Using Classroom Management to Improve Preschoolers' Social and Emotional Skills

FINAL IMPACT AND IMPLEMENTATION FINDINGS FROM THE FOUNDATIONS OF LEARNING DEMONSTRATION IN NEWARK AND CHICAGO

Pamela Morris
Chrishana M. Lloyd
Megan Millenky
Nicole Leacock
C. Cybele Raver
Michael Bangser

January 2013

mdrc
BUILDING KNOWLEDGE TO IMPROVE SOCIAL POLICY

Using Classroom Management to Improve Preschoolers' Social and Emotional Skills

Final Impact and Implementation Findings from the Foundations of Learning Demonstration in Newark and Chicago

Pamela Morris (New York University/MDRC)
Chrishana M. Lloyd (MDRC)
Megan Millenky (MDRC)
Nicole Leacock (MDRC)
C. Cybele Raver (New York University)
Michael Bangser (MDRC)

with

Lynn Karoly
(Rand Corporation)

January 2013

mdrc
BUILDING KNOWLEDGE TO IMPROVE SOCIAL POLICY

Funders of the Foundations of Learning Demonstration

The George Gund Foundation
The Grable Foundation
The John D. and Catherine T. MacArthur Foundation
The Joyce Foundation
The Kresge Foundation
McCormick Foundation
The Nicholson Foundation
The Pew Charitable Trusts
Robert Wood Johnson Foundation

Dissemination of MDRC publications is supported by the following funders that help finance MDRC's public policy outreach and expanding efforts to communicate the results and implications of our work to policymakers, practitioners, and others: The Annie E. Casey Foundation, The George Gund Foundation, Sandler Foundation, and The Starr Foundation.

In addition, earnings from the MDRC Endowment help sustain our dissemination efforts. Contributors to the MDRC Endowment include Alcoa Foundation, The Ambrose Monell Foundation, Anheuser-Busch Foundation, Bristol-Myers Squibb Foundation, Charles Stewart Mott Foundation, Ford Foundation, The George Gund Foundation, The Grable Foundation, The Lizabeth and Frank Newman Charitable Foundation, The New York Times Company Foundation, Jan Nicholson, Paul H. O'Neill Charitable Foundation, John S. Reed, Sandler Foundation, and The Stupski Family Fund, as well as other individual contributors.

The findings and conclusions in this report do not necessarily represent the official positions or policies of the funders.

Cover photo courtesy of the MacArthur Foundation. Photographer: Alex Fledderjohn.

For information about MDRC and copies of our publications, see our Web site: www.mdrc.org.

Overview

Policymakers increasingly recognize that early childhood programs can provide a pathway to later school success for disadvantaged children. However, to be effective, preschool programs must be of high enough quality to promote children's development. This report presents the final results of the Foundations of Learning (FOL) demonstration, which evaluated an intervention designed to train preschool teachers so that they could better manage children's behavior and promote a more positive classroom learning environment. It was hypothesized that these improved skills could strengthen children's social and emotional competence, allowing more time to be spent on classroom teaching and learning.

FOL was tested in Newark, New Jersey, and Chicago, Illinois, using teacher training combined with weekly in-class support from a master's-level clinician to reinforce the classroom management skills that were covered in the training. A total of 71 preschool centers (with 91 participating classrooms) were randomly assigned to implement FOL or conduct preschool as usual. Differences in classroom practices and child outcomes between the two groups were analyzed at the end of the intervention year to assess the added value of FOL over and above standard preschool practice.

Key Findings

The evidence shows that investments in teachers' professional development improve children's preschool experiences, although the long-term effects on children remain uncertain.

- FOL was delivered as intended in both sites. Lower levels of institutional resources in Chicago, however, may have posed challenges to fully implementing the classroom-based strategies.
- The intervention improved teachers' positive classroom management in areas that it targeted directly. There was some evidence in Newark that intervention classrooms had greater amounts of instructional time and that, among teachers in the intervention group, positive classroom management was sustained one year after the intervention ended.
- Problem behavior was reduced in the intervention classrooms. Also, FOL further improved children's social and emotional competence as measured by improvements in children's approaches to learning and executive function skills (attention, inhibitory control, and short-term memory skills).
- The study provided no clear evidence that FOL improved children's early literacy and mathematics skills or that the effects described above continued beyond the preschool year, although resources limited the type and amount of follow-up that was possible.
- At approximately $1,750 per child, the FOL intervention represented a 14 percent increase in program costs in Newark and a 21 percent increase in Chicago. Based on the limited data available in this demonstration beyond the preschool year, there is insufficient evidence at this point to demonstrate that the benefits of FOL in children's academic gains, grade progression, or special needs designations outweigh its cost.

Contents

List of Tables, Figures, and Boxes

Table

Figure

Figure

Box

Preface

Federal and state expenditures for preschool programs serving children from birth to age 5 totaled more than $30 billion in 2011. The potential return on investment is large: high-quality preschool programs have been found to return as much as $4 to $10 in future benefits per dollar spent in preventing later risky behavior and boosting academic and labor market success. However, not all preschool programs yield positive benefits. One possible explanation is the limited amount of time devoted to "learning activities" on any given day, in part because preschool teachers are not equipped with the tools and techniques to effectively redirect children when their social and emotional behaviors disrupt classrooms.

The Foundations of Learning (FOL) demonstration tested one promising approach: providing intensive professional development, including in-classroom consultation by trained practitioners, to improve teachers' classroom management skills and the social and emotional competence of young children who display challenging behaviors. FOL sought impacts at both the classroom level (anticipating that teachers would be able to devote increased time to productive instruction) and for the children themselves (since enhancing their social and emotional competence was thought to be a strong predictor of later success in school).

This final report has some grounds for encouragement, while also pointing to the need for further refinement in both the theoretical and practical issues related to strengthening early childhood programs. While there were some promising outcomes in the FOL classrooms — more positive teacher-student interactions, more effective management of challenging behaviors, lower levels of problem behavior, higher engagement in the tasks of learning, and more instruction time — there was no clear evidence that FOL improved children's short-term academic achievement, suggesting that the FOL approach could be part of a broader preschool strategy.

The ongoing nationwide Head Start CARES study by MDRC was designed to build on FOL. It is examining three program models operating at scale and designed to enhance children's social and emotional competence. The three models use distinct approaches to changing children's social-emotional development, ranging from training on teacher delivery of classroom management procedures to play-based activities designed to support children's self-regulation. Yet another effort to improve the return on investment of preschool programs involves the role of early mathematical concepts like size, shape, and counting in children's development. Making Pre-K Count is looking at the effects on children's skills of a strong developmentally appropriate preschool mathematics curriculum combined with intensive teacher professional development in math instruction. The body of evidence produced by these and other studies, along with the work of colleagues in the field, will provide critical lessons on how best to structure high-quality early childhood programs.

Gordon L. Berlin
President, MDRC

Acknowledgments

This final report on the Foundations of Learning (FOL) demonstration benefited from a collaboration among many organizations and individuals. From the outset, the support of early childhood education organizations in Newark and Chicago has been instrumental in planning and conducting the project. We particularly thank Dr. Gayle Griffin, Executive Director, Newark Public Schools; Nancy Rivera, Director at Newark Public Schools; Kathy Tague, Supervisor of Early Childhood at Newark Public Schools; the Newark Preschool Council; Vanessa Rich, Deputy Commissioner for the Children's Services Division at the City of Chicago Department of Family and Support Services; and Michelle Michelini and Amy Nowell at the Chicago Public Schools' Office of Strategy, Research and Accountability.

Carrying out a research demonstration of this type is possible only with the commitment and cooperation of the participating programs. We thank all the teachers and administrators at the schools, Head Start centers, and community-based programs that were part of the demonstration.

We thank the organizations in Newark and Chicago that were responsible for implementing the classroom consultation component of the Foundations of Learning program, along with the Clinical Classroom Consultant Coordinators Dorothy Jordan in Newark and Kimya Barden in Chicago, and each of the Clinical Classroom Consultants who worked so diligently to implement a high-quality program. Greg O'Donnell, Darlene Jones-Lewis, Kimya Barden, and Dorothy Jordan conducted the teacher training sessions.

