantly better on a range of measures of cognitive, language, and social-emotional development. Their parents scored significantly higher than control group parents on many of the measures of the home environment, parenting behavior, and knowledge of infant-toddler development. Early Head Start families were more likely to attend school or job training and experienced reductions in parenting stress and family conflict. (p. iii)

Effects in most of these areas were “generally modest in size” (p. iii). In addition, it should be noted that several other studies of early childhood interventions found significant short-term cognitive effects that disappeared after a few years (Farran, 2000). Longer-term studies are needed to assess the extent to which effects from Early Head Start may contribute to children’s school readiness.

- **Head Start Transition**—An evaluation study by Ramey et al. (2000) focused specifically on children’s transition to kindergarten, via the Head Start/Public School Early Childhood Transition Demonstration Study. The study was a randomized controlled trial “designed to test the overall hypothesis that the delivery of continuous, comprehensive services in Head Start and continuing through third grade can maintain and enhance the early gains of former Head Start children and their families” (p. 3). This study addressed activities in 31 local sites over a 6-year period. The study used a cluster design, in which entire schools or school districts, rather than individual participants, were randomly assigned to intervention and control groups.

The Transition Demonstration Program included four key components: family support services; opportunities for family involvement; health, nutrition, and mental health services for children and their families; and educational programming for both children and families. Educational programming for parents included activities “to promote strong parenting skills, educational and vocational growth for adult family members, and strong and stable family functioning” (pp. 2–3); about a third of sites provided parent resource rooms.

Follow-up studies found that Perry Preschool graduates completed almost a year more of high school and earned higher monthly incomes at age 27 than members of the control group.

The study's findings focus primarily on the numerous implementation issues faced by the demonstration sites, and the tremendous variability in quality and the extent to which the program's approach was implemented across the sites. In terms of child outcomes, the study found that children in both the intervention and control groups "showed good academic progress in the first four years of public school, with their largest gains in the first two years" (p. 3). However, most effects for children in the treatment groups did not differ significantly from those in the control groups, so that children's academic gains cannot be attributed to the intervention program. Given the extent of implementation problems associated with this study, the utility of its findings is limited.

- High/Scope Perry Preschool Project—Two sources (a study by Barnett, Young, & Schweinhart, 1998, and the literature review by Farran, 2000) focused on the High/Scope Perry Preschool Project, which was established in Ypsilanti, Michigan, in the 1960s for 3- and 4-year-old children from low-income African American families. Participating children all had been assessed with IQs below 90. The program featured daily 2 1/2-hour preschool classes for children, with a Piagetian, "child-centered" curriculum that "explicitly focused on supporting children's cognitive development through individualized teaching and learning"; a family component involved "weekly, ninety-minute, teacher-conducted home visits with mother and child in the afternoons during the school year" (Barnett et al., 1998, p. 171).

Farran (2000) notes that the Perry Preschool Project "is the early intervention program with the most extensive longitudinal data," with follow-up studies of former participants through age 27. The study design for the project was a randomized controlled trial with a succession of longitudinal follow-ups; though the sample was relatively small (123 initial participants), attrition was minimal, even with the adult sample.

The initial study found positive effects in participants' IQ as assessed by several measures; although these differences had disappeared by age 8, other significant longitudinal effects were found. "While in school, the experimental preschool students achieved a significantly higher grade point average and scored significantly better on the subtests of California Achievement Test in reading, arithmetic, and language than the [control group] children" (Farran, p. 516), although grades and achievement test results for both groups remained relatively low compared with the student population as a whole. Follow-up studies also found that, on average, Perry Preschool graduates completed almost a year more of high school and earned higher monthly incomes at age 27 than members of the control group.

As noted earlier, Barnett, Young, and Schweinhart (1998) used structural equation modeling to examine data from the Perry Preschool Project and to explore several theoretical models as to the "causal pathways" that would explain the project's impact on participating children and their families. The authors found that "overall, the results favored the view that the long-term effects of the Perry Preschool program on achievement and school success derived from its immediate effects on [children's] cognitive abilities rather than from program effects on parents or on children's socialization" (p. 180).

- Chicago Child-Parent Centers (CPC)—Three studies (Miedel & Reynolds, 1999; Reynolds, 2000; Reynolds, Temple, Robertson, & Mann, 2001) and the literature review by Farran (2000) addressed the CPC program, an early intervention program for low-income, inner-city children and their families that was established in Chicago in the 1980s. The CPC program provides educational and support services to children aged 3 to 9 and their families. The program “includes half-day preschool at ages 3 to 4 years, half- or full-day kindergarten, and school-age services in linked elementary schools at ages 6 to 9 years” (Reynolds et al., 2001, p. 2339). The family component is a significant element of the program, with “a parent resource room in each center and a parent resource teacher who oversees parent activities both within the center and within the community” (Miedel & Reynolds, 1999, p. 385).

The program used a quasi-experimental design with a nonrandom, matched comparison group and a succession of longitudinal follow-up studies. Initial findings were statistically significant in terms of children’s achievement test scores, lower rates of grade retention, and lower rates of special education placement. In the follow-up studies addressed in this synthesis, Reynolds and his colleagues have followed former participants into young adulthood. The follow-up studies have shown that significant differences in reading and math achievement between the intervention and comparison groups persisted into high school, “though the magnitude of effects declined somewhat over time” (Reynolds, 2000, p. 94). In addition, participants in the CPC program had “a significantly higher rate of high school completion at age 20” and had completed more years of education than the comparison group (Reynolds, Temple, Robertson, & Mann, 2001, p. 2343).

Some lessons from the intervention research. It is hazardous to generalize from a research base that is so varied in method, quality, and type of intervention; however, several broad themes appear to merit attention and further study:

- Programs aimed at improving parenting practices per se, most of which have been targeted to low-income families, have shown limited positive effects. As the NRC literature review (Shonkoff & Phillips, 2000) concludes, “There is. . . little empirical documentation that nonspecific, general family support interventions for high-risk families are able to produce significant or enduring changes in parenting behavior. . . The committee [of researchers preparing the report] agrees with others. . . who have suggested that [high-risk] families are likely to require more intensive services than the typical parenting intervention program provides, interventions that go beyond the enhancement of parenting skills to address the serious life issues (e.g., poverty, hopelessness and depression, substance abuse, troubled relationship) they face and involve adults other than just the mother and utilize program staff who are specifically qualified to work with multiproblem families” (p. 263). Brooks-Gunn, Berlin, and Fuligni (2000), in their literature review of a range of intervention programs, did report “some positive and some mixed findings” related to interactions and relationships between parents and children (p. 561). However, these treatment benefits did not address children’s readiness outcomes.

Programs aimed at improving parenting practices per se, most of which have been targeted to low-income families, have shown limited positive effects.

There is some evidence as to the effectiveness of interventions that are targeted specifically to families' support for young children's emerging academic skills.

- Targeting children during the preschool years may be a more effective strategy than similarly broad supplementary or follow-through programs in the early elementary grades. Both the Abecedarian Project and the CPC program included a school-age phase; in both projects, there were participants in the early childhood or preschool phases alone, the preschool and school-age phases, and the school-age phase alone. For both projects, statistically significant effects were found for the preschool treatment group but not for the school-age treatment group (Campbell, Helms, Sparling, & Ramey, 1998; Reynolds, Temple, Robertson, & Mann, 2001).
- Although this topic has not been studied systematically, it appears possible that interventions that combine educational services for children and training or services to help parents provide home-based educational supports may be more effective than either component alone. The literature review by Shonkoff and Phillips (2000) noted this apparent trend: "Generally speaking, programs that offer both a parent and a child component appear to be the most successful in promoting long-term developmental gains for children from low-income families. Most of the documented benefits [however] have clustered in the realm of social development" (p. 345). One study reviewed for this synthesis, which addressed a specific literacy intervention strategy, also noted larger effects for a combined school- and home-focused intervention (see findings from Lonigan & Whitehurst, 1998, below). Again, however, these observations are limited, and systematic study is needed before any conclusions can be drawn.

Finding 4: Specific strategies for helping parents support their young children's emerging literacy and numeracy skills can produce gains among children from both low- and middle-income families. However, the research base is limited to only a handful of strategies.

Although, as noted earlier, interventions focused on strengthening general parenting skills have shown few positive results, some evidence supports the effectiveness of interventions targeted specifically to families' support for young children's emerging academic skills. Among the research studies reviewed for this synthesis, the five that addressed such interventions found statistically significant effects. Four of the studies were randomized controlled trials; one used a quasi-experimental design with a well-matched comparison group. Of the five studies, four focused on children's developing literacy skills and one on children's early mathematical skills. Three of the five interventions included classroom activities with children as well as parents' at-home work with their children.

Strategies to support children's early literacy development. Of the four studies addressing children's early literacy skills, three focused on a specific shared-reading strategy. Dialogic reading is an interactive strategy for adults and young children in which

. . . the child learns to become the storyteller. The adult assumes the role of an active listener, asking questions, adding information, and prompting the child to increase the sophistication of her or his description of the material in the picture book. As the child becomes accustomed to her or his role as the storyteller, the adult shifts more of the responsibility for telling the story to the child. (Lonigan & Whitehurst, 1998, p. 265)

The three studies addressing dialogic reading were all designed to extend earlier experimental research by Whitehurst and colleagues, which found that dialogic reading “can produce substantial changes in preschool children’s language skills” (Lonigan & Whitehurst, 1998, p. 265). All three studies were RCTs, with participants randomly assigned to treatment and control groups. All three trained family members (primarily mothers) in the dialogic reading strategy and provided picture books that the family members could take home. However, significant differences were noted in the studies’ contexts, populations studied, intervention activities, and assessment measures:

- Lonigan and Whitehurst (1998) conducted a study designed to replicate the results of earlier, related studies “with a more disadvantaged group and to address the question of the relative effectiveness of parents versus teachers in implementing the dialogic reading program with low-income children” (p. 266). Children in this study were 3- and 4-year-olds. The 91 participants were randomly assigned to one of four groups: a school (i.e., child care center) reading group, a home reading group, a school plus home reading group, and a control group. Both parents and teachers were trained in the dialogic reading method; dialogic reading was scheduled at the four participating child care centers for 10 minutes daily for 6 weeks, and parents were encouraged to read with their children every day.

Though the authors found different results among participants in different child care centers, “effects were apparent on two standardized measures of expressive language. . . , and the results measured by these tests were both statistically significant and relatively large in absolute terms” (p. 279). The authors also found that, within those child care centers that generally conducted the dialogic reading as intended (i.e., “high compliance centers”), “children who were exposed to dialogic reading at both home and school appeared to benefit more” in terms of gains in expressive vocabulary “than those exposed just at home or just at school” (p. 282). In terms of children’s descriptive use of language, results “were stronger in the home group than in either the school or the school plus home group” (p. 282).

- Zevenbergen, Whitehurst, and Zevenbergen (2003) studied the effects of the dialogic reading method on children’s narrative skills. Participants in this study were 123 4-year-old children enrolled in a Head Start program. Children and their families in the treatment group took part in a 30-week shared-reading program conducted both at school and at home. The authors found that “children who participated in the intervention program appear to have gained specific narrative skills” (p. 10). Assessments yielded statistically significant effects in children’s use of some, though not all, categories of “evaluative devices” in their narrative retelling of stories, including the use of dialogue and references to characters’ internal states.

The research does not indicate specific links between such narrative skills and children’s readiness for school; however, the authors note that “the literature suggests that this narrative skill may translate into educational. . . and social advantages. . . for the child when he or she begins school” (pp. 11–12).

- The study by Huebner (2000) explored the effectiveness of adapting the dialogic reading program for use in a community-based setting. Participants included 91 parents—predominantly middle-income and European American—and their 2-year-old children who visited one of four neighborhood public libraries in Seattle, Washington. Children’s librarians taught parents the dialogic reading technique in two 1-hour sessions; parents in the control group participated in the library’s regular programming. Results showed “a significant intervention-group effect on parent-child reading style and children’s expressive language” as measured on the Illinois Test of Psycholinguistic Abilities (ITPA) (p. 513). However, no significant differences were seen on the vocabulary assessments. The study also included a 3-month follow-up; however, this component of the study was compromised by a high rate of attrition and by “inadvertent” mixing of the treatment and comparison groups (p. 528).

The fourth study (Jordan, Snow, & Porche, 2000) used a quasi-experimental design with a matched comparison group to evaluate the effectiveness of the parent-training component of a kindergarten-based literacy project. Participants were 248 kindergarten students and their families from four schools within a middle-income, predominantly European American suburb. Project EASE (Early Access to Success in Education) featured parent education sessions, parent-child activities at school, and book-centered activities at home. Parent training was organized into five monthly units, each with a different theme. Parent educators coached parents and provided books and structured activities for family members to complete at home with their children. Results showed that participants in both at-school and at-home project activities made significantly greater gains than children from the comparison group on the language composite component of the Comprehensive Assessment Program subtests, with the greatest gains among low-achieving students who started out with low language skills but strong home literacy support. The intervention did not show a significant effect on children’s vocabulary scores as measured by the Peabody Picture Vocabulary Test-Revised (PPVT-R); however, the authors noted that this result was “not surprising” as “the PPVT-R was designed to test incidental vocabulary acquisition and not to reveal curriculum effects” (p. 538). The authors concluded,

The size of the intervention effect is particularly surprising given that the families involved in this study were not on average extremely limited in their literacy support, and that the children were attending schools with generally good achievement results. In other words, even in this moderate-to-low risk sample of English-speaking European American families, with median family incomes above the poverty level and access to good schools for their children, there is room for parental involvement to improve children’s school performance. (p. 538)

Supporting children's early mathematics skills. We found only one intervention study that focused on specific family-oriented strategies for supporting young children's early mathematics skills. Starkey and Klein (2000), in a randomized controlled trial, found that a family education program had positive outcomes for low-income Latino and African American families. These authors conducted two related experimental studies, one with 28 African American children and their adult caregivers and the other with 31 Hispanic children and their caregivers; children in both studies were enrolled in Head Start programs. In each study, students were assigned randomly to control or intervention groups. Family members (usually mothers) in the intervention groups participated in a program designed to enhance their support for their children's mathematical development. The program included family math classes and access to a lending library of math kits for families' home use. In the classes, adult family members observed demonstrations and worked with their children to solve math problems. In both studies, children in the intervention group demonstrated significantly greater math knowledge and skills on post-tests than children in the control group.

Literature on the transition to kindergarten comes closest to addressing readiness as extending beyond the child to schools, families, and communities and the interactions among them.

Findings Addressing the Question of Children's Transition to Kindergarten

The literature on the transition to kindergarten perhaps comes closest to addressing the concept of readiness as extending beyond the child to schools, families, and communities and the interactions among them. Like readiness, "transition" is conceptualized in more and less complex or encompassing ways (see the background discussion in chapter 3). Empirical studies to date have focused primarily on activities undertaken by schools, preschools, and families to help orient children and their families to the new school environment.

Things to keep in mind in assessing this research

To date, research on this topic has been primarily descriptive; we have no empirical data to indicate that changes in transition practices have a specific impact on children's early success in schools. With emerging topics such as this one, descriptive findings can be valuable in laying the groundwork for the design and study of interventions.

The studies reviewed in this section employ either survey or correlational designs. As noted in relation to other categories of findings, things to watch for in assessing these types of studies include sampling bias, possible confounding variables that are not controlled for in the research design, sample sizes, and the sources of data used.

Finding 5: Families and teachers tend to have somewhat different perceptions about what matters most in children’s readiness for kindergarten. The impact of these different perceptions, if any, on children’s readiness and their kindergarten achievement has not been documented.

Survey results suggest that families and teachers tend to have different perceptions about what matters most in children’s readiness for entering school.

Two of the studies reviewed here analyzed survey information regarding the perceptions of both families and school staffs regarding the knowledge, skills, and attributes that are important for children’s school readiness. Diamond, Reagan, and Bandyk (2000) used data from the 1993 National Household Education Survey, which was conducted by the National Center for Education Statistics (NCES). This survey used a cluster sampling method, identifying clusters of households across the United States and, within each cluster, randomly selecting households for participation. The authors of this study analyzed data from families with 4- to 6-year-old children who had not yet entered kindergarten, yielding a nationally representative sample of 2,509 households.

In contrast, Piotrkowski, Botsko, and Matthews (2000) conducted a survey of teachers and parents in a single, predominantly Hispanic and African American, high-need urban school district. They distributed surveys to parents of children in 26 of the district’s 34 community-based preschool sites; to parents of children attending prekindergarten in two schools; and to preschool, prekindergarten, and kindergarten teachers. Survey respondents included 461 parents (a 49 percent response rate), 46 preschool teachers (73 percent), 6 prekindergarten teachers (50 percent), and 57 kindergarten teachers (89 percent).

Results from the two studies indicated that families from all types of backgrounds are concerned about their children’s readiness and “think that a variety of academic and behavioral skills are important for children’s success in kindergarten” (Diamond, Reagan, & Bandyk, 2000, p. 97; see also Piotrkowski, Botsko, & Matthews, 2000). Survey results also suggest that families and teachers tend to have somewhat different perceptions about what matters most in children’s readiness for entering school. Piotrkowski, Botsko, and Matthews (2000) found that “parents placed a greater emphasis on academically-oriented skills than teachers did” (p. 553).

Although these latter results are limited by the scope of the sample involved, they are consistent with findings from earlier studies. For example, in their report sponsored by the National Center for Education Statistics (NCES), Zill and West (2001) citing an earlier NCES survey, note, “Most teachers feel that knowing letters and numbers is not crucial for school readiness because they can and do teach children these skills in kindergarten” (p. 3). In their discussion of previous research, Diamond, Reagan, and Bandyk cite two studies conducted in the mid-1990s that found that “parents viewed preacademic skills as being more important for kindergarten than did kindergarten teachers,” whereas teachers were more likely than parents to emphasize children’s social-emotional competencies and behaviors (p. 94).

This finding seems potentially significant given the conclusion, reported earlier, that children who start kindergarten with more developed readiness skills tend to

experience early academic success that, in turn, is associated with success later in school. Although the effects of families' and teachers' perceptions, if any, on children's skills and performance have not been documented, schools can only benefit from a greater understanding of the factors that contribute to children's early academic struggles and successes, both in terms of curricular planning and of supporting families in their efforts to prepare their children for entering kindergarten.

Family members' contacts with their child's teachers declined from preschool to kindergarten.

Finding 6: Although families of all types of backgrounds are often involved in their children's preschool educational or child care programs, their involvement tends to decline when the children enter kindergarten. Both the types and frequency of family-school contact tend to change from preschool to kindergarten.

Two of the studies reviewed for this synthesis explored patterns of contact among families and young children's educational programs at both the preschool and kindergarten levels. Rimm-Kaufman and Pianta (1999 and 2004) conducted two separate studies in which school staffs maintained a daily log of contacts with the families of children in their classrooms. In the 1999 study, they compared family-school contact among two preschools within a single regional program and one kindergarten program, and families and teachers of children who moved from preschool to kindergarten, over a 2-year period. The study involved 188 preschool children and their families in Year 1 and 82 kindergarten children and their families in Year 2, along with preschool and kindergarten teachers who maintained family-school contact logs. In the 2004 study, "preschool and kindergarten teachers and family workers of 75 children from families with low SES [socioeconomic status] logged the frequency and characteristics of family-school communication" over a 2-year period (p. 2). Participants in this study were drawn from two separate school districts.

Both studies found that family members' contacts with their child's teachers declined from preschool to kindergarten. In the 2004 study, the results showed no relationship between any of the family factors assessed in the study, such as sociodemographic risk and families' views of the school staff, and the types and frequency of family-school communication in kindergarten. Even "families who communicate frequently with their child's preschool teacher do not necessarily communicate frequently with their child's kindergarten teacher" (p. 21). Results from the 1999 study showed:

Home visits, conversations during pick-up and drop-off, and phone calls were more common in preschool than kindergarten whereas notes were more typical in kindergarten. Contacts shifted from being typically home-initiated while children were in preschool to school-initiated while children were in kindergarten. Positive topics were discussed a greater percentage of time in preschool than in kindergarten, whereas family support, academic problems, and behavioral problems were discussed more frequently in kindergarten. (p. 433)

In seeking explanations for the decline in family-school communication from preschool to kindergarten, the authors speculated that schools' "policies and priorities, rather than family attributes, [may] constrain family-school communication in kindergarten" (p. 27). They cited three sources of evidence supporting that premise: similar rates of family-kindergarten program communication were found for three separate samples of children; most of the kindergarten-level family-school contacts were initiated by the school rather than by families, "leaving open the opportunity for schools to define the involvement of families"; and there was less variability in rates of family-school communication at the kindergarten level than at the preschool level (p. 27). The authors conclude, "This convergent evidence emphasizes the important role that principals, policies, and school attributes play for predicting family involvement" (p. 27).

Their conclusion is bolstered by the finding from another correlational study (Rathbun & Germino-Hausken, 2001), which found increased levels of family involvement in kindergarten classes in which teachers used specific transition practices to help ease children's entry into kindergarten (see the finding regarding transition practices below). This study used a sample of 3,243 kindergarten teachers who participated in the ECLS, obtaining data from teacher and administrator questionnaires.

Finding 7: Although a growing body of research describes schools' transition practices, little to no research assesses the effectiveness of specific school supports for children's transition to kindergarten. Descriptions of transition practices and barriers indicate that the most individualized, relationship-building activities tend to be the least used and that differences in transition practices are associated with school characteristics.

Five of the studies reviewed for this synthesis focused on transition practices used by kindergarten teachers and their elementary schools. Three of these studies (Early, Pianta, Taylor, & Cox, 2001; Pianta, Cox, Taylor, & Early, 1999; Rimm-Kaufman, Pianta, & Cox, 2000) used data from a single national survey. The survey sample consisted of a stratified random sample of 10,071 kindergarten teachers "drawn from a commercially available, complete list of public school kindergarten teachers" (Early, Pianta, Taylor, & Cox, 2001, p. 200); the response rate was 36 percent (3,595 teachers). A fourth study (Rathbun & Germino-Hausken, 2001) used survey data from teachers who were participating in the ECLS. The fifth (LaParo, Kraft-Sayre, & Pianta, 2003) addressed a kindergarten transition project within a single, small-city school district, collecting data from family members, preschool and kindergarten teachers, and family workers implementing the transition project.

The studies used descriptive and correlational methods to explore the kinds of transition practices most frequently and least frequently used by teachers and kindergarten programs, barriers teachers faced in attempting to use transition practices, and the links between transition practices and families' involvement with the school. One study (LaParo, Kraft-Sayre, & Pianta, 2003) also explored parents' participation in school-sponsored transition activities as well as their at-home supports for their children in transition.

Notable findings from these studies include the following:

- Early, Pianta, Taylor, and Cox (2001) reported that “the most common types of transition practices occur after the beginning of the school year and are aimed at the class as a whole. Transition practices that occur while the child is still in the preschool setting and those that are aimed at individual children and families are less common. Practices involving coordination with preschool programs and the community are also relatively rare” (p. 203). Rathbun and Germino-Hausken (2001) surveyed teachers regarding six different types of transition practices; they found that the most commonly used practices “were phoning and sending information home about the kindergarten program, and inviting parents to attend a pre-enrollment orientation,” while the least-used activities were “shortening the school days at the start of the school year and home visitations by teachers at the beginning of the school year” (pp. 4–5).
- Both the data obtained by Rathbun and Germino-Hausken (2001) and the national survey reported in the three studies by Pianta and his colleagues found similar trends in the use of transition practices as they related to school characteristics: “As schools (or districts) became increasingly urban and had higher percentages of minority and/or low-SES students, teachers reported personal contacts less often, and low-intensity school contacts occurring after school had started were more common” (Pianta, Cox, Taylor, & Early, 1999, p. 71). Teachers also tended to report more barriers to using transition practices in schools in more urban settings and with higher proportions of minority students.
- In the survey conducted by Pianta and his colleagues, the major barriers to using transition practices, particularly those involving more individualized contact with families and children, included class size, the late dates at which teachers generally received lists of students who would be in their kindergarten classes, and the fact that contacting families before the start of school required summer work not supported by teachers’ salaries.
- Pianta and his colleagues also found that, “strikingly, the largest between-group differences” in teachers’ use of transition practices “were between teachers who had and had not received training in transitions. Teachers with such training were more likely to use all types of transition practices. . . [However,] few teachers have such training” (Early, Pianta, Taylor, & Cox, 2001, p. 205).
- In the study by LaParo, Kraft-Sayre, and Pianta (2003), the authors looked at families’ reports of their involvement in transition activities. “More than 50% of families reported participating in almost all of the transition activities offered [by their children’s school]” (p. 153). Parents’ most frequent school-based transition activity was visiting their child’s kindergarten classroom; the least frequent activity was attending an orientation to kindergarten. The most frequently reported barrier to participating in school-based transition activities was parents’ work schedules. At home, parents most frequently reported teaching their child “school-related skills,” such as learning their address and home phone number, discussing behavioral expectations with their children, talking with their children about meeting new classmates, and “talking with other parents about kindergarten” (p. 154).

Teachers tended to report more barriers to using transition practices in schools in more urban settings and with higher proportions of minority students.

- Rathbun and Germino-Hausken (2001) also reported associations between teachers' use of specific transition activities and teacher reports of parents' involvement in kindergarten: "Teachers who reported that they or their school telephoned or sent home information about the kindergarten program indicated that a larger proportion of children in their classrooms had parents who attended teacher-parent conferences, open houses or parties, and art/music events, and volunteered regularly in the classroom or school. The same pattern of parent involvement was found for teachers whose schools hosted pre-enrollment visits. . . , parent orientations, and had preschoolers spend some time in the kindergarten classroom" (p. 6).

Although these studies give us an overview of the transition practices that are and are not used commonly in different settings, they do not speak to the impact of such practices on children or their families. None of the studies explored possible links between the use of transition practices and children's readiness outcomes or kindergarten performance, and we did not find any information in any sources indicating the existence of research addressing such links. However, it may not be reasonable to expect significant changes in children's academic outcomes as a result of transition programs or practices; they may be too short in duration and may focus more on children's social-emotional adjustments than on cognitive outcomes.



Recommendations for Research and Practice

Chapter 5

As the previous chapter indicates, we still have much to learn about the roles and relationships among children, schools, families, and communities that can help to ensure an effective fit between young learners and the school environment. Research-based knowledge as to “what works” remains limited. For that reason, we are able to make only a very few concrete recommendations targeted to local policy and practice—and those we do make should be taken as tentative, subject to the need both for local wisdom and for further research. This caution is especially applicable to recommendations regarding transition strategies, for which no research has been conducted exploring effects on children’s academic outcomes.

These recommendations primarily address what schools can do. However, anyone can take the initiative in encouraging schools to increase or improve their family and early childhood outreach and support. And there are important roles for everyone, from family members to community leaders to school staffs.

Because this topic is so critical and the research base so fragmented, we also have developed a set of recommendations targeted to the educational research community. Our recommendations focus on specific areas in which new, well-designed, and well-implemented intervention studies are needed.

Recommendations for strengthening local policy and practice

Recommendation 1: Provide children with early educational experiences.

Perhaps the strongest conclusion that can be drawn from this research base is that early education for children—including programs for children in poverty who are most seriously at risk for school failure—*can* make a difference when those kids reach kindergarten and beyond (Barnett, Young, & Schweinhart, 1998; Campbell, Helms, Sparling, & Ramey, 1998; Campbell et al., 2002; Farran, 2000; Reynolds, 2000; Shonkoff & Phillips, 2000). In a report on the benefits of early childhood education for economically disadvantaged children, Barnett et al. (1998) recommended that “every child living in poverty in the United States ought to be provided with at least one year of early childhood education” (p. 39).

Barnett (1998) recommends that “every child living in poverty in the United States ought to be provided with at least one year of early childhood education.”

Yet a significant minority of children still lack ready access to early education. A 2002 “Quality Counts” report on early childhood education in *Education Week* noted that 39 states and Washington, DC, offer state-financed prekindergarten programs for at least some children aged 3 to 5. However, the report went on to state:

Despite government efforts, access to high-quality early-childhood education remains out of reach of many families. None of the federal programs extends to more than a portion of the infants to 5-year-olds who could benefit from such services. Head Start serves about three in five eligible youngsters. (Olson, 2002, p. 12)

School- or center-based comprehensive early education programs have shown to be more effective than home-based programs.

For school systems or community-based organizations seeking to implement early childhood education programs, some research-based intervention models do exist, such as the Perry Preschool, Abecedarian, and Chicago Child-Parent Center approaches. However, as noted in the previous chapter, these models have not been widely replicated. Nor do we know much about the extent to which specific components of these models—including family involvement and support components—are critical to program success.

School- or center-based comprehensive early education programs have shown to be more effective than home-based programs. Using a home visiting approach to support children’s early education can be appealing, particularly in terms of cost; programs that rely on home visits to provide educational services for children tend to have much lower overhead costs than do center-based education programs (Brooks-Gunn, Berlin, & Fuligni, 2000). However, results from the studies in this synthesis and elsewhere do not support the use of existing home visiting models as an effective strategy for improving children’s readiness outcomes (Baker, Piotrkowski, & Brooks-Gunn, 1999; Farran, 2000; St. Pierre & Layzer, 1999; Wagner & Clayton, 1999). Writing in a special issue of *The Future of Children*, Gomby, Culross, and Behrman (1998) noted that extensive scrutiny of current home visiting models

suggests that no home visiting model produces impressive or consistent benefits in child development or child health. . . We believe that any new expansion of home visiting programs should be reassessed in light of these findings. We recommend a dedicated effort, led by the field, to improve the quality and implementation of existing home visiting services, and a more modest view of the potential of the broad array of home visiting programs. (p. 24)

Recommendation 2: Help families provide learning resources and experiences for their young children.

Parent-training strategies that are specifically targeted to strengthening young children’s pre-academic skills have shown great promise in terms of both early literacy and early mathematics skills (Bennett, Weigel, & Martin, 2002; Lonigan & Whitehurst, 1998; Starkey & Klein, 2000; Zevenbergen, Whitehurst, & Zevenbergen, 2003). Schools and community-based organizations can support children’s readiness by providing materials, especially books and other literacy materials; offering training for families, along with activities they can do at home with their young children; and facilitating families’ awareness of the benefits of reading to young children (Shonkoff & Phillips, 2000).

Recommendation 3: Work to ensure fidelity in implementing model interventions.