University of Virginia's Center for Advanced Study of Teaching and Learning and Megan Siebert trained coders for classroom observations; a team of dedicated coders visited Newark classrooms throughout the demonstration. Survey Research Management, led by Linda Kuhn, fielded surveys throughout the demonstration, located students for follow-up data collection, and managed the child assessment process in Chicago. Lee Robeson's team also assisted with locating students for follow-up data collection.

A number of foundation funders provided indispensable support for the evaluation. They are gratefully acknowledged at the front of the report.

Stephanie Jones of Harvard University, Christine Li-Grining of Loyola University, and Fuhua Zhai of New York University drew on their experiences from the Chicago School Readiness Project to provide valuable guidance and input. Karen McFadden, a doctoral fellow from New York University, helped to compile and analyze data.

The FOL research effort has been a true partnership. At MDRC, we thank the following key members of the team: Ximena Portilla, Vivian Mateo, Francesca Longo, Farrah Parkes, Kristen Faucetta, Timothy Rudd, Andrea López, Caroline Mage, Electra Small, and Nandita Ghosh. Shirley James and her team were responsible for keying and verifying the data. Glee Holton, Shelley Rappaport, and Frieda Molina helped recruit preschool programs for the demonstration. Helen Gorden provided administrative support. Karen Paget answered our Internal Review Board questions regarding data collection. Chris Rodrigues and Ihno Lee assisted in processing data from a variety of sources. Jo Anna Hunter and Leslyn Hall provided expertise and assistance with the survey work. Gordon Berlin, Howard Bloom, Robert Ivry, Ginger Knox, John Hutchins, and Tom Brock provided valuable comments on drafts of the report. Melendy Krantz served as report coordinator. Alice Tufel edited the report; David Sobel and Stephanie Cowell prepared it for publication.

Most of all, we thank the children in the Foundations of Learning program and their parents. We hope that the lessons from this and future reports will help strengthen the quality of preschool programs in Newark, Chicago, and elsewhere.

The Authors

Executive Summary

Investments in early childhood programs are widely viewed as a promising strategy to improve the future educational achievement of disadvantaged young children. However, it can be difficult for teachers to maintain program quality if children in the classroom display challenging behaviors. For example, when some children act out aggressively or become sad and withdrawn, teachers may be diverted from instructional time to manage these behaviors. Not surprisingly, these diversions have a ripple effect on the entire classroom of children.

This report presents the final implementation, impact, and cost findings from the Foundations of Learning (FOL) demonstration. The FOL demonstration was designed to increase productive classroom time by using intensive professional development, including in-classroom consultation with trained practitioners, to improve teachers' classroom management skills and the social and emotional competence of children who exhibit challenging behavior.[1] The demonstration was conducted in two cities — Newark, New Jersey, and Chicago, Illinois — with very different preschool systems. The Newark preschool system was particularly well resourced, while the level of resources in the Chicago preschool system was much lower and more typical of urban districts around the country.

The report concludes that the FOL intervention was delivered with relatively high levels of dosage (amount of services) and quality (as rated by teachers) in both cities, with some differences in the focus of in-classroom consultation between Newark and Chicago. The program had a positive impact on teachers' classroom management, increased instructional time, and improved children's social and emotional competence during the year of the intervention's implementation. However, there was no clear evidence of improvements in children's short-term academic achievement, despite the expectation that the benefits to the classrooms and to children's social and emotional outcomes would translate into better academic skills. Moreover, the limited data that were collected showed no evidence of sustained benefits when the children made the transition to kindergarten and first grade.

Evolution of the Foundations of Learning Demonstration

The FOL program model was initially developed to test a strong theory that had emerged from developmental psychology — that children's social and emotional competence may be important

[1] As used in this report, the term "competence" refers to children's capacity to do something, and the term "behavior" is the manifestation of that competence in everyday life.

as an outcome in its own right as well as a pathway to improved academic achievement.[2] While FOL was being conducted, some researchers questioned this assertion, arguing convincingly that for academic achievement in particular, preschool academic skills may be much stronger predictors of later academic achievement than social and emotional competence.[3] Even so, that assertion is best tested in the context of studies like FOL that provide evidence about whether *targeting* children's social and emotional competence — by, for instance, improving teachers' skills in classroom management — can produce change in children's school achievement.

The FOL program model had previously been evaluated in CSRP (formerly known as the Chicago School Readiness Project) in Chicago. Encouraged by CSRP's positive early results,[4] MDRC, a nonprofit, nonpartisan education and social policy research organization, with support from a number of foundations and the active involvement of the local school and Head Start programs,[5] set out to test the model on a larger scale in Newark and Chicago.

Both CSRP and FOL sought to arm teachers with specific management strategies to handle daily classroom challenges, improve their interactions with children, and thereby enhance children's social and emotional competence. The program model included four components to be delivered across the preschool year:

- **Teacher training:** Lead and assistant teachers were invited to attend five Saturday training workshops, which were adapted from *The Incredible Years* curriculum developed by Dr. Carolyn Webster-Stratton.[6] The workshops provided instruction on how to foster positive relationships with children; they presented classroom strategies that teachers could use, such as setting clear rules; and they provided teachers with techniques to help children develop their social skills, anger management, and problem-solving ability. These strategies are widely accepted as best practices for preschool teachers and reflect good classroom management.

---

[2]C. Cybele Raver, "Emotions Matter: Making the Case for the Role of Young Children's Emotional Development for Early School Readiness," *Social Policy Reports* 16, 3 (2002): 3-18.

[3]Greg J. Duncan, Amy Claessens, Aletha C. Huston, Linda S. Pagani, Mimi Engel, Holly Sexton, Chantelle J. Dowsett, Katherine Magnuson, Pamela Klebanov, Leon Feinstein, Jeanne Brooks-Gunn, Kathryn Duckworth, Crista Japel, "School Readiness and Later Achievement," *Developmental Psychology* 43, 6 (2007): 1428-1446.

[4]C. Cybele Raver, Stephanie M. Jones, Christine P. Li-Grining, Molly Metzger, Kina Smallwood, and Latriese Sardin, "Improving Preschool Classroom Processes: Preliminary Findings from a Randomized Trial Implemented in Head Start Settings," *Early Childhood Research Quarterly* 63, 3 (2008): 253-355.

[5]Support for the Foundations of Learning demonstration came from The George Gund Foundation, The Grable Foundation, The John D. and Catherine T. MacArthur Foundation, The Joyce Foundation, The Kresge Foundation, McCormick Foundation, The Nicholson Foundation, The Pew Charitable Trusts, and the Robert Wood Johnson Foundation.

[6]Carolyn Webster-Stratton, *How to Promote Children's Social and Emotional Competence* (Thousand Oaks, CA: Paul Chapman Publishing, 1999).

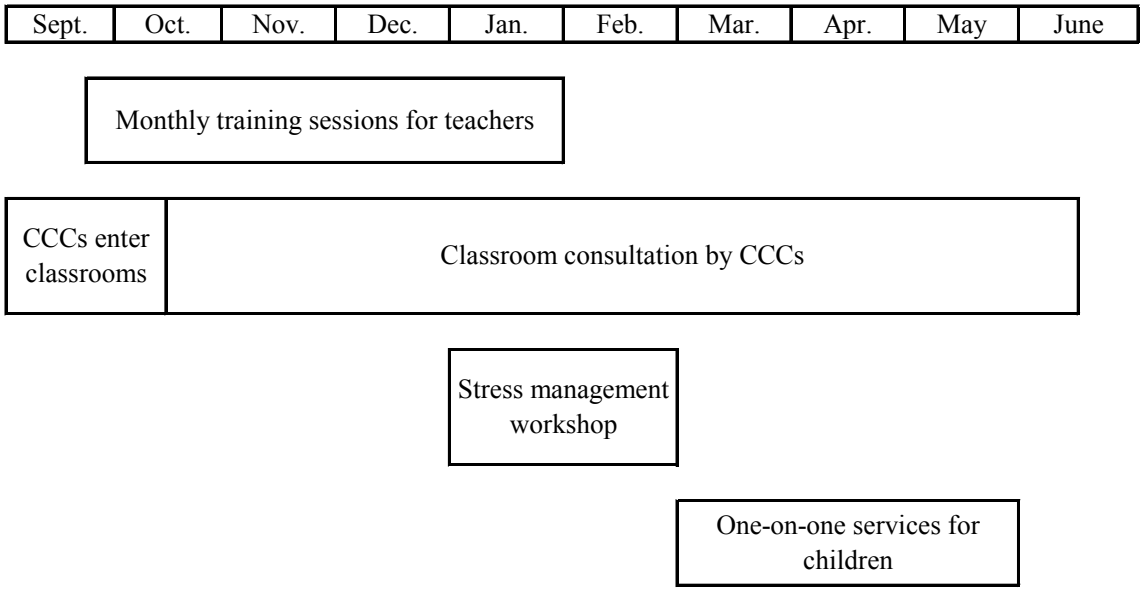
- **Classroom-level consultation:** To complement the training, teachers were assigned a master's-level Clinical Classroom Consultant (CCC) to work with them in the classroom one day per week throughout the school year. The CCCs built collaborative relationships with the teachers to help model and reinforce effective delivery of *The Incredible Years* approach in the classroom.
- **Stress management:** In the winter, teachers participated in a 90-minute stress management workshop at their program sites. CCCs also helped support the teachers' use of stress management skills and techniques throughout the year.
- **Individualized child-centered consultation:** Beginning in the spring, the CCCs provided one-on-one clinical services for a small number of children who had not responded sufficiently to the teachers' improved classroom management. By design, the individualized clinical consultation was delivered only *after* children had ample time to react to the new teaching strategies.

The timing and sequence of these activities are depicted in Figure ES.1.

The Foundations of Learning Demonstration

Figure ES.1

Intervention Timeline



NOTE: CCC = Clinical Classroom Consultant.

The FOL program components were expected to improve interactions between teachers and children, which in turn would improve a set of skills — collectively referred to as "social and emotional competence" — that enable children to engage positively with peers and teachers and to focus their attention and behavior during classroom activities, as described in Box ES.1. In addition, the CCCs' one-on-one consultations with selected higher-risk children were thought to further reduce difficult behavior of children who needed more attention beyond the larger classroom management strategies.

The Research Design

This report draws on an analysis of program impacts in the CSRP and both FOL studies, a quantitative and qualitative analysis of program implementation in FOL-Newark and FOL-Chicago, and an analysis of program costs in FOL-Newark and FOL-Chicago. The multiple studies provide an important opportunity to draw inferences about how the local context might affect the implementation, impact, and cost of the same program model in two quite different urban preschool systems.

In studying the impact of the model, all three studies (CSRP, FOL-Newark, and FOL-Chicago) used a rigorous research design, in which program sites were randomly assigned to one of two research groups: half (the program group) received the multicomponent CSRP or FOL intervention; the other half served as a control group that operated its regular preschool

Box ES.1

What Is Social and Emotional Competence?

In this report, the term "competence" is used to indicate a child's capacity to do something and "behavior" is the manifestation of that competency in everyday life. Social and emotional competence comprises a smaller set of discrete skills, such as the capacity to control negative emotions, express emotions, and communicate with peers. Social and emotional competence is thought to underlie children's behaviors, particularly in two areas that are thought to be central to longer-term success in school: (1) social behaviors, or children's positive interactions with peers and teachers; and (2) approaches to learning, or children's ability to focus their attention and behavior during classroom activities.

Strongly related to social and emotional competence is executive function. Its underlying skills are the ability to shift attention, inhibitory control (children's ability to control their immediate or automatic response in favor of a planned response), and working (or short-term) memory. Executive function skills are thought to underlie children's approaches to learning as well as their academic achievement.

program without the special enhancements.[7] With random assignment, differences in outcomes observed during the follow-up period can be confidently attributed to the program rather than to preexisting differences between the two research groups. Such differences, or *impacts,* that are statistically significant are unlikely to have arisen by chance.

The study of implementation used a mixed-methods approach in which measuring the dosage (or amount of the intervention delivered) was complemented by qualitative data, observations, and surveys that shed light on the quality and process of implementation. Intervention implementation was defined as the amount and quality of training and consultation services that teachers received, which is consistent with *The Incredible Years* approach to intervention fidelity. The study of impacts relied on somewhat different data across the three studies because of funding constraints: FOL-Newark focused on trained observers' assessments of the classroom environment and how children behaved in the classroom context; FOL-Chicago conducted standardized assessments with individual children (on their social-emotional and cognitive outcomes) — assessments that the literature suggests are linked to later outcomes in middle childhood and adolescence. Finally, a net cost analysis captured the incremental costs of the new services provided in the FOL intervention in Newark and Chicago, over and above existing services that were available to the control sites.

Findings on Program Implementation

- **The teacher training, in-class consultation, and stress-management workshops were delivered at relatively high levels of dosage and quality (as rated by teachers) in both Newark and Chicago. However, the focus of in-class consultation appeared to differ somewhat between Newark and Chicago.**

The FOL studies demonstrate that the components of the intervention can be delivered in diverse implementation settings and that teachers in both settings considered FOL to be a worthwhile and high-quality program. Attendance was strong at the teacher training sessions in both Newark and Chicago, and teachers in both cities expressed high levels of satisfaction with the training.

While the *overall amount* of in-classroom consultation was similar in Newark and Chicago, the *focus* of the consultation differed somewhat in the two cities. The CCCs in Newark engaged teachers in implementation of *The Incredible Years* strategies more consistently across

[7] In CSRP, the model included a classroom aide in the control group for the same amount of time as the CCCs in the program group. This was done in an effort to distinguish between the effect of an additional classroom staff person and the consultation services.

classrooms than was the case in Chicago, where some CCCs focused more on assisting teachers with basic classroom tasks (such as helping children during lunch time, monitoring recess, and cleaning in the classroom) than on consultation directly related to implementation of the classroom-management strategies.

- **Low levels of institutional resources and supports may present challenges to implementing classroom-based strategies.**

The differences in the way the CCCs spent their time in the Newark and Chicago classrooms perhaps reflected the more limited staffing in Chicago. Classroom resource and staffing constraints in Chicago, as well as occasional lack of support by center directors and principals in both cities, could sometimes be major barriers to implementation. Although FOL addressed teacher stress, application of new classroom management strategies might still be difficult for highly stressed teachers in understaffed classrooms.

Findings on Program Impacts

Despite some differences in implementation, a consistent story emerges with regard to program impacts in the Newark and Chicago sites. The impacts in CSRP, FOL-Newark, and FOL-Chicago are summarized in Figure ES.2, in which favorable, statistically significant impacts are denoted by plus signs and no effect is shown as 0; "NA" (not available) indicates that the construct was not measured. No unfavorable impacts were found. Having two or more plus signs across sites for a single construct provides greater confidence than would be the case if the findings appeared in only a single site.

- **The intervention improved teachers' positive classroom management. In addition, there is evidence that this improvement was sustained one year later.**

Relatively large improvements in classroom management were observed in CSRP and FOL-Newark, the two sites where this outcome was measured. Based on observers' ratings, teachers in the program groups had more warm and positive interactions and fewer sarcastic and angry interactions and were better able to prevent misbehavior than were teachers in control classrooms. In addition, program group teachers' positive classroom management was sustained one year later in FOL-Newark, where it was studied.