Several studies included in this synthesis noted issues related to the fidelity with which local school and community personnel implemented model strategies (Baker, Piotrkowski, & Brooks-Gunn, 1999; Lonigan & Whitehurst, 1998; Ramey et al., 2000). Assuring that model strategies are actually implemented as intended is a key, but often overlooked, factor in the effectiveness of interventions. Lonigan and Whitehurst (1998), for example, noted that, among the four child care centers involved in their study of a dialogic reading strategy, the intervention produced greater effects among children attending the “high compliance” centers than those in centers where the intervention was implemented with less fidelity to the intended model.

Schools must take the initiative to alter families’ perceptions as to the roles and levels of involvement expected of them.

Recommendation 4: Build kindergarten teachers’ awareness of the long-term impacts of differences in children’s pre-academic skills when they enter school.

As noted in the previous chapter, many kindergarten teachers tend to downplay the importance of children’s pre-academic skills at kindergarten entry, instead emphasizing social-emotional traits and capabilities (Piotrkowski, Botsko, & Matthews, 2000; Zill & West, 2001). Many teachers appear to believe that children will develop the academic skills they need during their kindergarten year—a reasonable expectation given the substantial differences in children’s pace of development (Shonkoff & Phillips, 2000). However, as we also noted, children’s earliest school performance, including their early kindergarten performance, generally sets a pattern for their future performance (Barnett, Young, & Schweinhart, 1998; Denton & West, 2002; Reynolds, 2000). There is no research evidence that changing teachers’ awareness regarding this trend will impact children’s academic outcomes (to our knowledge this relationship has not been studied empirically). At a minimum, however, building teachers’ awareness of the long-term impacts of children’s early performance can help put teachers’ concerns more in synch with those of parents, who tend to worry about their children’s pre-academic skills. Awareness-building activities also may help influence instructional planning and supports at the kindergarten level.

Recommendation 5: Encourage families to maintain their contact and involvement as their children move from child care or preschool environments to kindergarten.

No matter what their backgrounds are or how involved they are in their children’s preschool or early care settings, parents’ at-school involvement diminishes when their children start kindergarten (Rimm-Kaufman & Pianta, 1999 and 2004). The consistency of this pattern suggests that schools must take the initiative to alter families’ perceptions of the roles and levels of involvement expected of them. Specific transition activities *before* children start kindergarten can help boost families’ at-school involvement (Rathbun & Germino-Hausken, 2001; Rimm-Kaufman & Pianta, 2004). These include telephoning parents, hosting open houses or pre-enrollment classroom visits for parents and children, and conducting parent orientation sessions.

Recommendation 6: Provide a variety of supports to help ease children’s transition to kindergarten.

Despite the lack of research regarding the relationship between transitional supports and children’s academic outcomes, transition activities make sense for several reasons. Not the least of these is getting families and school staffs off to a good start together, providing the basis for productive relationships throughout the child’s school career. As Pianta and Kraft-Sayre (2003) note in a comprehensive guide to the transition process, relationships are resources that can benefit schools (in terms of community support), as well as children and families.

In several studies and related publications, Pianta and his colleagues have described three principles for schools’ actions in supporting children’s transition to kindergarten:

- 1) reach out (link with families and preschools); 2) reach backward in time (establish links before the first day of school); and 3) reach with appropriate intensity (make personal contacts and home visits). (Pianta, Rimm-Kaufman, & Cox, 1999, p. 6)

In the context of the transition to kindergarten, home visits are not used as a strategy for providing educational services, but rather as a much more limited outreach activity. Home visits allow school staffs to introduce themselves to families, begin to get acquainted, and help orient children and families to the school’s routines and expectations (Pianta, Rimm-Kaufman, & Cox, 1999).

Coordination and continuity between children’s preschool environment and kindergarten also are strongly recommended by many educators concerned with transition strategies (e.g., Pianta, Rimm-Kaufman, & Cox, 1999; Piotrkowski, Botsko, & Matthews, 2000). The National Goals Panel (1998) concluded:

Finding out where children have spent their preschool years is a logical first step as part of the kindergarten intake process. Some schools compile a list of feeder programs (including family care homes, when possible), contact their directors or caregivers, and plan transition activities appropriate to the community. Caregivers, primary-grade teachers, and others would benefit from exchanges of information and ideas (especially regarding child development, curriculum, and assessment), visits to each others’ classrooms, joint training and special projects or events, and collaborative curriculum development. Research shows that such efforts hinge on the involvement and support of principals and district-level administrators, as well as others in the community. Schools have more and better contact with preschools when specific school staff are assigned responsibility for transition activities. (p. 9)

Schools can take specific steps to increase teachers’ use of in-depth transition activities such as those listed above and in the preceding recommendation. These steps include providing training, supplementing funds for teachers’ transition-related activities during

the summer, and supplying teachers with class lists as early as possible before the start of school (Early, Pianta, Taylor, & Cox, 2001; LaParo, Kraft-Sayre, & Pianta, 2003). Particularly in urban schools and schools with substantial populations of low-income and racial or ethnic minority students, school administrators need to emphasize transition activities as a priority and to provide the necessary supports for kindergarten teachers (Early, Pianta, Taylor, & Cox, 2001; Rathbun & Germino-Hausken, 2001).

Recommendations for strengthening the research base

Much more research is needed to provide a useful knowledge base that can help guide schools, families, and communities as they decide how best to invest in supporting children's readiness. Well-designed randomized controlled trials are needed

- to replicate and assess the need for updating existing models, with larger and more varied student and family populations, in more varied school and community contexts, and with resources that reflect those available to most school systems;
- to isolate and assess the relative influence and effectiveness of specific model components, particularly family involvement and support components, and to explore the complex interactions among factors that may influence the effectiveness of readiness support strategies;
- to assess program effectiveness among specific child and family subpopulations, in particular exploring the extent to which multiple family risk factors may affect families' and children's capacity to participate in and benefit from program services; and
- to assess the long-term effects of model interventions in light of variations in participating children's later school contexts and quality.

In addition, there is a need to design, implement, and assess new model interventions that

- incorporate in-depth transition strategies,
- address the concept of *ready schools*,
- address and accommodate the great variations in young children's developmental trajectories, and
- include resources and strategies to address the persistent and pervasive risks associated with extreme poverty.

In designing and conducting intervention studies, researchers need to attend to several issues that have handicapped many previous efforts, including

- striking a balance between large-scale demonstration studies (which all too often suffer from inconsistent implementation and attrition) and sample populations that are too small to allow useful analysis of subgroups or to generalize beyond the limited populations studied;

- developing and applying clear, consistent, and adequately complex definitions of readiness, of families, and of family involvement; and
- using assessment measures that are appropriate for young children, particularly in terms of the substantial variations in children’s developmental pace, and that effectively measure critical readiness skills and activities.



Summaries of Individual Studies

Chapter 6

This chapter presents a general summary of each of the 48 studies reviewed for this synthesis. Studies are listed alphabetically; in some cases, several studies that are closely related (addressing the same intervention or drawing on the same data) are listed together.

Baker, Piotrkowski, and Brooks-Gunn, 1999

The Home Instruction Program for Preschool Youngsters (HIPPY)

RCT and quasi-experimental

This article reports findings from two related research studies, one conducted in New York City and one in Arkansas, exploring the effectiveness of HIPPY. Initially developed in Israel, HIPPY is a 2-year early education intervention program targeted to parents with limited formal education, with home-based services to help parents prepare their 4- and 5-year-old children for school. As of 1999, the program was operating in more than 120 sites in the United States. Core elements include bimonthly home visits by trained paraprofessionals, alternating with group meetings with parents and professionals. HIPPY uses structured lesson plans designed to enhance children's literacy and cognitive skills and adapted to reflect the cultural and ethnic diversity of families in the United States.

The New York study was a two-cohort, randomized trial involving 182 families after attrition, which was sizeable for the first cohort. Children from the intervention and control groups in both cohorts participated in a full-day preschool program during the first year and kindergarten during the second year; families of children in the intervention group received HIPPY services as well. The Arkansas study was quasi-experimental, involving 226 children and their families. The intervention and comparison groups were well matched on key variables, except that children in the intervention groups scored higher on baseline preschool readiness measures than did children in the comparison group. At the Arkansas site, neither the intervention nor comparison group participated in another preschool program during the first year, although 92 percent of participating children were enrolled in kindergarten during the second year.

Findings for both studies were mixed, with inconsistent outcomes across cohorts. In the New York study, children in the Cohort I intervention group significantly outperformed control group children “on measures of cognitive skills at the end of kindergarten, on measures of classroom adaptation at the beginning of the first and second grades, and on a standardized reading test at the end of first grade” (p. 122). However, none of these effects were replicated in Cohort II. In the Arkansas study, children in the Cohort

The treatment group showed significantly better scores on measures related to classroom adaptation but not to cognitive outcomes. However, in Cohort II, the control group outperformed the intervention group on measures of both school readiness and standardized achievement at the end of kindergarten.

The authors noted that “analyses revealed no differences between cohorts or in the program delivery that would explain the failure to replicate the results” of findings between cohorts (p. 125). Based on qualitative data regarding levels of parental involvement and rates of attrition, the authors speculated that differences in families’ level of involvement in HIPPEY may have contributed to the differences. However, a number of program-related and logistical problems prevented the systematic collection and analysis of data to explore this variable.

Barnett, Young, and Schweinhart (1998) found that “early achievement gains appeared to set in motion a cycle of lasting improvements in achievement, motivation, and behavior.”

Barnett, Young, and Schweinhart, 1998

How preschool education influences long-term cognitive development and school success: A causal model

Structural equation modeling using data from an RCT

This study used data from the High/Scope Perry Preschool Project to explore four alternative theories regarding the reasons for the program’s effects on participating children’s cognitive and social development. The theories, or models of causal pathways, were tested using structural equation modeling. One of the models was cognitive, focusing on the influence of early support for cognitive development. A second focused on the program’s initial effects on children’s socialization, a third examined the program’s effects on parents, and a fourth presumed “no substantive effects on children or parents at all” (p. 168).

The Perry Preschool Project addressed 3- and 4-year-old children from low-income African American families. The program involved daily 2 1/2 hour preschool classes for children and weekly 90-minute, teacher-conducted home visits with mothers and children during the school year. The curriculum focused on supporting children’s cognitive development through child-centered, individualized instruction.

The initial study of the Perry Preschool Project was an RCT involving a sample of 128 African American children; all the children had IQs below 90. Achievement measures used in the study included the Stanford-Binet IQ test and California Achievement Tests. Data were collected at children’s entrance to the study, annually through age 11, and at ages 14, 15, 19, and 27. Even with the adult sample, attrition was extremely low. However, the sample size is small for use with structural equation modeling.

Only the cognitive model was found to be statistically significant. This model suggested that the program’s immediate effects on children’s cognitive abilities in turn influenced later educational outcomes: “Early achievement gains appeared to set in motion a cycle of lasting improvements in achievement, motivation, and behavior” (p. 180). In contrast, the socialization and parent-involvement models were “strongly rejected” (p. 176). Data analysis did indicate, however, that mothers’ participation in their children’s education, mothers’ academic motivation, and mothers’ personal behavior also influenced children’s achievement and educational attainment.

Bennett, Weigel, and Martin, 2002

Children's acquisition of early literacy skills: Examining family contributions

Structural equation modeling using data from a correlational design

This study used structural equation modeling to explore relationships between aspects of the family environment and preschool children's language and literacy skills. Three theoretical models, or explanations, for literacy and language acquisition among preschool children were investigated: "the Family as Educator, Resilient Family, and Parent-School Partnership models" (p. 300). These models were hypothesized originally by other researchers in an earlier study (Snow, Barnes, Chandler, Goodman, & Hemphill, 1991). The "Family as Educator" model focuses on family roles in supporting children's learning, such as providing learning resources and reading with their children. The "Resilient Family" model focuses on the family's roles in sheltering children from external stresses. The "Parent-School Partnership" model focuses on families' interactions with school staffs and at-school support activities.

The study involved 143 families and their preschool-age children; participants were recruited through child care centers that were randomly selected from a list of licensed facilities in a single county. Most parents (88.1%) were Caucasian, native English-speakers, educated through high school or beyond, employed, and married or living with partners. The authors used various parental report measures to assess family characteristics, beliefs, and practices. Child outcomes were assessed using the Child's Emergent Literacy Task (CELT) and subscales of the Preschool Language Scale (PLS-3). The study's limitations include the sample size, sampling method, and reliance on parent self-report for data regarding home environment variables. The authors also noted that the study is based on cross-sectional data and that longitudinal studies are needed to confirm its findings.

The study found that only the Family as Educator model was significantly related to child language and literacy outcomes. It also found that two components of this model—literacy-related activities and parents' developmentally appropriate beliefs about reading with their children—were the most important components of the model.

Bowman, Donovan, and Burns (National Research Council), 2001

Eager to learn: Educating our preschoolers

Literature review

This book-length literature review is the result of a 3-year study during which 17 experts appointed by the National Research Council worked to synthesize the theory, research, and evaluation literature related to early childhood education. The review addresses both quantitative and qualitative research in education and the behavioral and social sciences. Addressing children aged 2 to 5, the review focuses on education outside the home, although the authors note that "it is important to underscore the point that children's learning and development are strongly influenced by myriad family factors, including parental interaction styles and family aspirations and expectations for achievement" (p. 4).

The report includes an overview of current understandings of children’s cognitive development and focuses in-depth on the features of quality early care and education programs. It includes extensive recommendations for professional development, educational materials, policy, and public participation, as well as for future research. There is a limited focus on families and communities; however, the report recommends that “early childhood programs and centers should build alliances with parents to cultivate complementary and mutually reinforcing environments for young children at home and at the center” (p. 19).

Overall, Brooks-Gunn and colleagues (2000) reported “some positive and some mixed findings” regarding early childhood programs’ effects on parents.

Brooks-Gunn, Berlin, and Fuligni, 2000

Early childhood intervention programs: What about the family?

Literature review

This literature review examined the effects, if any, of early childhood programs on parents; although most of the programs included attention to child outcomes, that was not the focus here. The review addresses three categories of programs with services that began prenatally or in the first 3 years of the child’s life. The first category is parent-focused home visiting programs, for which 17 programs were reviewed. Services in this category varied from comprehensive family assistance to a specific focus on parent education or parent-child attachment. A second category is programs that combine center-based services for children with home-based services for parents, for which 10 programs were reviewed. The third category is literacy programs, including both intergenerational (i.e., targeted to both children and their adult caregivers) and parent-focused programs; for this category, five major programs and their variations were reviewed.

Overall, the authors reported “some positive and some mixed findings” regarding programs’ effects on parents (p. 561). In each category, studies tended to focus primarily on a different set of effects. Studies of parent-focused, home-based programs focused most frequently on parent-child interaction or relationship quality. Of the 17 programs reviewed, 13 examined parent-child interactions or relationships; all but 2 indicated at least some treatment benefits, generally in terms of “greater degrees or incidence of sensitive parenting” (p. 553).

Findings regarding combined center- and home-based programs focused on several different outcomes. One was on parenting behaviors. Of seven studies that reported on this outcome, six found positive program effects, and one found no difference between parents in the program and control groups. Another outcome addressed by these studies was improving parents’ educational and work opportunities, with the goal of improving the family’s socioeconomic resources and well-being. All three of the studies reporting on these outcomes found positive effects on parental employment or education.

Findings related to literacy programs focused on parents’ educational gains, generally reporting small but statistically significant improvements. Two studies compared family literacy programs and adult-only literacy programs and found statistically significant differences in favor of the family literacy programs.