- **Likely because of the improved classroom management, FOL classrooms devoted more time to instruction and other learning activities.**

In FOL-Newark, where this issue was examined, fewer disruptions and more orderly transitions appeared to free up additional classroom instructional time, with FOL classrooms

Figure ES.2

Summary of Pre-Kindergarten Findings Across Studies: CSRP, FOL-Newark (FOL-N), FOL-Chicago (FOL-C)

Teacher and Classroom Outcomes

Directly Targeted

Positive Classroom Management
- CSRP: +
- FOL-N: +
- FOL-C: NA

Secondary

Classroom Productivity and Amount of Instructional Time
- CSRP: NA
- FOL-N: +
- FOL-C: NA

Quality of Instruction
- CSRP: NA
- FOL-N: 0
- FOL-C: NA

Child Outcomes

Directly Targeted

Problem Behavior

Conflict/Externalizing Behavior Problems (observed)
- CSRP: +
- FOL-N: +
- FOL-C: NA

Conflict/Externalizing Behavior Problems (teacher report)
- CSRP: +
- FOL-N: 0
- FOL-C: 0

Approaches to Learning

Executive Functioning
- CSRP: +
- FOL-N: NA
- FOL-C: +

Attentiveness/Behavior Control
- CSRP: +
- FOL-N: +
- FOL-C: 0

Positive Engagement
- CSRP: 0
- FOL-N: +
- FOL-C: 0

Secondary

Positive Social Behavior (observed)
- CSRP: NA
- FOL-N: 0
- FOL-C: NA

Early Academic Skills
- CSRP: +
- FOL-N: NA
- FOL-C: 0

Social Problem-Solving Skills
- CSRP: NA
- FOL-N: NA
- FOL-C: 0

NOTE: A plus sign (+) indicates that there was a statistically significant impact on that outcome; a zero (0) indicates that there was no statistically significant impact; and "NA" indicates that the outcome was not measured in the given study.

having an average of 10 more minutes of instruction out of a 120-minute observation period. If this was representative of gains achieved every school day, it would translate into 50 minutes more instruction per week, or a week's more instruction over a school year. These improvements are consistent with a central hypothesis of the demonstration: that children with challenging behaviors may divert teachers from providing instruction to all children, and improving teachers' classroom management skills can reduce unproductive time in preschool classrooms.

- **Problem behaviors, such as conflict among children, were generally reduced in the intervention classrooms. In addition, FOL usually improved children's approaches to learning and to executive function skills.**

There is strong evidence that the intervention improved the two child outcomes that it targeted most directly: children's problem behavior and approaches to learning, with effects of moderate size in magnitude. With respect to problem behavior, the intervention reduced children's negative interactions (conflicts) with peers. With respect to approaches to learning, children were observed to be more engaged in the classroom and in tasks of learning. They also did better on tests of executive function, a competence that underlies approaches to learning through a combination of attention, inhibitory control (the ability to control an automatic response), and short-term memory skills.

- **There was not, however, clear evidence that the intervention improved early academic skills.**

The reduction in problem behavior and the positive impact on approaches to learning were not consistently accompanied by positive impacts on early academic skills (for example, identification of letters and the sounds letters make, or ability to demonstrate basic addition and subtraction skills) that have been found to support later achievement in reading and mathematics.

- **The limited data that were collected show no evidence of sustained benefits for children as they make the transition into elementary school. It is not known whether the initial effects on approaches to learning or problem behavior were sustained into the early elementary grades in either site, since data were not collected on those measures specifically.**

Teacher reports and school records of children's academic achievement show no impacts of FOL in kindergarten and first grade. However, rates of grade repetition and special education were simply too low in these early elementary school years to detect

impacts, which may be more likely to occur later. For example, children typically do not complete the process for placement into special education services until at least second or third grade.[8]

Findings on Program Costs

- **At approximately $1,750 per child, FOL represented a 14 percent increase in program costs over normal operating costs in Newark and a 21 percent increase in Chicago.**

Although the average cost per classroom was higher in Chicago ($34,884) than in Newark ($26,873), the larger class size in Chicago meant that the costs per child were similar in the two sites: $1,792 in Newark and $1,744 in Chicago. These costs are higher than they are for the more typical approach of assigning a mental health consultant to multiple classrooms to intervene on an as-needed basis with children who exhibit difficult behaviors. At the same time, the cost of FOL is on a par with other interventions that provide dedicated, routine consultation services to teachers and children.[9]

- **Based on the limited data of early elementary school outcomes for children in the FOL studies, there is no evidence that the program's benefits will outweigh its costs.**

In nonexperimental research, measures of problem behavior and approaches to learning have been shown to be associated with benefits in these and other outcomes in the later school years. However, the limited follow-up data that were collected in the FOL studies did not show evidence that the initial effects on these measures were sustained into the early elementary grades. As noted earlier, it was also too soon to know whether the intervention affected special education placements, although reductions in such placements for even a small number of children would result in major savings that outweigh the intervention's cost.

---

[8]National Association of Special Education Teachers, "Introduction to Learning Disabilities," *LD Report* (online publication: www.naset.org/2522.0.html); The IRIS Center, "The Rationale for RTI: Early Intervening and Identification of Learning Disabilities," *Star Legacy Modules* (online publication: http://iris.peabody.vanderbilt.edu/rti01_overview/rti01_04.html).

[9]Florida State University, Center for Prevention and Early Intervention Policy, *Mental Health Consultation in Child Care and Early Childhood Settings: Opportunities to Expand the System of Care for Children with Emotional and Behavioral Challenges in Florida* (Tallahassee, FL: Florida Department of Children and Families, 2006).

Implications for Policy and Research

The CSRP and FOL studies show that a combination of teacher training and in-classroom consultation can improve teacher classroom management practices. FOL also had a positive impact on children's behavior and approaches to learning during the preschool year, and it led to increased classroom instructional time, but there was not clear evidence that FOL improved children's early academic skills. These and other findings from the CSRP and FOL studies suggest the following implications for policy and research:

- **It is important to consider the context in which early childhood programs operate.**

This report illustrates that the FOL intervention was delivered in Newark and Chicago with relatively high dosage, and teachers rated the quality of the professional development highly. However, in these two distinct preschool contexts, differences in the level of resources in Newark and Chicago appeared to affect program implementation, particularly with respect to the focus of in-classroom consultation. A key consideration in programs of this type is the teachers' receptivity to the intervention and the CCCs' ability to engage the teachers in implementing classroom management strategies. Future efforts will need to take into account the level of stress that teachers feel, the resources that are available to them, and the level of support they receive from principals and other administrators.

- **Intensive amounts of consultation may not be necessary to produce measurable changes in teacher practice.**

While multiple studies on the effectiveness of classroom consultation have demonstrated positive effects on teacher practice and child outcomes over and above any effects realized from training alone,[10] research is inconclusive on what the correct amount is for classroom consultation models.[11] The findings from the CSRP and FOL studies suggest that the level of intensity (a six- to seven-hour day, one day per week) and/or the duration of consultation (a full academic year) in this model may not be necessary to produce change in teacher practice; despite the lower level of consultation activities directly related to *The Incredible Years* training content in FOL-Chicago, impacts for children there were on a par with those in FOL-Newark. Important topics for future research include understanding the level and type of in-class consul-

[10]Bruce Joyce and Beverly Showers, *Student Achievement Through Staff Development,* 3rd Edition (Alexandria, VA: Association for Supervision and Curriculum Development, 2002).

[11]Barbara A. Wasik, Shira Kolnik Mattera, Chrishana M. Lloyd, and Kimberly Boller, "Intervention Dosage in Early Childhood Care and Education: It's Complicated," in Tamara G. Halle, Allison J. Metz, and Ivelisse Martinez-Beck (eds.), *Applying Implementation Science to Early Care and Education Programs and Systems: Exploring a New Frontier* (Baltimore, MD: Brookes Publishing Co., in press).

tation that are needed for relatively straightforward models such as *The Incredible Years* as well as for more complicated models.

- **Supporting children's social and emotional competence can have positive impacts but may need to be one part of an overall strategy to strengthen preschool education.**

Improved classroom management and the resulting changes in children's behavior freed up more time for instruction in FOL classrooms. In addition, children in these classrooms might well have been ready and able to take advantage of the increased instruction, since they were more engaged in the tasks of learning and demonstrated greater executive function skills of memory, attention, and inhibitory control. It is possible that these positive results did not have a consistent impact on children's learning because the teachers were not trained sufficiently in the curricula and instructional approaches that are needed to take advantage of any increased opportunity for learning.

In conclusion, the CSRP and FOL interventions presented one approach to improving the quality of preschool education. Continued work in this area is needed to determine the combination of programmatic approaches and educational strategies that will best provide a high-quality preschool experience at scale and will boost long-term outcomes for low-income children.

Chapter 1

Introduction

Many policymakers and educators view investments in early childhood programs as a promising strategy to improve the future educational achievement of disadvantaged young children. Indeed, state funding has doubled in the past decade for preschool programs, which currently serve more than one million children nationwide.[1] For this strategy to be successful, however, programs must be of consistently high quality. Preschools of lower or mediocre quality may actually undermine low-income children's development.[2]

One oft-mentioned concern in reaching the desired level of quality is a teacher's ability to manage children who exhibit problem behavior in preschool classrooms. The behaviors might be externalizing (such as aggressiveness or acting out) or internalizing (such as sadness and withdrawal). In either case, these behaviors may distract the individual children, their peers, and their teachers from more productive classroom activities. The capacity to address these issues by improving children's social and emotional competence may be a key component of high-quality preschool. As used in this report, the term "competence" refers to children's capacity to do something, and the term "behavior" is the manifestation of that competency in everyday life.

Social and emotional competence is thought to underlie children's behaviors, specifically their ability in two critical areas that are central to success in school: (1) positive interactions with peers and teachers; and (2) focused attention and behavior during classroom activities. Therefore, developmental psychologists have theorized that improving social and emotional competence may be both an important outcome in its own right and a possible pathway, along with other factors, to improved academic achievement.[3] Unfortunately, few preschool teachers receive sufficient training or support to promote the social and emotional competence of children in their classroom.

This report presents the final implementation and impact findings for the Foundations of Learning (FOL) demonstration conducted by MDRC, a nonprofit, nonpartisan education and social policy research organization. The demonstration included a rigorous random assignment evaluation of a curriculum that was designed to train preschool teachers to better manage children's behavior and promote a more positive classroom learning environment. It was hypothesized that by improving teachers' classroom management skills and strengthening

[1]Torre et al. (2011).
[2]Magnuson, Ruhm, and Waldfogel (2007).
[3]Domitrovich, Cortes, and Greenberg (2007); Raver et al. (2008).

children's social and emotional competence and improving their behavior, more time could be spent on teaching and learning in classrooms. The FOL intervention was tested in two cities — Newark, New Jersey, and Chicago, Illinois — using an adapted version of *The Incredible Years* curriculum supported by Clinical Classroom Consultants (CCCs) who modeled and reinforced implementation of the curriculum's techniques in the classroom.[4]

Earlier findings from the Newark study are summarized in this report and new Chicago findings are presented in the context of those earlier results. The implementation of the FOL model is also described, with a focus on the classroom consultation component. The report reviews the extent to which the intervention components were implemented and how the preschool context in the two different sites affected that implementation. Finally, impact findings from both sites and a cost analysis are presented.

The report concludes that the FOL intervention model can have a positive impact on teachers' classroom management, can increase instructional time, and can improve children's social and emotional competence during the year of the intervention's implementation. However, this competence does not appear to lead to children's improved concurrent academic achievement. Longer-term effects of the FOL intervention are inconclusive, given the limited data that are available. Similarly, there is no evidence based on these limited data that the program's benefits will outweigh its costs. As discussed in Chapter 6, the implementation and impact findings suggest that an FOL-type intervention focused on children's social and emotional competence is only one part of creating a quality preschool classroom environment.

Focus on Children's Social and Emotional Competence

Developmental researchers have raised concerns that the accountability measures that have accompanied the increase in early childhood services have been too focused on academic readiness and cognitive outcomes. These researchers suggest that a focus on the social and emotional competence of children, and the fundamental skills that underlie this competence, may be an important aspect of a high-quality preschool experience. Surveys of teachers echo the need for this focus: teachers repeatedly voice that their foremost concern is whether children are prepared socially and emotionally for the more formal learning environment of elementary school.[5]

Preschool children with behavioral challenges are more likely to face social, behavioral, *and* academic difficulties throughout their school careers than their more well-adjusted peers. In addition, children who have difficulty negotiating the classroom environment may disrupt their classmates' academic and social progress. When children act out aggressively or become sad

[4]Webster-Stratton, Reid, and Hammond (2001).

[5]U.S. Department of Education, National Center for Education Statistics (2001).

and withdrawn, teachers may be diverted from instructional time to manage these behaviors. This can increase teachers' stress and burnout, as well.

Whether social and emotional competence matters for later academic skills remains an open question. In fact, recent well-designed research has argued convincingly that preschool academic skills may be much stronger predictors of later academic achievement than social and emotional competence.[6] But social and emotional competence encompasses a number of skills, and the recent research suggests that one aspect of this competence — the ability to pay attention — does have some predictive power for later academic achievement, more so than measures of children's acting-out behavior or positive social interaction with peers. However, despite its more rigorous analytic design (including multiple longitudinal data sets and an extensive set of control variables), the research described above is still nonexperimental. Therefore, it requires replication in an experimental study such as FOL to most directly test the *causal* link between changes in children's social and emotional competencies and later academic outcomes.

Beyond the preschool year, children with low levels of social and emotional competence represent an especially large percentage of school districts' high-expenditure pupils.[7] These children are more likely to repeat a grade early in elementary school;[8] they are also more likely to receive special education services.[9] In contrast, children who remain curious and engaged in school and can maintain positive feelings in the face of academic challenges tend to have better school performance and standardized test scores than do other children.[10]

Focus on Classroom Management Strategies

A number of promising preschool programs have focused on improving children's social and emotional competence. Some models target strategies for teachers, building on the theory that teachers' behavior and interactions play an important role in children's modulation of their attention, emotion, and behavior.[11] A number of smaller studies show that efforts to train teachers and parents in these strategies can be effective.[12] Importantly, children do better academically when they are enrolled in classrooms that are emotionally more positive and well-managed, compared with children who are enrolled in classrooms that are chaotic, disorganized,

[6]Duncan et al. (2007). This research adds to the literature by using a large number of longitudinal studies and controlling for an extensive set of characteristics of children and families before preschool.

[7]Chambers, Kidron, and Spain (2004).

[8]Beebe-Frankenberger, Bocian, MacMillan, and Gresham (2004).

[9]National Center for Health Statistics (2005); Wagner and Blackorby (2002).

[10]Lepper, Corpus, and Iyengar (2005).

[11]Hoglund and Leadbeater (2004); Webster-Stratton, Reid, and Hammond. (2001).

[12]Brotman et al. (2005); Webster-Stratton, Reid, and Hammond (2001).

and emotionally negative.[13] In addition, children's engagement has been found to be higher in classrooms where teachers manage behavior problems more effectively.[14] However, these findings are also based on correlational data, calling into question whether changing the classroom environment will result in changes in children's behavior and academic skills. The FOL study provides an opportunity to test the possible causality of these links.

In a well-managed classroom, teachers establish clear and firm rules, provide a high level of monitoring, and follow a set of simple, behaviorally oriented steps to minimize children's disruptive behavior.[15] Teachers also need to be flexible in their use of rewards and sanctions, recognizing children's positive behavior with praise, greater responsibility, and choice, while responding to disruptive behavior in ways that do not inadvertently reinforce children for acting out.[16] In addition to providing well-paced and challenging activities, effective teachers maintain a positive climate for learning that is characterized by positive feedback for children's appropriate behavior, established classroom routines with a minimum of disruptiveness, and short transitions between well-planned activities.[17] In poorly managed classrooms, teachers may lose large amounts of time to transitional activities such as lining up, putting materials away, and moving between small- and large-group activities.[18]

Despite this growing body of evidence, access to high-quality professional development that helps preschool teachers strengthen their classroom management skills is rare. In general, professional development for early childhood teachers is fragmented, focusing on breadth rather than depth of information.[19] Moreover, it generally lacks connection to and integration with teacher-identified classroom practices and needs. Exacerbating these concerns is the fact that the lead and assistant teachers in a classroom typically do not attend trainings together and do not receive similar training content, so there are few opportunities for co-teachers to discuss new practices and share information to successfully implement newly learned strategies .

The Foundations of Learning Model

The FOL intervention sought to arm teachers with specific management strategies to handle daily classroom challenges in order to improve the social and emotional competence of children

[13]Hamre and Pianta (2005).
[14]La Paro, Pianta, and Stuhlman (2004).
[15]Arnold, McWilliams, and Arnold (1998); Webster-Stratton (1999).
[16]Webster-Stratton (1999).
[17]Bohn, Roehrig, and Pressley (2004).
[18]La Paro and Pianta (2003); Roth, Brooks-Gunn, Linver, and Hofferth (2003).
[19]Bowman, Donovan, and Burns (2001).

through the quality of teacher-child interactions.[20]

The intervention delivered four components throughout the preschool year:

- **Teacher training:** Lead and assistant teachers were invited to attend five Saturday training sessions. The workshops were an adapted version of *The Incredible Years* curriculum developed by Dr. Carolyn Webster-Stratton.[21] The workshops provided instruction on how to foster positive relationships with children; they presented classroom strategies that teachers could use, such as setting clear rules; and they provided teachers with techniques to develop children's social skills, anger management, and problem-solving ability. These strategies represent widely accepted best practices for preschool teachers and reflect good classroom management.