Brown and Scott-Little, 2003

Evaluations of school readiness initiatives: What are we learning?

Literature review

This report was a review and synthesis of evaluation studies conducted on early childhood interventions that emphasize school readiness as a goal. The review was restricted to publicly funded interventions in the United States that directly serve children aged birth to 5 years, that include classroom-based services, and that include readiness as an explicit goal. Reports had to be published in 1997 or later and had to include child readiness outcome data. These criteria yielded 20 evaluations; nine were classified as experimental or quasi-experimental, while the remainder used pre-experimental or correlational methods. Though the review did not include an explicit focus on family involvement, a number of the programs included some focus on families as well as children. Of the 20 interventions included in the review, three were also addressed in this synthesis, including the Chicago Child-Parent Centers program and two studies related to Head Start. The authors described the strengths and limitations of the research design and methods used in many of the studies. Limitations included “less than ideal comparison groups,” failure to assess factors related to families’ selection of types of programs for their children, and attrition (p. 14).

The strongest outcomes were found in studies of children’s social-emotional development, with several reporting children in readiness programs exhibiting more social development than those in comparison groups. Modest positive results also were reported for children’s language/literacy, mathematical thinking, and physical/health development, as well as for student attendance and the number of referrals to special education after children entered school. Although the authors looked for information about program effects that were associated with particular features or components of interventions, “none of the experimental and quasi-experimental studies provided this type of analysis. Rather, details about the program are provided but are not considered as variables for comparisons of child effects” (p. 17).

Burchinal, Peisner-Feinberg, Pianta, and Howes, 2002

Development of academic skills from preschool through second grade: Family and classroom predictors of developmental trajectories

Correlational

This study used data from the Cost, Quality, and Outcomes (CQO) Study to explore associations between young children’s academic skills development and their experiences with parents and teachers. The original CQO Study focused primarily on the quality of classroom practice and child-teacher relationships in preschool through second grade. Of the original sample of 828 children, 317 were excluded from the current study because of missing data, leaving a sample of 511 children for whom 2 years of data were available. Differences between the original CQO sample and this study’s sample were modest, except that this study’s participants were much more likely to be white (74% vs. 54%). The CQO Study used a stratified random sample of

Burchinal et al. (2002) found that family characteristics — notably mothers’ educational attainment and families’ parenting practices — had the strongest associations with child readiness outcomes, even among children who were in full-day child care.

child care centers; however, child participants within the centers were not selected randomly. Data collected included assessments of children’s academic and social skills, their relationships with teachers, child and family characteristics, and parenting beliefs and practices. Child assessment instruments included the Classroom Behavior Inventory, Peabody Picture Vocabulary Test-Revised, and reading and math subtests of the Woodcock-Johnson Tests of Achievement-Revised; assessments were collected from the second-to-last year of child care through the second grade. Family environment was assessed primarily via an adaptation of the HOME scale. Limitations noted by the authors focus primarily on the assessment instruments used and also on the study’s reliance on teacher report regarding relationships with children. Sampling issues also limit the generalizability of findings.

The study found that family characteristics—notably mothers’ educational attainment and families’ parenting practices—had the strongest associations with child outcomes, even among children who were in full-day child care. However, children’s attributes and the closeness of children’s relationships with the teacher also were associated with child outcomes. In particular, “a close relationship with the teacher predicted better language skills for children of color and reading skills for children whose parents held more authoritarian parenting views” (p. 431).

After 3 years in school, children who participated in the Abecedarian preschool program scored significantly higher on standardized tests of reading and math than children in the control group.

Campbell, Helms, Sparling, and Ramey, 1998

Early-childhood programs and success in school: The Abecedarian study

Campbell, Ramey, Pungello, Sparling, and Miller-Johnson, 2002

Early childhood education: Young adult outcomes from the Abecedarian project

RCT

These longitudinal follow-up studies explored long-term academic outcomes among participants in the Abecedarian Project, a program of intensive early childhood education for children from low-income families, which was implemented in the 1970s. The overall study design was an RCT; the initial study sample consisted of 111 children, 98 percent of whom were African American. Attrition rates in the follow-up study were extremely low, with 104 participants included in the 2002 study.

The Abecedarian Project provided full-time child care and education for children as young as 6 weeks and continuing through preschool. A school-age phase of the child care program lasted through second grade. Although the program’s primary focus was on children, parent involvement and support activities were included. Parents were invited to visit the classroom and to serve on a center advisory board; they were also offered an optional series of programs focused on parenting skills, nutrition, and health. Emergency social services also were available to families in both the treatment and control groups. Instruments used in the original study were not described in these follow-up studies; however, the study has been well documented elsewhere.

Findings from the initial study demonstrated that, after 3 years in school, children who participated in the preschool program scored significantly higher on standardized tests

of reading and math. Previous follow-up studies, conducted when children were aged 12 and 15, confirmed that the significant advantage associated with preschool persisted through 10 years of school. However, no significant academic effects were associated with the school-age phase alone.

Results of the 1998 and 2002 follow-up studies further confirmed that the preschool intervention remained a significant predictor of children's academic outcomes. The 2002 study reported that participants in the preschool treatment group scored significantly higher on intellectual and academic measures as young adults, attained more years of total education, were more likely to attend a 4-year college, and had lower rates of teenage pregnancy. In addition, "preschool treatment was associated with educationally meaningful effect sizes on reading and math skills that persisted into adulthood" (2002, p. 42). However, the authors also noted that aspects of children's home environment, especially in the preschool years, were also strongly associated with children's academic outcomes.

Campbell, Ramey, Pungello, Sparling, and Miller-Johnson, 2002—*See Campbell, Helms, Sparling, and Ramey, 1998*

Christian, Morrison, and Bryant, 1998

Predicting kindergarten academic skills: Interactions among child care, maternal education, and family literacy environments

Structural equation modeling using data from a correlational design

This study used structural equation modeling to examine sources of children's academic skills upon entrance to kindergarten. The study hypothesized that the family literacy environment was a predictor of children's reading, general information, letter recognition, and vocabulary scores at the start of kindergarten; that the impact of child care on academic skills would vary as a function of maternal education, with children from less educated mothers showing greater gains; and that the amount of child care, family literacy environment, and maternal education could predict children's academic skills. The study sample included 538 kindergarten students in a North Carolina school system during the 1991–1992 school year. About half the children were European American and half were African American. Various family and child data were collected via a background questionnaire, the Family Literacy Environment Scale, the Stanford-Binet Intelligence Scale (short form), the Peabody Picture Vocabulary Test-Revised, and Peabody Individual Achievement Test subscales for general information, reading recognition, and mathematics. A limitation of this study is that the authors did not provide detailed information regarding sampling procedures or the response rates obtained from family members completing the family background questionnaire.

Results indicated that the family literacy environment is a strong predictor of children's academic skills, with positive associations with four of five outcome measures. Children from lower family literacy environments were at greater risk for poor academic skills upon kindergarten entry. High-literacy environments among families whose mothers

had less education placed children at a higher level of academic ability than children of mothers with more formal education who focused less on literacy at home. In addition, the length of time in child care was a predictor of children’s letter recognition skills and of mathematics skills of children from families of less-educated mothers and relatively poor literacy environments. The authors cautioned, however, that “results should not be interpreted to suggest that child care centers improve the status of lower-income children regardless of the centers’ quality” (p. 517).

Results from the study by Clarke-Stewart and Beck (1999) suggest that discussion with the mother is associated with children’s ability to tell a good story.

Clarke-Stewart and Beck, 1999

Maternal scaffolding and children’s narrative retelling of a movie story

Correlational

This study sought to identify maternal conversational strategies that were associated with their young children’s use of narrative. It focused on scaffolding techniques, using a definition by Wood, Bruner, and Ross (1976) that characterizes scaffolding as “an adult- or expert-facilitated process that enables a child or novice to solve a problem, carry out a task, or achieve a goal that would be beyond his or her unassisted efforts” (p. 411).

The study sample consisted of 31 pairs of mothers and their children who were participating in the NICHD Study of Early Child Care and 14 additional mother-child pairs who formed a control group. Mothers were sorted into a “mother-discussion condition” group and a “no-discussion control group” (p. 417). Each mother and child watched a video story together (the setting was a university research playroom). After viewing the videotape together, participants in the mother-discussion condition group discussed the story for as long as they chose. Mothers in the control group did not discuss the story with their children. Each child then told the story to a researcher. Transcripts of the mother-child discussion and of the child’s narration were coded by two pairs of “blind” coders.

Results suggest that discussion with the mother is associated with children’s ability to tell a good story. Children’s recall was associated with mother-child attention, time spent on critical topics, and the mother’s correction of the child’s mistakes. Children’s comprehension of characters’ internal states was associated with the number of questions asked by the mother, extended exchanges, and mother’s correction. Children whose mothers focused attention on the story, asked questions, talked about characters’ emotions, and corrected mistakes told significantly better stories than children whose mothers did not use those strategies and children in the control group.

Connell and Prinz, 2002

The impact of child care and parent-child interactions on school readiness and social skills development for low-income African American children

Correlational

This study explored associations between school readiness skills and child care involvement and the quality of parent-child interaction among kindergarten children from low-income minority families. The sample included 47 children participating in the federal free- and reduced-lunch program in an urban/suburban school district in a medium-sized southeastern U.S. city. All participants were African American. Parents completed survey information and were videotaped interacting with children; the study also used readiness screens and the Brigance, Batelle, and Walker Survey Instrument (WSI), which assesses social-emotional development. Videotaped interaction involved three semistructured activities, conducted either at home or at the school's media center. The study was limited by its small sample size and by the methods used to assess the quality of parent-child interactions. The authors also list as limitations "assessment of child care exposure retrospectively from parent report" and "use of Caucasian coders for parent-child interactions with an African American sample" (p. 190).

Findings from the study indicate that mothers' educational level and children's previous involvement in child care were associated positively with a number of readiness outcomes. The quality of parent-child interactions also was associated positively and significantly with specific readiness outcomes; however, no significant associations were found with children's "overall cognitive performance" (p. 188).

Denton and West, 2002

Children's reading and mathematics achievement in kindergarten and first grade

West, Denton, and Germino-Hausken, 2000

America's kindergartners

Zill and West, 2001

Entering kindergarten: Findings from The Condition of Education, 2000

Survey/correlational

These reports present descriptive and analytical findings from the Early Childhood Longitudinal Study-Kindergarten Class of 1998-1999 (ECLS-K), a national study of kindergartners and their schools, classrooms, teachers, and families, sponsored by the National Center for Education Statistics. The study began following a nationally representative sample of approximately 22,000 kindergartners in Fall 1998, with the plan to follow the same cohort of children through the fifth grade. Data sources include a series of surveys of family members and school personnel; reviews of school records, including grade reports; and academic skills assessments of participating children. Assessments for students at the kindergarten level were developed specifically for the ECLS and addressed children's early academic skills in reading, mathematics,

and general knowledge. The study also looked at other child outcomes, including social skills, physical health and well-being, and children's approaches to learning, but these were assessed via parent or teacher report, while cognitive skills and knowledge were assessed directly.

Children's reading, mathematics, and general knowledge differ according to their age at kindergarten entry, their mother's educational attainment, their family type, the primary language spoken in the home and their race/ethnicity.

Findings from the 2000 and 2001 studies addressed children's skills upon entry to kindergarten. Results indicate that children's reading, mathematics, and general knowledge differ according to their age at kindergarten entry, their mother's educational attainment, their family type, the primary language spoken in the home, and their race/ethnicity. The 2001 study, which identified five proficiency levels for children's reading and mathematics skills, found that the typical child at kindergarten entry had attained the first level of reading proficiency and the second level of mathematics proficiency.

The 2002 follow-up report by Denton and West explored ways in which children's backgrounds, literacy, approaches to learning, and general health status at kindergarten entry were associated with their reading and mathematics knowledge and skills during their spring semester of kindergarten and during first grade. The study found that differences in children's overall achievement linked to their family's poverty status, race/ethnicity, and school type persist from kindergarten through the spring of first grade. The authors noted that "children who begin kindergarten with certain resources seem to be at an advantage. Children who demonstrate early literacy skills and who come from a positive literacy environment, who possess a positive approach to learning, and who enjoy very good or excellent general health seem to perform better after 1 and even 2 years of formal schooling than children who do not have these resources" (pp. xii-xiii).

Diamond, Reagan, and Bandyk, 2000

Parents' conceptions of kindergarten readiness: Relationships with race, ethnicity, and development

Survey/correlational

This study examined parents' beliefs about kindergarten readiness, focusing on three categories of information: beliefs about what readiness skills are important for children in general, concerns about their own children's readiness, and decisions as to whether to delay their children's entry into kindergarten. The study used a subsample of 2,509 households from the 1993 National Household Education Survey; the subsample was random within the age category of families with 4- to 6-year-old children who had not yet entered kindergarten. Information was collected from the School Readiness interview, consisting of 168 questions on school readiness beliefs, developmental abilities, home learning activities, preschool participation, parent concerns about kindergarten, and demographic data. Findings suggest that parents have a global view of kindergarten readiness as encompassing both academic and behavioral skills but base their concerns and decisions on their child's academic abilities. Significant numbers of parents across all racial groups expressed concern about their children's readiness for kindergarten. White parents were most likely to suggest that they would delay their children's entry into kindergarten as a result of those concerns.

Early, Pianta, Taylor, and Cox, 2001

Transition practices: Findings from a national survey of kindergarten teachers

Pianta, Cox, Taylor, and Early, 1999

Kindergarten teachers' practices related to the transition to school: Results of a national survey

Rimm-Kaufman, Pianta, and Cox, 2000

Teachers' judgments of success in the transition to kindergarten

Survey

These three articles all addressed findings from a national survey of public school kindergarten teachers. The survey used a stratified random sample taken from a commercially available list of public school kindergarten teachers. Of just more than 10,000 questionnaires sent out, 3,595 were completed, a return rate of 36 percent. The authors constructed the questionnaire based on their earlier work and on a National Transition Study conducted by Love et al. (1992). They piloted the survey and obtained feedback from a number of reviewers; kindergarten teachers helped to refine the wording of questions and survey formatting on a succession of drafts.

Two of the articles (1999 and 2001) focused on practices teachers use to facilitate children's transition to kindergarten and the barriers they perceive as preventing them from using additional transition practices. The third article (2000) looked at the prevalence and types of adjustment problems children experienced in kindergarten according to teacher reports and at links between teacher reports and teacher characteristics.

Findings regarding transition practices and barriers indicate that the most common types of transition practices are implemented after the school year has begun and are aimed at the entire class rather than at individual children. Teachers are much less likely to implement transition practices while the child is still in preschool or at home, or practices that are targeted to individual children and families. Teachers' coordination with preschool programs and the community is also relatively rare. However, the few teachers who had received training in the use of transition practices were more likely to use all types of transition practices. Major barriers to more individualized transition practices included class size, the late dates at which teachers generally received lists of the students who would be in their kindergarten classes, and the fact that contacting families before the start of school involved summer work not supported by teachers' salaries. Teacher reports regarding both their use of transition practices and barriers to transition practices varied according to the size and composition of schools and school districts. Teachers from more urban environments and from schools or districts with higher percentages of minority or low-income students reported fewer individualized contacts and a greater incidence of family-related barriers to transition practices.

Teachers who have received training in the use of transition practices are more likely to use all types of transition practices, though few have had such training.