- **Classroom-level consultation:** To complement the training, teachers were assigned a master's-level Clinical Classroom Consultant to work with them in the classroom one day per week throughout the school year. The CCCs built collaborative relationships to help model and reinforce the content of the training sessions.

- **Stress management:** In the winter, teachers participated in a 90-minute stress management workshop at their program sites. CCCs also helped support the teachers' use of stress management skills and techniques throughout the year.

- **Individualized child-centered consultation:** Beginning in the spring, the CCCs provided one-on-one clinical services for a small number of children who had not responded sufficiently to the teachers' improved classroom management. By design, the individualized clinical consultation was delivered only *after* children had ample time to react to the new teaching strategies.

Chapters 2 and 3 discuss in more detail the intervention components and their implementation in the Foundations of Learning demonstration.

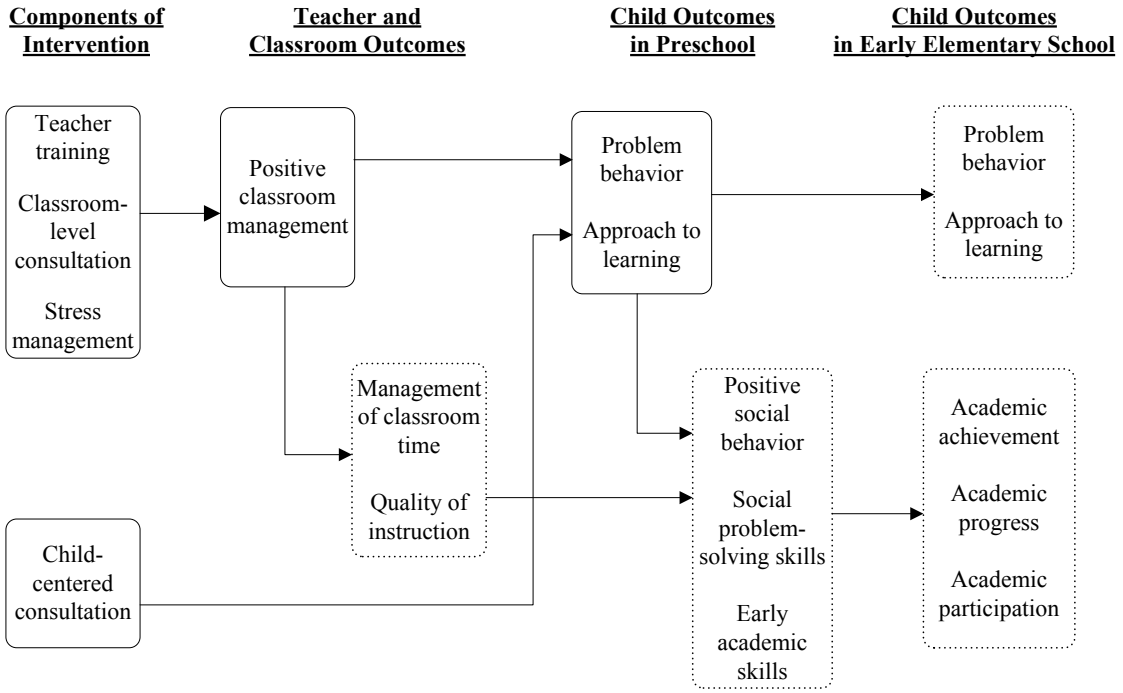
Figure 1.1 illustrates the theory of change underlying the FOL model. As depicted, the primary focus of all the components of FOL is teachers' positive classroom management skills. Developing these skills is at the core of *The Incredible Years* training, which is reinforced by the CCCs' modeling and coaching sessions with teachers. By improving teachers' ability to

[20]Raver et al. (2008), (2009a), (2009b).
[21]See www.IncredibleYears.com for more information.

The Foundations of Learning Demonstration

Figure 1.1

Conceptual Model of Foundations of Learning Intervention Effects



NOTE: Primary outcomes are indicated with a solid outline and secondary outcomes are shown with a dotted outline.

manage the classroom and model positive interactions for students, downtime in classrooms is expected to be reduced and instructional time would correspondingly be increased.

Less directly, it was hypothesized that FOL might change not only the amount but also the quality of instructional time, meaning that improvements in classroom climate and children's behavior might facilitate better teaching. However, there was also the possibility that the increased attention by teachers to classroom management might divert their attention from providing instruction in academic skills like reading and math.

The changes in the interactions between teachers and children were expected to improve a set of skills — collectively referred to as "social and emotional competence" and described in Box 1.1 — that enable children to engage positively with peers and teachers and to

Box 1.1

What Is Social and Emotional Competence?

In this report, the term "competence" is used to indicate a child's capacity to do something and "behavior" is the manifestation of that competency in everyday life. Social and emotional competence comprises a smaller set of discrete skills, such as the capacity to control negative emotions, express emotions, and communicate with peers. Social and emotional competence is thought to underlie children's behaviors, particularly in two areas that are thought to be central to longer-term success in school: (1) social behaviors, or children's positive interactions with peers and teachers; and (2) approaches to learning, or children's ability to focus their attention and behavior during classroom activities.

Strongly related to social and emotional competence is executive function. Its underlying skills are the ability to shift attention, inhibitory control (children's ability to control their immediate or automatic response in favor of a planned response), and working (or short-term) memory. Executive function skills are thought to underlie children's approaches to learning as well as their academic achievement.

focus their attention and behavior during classroom activities. FOL's particular focus on classroom management most directly targets children's problem behaviors (acting out and withdrawal) and the way that they approach learning (their self-regulation and their engagement in the learning tasks of preschool). In addition, the CCCs' one-on-one consultations with selected higher-risk children could further reduce problem behavior of children who needed more attention beyond the larger classroom management strategies.

Notably, the intervention's impact on other components of social and emotional competence, such as positive social behavior and appropriate social problem-solving strategies, would generally be expected to occur through improvement in more proximal classroom and child targets of the intervention (positive classroom management, problem behaviors, and approaches to learning). Similarly, gains in the early academic skills of children could occur through their improved engagement in classroom activities and the increase in quality instructional time. Therefore, these are all considered secondary outcomes, as illustrated in Figure 1.1.

As discussed in more detail in Chapter 4, another attribute that is strongly related to social and emotional competence and its associated behavior is executive function, which includes the interrelated skills of attention, inhibitory control (children's ability to control their automatic response), and working (or short-term) memory. Competence in executive functioning is thought to be positively associated with children's approaches to learning as well as learning outcomes such as achievement. Both outcomes are reflected in Figure 1.1.

Finally, FOL's benefits were also hypothesized to extend over the long term. Although not shown in the model, teachers may carry over their stronger classroom management skills beyond the intervention year, leading to a more positive, better managed environment in future years. The children could build on their improved social and emotional competence, so that in kindergarten and beyond they will have increased ability to regulate their emotions, have more positive relationships with their teachers, and perform better on academic outcomes such as achievement (grades and test scores), progress (grade-to-grade promotion), and academic participation (attendance). Finally, the children who were more inclined to exhibit problematic behavior in preschool may require less disciplinary action and fewer referrals for special services as they make the transition to elementary school. However, all of these longer-term effects could be influenced by such factors as the quality of the elementary schools that children enter.

Evolution of the FOL Intervention Model and Research

The FOL demonstration adopted the model used by the University of Chicago-based CSRP (formerly known as the Chicago School Readiness Project).[22] Designed and developed by Dr. Cybele Raver, who is a member of the FOL research team, CSRP operated in 18 Head Start sites in high-poverty Chicago neighborhoods from 2004 to 2006. (Head Start, the largest federally funded early childhood education program in the United States, provides comprehensive services to low-income children and their families.) The evaluation of CSRP used a rigorous research design, in which the 18 sites were randomly assigned to one of two groups: half received the multicomponent CSRP intervention; the other half, which did not participate in the intervention, served as a control group.[23] With random assignment, differences in outcomes observed during follow-up can be confidently attributed to the program rather than to preexisting differences between the two research groups. Such differences, or impacts, that are statistically significant are unlikely to have arisen by chance.

The early results from the CSRP evaluation indicated that the intervention improved the quality of the classroom environment as well as preschool outcomes for children. Encouraged by these findings, MDRC decided to test the model further. Following a feasibility study and a year-long pilot phase, MDRC proceeded with a demonstration of FOL in Newark, New Jersey, during the 2007-2008 school year and returned to Chicago for the 2008-2009 school year. (See Table 1.1.) FOL, in contrast to CSRP, was intended to be a more real-world test of the intervention model: the classroom consultation was to be delivered by local social service agencies

[22]CSRP is not associated with The Chicago School®, which is a trademark of The Chicago School of Professional Psychology.

[23]CSRP included a teacher's aide in control classrooms; the presence of the teacher's aide in control classrooms ensured that any positive impacts of the intervention were not attributable to an improved adult-child ratio in the CSRP classrooms.

The Foundations of Learning Demonstration

Table 1.1

Evolution of the Foundations of Learning Demonstration

Characteristic	CSRP[a]	FOL Pilot in Newark	FOL Full Scale in Newark	FOL Full Scale in Chicago
School years	2004-2006	2006-2007	2007-2008	2008-2009
Total number of sites	18	17	51	20
Program sites	9	9	26	10
Control sites	9	8	25	10
Total number of classrooms	35	17	51	40

SOURCES: Raver et al. (2008) and MDRC calculations from random assignment.

NOTE: [a]CSRP was formerly known as the Chicago School Readiness Project.

rather than through a university and, to the extent funding permitted, across a larger sample of classrooms and centers. Overall, similar results were anticipated across the CSRP, FOL-Newark, and FOL-Chicago studies.

Two earlier reports concluded that FOL was well implemented in Newark and had promising effects during the preschool year in creating a positive classroom environment.[24] The program also had positive impacts on teachers' productive use of classroom time and on certain outcomes for children. These findings are discussed further in Chapter 4.

CSRP, FOL, and other evaluations are part of an emerging body of research on the potential short- and long-term benefits of addressing the social and emotional competence of preschool children through classroom interventions. For example, the nationally representative Head Start CARES (Classroom-based Approaches and Resources for Emotion and Social skill promotion) Project is currently testing the effects on classrooms, teachers, and children of three social-emotional programs implemented in Head Start settings. Funded and conceived by the U.S. Department of Health and Human Services, Head Start CARES is being conducted by MDRC in collaboration with a group of leading academic experts.

The Newark and Chicago Contexts of the FOL Intervention

The fact that the FOL demonstration was implemented in two cities with distinct preschool systems provides an opportunity to learn about associations among context, implementation, and outcomes. At the time of FOL's implementation, Newark was ahead of most of the country

[24]Morris et al. (2010); Lloyd and Bangser (2009).

in its implementation of structural changes to promote quality in preschools. The New Jersey Supreme Court's landmark decisions in the *Abbott v. Burke* class action case required the state to increase education funding to disadvantaged districts. In short, the Court ruled that the State must provide additional resources, oversight, and regulations for 31 low-income school districts in New Jersey, including Newark. These requirements created a higher base of resources than is available in more typical urban districts. The Abbott mandates included smaller class size (limited to 15 students), a lead and assistant teacher in each classroom, higher teacher-student ratios (with two teachers per classroom), increased teacher salaries, and stricter teacher credentialing, among other features.[25] However, even though "Abbott preschool classrooms" received substantial resources, initial pilot-testing of FOL by MDRC determined that there remained a need for resources to address the social and emotional needs of children.[26]

Chicago FOL preschools represented a more typical urban preschool environment, with lower educational requirements for teachers and larger average class sizes. All participating centers were part of the Head Start system and were held to national Head Start regulations. At the time of the demonstration, this included a minimum educational credential of a Child Development Associate degree for lead teachers and a mandated child-teacher ratio of 20:2. However, implementation research and reports from the CCCs indicated that staffing shortages were common. Given these differences, it was originally hypothesized that Chicago classrooms may benefit more from an intervention like FOL. However, findings from an analysis of qualitative data from interviews and focus groups with teachers and CCCs in Chicago showed that resource and staffing constraints could affect the intervention's implementation.

Research Design and Sample

In Newark, 51 preschools were recruited from among the three primary types of venues in the city — Head Start centers, community-based child care centers, and public schools. In each preschool, one classroom serving primarily four-year-olds was selected to participate in the study. Preschools were grouped together by venue, racial/ethnic composition, and neighborhood, and then randomly assigned within each group. Twenty-six preschools were randomly assigned to receive the FOL intervention (referred to throughout this report as the program group), and 25 were assigned to the control group, which operated regular preschool classrooms in accordance with the Abbott requirements but without the FOL enhancements.

In Chicago, 20 Head Start centers were recruited to participate in the demonstration, and two classrooms in each center were selected for the study. Sites were grouped into pairs

[25]New Jersey Department of Education (2008).
[26]Lloyd and Bangser (2009).

based on their matching on key characteristics of teachers (for example, race/ethnicity, teacher pay, teacher credentials), families (for example, percent of single-parent families, income level of families), and site-level resources (for example, whether the site had an additional staff member). Within each pair, one center was randomly assigned to the program group and one to the control group. This paired random assignment reduced the likelihood that differences between program and control groups would occur by chance. Sites that were assigned to the program group received training and coaching in the FOL model; sites that were assigned to the control group received Head Start services as usual.[27]

Most important, as was the case in CSRP as well, random assignment "worked" in the Newark and Chicago FOL studies, in that there were no systematic baseline differences between program and control groups in teacher, classroom, and child characteristics.

Table 1.2 shows a selection of teacher and child characteristics that were collected across the FOL-Newark and FOL-Chicago sites. (See, also, Appendix Tables A.1 and A.2.) The top panel of Table 1.2 presents characteristics of teachers and the bottom panel presents characteristics of children. The majority of teachers across the two sites were female, African-American, and around 40 years of age. In Newark, consistent with the Abbott regulations, all lead teachers held a bachelor's degree or higher, while only about two-thirds of lead teachers in Chicago reported a similar level of education. Slightly more than half of the lead teachers in Newark reported that they had been teaching in a preschool setting for six years or more, compared with nearly 80 percent of the lead teachers in Chicago. The majority of children in Chicago (about 70 percent) were African-American, while in Newark the children represented a mix of African-American, Hispanic, and Portuguese-speaking (included with "White/Other"). More children came from single-parent households in Chicago (92 percent) than in Newark (48 percent). Overall, the preschools in the sample serve high proportions of low-income families.

The study of the process and quality of FOL implementation used a mixed-methods approach in which measuring the dosage, or amount of the intervention delivered, was complemented by qualitative data. Throughout this report, implementation refers to the provision of the training, consultation, and stress management services and does not include the teachers' use of the strategies learned through the intervention. Dosage data were collected on a regular basis throughout the intervention year for the training, classroom-level consultation, stress management, and individualized child-level consultation components of the intervention. Training quality was assessed through observation of each training session as well as participant satisfaction surveys that were completed after the session. The quality of the classroom consultation component was assessed through an end-of-the-year survey completed by teachers, weekly service provision forms completed by the CCCs, and weekly technical assistance calls. Stress

[27]For a description of what Head Start services include, see http://eclk.ohs.acf.hhs.gov/hsk/hs/about.