Farran, 2000

**Another decade of intervention for children who are low income or disabled:
What do we know now?**

Literature review

This detailed review of a number of early intervention programs is a follow-up to a similar “decade review” conducted by the author and published in 1990. The review is divided into two distinct sections: one focused on interventions for young children who are disadvantaged by poverty and the other on interventions for children with disabilities. The review of programs for children in poverty first provides updated data and extensive contextual discussion of four major programs that were initiated in the 1960s or 1970s: the Abecedarian Project and its offshoot, Project Care; the Parent Child Development Centers; the High/Scope Perry Preschool Project; and Head Start. In addition, Farran reviewed four programs that were initiated more recently: the Infant Health and Development Program; the Chicago Child-Parent Centers; and a pair of two-generation programs, Even Start and Parents as Teachers.

For the most part, these programs showed only modest positive effects. The author attempted to explore the reasons for such modest effects, as well as the reasons that, in several cases, early positive effects dissipated within a relatively short period of time. Her primary conclusion addressed the lack of attention to what she assesses as critical family contexts among the intervention programs:

There is a lack of recognition of the intimate relationship between parenting and context; parenting grows out of the contexts in which families are functioning. Change the context and parenting itself will change. None of the programs reviewed here made any difference to the income, housing conditions, or employment of the parents involved, despite the fact that the families were often chosen because they had extremely low incomes. If such issues are not going to be addressed by intervention programs, then the best intervention may be to provide clean, positive, enriched child-care centers with adequate adult-child ratios for the children to attend until school entry. (p. 525)

Fergus-Morrison, Rimm-Kaufman, and Pianta, 2003

A longitudinal study of mother-child interactions at school entry and social and academic outcomes in middle school

Correlational

This study explored links between the quality of mothers’ interactions with their young children at kindergarten entry and children’s social and academic outcomes in middle school. The study was grounded in earlier research on maternal sensitivity, which has been associated with a variety of academic and social outcomes for children.

The study used a sample of 122 children entering kindergarten in a small-city school district and their mothers; participants were taken from a larger sample of 342 children who comprised the entire kindergarten class for the school district. Children included in the study were those who remained in the school district through eighth grade; data analysis showed that the subsample used in this study differed from the original, larger sample in terms of gender but not in terms of ethnicity or mother's education. For the study, researchers observed each mother-child pair as they interacted regarding two problem-solving tasks. Each mother was asked to explain each task to her child and to help her child complete the task. Interaction on each task took 4 minutes on the first day of kindergarten. Child assessment data also were collected: the vocabulary subtest of the Stanford-Binet Intelligence Scale, administered on the first day of kindergarten; and children's grades, disciplinary records, and teacher ratings of classroom behavior through the eighth grade. Limitations of this study include the sample size (noted as a limitation by the researchers), the brevity of the mother-child interactions studied, and the fact that these interactions were studied out of the ordinary home context and under potentially stressful circumstances for both child and mother (i.e., the first day of kindergarten).

The study found small-to-moderate associations between ratings of mother-child interaction and children's middle school academic performance, discipline problems, and negative classroom behaviors. Using regression analyses, the researchers found that family and child demographic characteristics contributed the most variance in all three child outcome variables: academic performance, classroom behaviors, and discipline problems in school. Demographic variables were consistently the strongest predictor of children's academic and social performance when they reached middle school. Analysis showed further that "the pattern a child sets forth in elementary school is also strongly predictive of the child's later academic and social performance" (p. 195).

Gilliam and Zigler, 2000

A critical meta-analysis of all evaluations of state-funded preschool from 1977 to 1998: Implications for policy, service delivery, and program evaluation

Meta-analysis of research

This meta-analytic review examined 13 state-funded preschool programs and included a formal evaluation of the programs' impact on child outcomes. The authors limited their focus to programs that served children aged 3 to 5, provided classroom-based educational services, and were primarily funded and administered at the state level. Although the review did not focus specifically on family involvement or support components, some of the programs included family components, notably on-site family caseworkers and home visits. Of the 13 programs reviewed, none used random assignment of children to treatment and control groups. Three programs did not use a comparison group at all and were dealt with separately in the review. No program included in the review was directly addressed in studies reviewed for this synthesis.

In spite of the methodological flaws in the studies they reviewed, the authors noted that their findings suggest modest positive impacts in improving children's developmental competence, improving later school attendance and performance, and reducing subsequent grade retention. Significant effects were limited primarily to kindergarten and first grade, although some were sustained several years beyond preschool. The authors also noted that their results were similar to findings from evaluations of other large-scale preschool programs for low-income children, notably Head Start.

Huebner, 2000

Promoting toddlers' language development: A randomized-controlled trial of a community-based intervention

RCT

This study focused on an intervention in which staff working in several Seattle, Washington, public libraries trained parents of 2-year-old children in the use of a dialogic reading technique. The author used a dialogic reading program described by Whitehurst et al. (1988); see the summary of Lonigan and Whitehurst, 1998, for a description of the dialogic reading strategy. Training was conducted in two 1-hour sessions; training procedures were modified to accommodate small groups of up to 12 parents. Participating families were recruited through the neighborhood library system; of 184 who initially signed up for the study, 129 families were included in the study. Participants were assigned randomly to a treatment group (88 families) or a comparison group (41 families). Researchers collected various background and pre- and post-test child assessment data, using the same standardized assessments of child language ability used in Whitehurst's previous studies. These included the Peabody Picture Vocabulary Test-Revised (PPVT-R), Expressive One-Word Picture Vocabulary Test (EOWPVT-R) and the verbal expression subtest of the Illinois Test of Psycholinguistic Abilities (ITPA). Post-test data were collected for 93 percent of the dialogic reading group and 93 percent of the control group families.

In addition, 50 of the intervention group families participated in a follow-up evaluation 3 months after initial post-testing. However, there had been "inadvertent" mixing of the treatment and control groups in the 3-month period after post-testing and before the follow-up: "As soon as the formal intervention period ended, librarians and parents relaxed their allegiance to group secrecy and information about the two conditions was shared casually" (p. 528). As a result of this contamination, child outcome findings from the follow-up were fatally compromised and are excluded from this review.

The study found that parents in the intervention group adapted their reading style to use the dialogic technique and that they continued to do so as much as 3 months after the training. The study also found significant effects on children's expressive language, with results of the ITPA post-test indicating a medium effect size for children in the treatment group. However, no other post-test outcomes reached statistical significance. The author noted that children's initial vocabulary skill levels were relatively high and speculated that "it is likely this level of proficiency limited the ability to document increases in vocabulary as measured by a brief standardized test" (p. 530).

Jordan, Snow, and Porche, 2000

Project EASE: The effect of a family literacy project on kindergarten students' early literacy skills

Quasi-experimental

This quasi-experimental study evaluated the effectiveness of the parent-training component of a literacy project and assessed the project's effects on children's language and literacy skills over a 1-year period. Project EASE (Early Access to Success in Education) featured parent education sessions, parent-child activities at school, and book-centered activities at home. Parent training was organized into five monthly units, each with a different theme. Parent educators coached parents and provided books and structured activities for parents to do at home with their children.

The study sample consisted of 248 kindergarten students and their families within a middle-income, primarily European American suburb. Of these, 177 students were included in the treatment group. Participating students attended kindergarten classes in one of four schools; classrooms were consistent in class size, teacher experience, and curricular offerings. Parents reported on home literacy support. Language and literacy tests, including the Peabody Picture Vocabulary Test-Revised (PPVT-R) and subtests of the Comprehensive Assessment Program, were administered to students before and after the study period.

The study found that children whose families participated in both at-school and at-home project activities made significantly greater gains in language scores than children from the comparison group. As the number of language activities completed by a family increased, so did children's gains. The greatest gains were among low-achieving students who started out with low language skills and strong home literacy support. The students in this study were attending generally good schools and were not particularly at risk, which may limit the applicability of these findings in other settings. However, the authors noted that replication studies under way in urban, high-poverty centers showed early promise.

LaParo, Kraft-Sayre, and Pianta, 2003

Preschool to kindergarten transition activities: Involvement and satisfaction of families and teachers

Survey/descriptive

Information presented in this study was collected as part of the National Center for Early Development and Learning's Kindergarten Transition Project. The study presents descriptive findings on the types of transition activities used by preschool and kindergarten teachers in settings where there is substantial support for such practices. The Kindergarten Transition Project was a 2-year intervention in which family workers and teachers implemented transition activities throughout the year, such as inviting preschool children to kindergarten classrooms, developing individualized relationships with families, and fostering parents' use of readiness-enhancing practices at home.

LaParo and colleagues (2003) found that more than 50 percent of families reported participating in almost all of the transition activities that were offered to them, and most characterized these activities as helpful

During the first project year, researchers collected data on 95 children, their families, and their preschool teachers; in the second year, data were collected on 86 of these children and their families and kindergarten teachers. About two-thirds of the children were African American; most of the rest were White, with small numbers of Hispanic children and children from other unspecified ethnic groups. Data collection included parent interviews and teacher questionnaires throughout the 2 project years.

Information addressed families' and teachers' participation in, and perceptions of, transition activities. The study did not collect outcome data for participating children, nor did it include a comparison group. The utility of this study, then, is limited to descriptive information regarding families' and teachers' activities and perceptions regarding transition practices; it does not speak to program effectiveness, either in increasing the use of transition practices or in the impact of those practices on children's transition. The very small sample of teachers—10 preschool and 10 kindergarten teachers—is also a limitation of this study.

The study found that more than 50 percent of families reported participating in almost all of the transition activities that were offered to them, and most characterized these activities as helpful in supporting their child's transition. The school-based transition activity in which families most frequently participated was the child's visit to a kindergarten classroom; the least frequent activity was attending a kindergarten orientation. The barrier to participating in school-based transition activities reported most frequently by parents was a conflict with their work schedules. Transition activities that most parents did at home included teaching their children school-related skills (e.g., learning their address and home phone number), talking with other parents about the kindergarten experience, discussing behavioral expectations with their children, and talking about meeting new classmates. In terms of school staffs, both preschool and kindergarten teachers participated in various transition activities, though kindergarten teachers' participation was "somewhat lower" than that of preschool teachers.

Lonigan and Whitehurst, 1998

Relative efficacy of parent and teacher involvement in a shared-reading intervention for preschool children from low-income backgrounds

Zevenbergen, Whitehurst, and Zevenbergen, 2003

Effects of a shared-reading intervention on the inclusion of evaluative devices in narratives of children from low-income families

RCT

These two RCTs focused on a shared-reading strategy called *dialogic reading*. Dialogic reading is a specific strategy in which "the child learns to become the storyteller. The adult assumes the role of an active listener, asking questions, adding information, and prompting the child to increase the sophistication of her or his description of the material in the picture book. As the child becomes accustomed to her or his role as the storyteller, the adult shifts more of the responsibility for telling the story to the child" (1998, p. 265).

The Lonigan and Whitehurst study (1998) was a replication of a series of studies by Whitehurst and colleagues, which found that dialogic reading had significant effects on preschool children's language skills. Previous studies found that the combination of teachers and parents using the dialogic reading strategy with children resulted in the largest effects on children's skills. The current study was designed to replicate those findings with a more disadvantaged group of children. The authors also sought to explore the relative effectiveness of parents and teachers in using dialogic reading with low-income children.

Participants were recruited from families of 3- and 4-year-old children who attended four child care centers serving predominantly low-income families and then randomly assigned to one of four groups: a school reading group, a home reading group, a school plus home reading group, and a control group. Of 114 participants originally engaged in the study, 91 remained through the post-test, but analysis indicated no differences on pretest variables among those who left and those who remained. Assessment instruments included the Peabody Picture Vocabulary Test-Revised (PPVT-R), Expressive One-Word Picture Vocabulary Test (EOWPVT), the verbal expression subtest of the Illinois Test of Psycholinguistic Abilities (ITPA-VE), and analysis of a semistructured reading interaction. Both parents and teachers of children in the treatment group were trained (via videotape) in the dialogic reading method. Dialogic reading was scheduled at the child care centers for 10 minutes daily over 6 weeks, using specific books, and parents were encouraged to read daily. Both parents and teachers kept log sheets.

The study by Zevenbergen, Whitehurst, and Zevenbergen (2003) also addressed dialogic reading but focused on a different outcome: children's narrative skills. Participants in the study were 123 4-year-old children from low-income families who were enrolled in 16 classrooms within four Head Start centers. Classrooms were assigned randomly to treatment and control conditions. The intervention consisted of a 30-week shared-reading program conducted both at school and at home, as well as a phonemic awareness program; however, the latter program was not expected to impact participating children's narrative skills and thus was not addressed in this article. Parents and teachers were trained in the dialogic reading strategy; parents were provided with books each week and were encouraged to read the books dialogically with their children at least three times per week. Children's narrative skills were assessed using a standardized story-retelling task. Children's narratives were recorded, transcribed, and coded.

Both studies found significant effects on specific aspects of children's expressive language skills. The Lonigan and Whitehurst study reported effects on two measures of expressive language, the EOWPVT and the ITPA-VE; effects were both statistically and practically significant. Results differed, however, depending on the outcome measure, and the pattern of significance differed from that obtained in the 1994 study being replicated. The authors listed several possible explanations for the difference, related to characteristics of the outcome measures and size of the current study sample. The authors also found that the intervention worked better in some centers than in others and noted differences between "high-compliance" and "low-compliance" child care

Both studies of the dialogic reading strategy found significant effects on specific aspects of children's expressive language skills.

centers. Regarding the relative efficacy of teacher and parent use of dialogic reading, findings also varied depending on the outcome measure used and on the frequency with which children were exposed to dialogic reading at school. Within “high-compliance” centers, children exposed to dialogic reading at both home and school appeared to benefit more in terms of gains in expressive vocabulary than those who were exposed just at home or just at school. In terms of children’s descriptive use of language, results were stronger in the home group than in either the school or the school plus home group.

Zevenbergen, Whitehurst, and Zevenbergen found that the dialogic reading intervention had significant effects on children’s use of evaluative devices in their narratives. They noted, “The effect of the intervention is not simply that children exposed to the intervention program are talking more or recalling more information. . . . Rather, the children who participated in the intervention program appear to have gained specific narrative skills through their shared-reading experiences” (pp. 9–10). Results indicated significant effects for some, but not all, categories of evaluative devices, including references to characters’ internal states and use of dialogue. The authors noted that “the literature suggests that this narrative skill may translate into educational. . . and social advantages. . . for the child when he or she begins school” (pp. 11–12).

Marcon, 1999

Positive relationships between parent-school involvement and public school inner-city preschoolers’ development and academic performance

Correlational

This study examined the links between teacher ratings of parental involvement and their preschool children’s mastery of readiness skills. The study included three groups of 708 mostly low-income, African American preschoolers who were enrolled in public prekindergarten or Head Start programs in Washington, DC, over a 3-year period. Teachers rated parental involvement in four types of activities: parent-teacher conferences, home visits, extended class visits by parents, and parental help with a class activity at school. The first two types of activities were classified as passive involvement; the second two, as active involvement. Students were grouped into three categories depending on the level of parental involvement: low (0–1 types of involvement), median (2 types), and high (3–4 types). Teachers assessed students using the Vineland Adaptive Behavior Scales, which address communication, daily living skills, social skills, and motor skills; students’ report card grades also were used. Because this study was correlational in its methodology, assessing whether, or to what extent, higher levels of parental involvement may have caused children’s improved grades and scores is impossible. This study is also limited by the fact that the frequency of parental involvement was not recorded; thus, only a single instance of activity was needed to achieve a positive score for any given category of parental involvement. The study also relied on teacher reports of parental involvement and teachers’ perceptions of students’ developmental gains.

The study found that teachers reported low (or no) contact with 37 percent of parents, median-level contact with 27 percent, and high contact with 36 percent. Single parents and poor parents were just as likely to be involved as two-parent families and more affluent parents. Parents of children enrolled in Head Start were found to be significantly more involved than parents whose children attended public prekindergarten. The author also found that increased parent-school involvement and more active types of parental involvement were both associated with more positive teacher reports of child development in all domains and more positive reports of mastery of early basic school skills in all subject areas.

Mathematica Policy Research, Inc., 2001

Building their futures: How early Head Start programs are enhancing the lives of infants and toddlers in low-income families

RCT

This large-scale RCT examined the impact on children and families of the Early Head Start program, a two-generation program that works with new mothers and their children up to age 3 to improve children's cognitive and language development, social-emotional behavior, and health. Individual program sites may select from a number of program options, including home visits, center-based care, case management, and group parenting activities. Among the 17 sites included in this study, seven were home-based, four were center-based, and six used a mixed approach.

The study involved approximately 3,000 children and their low-income families in 17 sites across the United States. At each site, families were assigned randomly to the Head Start program or to a control group. Assessment instruments included the Bayley scales of infant development, MacArthur communicative development inventories, other child assessments, parent service interviews, and the HOME questionnaire for assessing the family environment.

The study found that, after a year or more of intervention services, 2-year-old participants performed significantly better on a range of measures of cognitive, language, and social-emotional development than did children in the control group. Their parents scored significantly higher than those in the control group on many measures of the home environment, parenting behavior including literacy-supportive activities, and knowledge of infant-toddler development. In addition, families from the intervention group were more likely to attend school or job training and to report reductions in parenting stress and family conflict. The authors noted, "Although these impacts are generally modest in size, the pattern of positive findings across a wide range of key domains important for children's well-being and future development is promising" (p. iii). The study also found that local sites characterized as "early implementers" tended to demonstrate larger impacts both on families' use of services and on child and family outcomes than did programs described as "late implementers" or "incomplete implementers."

Miedel and Reynolds, 1999

Parent involvement in early intervention for disadvantaged children: Does it matter?

Reynolds, 2000

Success in early intervention: The Chicago Child-Parent Centers

Reynolds, Temple, Robertson, and Mann, 2001

Long-term effects of an early childhood intervention on educational achievement and juvenile arrest: A 15-year follow-up of low-income children in public schools

Quasi-experimental

These three follow-up studies were part of the Chicago Longitudinal Study, which explored the relationship between participation in an early intervention program for low-income, inner-city children (the Chicago Child-Parent Centers) and those children's later school achievement and success. The Chicago Child-Parent Centers (CPC) program provides educational and family support services to children aged 3 to 9 and their families. The program includes half-day preschool starting at age 3 or 4, half- or full-day kindergarten, and school-age services in linked elementary schools for children aged 6 to 9. Programs for parents include parent resource rooms and a parent resource teacher who oversees parent activities at the center and within the community. The overall study design was quasi-experimental, with a matched comparison group. Findings from the initial study were positive in terms of children's achievement test scores, lower rates of grade retention, and lower rates of special education placement.

The Miedel and Reynolds study examined associations between parents' involvement in the CPC program and their children's eighth grade school achievement. The sample included 704 parents (97 percent of them African American) who were participating in the Chicago Longitudinal Study. Through interviews, parents of eighth graders reported retrospectively on their participation in the CPC program when their children were younger. Activities parents listed in the interviews included visiting the parent resource room; attending parent-teacher conferences, school meetings, and assemblies; going on class trips; working in the classroom; receiving home visits; and transporting their children to and from school. To confirm parents' reports, teachers were asked to rate parents' participation on a 5-point scale; teacher ratings closely matched parents' own ratings of their involvement. The Iowa Test of Basic Skills was used to measure students' reading achievement in both kindergarten and eighth grade. The authors found that the number of activities in which parents had engaged when their children were in preschool and kindergarten was associated with eighth graders' higher reading achievement, lower retention rates, and fewer years spent in special education. Reliance on parents' retrospective self-report was a limitation in this study.

The Reynolds study looked at associations between program participation and student outcomes at age 15. The author had previously found that, at the end of third grade, CPC program graduates surpassed their comparison group counterparts by 4 to 6 points in reading and math achievement. He found that these significant differences remained stable up to age 15, though the magnitude of effects declined somewhat over time.

Although modest, the effects “are notable given the relative lack of evidence of the very long-term effects of large-scale early childhood programs on school achievement” (p. 94).

Reynolds (2000) also used structural equation modeling to explore pathways of program effectiveness. Analysis indicated that the “cognitive advantage” hypothesis provided the best single explanation for the significant relation between preschool participation and adolescent school achievement. The author noted that “preschool participants started kindergarten more cognitively ready to learn than non-preschool participants. . . , and this advantage directly carried over to later school achievement, above and beyond the effects of other intervening variables” (pp. 147–148). Analysis also showed parent participation in school to be a pathway through which the preschool program affected school achievement.

Reynolds, Temple, Robertson, and Mann (2001) reported on another phase of the longitudinal study of outcomes associated with participation in the CPC program. They found that participation in the CPC program was associated with better educational and social outcomes up to age 20. Results showed that those who had participated in the preschool portion of the CPC program had a significantly higher rate of high school completion by age 20 and had also completed more years of education than the comparison group. However, there was no evidence that participation in the school-age portion of the CPC program was associated with any measure of educational attainment.

NICHHD Early Child Care Research Network, 2002

Parenting and family influences when children are in child care: Results from the NICHHD Study of Early Child Care

NICHHD Early Child Care Research Network, 2003

Does amount of time spent in child care predict social-emotional adjustment during the transition to kindergarten?

Correlational

These reports summarized results from the first two phases of the National Institute of Child Health and Human Development’s (NICHD’s) multisite prospective study of the effects of early child care on the development of children. Begun in 1989, the study was designed as a comprehensive study of the child care setting as compared with the family child-rearing environment. In Phase 1, the study followed the development of a national sample of 1,364 children throughout their infancy and preschool years. In Phase 2, participating children were studied through their first grade in school. In Phase 3, researchers plan to follow participants through middle childhood. One major focus of the study has been ways in which children’s experiences in child care may modify the influence of family experiences.

The study did not use a random sample. Instead, participants were recruited from 24 hospitals in 10 states. A total of 1,364 families with healthy newborns were enrolled in

Outcomes for children are consistently associated with the quality of the parenting they receive; this holds true for children with varied experiences in child care.

the study when the infants were 1 month of age. By age 36 months, 1,216, or 89 percent of the original sample, remained in the study. By the time participating children were 4 1/2 years old, 1,081 of the original 1,364 children and their families remained in the study; in kindergarten, 1,058 remained. Researchers used a variety of measures at various intervals, including measures of the family, parenting, and mother-child relations, and of children's social, cognitive, and language development.

Findings from the 2002 report indicate that outcomes for children are associated consistently with the quality of the parenting they receive; this holds true for children with varied experiences in child care. The authors noted, "In particular, qualities of parenting, including maternal sensitivity, responsivity, involvement, and cognitive stimulation were found to be uniquely predictive of young children's social-emotional and cognitive development after taking into account the children's child-care experience over the first three years of life" (p. 119). In addition, the 2003 report found that maternal sensitivity had the most consistent and generally strongest associations with all child outcomes, noting, "When mothers provided more sensitive care. . . , their children evinced greater social competence, fewer problem behaviors, and less conflict with adults at both 54 months and in kindergarten" (p. 1000).

Nord, Lennon, Liu, and Chandler, 1999

Home literacy activities and signs of children's emerging literacy, 1993 and 1999

Survey/correlational

This report presents information about the extent to which families are engaged in literacy activities with their 3- to 5-year-old preschoolers and the associations between home literacy activities and signs of emerging literacy among children. The study used data from the 1993 and 1999 National Household Education Surveys, which were conducted by the National Center for Education Statistics (NCES). This report does not include a detailed description of the survey's methodology; however, that information has been addressed extensively in other NCES reports. Samples from these surveys are nationally representative. The surveys relied on parent self-report; the authors note, "It is important to acknowledge that parents may overestimate both their involvement in home literacy activities and their children's skills because they recognize that such activities and skills are socially desirable" (p. 2).

The study found that the vast majority (81 percent) of preschoolers were, according to parent self-report, read to by a family member on at least three occasions during the week before the survey was taken. The study also found variations by child and family characteristics in the frequency of early literacy-related activities in which families engaged with their young children. These factors included race/ethnicity, home language, socioeconomic status, and mothers' education.

The study identified specific child risk factors, including mothers whose home language is other than English, mothers with less than a high school education, a household with fewer than two parents, family income below the poverty threshold, and race/ethnicity other than white, non-Hispanic. Children with one or more of these risk factors were

found to be less likely than other children to have frequently engaged in literacy activities with their families: “This is especially true for reading to children, telling them stories, doing arts and crafts with them, and visiting the library with them. The differences between those at risk and those not at risk are smaller for teaching children letters, words, or numbers, and teaching them songs or music” (p. 5).

In exploring indicators of children’s emerging literacy skills, the study found some differences by age, race/ethnicity, and poverty status, with the strongest differences associated with socioeconomic status. The study also found that children who were read to frequently were more likely to recognize all letters of the alphabet (26% vs. 14%), count to 20 or higher (60% vs. 44%), write their own names (54% vs. 40%), and read or pretend to read (77% vs. 57%). The study also found associations with frequently telling children stories, teaching them letters, words, or numbers, or taking them to the library, but these associations were not as strong as with reading to children.

Phillips, Brooks-Gunn, Duncan, Klebanov, and Crane, 1998

Family background, parenting practices, and the black-white test score gap

Correlational

This correlational study used survey data from two samples of young children to explore possible associations between family background variables and young children’s cognitive skills. The authors sought to investigate the assertion made in the controversial book, *The Bell Curve*, that genetic factors are the most powerful predictors of differences in test scores for Black and White children. The primary sample consisted of 1,626 African American and European American 5- and 6-year-olds from the Children of the National Longitudinal Survey of Youth. The researchers supplemented this data with data from the Infant Health and Development Program (IHDP), an eight-site randomized controlled trial, which assessed the effectiveness of educational and family support services for low-birth-weight, preterm infants during their first 3 years. Background characteristics addressed in the study included parents’ education and income; grandparents’ education; and mothers’ household size, high school quality, perceived self-efficacy, and parenting practices. Children’s cognitive skills were assessed using the Peabody Picture Vocabulary Test-Revised (PPVT-R) and, for the IHDP sample, the Wechsler Preschool and Primary Scale of Intelligence.

The study found that, in general, even when Black and White parents have similar schooling and cognitive skills, significant differences are seen in their children’s vocabulary scores. The authors noted that racial inequalities related to a number of background characteristics, including neighborhood resources and poverty, “all seem to be important factors in the gap among young children. Racial differences in parenting practices also appear to be important” (p. 138). The authors concluded that “eliminating environmental differences between black and white families could go a long way toward eliminating the test score gap” (p. 138).

Pianta, Cox, Taylor, and Early, 1999—*See Early, Pianta, Taylor, and Cox, 2001*

 Piotrkowski, Botsko, and Matthews, 2000

Parents' and teachers' beliefs about children's school readiness in a high-need community

Survey

While parents and teachers generally agreed on the importance of children being healthy and socially competent, parents emphasized academically oriented readiness skills more than teachers did.

This study collected survey data to compare the beliefs of preschool teachers, kindergarten teachers, and parents from one school district about the knowledge and skills that children should have by the time they enter kindergarten. The authors used a survey instrument they developed specifically for the study. The study sample consisted of 355 parents and 109 teachers from 26 out of 34 community-based preschools within a predominantly Black and Hispanic, high-need urban school district, with public school kindergarten teachers also participating. Spanish-language versions of the survey returned by an additional 110 parents were excluded when analysis indicated an interaction between the Spanish version and responses to it. As a result, “only Hispanic parents who were able to read English were retained in the final sample. Excluded parents were poorer, less educated, less likely to be employed, and more likely to speak only Spanish at home than Hispanic respondents who completed the survey in English” (p. 544). The representativeness of findings is limited by sample bias because of the exclusion of the Spanish-language responses from the data analysis, although the findings are generally consistent with those from other studies.

The study found that, while parents and teachers generally agreed on the importance of children being healthy and socially competent, parents emphasized academically oriented skills more than teachers did. In addition, preschool teachers generally had higher expectations regarding children's skills at kindergarten entry than did kindergarten teachers. The study also found that “regardless of parental ethnicity, parents showed remarkable consensus about what children should know and be able to do at kindergarten entry” (p. 553).

 Ramey, Lanzi, Phillips, and Ramey, 1998

Perspectives of former Head Start children and their parents on school and the transition to school

Survey/correlational

This study explored the perspectives of kindergartners, their families, and their teachers regarding the transition from Head Start to kindergarten. Researchers explored children's perceptions about school and the associations between those perceptions and students' academic performance. The study used information from a sample of 4,582 former Head Start participants who were surveyed when they were in kindergarten, their primary caregivers, and their kindergarten, first- and second-grade teachers. Data were collected as part of the national Head Start/Public School Early Childhood Transition Demonstration Study. Participants came from 435 schools in 28 states. (Three state “sites” were excluded because of incomplete or unreliable data.) It is not clear whether the study sample included only children in the larger study's intervention group (i.e., children who received transitional Head Start services during

their kindergarten year) or children from both the intervention and control groups, a factor that could influence the generalizability of the study's findings. Children were assessed using the Peabody Picture Vocabulary Test-Revised (PPVT-R).

The study found that most children reported “exceptionally positive experiences” during their transitional year. Children who reported less positive experiences were more likely to be boys than girls and to have lower receptive language skills as assessed by the PPVT-R. The study also noted strategies that parents used to address the kinds of school transition problems they thought would likely occur. These included “showing interest in the child’s school, engaging in learning activities at home and ‘playing school,’ preparing children for school by talking about school and new settings, and helping children acquire needed social and behavioral skills” (p. 325).

Ramey, Ramey, Phillips, Lanzi, Brezaussek, Katholi, Snyder, and Lawrence, 2000

Head Start children’s entry into public school: A report on the national Head Start/Public School Early Childhood Transition Demonstration Study

RCT

This multisite, randomized controlled trial assessed the effectiveness of continuing Head Start services through the third grade in maintaining and enhancing the early gains of former Head Start children and their families. The study addressed 453 schools (219 demonstration and 234 control schools) and more than 5,600 classrooms in 31 state sites over a 6-year period. In most sites, individual schools within a school district were assigned randomly to a treatment (demonstration) or control group; however, in six sites, entire school districts were assigned randomly as demonstration or control group sites. The demonstration group of schools or school districts received Transition Demonstration services, while the control group received typical educational and related services.

The intervention had four key program components: family support services; family involvement opportunities; health, nutrition, and mental health services for both children and their families; and educational programming for both children and their parents. Educational programming for parents included programs “to promote strong parenting skills, educational and vocational growth for adult family members, and strong and stable family functioning” (pp. 2–3). About a third of sites provided parent resource rooms. The study collected various data from children, families, school staffs, and school records. Child outcome measures included the Woodcock-Johnson Tests of Achievement.

For the most part, the study’s findings focused on implementation issues. As with a number of other large-scale demonstration programs, program features were implemented unevenly across sites and even within sites. All sites reported multiple obstacles to implementation. The study found that only about 20 percent of sites implemented “very strong” programs: “Of the 31 local sites, 6 were rated as very good to excellent in all features of their program, while 8 were judged as fair or weak in all aspects” (p. 2).

In terms of child outcomes, the study found that children in the treatment groups generally made good academic progress through third grade, with their largest gains in the first 2 years. At kindergarten entry, they scored an average of 8 points below the national average in their reading scores on the Woodcock-Johnson Tests of Achievement, but by the end of the second and third grades they performed at the national average. However, most effects for children in the treatment group did not differ significantly from those in the control group. The authors noted that several factors may have contributed to the fact that treatment group participants showed limited benefits relative to the control group, including the mixed quality of program implementation, many control group schools' use of program supports "that essentially mimicked those" in the treatment schools, and the fact that children in both treatment and control groups "appeared to benefit tremendously from their school experiences" (p. 9).

The most commonly used transition practices were phoning and sending information home about the kindergarten program, and inviting parents to attend a pre-enrollment orientation.

Rathbun & Germino-Hausken, 2001

How are transition-to-kindergarten activities associated with parent involvement during kindergarten?

Survey

This study examined the extent to which transitional activities offered by teachers or their schools are associated with various school characteristics and with levels of parent involvement. Data for the report were taken from the Early Childhood Longitudinal Study, Kindergarten Class of 1998–1999 (see Denton & West, 2002). The nationally representative sample included 3,243 public and private school kindergarten teachers. Reliance on teacher report is a limitation in this study, particularly because other research has revealed discrepancies between teacher and family reports of parental involvement.

The study found that, on average, teachers used "about three" of six pre-listed, broadly descriptive transition practices. Those most commonly used were phoning and sending information home about the kindergarten program and inviting parents to attend a pre-enrollment orientation. The least commonly used were shortening the school days at the start of the school year and home visits by teachers at the beginning of the school year. The survey also found that the number and type of transition activities differed by school characteristics. Teachers in schools with low proportions of at-risk children reported using a greater number of transition practices and practices that were more interactive with individual families, compared with teachers in schools with higher proportions of at-risk children. In terms of parental involvement, the study found that teacher-reported levels of parental involvement were higher in private school than in public school kindergartens. In addition, several transition practices were associated with teacher reports of greater parental involvement. These included telephoning or sending home information about the kindergarten program, hosting pre-enrollment visits, providing parent orientations, and having preschoolers spend some time in the kindergarten classroom.

Reynolds, 2000—See *Miedel and Reynolds, 2000*

Reynolds, Temple, Robertson, and Mann, 2001—*See Miedel and Reynolds, 2000*

Rimm-Kaufman and Pianta, 1999

Patterns of family-school contact in preschool and kindergarten

Correlational

This study described characteristics of and changes in teacher-family contact in preschool and kindergarten. The study was conducted over a 2-year period and focused on two preschools (one of them a Head Start program) and one kindergarten program in a single community. Participating children were from low-income families, as measured by children's eligibility for free or reduced lunches. In Year 1, preschool and kindergarten teachers kept family involvement logs describing contact with families of 290 children; in Year 2, kindergarten teachers kept family-school contact logs on 82 of the children who had participated in the Year 1 study. "To be defined as a contact, the exchange had to consist of two or more sentences or personal communication between the teacher and the child's family member(s)" (p. 430).

Both longitudinal and cross-sectional analyses showed that teacher-family contact occurred more frequently in both preschool programs than in kindergarten. The types of contact and sources of initiation of the contact also changed from preschool to kindergarten: "Home visits, conversations during pick-up and drop-off, and phone calls were more common in preschool than kindergarten whereas notes were more typical in kindergarten. Contacts shifted from being typically home-initiated while children were in preschool to school-initiated while children were in kindergarten. Positive topics were discussed a greater percentage of time in preschool than kindergarten, whereas family support, academic problems, and behavioral problems were discussed more frequently in kindergarten" (p. 433).

Rimm-Kaufman and Pianta (1999) found that contacts between families and schools "shifted from being typically home-initiated while children were in preschool to school-initiated while children were in kindergarten."

Rimm-Kaufman and Pianta, 2004

Family-school communication in preschool and kindergarten in the context of a relationship-enhancing intervention

Correlational

Like the study by LaParo, Kraft-Sayre, and Pianta (2003), this study used data from the National Center for Early Development and Learning's Kindergarten Transition Project. The purpose of this study was to explore changes in patterns of family-school communication between preschool and kindergarten and to identify family experiences associated with more frequent family-school communication. The Kindergarten Transition Project was an intervention involving children from two nonrandomly selected preschools and the school kindergarten program. Participating children (preschool in Year 1, kindergarten in Year 2) were assigned to a transition coordinator who provided transition-related services both to families and to the schools. The study used a daily diary method to collect data, in which teachers and transition coordinators logged their communication with families of the 75 children participating in the project. Preschool teachers recorded communication for the first project year; kindergarten

teachers, for the second. The logging procedure differentiated between “primary” and “incidental” contacts or communication with families. Data also were collected from families via interviews conducted by the family workers.

This study did not address the effectiveness of the transition project but rather provided descriptive and analytical data regarding patterns of family-school communication. The generalizability of findings is limited by the atypical circumstances of a transition intervention, although findings are consistent with those in more typical school environments.

The study found that, in both preschool and kindergarten, communication was most frequent at the beginning of the year. However, there was significantly greater variability in the frequency of family-school communication in preschool than in kindergarten. The study also found a significant decrease in family-school communication between preschool and kindergarten. This pattern was consistent across family variables, including sociodemographic risk, families’ use of pre-academic activities at home, and families’ view of school staff. Even families who communicated frequently with their child’s preschool teacher tended to communicate less often with their child’s kindergarten teacher. The authors concluded, “As children make the transition from preschool to kindergarten, family-school communication decreases. The frequency of family-school communication depends on program characteristics in preschool, but these program differences are concurrent only and do not have lasting effects into the kindergarten year” (p. 22).

Rimm-Kaufman, Pianta, and Cox, 2000—*See Early, Pianta, Taylor, and Cox, 2001*

Rimm-Kaufman, Pianta, Cox, and Bradley, 2003

Teacher-rated family involvement and children’s social and academic outcomes in kindergarten

Correlational

This study examined associations between teacher reports of family involvement in school and children’s social and academic competencies in the kindergarten year. The study used a subsample of 223 kindergarten children from the NICHD Study of Early Child Care (SECC), using all children from three of 10 SECC sites. Data were obtained from families regarding family background characteristics, observations of mother-child interactions and of children’s classroom behaviors, teacher-reported measures of family involvement, and teacher ratings on three scales addressing children’s behavioral competency, academic adjustment, and peer relationships at the end of the kindergarten year. The authors used statistical methods to control for variations in families’ socioeconomic status and mothers’ sensitivity (a variable shown in other studies to be associated with child readiness outcomes). The heavy reliance on teacher reports is a limitation in this study. The authors noted, “Because the same teacher rated both family involvement and child performance for each child, it is possible that teachers with positive relationships with families inflated their ratings of the children and vice versa” (p. 194).

The study found that families' socioeconomic status and maternal sensitivity were associated with seven of the nine outcomes studied. Both higher socioeconomic status and higher maternal sensitivity were associated with higher teacher ratings of children's language and math skills. Higher levels of maternal sensitivity were associated with teacher ratings of fewer behavior problems, higher competency, and greater likelihood of the child being identified as "well-liked." Regarding family involvement, higher teacher ratings of positive family attitudes were associated with eight of the nine child readiness outcomes. However, higher ratings on family involvement activities were associated with only two of the nine outcomes. The study also found a negative association between teacher reports of family involvement activities and children's behavior problems.

Shonkoff and Phillips (National Research Council), 2000

From neurons to neighborhoods: The science of early childhood development

Literature review

This book-length literature review is one in a series of reports from the National Research Council that are intended to make scientific research more accessible to educators and other practitioners. To produce this report, a committee of 17 experts spent more than 2 years evaluating and synthesizing the current scientific literature on early childhood development. The committee's charge was "to update scientific knowledge about the nature of early development and the role of early experiences, to disentangle such knowledge from erroneous popular beliefs or misunderstandings, and to discuss the implications of this knowledge base for early childhood policy, practice, professional development, and research" (pp. 2–3). The literature review addressed educational research as well as research from the social and behavioral sciences. Its focus included not only the family and community but also children's early experiences in child care and educational settings.

The review concluded that "striking disparities" are seen in children's knowledge and skills even before they reach kindergarten age and that these differences are "strongly associated" with children's social and economic circumstances (p. 5). The authors noted that both nature and nurture are critical to children's healthy development and that "both genetically determined characteristics and those that are highly affected by experience are open to intervention" (p. 6). The authors noted further, however, that "interventions that work are rarely simple, inexpensive, or easy to implement" (p. 10) and that "the scientific knowledge base guiding early childhood policies and programs is seriously constrained by the relatively limited availability of systematic and rigorous evaluations of program implementation; gaps in the documentation of causal relations between specific interventions and specific outcomes and of the underlying mechanisms of change; and infrequent assessments of program costs and benefits" (p. 11).

Sonnenschein and Munsterman, 2002

The influence of home-based reading interactions on 5-year-olds' reading motivations and early literacy development

Correlational

This study explored associations between the affective quality of young children's reading interactions with family members and children's early literacy skills and motivations for reading. The authors noted that the study was one of a very small number that have addressed the affective quality of reading interactions. The study used a nonrandom sample of 30 families with 5-year-old children who were participating in a larger longitudinal study of children's reading development; for this study, the researchers included only families who reported having home-based storybook reading interactions at least once a month. Most of the families (25 of 30) were low-income; about half were African American and half were European American. During the summer before kindergarten entry, children in the study were videotaped reading both a familiar and an unfamiliar book with a member of their family. A researcher coded both the nature of comments made about each book and the affective quality of the interactions. A second coder was used on a subset of interactions to assure interrater reliability. Data also were collected from parents regarding the frequency of their children's home reading activities. Assessments of children's phonological awareness, orientation toward print, and story comprehension were made using adaptations of commonly used tasks; the researchers pilot-tested the measures to help assure their appropriateness for the children being studied.

The study found a significant association between the affective quality of the reading interaction and children's motivation for reading. However, neither the affective quality nor the content of parents' interactions was significantly related to any of the literacy-related skills assessed in the study. The authors found that reading frequency was associated most strongly with children's literacy-related skills.

Starkey and Klein, 2000

Fostering parental support for children's mathematical development: An intervention with Head Start families

RCT

This article described two RCTs assessing a 4-month intervention within Head Start preschool programs. One study involved 28 African American children and their mothers; the other involved 31 Hispanic children and their mothers. All children were enrolled in Head Start programs in the San Francisco area. Students were assigned randomly to control or intervention groups. In the intervention group, mothers participated in a family math program designed to enhance parents' support for their children's mathematical development. The program included eight biweekly family math classes and access to a library of math kits for families to use at home. In the classes, teachers demonstrated manipulation-based math activities and then helped individual families as they worked with their children to complete the activities.

Pre- and post-tests addressed both mathematical and emergent literacy tasks. Though the program focused only on math skills, the literacy assessment was included to explore whether cognitive effects would transfer to another skills area (they did not). The small sample sizes in these studies limits the generalizability of their findings.

The authors found that low-income parents were responsive in supporting their children's development once they were provided with the training to do so. In both studies, assessments showed that children in the intervention group demonstrated greater mathematical knowledge than children in the control group. Effects were evident in all areas of informal mathematical knowledge assessed, including enumeration, numerical reasoning, and geometric reasoning.

Low-income parents were responsive in supporting their children's mathematical skills development once they were provided with the training to do so.

St. Pierre and Layzer, 1999

Using home visits for multiple purposes: The Comprehensive Child Development Program

RCT

The authors reported on an evaluation of the Comprehensive Child Development Program (CCDP), a large-scale, 5-year demonstration program funded by the U.S. Department of Health and Human Services. The CCDP was a two-generation program targeted to low-income children aged 0 to 5 and their families. The program provided a range of educational, health, and social services, using home visits as the primary means of delivering both case management and early childhood education services. An RCT design was used to evaluate 21 project sites and 4,410 families. Families recruited for participation in the program were randomly assigned to program or control groups. Data were collected on various family background, family outcome, and child outcome measures.

The study found no significant differences in outcomes between control and intervention groups for either parents or children. Positive changes were noted for both children and families, including increases in children's vocabulary and achievement scores, the percentage of mothers in the labor force, the average income of CCDP mothers and decreases in the percentage of families relying on Aid to Families with Dependent Children (AFDC) and food stamps, and the percentage of mothers who were depressed. However, these same changes occurred in families in the control group as well. Only in one of the 21 sites were there statistically significant and moderately large positive effects on several outcomes, including children's cognitive development; families' employment, income, and use of federal benefits; and parenting attitudes. Although no single factor could be identified to explain the differences for this site, the authors noted that the site's program was managed by a school district and thus "had a clear focus on children and their education," that the site "had a particularly strong project director and senior staff" with low turnover, and that the site served a population "somewhat less at risk than the populations served in many (but not all) other sites" (p. 144).

Wagner and Clayton, 1999

The Parents as Teachers program: Results from two demonstrations

RCT

This article reported on an evaluation of Parents as Teachers (PAT), a parent-education program that uses home visiting as a principal service delivery strategy. Services begin prenatally or at birth and focus on strengthening parenting skills and parents' abilities to teach their young children. The program began in a single state in the early 1980s and expanded to sites throughout the United States. Its appeal, in part, is that it is less expensive to implement than interventions that rely on nurses or than center-based programs.

The studies reported here evaluated two demonstration programs, one focused on Latino families and the other on teen parent families. In the study of Latino families, 497 families were assigned randomly to participant and control groups; participants in the treatment group received an average of 20 home visits over a 3-year project period, with visits typically ranging from 28 to 50 minutes. In the study of teen parent families, 704 participants were assigned randomly to one of four groups: PAT services alone, case management services alone, combined PAT and case management services, and a control group. Both studies collected data on parents' background, knowledge, attitudes, and parenting behaviors; and children's health and development.

Study results from the two sites indicated that the program had no significant effect on parenting knowledge, attitudes, or behaviors or on child health or health care. There was mixed evidence regarding the program's effects on children's cognitive development; significant cognitive effects emerged only with the use of multivariate analyses and only on one of several cognitive measures used. The authors noted that findings from these evaluations "are consistent with the overall research base for family-focused early-childhood programs, which have produced 'modest and inconsistent effects' [citing Gomby, Lerner, Stevenson, et al., 1995]" (p. 110).

West, Denton, and Germino-Hausken, 2000—*See Denton and West, 2002*

Zevenbergen, Whitehurst, and Zevenbergen, 2003—*See Lonigan and Whitehurst, 1998*

Zill and West, 2001—*See Denton and West, 2002*



A Brief Primer on What Matters in Reading About Research

Appendix A

The current federal emphasis on rigorous research is intended to improve decisions about the ways in which local schools, communities, and families invest their resources to improve student outcomes. But what exactly is “rigorous” research? Here are some basics to keep in mind.

What research can tell us

Research provides us with tools and data for making inferences about particular questions. In education, as the National Research Council (Shavelson & Towne, 2002, p. 99) has noted, research tends to address three, often interrelated, types of questions:

- description—What is happening?
- process or mechanism—Why or how is it happening?
- cause—Is there a systematic effect?

Different research designs have different strengths and weaknesses in addressing each of these types of questions. The critical factor in assessing the appropriateness of a particular design is its fit with the types of questions for which researchers are seeking answers. In this synthesis, we focus on all three types of questions, and the research designs used in specific studies vary accordingly.

Types of research designs

Addressing questions as to what and how

In this synthesis, we explore questions about what is happening among young children in their family and school environments, and about ways in which families and schools interact with young children and with each other. The studies we have included that address such questions generally relied on two types of research designs: survey designs and correlational designs.

Survey research is used to describe how people, organizations, or institutions feel, think, believe, and act, and to explore their interests and priorities. In their text on research designs, Martella, Nelson, and Marchand-Martella (1999, p. 453) observe that “sampling and question construction are the key elements underlying the design of surveys” (more on these issues later). Like surveys and other descriptive designs, *correlational* designs also provide descriptive information. However, they add a dimension of complexity by providing information about links or associations among various phenomena. Correlational studies use statistical manipulation of data to explore and describe relations among specific variables. For example, a study might explore the relations between specific family characteristics—such as parents’ educational background or the number of other children in the home—and parents’ school-related interactions with their preschool children.

To conclude that at least some of the associations identified via correlational methods involve cause and effect is tempting. However, correlational methods alone are not appropriate for assessing causal relations because they do not explicitly control for all the variables that may influence a particular outcome. So, for example, a correlational study may indicate that children’s grades increase as the level of their mother’s education increases, but the research does *not* tell us whether differences in mothers’ education are the *reason* for differences in children’s grades; some other factor could be the causal influence for both of these trends. Findings from correlational studies, then, tend to be stated using descriptors like “associated with,” “related to,” or “linked to.”

Some correlational studies talk about “predictors” or about outcomes from one variable “predicting” another. For example, one study cited in this synthesis found that family characteristics “were the strongest predictors of child outcomes” (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002, p. 431). However, when used in the context of correlational research designs, the term *predictor* and its variations are not intended as causal references. Rather, they refer to the fact that outcomes for one variable (the predictor) were measured at an earlier point in time than outcomes for another variable. Even though one set of outcomes may follow another in time, we cannot presume a causal connection.

Addressing questions about causality

In education, we are almost always concerned about “what works.” We want to know what educational interventions have proven to be effective, under what conditions, and with what populations. Two types of research designs are useful in addressing questions as to what works: *experimental* studies, which are also described as *randomized controlled trials or RCTs* (the term we use in this synthesis), and *quasi-experimental* studies.

Important elements of RCTs include random assignment of subjects to intervention and control groups, isolation of variables that may influence outcomes, and (usually, though not always) the use of pre- and post-assessments. *Quasi-experimental* designs do not include randomized assignment to intervention and control groups, although they reflect other features of RCTs. A well-designed quasi-experimental study will provide for intervention and comparison groups that are closely matched in characteristics that

are relevant to what is being studied, for example, age, family socioeconomic status, educational setting, or academic achievement.

RCTs are often described as the “gold standard” for addressing questions about what works. This is because studies using this method can control for variables that represent competing explanations as to what caused a particular outcome. A recent guide to using rigorous research evidence produced by the U.S. Department of Education (2003) notes that the random assignment of participants to control and intervention groups provides a “unique advantage” that makes RCTs “superior to other study designs in measuring an intervention’s true effect” (p. 2).

However, in some circumstances, randomly assigning participants to an intervention or control group is not feasible. In some cases, doing so may breach a school or organization’s mandate to serve every member of a specific population. School leaders also are often concerned about the ethical issues involved in excluding some students from services or programs that may represent a higher quality educational experience. And, sometimes, “leaders of exemplary programs are reluctant to participate in experiments involving random assignment of participants because they consider an individual’s or family’s ability to exercise choice crucial to the effectiveness of an intervention” (Schorr, 2003, p. 5).

In studying interventions, if the use of RCTs is not feasible, the use of a quasi-experimental design with a well-matched comparison group is generally recommended. The U.S. Department of Education’s guide, however, cautions that, while such designs typically yield “correct overall conclusions. . . about whether an intervention is effective, ineffective, or harmful,” they are often inaccurate in estimating the size of an intervention’s impact (2003, p. 4).

In addition to RCTs and quasi-experimental designs, some study designs apply sophisticated statistical analyses and “model-fitting” approaches as a means of controlling for the effects of relevant variables (Martella, Nelson, & Marchand-Martella, 1999; Shavelson & Towne, 2002). One such design—*structural equation modeling*—has been used in several studies addressing readiness issues that are included in this synthesis. Structural equation modeling “is a statistical procedure that is commonly used by researchers to explore causal relationships in correlational research” (Martella, Nelson, & Marchand-Martella, 1999, p. 225). Researchers lay out hypothetical causal pathways that may explain a given outcome; a particular statistical method is then applied to assess the extent to which statistical data—usually collected via correlational study designs—confirm or contradict the hypothesized causal pathways.

Structural equation modeling can be useful in exploring causal relationships among variables. But because it only tests the specific relationships hypothesized by the researcher, such modeling cannot rule out the possibility that other factors may have caused, or contributed to, the outcome under study. In this synthesis, we do not rely on findings from structural equation modeling in our discussions of readiness interventions and their effectiveness; rather, we include them in discussions of descriptive findings about the factors that are associated with children’s readiness.

Reviewing previous research

In addition to individual studies that collect and analyze data from the field, there are *reviews* and *syntheses* of research, such as this document. These are a form of historical research. Historical research “involves a systematic process of searching for data from the past that can help us understand what is going on now and what may occur in the future” (Martella, Nelson, & Marchand-Martella, 1999, p. 460). Summaries of a broad range of studies on a given topic can be useful in describing trends and gaps in the research literature. Important considerations in assessing the quality and usefulness of literature reviews are how studies were identified (Did the authors cast a wide enough net?), the criteria used for including studies (Did the authors weed out low-quality studies and irrelevant studies?), and the amount of information included about each study.

Meta-analyses, another form of research, use statistical methods to compile and analyze data across a number of quantitative research studies. Meta-analyses may offer somewhat more reliable conclusions than literature reviews because they include statistical controls and findings grounded in the analysis of empirical data. However, meta-analyses are limited to studies that provide certain types of data; qualitative data and certain types of quantitative data do not lend themselves to this analysis. And, as is true for literature reviews and syntheses as well, the quality of meta-analyses is dependent on the quality of the studies included in the analysis.

Things to watch for in analyzing research results

A number of factors can influence the quality of a particular research study. Many of these factors involve technical concerns that are beyond the knowledge of lay readers. However, an interested lay reader can understand what elements of a research design and its related methods are important, and what questions to ask regarding each element. The lay reader may not be able to answer all the questions but can know what kinds of information to look for and what kinds of help to seek from others more knowledgeable about research. Below are brief discussions of several critical concerns, followed by a list of guiding questions.

Adequacy of detail—No matter what the type or scope of a particular research study, its reporting should provide readers with specific information about the study’s purpose, design, methods, and outcomes. Such description should include (1) the research questions or concerns addressed by the study, (2) the broader theory and context that the study seeks to inform or amplify, (3) the study’s geographic setting, populations addressed, and sample size and sampling procedures, (4) the kinds of data collected and the methods and instruments used to collect the data, (5) the methods used to analyze the data, (6) findings from the data analysis, (7) the extent to which the findings are or are not consistent with findings from other studies and to relevant theories, (8) a discussion of possible explanations for the findings that is well informed by the current research base, and (9) a description of the study’s limitations. The description of the study also should present a logical chain of reasoning, showing clear and logical links among the study’s purpose, design, research questions, data collection, analysis, findings, and conclusions.

Research design—As discussed earlier, the most basic concern about a study’s design is the match between the questions the study seeks to answer and the methods used to address them. A research design also should reflect professional standards for that particular research method.

Fidelity in execution—A research design is much like the architectural blueprint for a new home. A sound blueprint is necessary but not sufficient to ensure the quality and reliability of the building that is actually constructed. Unless the builders follow the blueprint, there is no assurance the house will be sturdy or safe.

Sampling—In quantitative research, the participants or subjects in a research study are generally intended to represent a larger population. The extent to which a study’s findings may reflect that larger population depends on the study’s sampling method. For example, a random sample is more likely to be representative of a larger population than is a sample of volunteer participants. The size of a research sample also can be important; sample size influences our level of confidence that research outcomes are the result of something other than chance.

Data sources and instrumentation—A study’s sources of data, and the procedures and instruments used to collect the data, are critical factors in the quality of a study’s results. At the most basic level, both sources and instruments must be well matched to the study’s focus and research questions. In addition, the researchers should describe the reliability and validity of the instruments used. The instruments should have been field-tested or “normed” to assess the extent to which they actually test for or elicit the intended information and produce consistent results across multiple users and settings.

Significance of findings—The term *significance*, when used in research, has a particular set of meanings. “Statistical significance” refers to the confidence that a particular research outcome—for example, improved scores on a standardized test—has not occurred merely by chance. Quantitative research studies use inferential tests to determine whether specific outcomes are statistically significant. If the outcomes do not achieve statistical significance, then we cannot be confident, for example, that a group’s improvement on standardized test scores occurred as a result of an intervention rather than merely by chance. Statistical significance is an important “bottom line.” However, an outcome can be statistically significant yet of little practical significance. For example, a study may find that a very expensive, staff-intensive reading intervention produces an improvement in children’s grade-level reading ability—from a baseline level of Year 3, Month 2, to a postintervention level of Year 3, Month 3. While a 1-month increase may be statistically significant within the study’s design parameters, school staffs probably will look for another intervention that offers more “bang for the buck.”

Accumulation of evidence—We can have greater confidence in research results if those results have been documented in multiple studies. Moreover, “a single study’s findings are not sufficient to generalize results to different populations” (Lyon & Chhabra, 2004, p. 15).

The role of professional wisdom—Finally, in analyzing and making use of research findings, it is important not to neglect “professional wisdom,” that is, the understandings that come from practical experience and from knowing the specific environment and students in which research findings are to be used. The National Research Council explained, “The scientist discovers the basis for what is possible. The practitioner, parent, or policymaker, in turn, has to consider what is practical, affordable, desirable, and credible” (Shavelson & Towne, 2002, p. 49).

Some guiding questions

Here are some questions to keep in mind when reading about research:

- What kinds of inferences can be made from these data, given the particular research method used in the study?
- To what extent, if at all, can these findings be generalized to populations beyond those specifically participating in this study?
- How well does the research design match the questions being asked?
- Does the research report provide information in enough detail to allow a thorough understanding of its purpose, procedures, and findings?
- Are the study’s underlying theories and assumptions made explicit?
- With randomized controlled trials, are there any indications that the random assignment may have been compromised, for example, by excessive attrition or by intermingling of the intervention and control groups?
- With quasi-experimental studies, are the intervention and comparison groups closely matched in characteristics that may influence the intervention and its intended outcomes?
- Are the data collection procedures and instruments designed to collect information that directly addresses the study’s research questions?
- To what extent is it possible to trace a logical chain of reasoning from each element of the study to the next?
- How well are the findings supported by the study’s methods and data?
- Are the findings meaningful in practical as well as statistical terms?
- Does the report describe the study’s limitations?
- Are there alternative explanations for the findings that the study was unable to rule out?
- How consistent are the findings with those of other research?

Screening Protocols

Appendix B

Initial Screening Protocol

Directions: Please check whether the study meets the following criteria. A “no” response for any item will eliminate the study from further consideration. A “yes” response for specific items (as noted) will flag the study as a priority.

Abbreviated citation:

The study meets the following basic requirements:

- | Yes | No | (check one) |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1998 or later publication or availability |
| <input type="checkbox"/> | <input type="checkbox"/> | addresses U.S. education |
| <input type="checkbox"/> | <input type="checkbox"/> | includes readiness focus |
| <input type="checkbox"/> | <input type="checkbox"/> | includes family or community component |
| <input type="checkbox"/> | <input type="checkbox"/> | if intervention study: experimental (RCT) or quasi-experimental design* |
| <input type="checkbox"/> | <input type="checkbox"/> | includes _____ child readiness/academic outcome data* or _____ descriptive data relevant to readiness issues |

The study includes specific description of:

- | Yes | No | (check one) |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | research questions |
| <input type="checkbox"/> | <input type="checkbox"/> | conceptual/theoretical underpinnings |
| <input type="checkbox"/> | <input type="checkbox"/> | research design |
| <input type="checkbox"/> | <input type="checkbox"/> | sample (sampling method, sample size and characteristics) |
| <input type="checkbox"/> | <input type="checkbox"/> | data collection sources, instruments, procedures |
| <input type="checkbox"/> | <input type="checkbox"/> | data analysis methods |
| <input type="checkbox"/> | <input type="checkbox"/> | findings and implications |

- | Yes | No | (check one) |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Recommend for in-depth screening |
| <input type="checkbox"/> | <input type="checkbox"/> | *Flagged for priority review |

In-Depth Screening/Documentation Protocol

Directions: Please complete the following information on this study. Provide sufficient detail to fully describe the study.

Recommend for final inclusion:

Yes	No	(list reasons for excluding, refer to numbered items below)
<input type="checkbox"/>	<input type="checkbox"/>	1998 or later publication or availability

Bibliographic Citation (List full APA citation)

1. Readiness Focus (Note whether focus is on child, school, family, and/or community readiness; note dimensions of readiness addressed, e.g., children’s general cognitive development or social/emotional development.)

2. Family Involvement Focus (Note, e.g., whether focus is on training family members to support specific skills development, promoting at-school involvement, improving family’s well-being.)

3. Research Questions (List all questions.)

4. Description of Intervention (if any) (Describe intervention approach, components, and major activities; describe any alternative activities available to the comparison group.)

5. Underlying Theories or Concepts (List key concepts, giving descriptions, quotes, and sources as needed for clarity and context.)

6. Type of Research Design (Identify inquiry strategy, e.g., RCT, quasi-experimental, correlational, ethnography, use of structural equation modeling.)

7. Setting (Describe geographic location, relevant site demographics.)

8. Sampling Method (Note whether random or nonrandom sample; describe procedures for assignment to intervention and comparison groups where applicable.)

9. Sample Size and Characteristics (List and describe for overall sample and relevant subgroups; note any problems or limitations, e.g., poorly matched intervention and comparison groups for quasi-experimental design.)
10. Attrition or Response Rate (List and describe; note any problems or limitations, e.g., differential or severe attrition, extremely low response rate.)
11. Data Collection Sources, Instruments, and Procedures (List and describe; note any problems or limitations, e.g., reliance on self-report, problems with content validity of instruments.)
12. Reliability of Measures (Note whether instruments are standardized, modified, and/or self-constructed; note any problems or limitations.)
13. Statistical Analyses (Note statistical measures applied; note significance test(s) used; note any problems or limitations.)
14. Results (List and describe outcomes, with effect sizes where applicable.)
15. Key Findings, Conclusions, Implications (Describe and quote; note relevant discussion of alternative explanations for results; note any problems in interpretation and/or logical chain of reasoning.)
16. Consistency of Findings With Those of Other Studies (Describe and quote study's discussion of consistencies and inconsistencies; note additional information as possible.)
17. Limitations or Problems With Study (Describe and quote study's discussion of limitations; note additional problems and concerns not specifically addressed in other sections.)



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