The Foundations of Learning Demonstration

Table 1.2

Baseline Characteristics of Teachers and Students, Newark and Chicago

Characteristic	Newark (2007-2008) Program Group Mean	Newark (2007-2008) Control Group Mean		Chicago (2008-2009) Program Group Mean	Chicago (2008-2009) Control Group Mean	
Lead teachers						
Female (%)	88.5	88.0		95.0	100.0	
Age (years)	37.0	38.2		40.2	47.3	**
Race/ethnicity (%)						
Black/African-American, not Hispanic	52.0	66.7		65.0	66.7	
Hispanic	23.1	17.4		25.0	22.2	
White/Other	24.0	14.3		0.0	5.6	
Taught preschool for 6 years or more (%)	53.8	56.5		80.0	77.8	
Holds bachelor's degree or higher (%)	96.2	100.0		70.0	61.1	
Students						
Female (%)	48.6	48.0		54.7	47.5	*
Age (years)[a]	4.4	4.3	*	4.1	4.1	
Race/ethnicity (%)[b]						
Black/African-American, not Hispanic	42.2	43.7		67.7	72.9	
Hispanic	35.8	34.4		30.1	26.4	
White/Other	9.9	10.3		2.3	0.8	
Single-parent household (%)	47.8	50.0		92.0	91.0	
Primary language spoken at home is Spanish (%)	18.2	17.5		29.7	23.9	
Sample size						
Teachers	26	25		20	18	
Students	319	304		298	282	

SOURCES: MDRC calculations from responses to teacher and parent surveys and Head Start data.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.
Means are adjusted for random assignment block and nesting of students within classrooms.

[a]Age at start of school year, September 2007 (in Newark) or September 2008 (in Chicago), calculated from date of birth.

[b]Race/ethnicity is not available for all students.

management quality was assessed through an end-of-workshop, close-ended survey. Finally, classroom observations as well as a series of focus groups and one-on-one interviews with teachers, CCCs, and district-level educational staff provided additional data on the individual, classroom, and site-level experiences that might affect implementation. These findings are discussed in Chapter 3.

While originally designed to collect the same extensive quantitative data on classrooms, teachers, and children across both FOL sites, the measurements used in the two FOL studies differed somewhat because of funding constraints. The research team chose measurements that were complementary and built on the findings from CSRP. FOL-Newark focused on understanding the extent to which FOL changed the classroom environment, by expanding the classroom dimensions that were measured in CSRP and assessing child behavior through observations in the classroom context. As FOL moved to Chicago, the focus turned to direct assessments of children's social, behavioral, and cognitive skills in order to understand the effects of the program model on attributes that children can carry beyond the classroom. These direct assessments are currently considered the most reliable measures of child outcomes in preschool studies. The measures are discussed in greater detail in Chapter 4.

Organization of the Report

The remainder of the report is organized as follows:

- **Chapter 2** describes the components of the FOL intervention, including an in-depth look at the classroom consultation component.
- **Chapter 3** provides details on the context, dosage, and quality of FOL's implementation in Newark and Chicago.
- **Chapter 4** presents the impacts of FOL on classroom- and child-level outcomes for both Newark and Chicago.
- **Chapter 5** discusses the quantifiable costs and benefits of FOL.
- **Chapter 6** summarizes the findings and lessons from the FOL demonstration.

Chapter 2

Design of the Foundations of Learning Intervention

This chapter presents the rationale for the Foundations of Learning (FOL) program components, explaining how they fit together in an integrated model to promote a high-quality preschool experience. The multifaceted FOL intervention relied on Clinical Classroom Consultants (CCCs) to provide intensive support to teachers and children in order to improve the classroom environment and increase children's social and emotional competence. The strong current interest in classroom coaching and consultation services as a way to strengthen teacher practices in early childhood education settings includes questions about how best to implement coaching models and the most appropriate dosage (or amount) of coaching services.[1] In response, this chapter presents an in-depth review of the FOL classroom consultation component, including the design, implementation, and monitoring of the consultation process.

The FOL Components

FOL focused primarily on enhancing the quality of teacher-student interactions as a means of promoting young children's social and emotional competence. The intervention was designed and sequenced, as shown in Figure 2.1, to support teachers' use of positive classroom management skills. The core of the intervention was an adapted version of *The Incredible Years* curriculum developed by Dr. Carolyn Webster-Stratton.[2] *The Incredible Years* is a classroom management curriculum specifying the implementation of strategies that are based on early childhood best practices. While the strategies are simple and generally familiar to teachers, they are designed to be implemented in a specific sequenced and staged manner. The teacher training and other components of the FOL intervention are described briefly below, with an extended discussion of the design of the classroom consultation component in the second half of the chapter.

Teacher Training

Since teachers typically have limited practical training in how to promote children's social and emotional competence,[3] the FOL intervention included workshops for teachers on how

[1]For information about classroom coaching and consultation in early childhood education settings, see Lloyd and Modlin (2012). For implementation of coaching models, see Smith et al. (2012). For dosage of coaching services, see Wasik, Mattera, Lloyd, and Boller (in press).

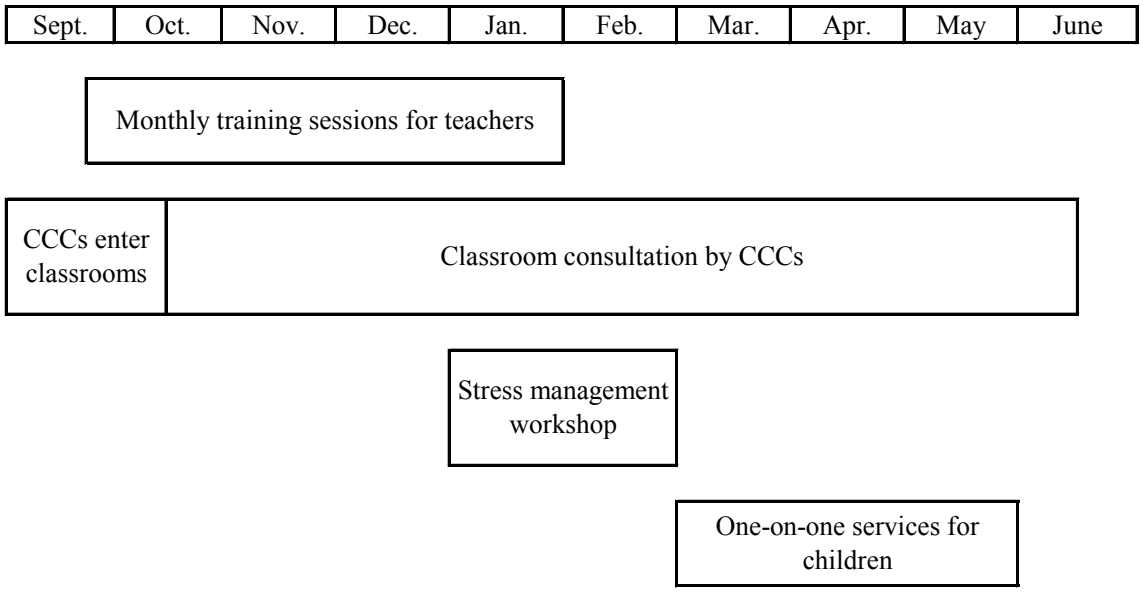
[2]See www.IncredibleYears.com for more information.

[3]Weist (2005); Raver, (2002).

The Foundations of Learning Demonstration

Figure 2.1

Intervention Timeline



NOTE: CCC = Clinical Classroom Consultant.

to establish positive relationships with their students, encourage age-appropriate behavior, and minimize classroom disruptions and confrontation.[4] Lead and assistant teachers were invited to attend five Saturday training workshops, once a month for six hours each, from late September to January. The workshops instructed teachers in how to develop positive relationships with children and their families; present classroom strategies that teachers could use, such as setting clear rules, outlining predictable limits, and instituting a discipline structure that minimizes classroom disruptions and avoids confrontation; and equipped teachers with techniques to develop children's social skills, anger management, and problem-solving ability. Box 2.1 outlines the content that was covered during the training sessions. The model stipulates that the strategies be used within a sequenced hierarchy starting with building positive relationships (which are the foundation for proactive classroom management) and moving to more child-specific and targeted practices such as praise, encouragement, limit-setting, and consequences after the foundation has been set in place. Figure 2.2 presents an adapted version of *The Incred-*

[4]The workshops are an adapted version of *The Incredible Years* teacher training series curriculum developed by Dr. Carolyn Webster-Stratton. See www.IncredibleYears.com for more information.

Box 2.1

Overview of Teacher and Clinical Classroom Consultant Training Content

Training 1: Building Positive Relationships with Students, Proactive Teaching, and Preventative Approaches

- Promoting positive relationships with students by listening
- Understanding students' strengths
- Collaborating with caretakers to benefit children
- Creating predictable and safe learning environments
- Giving clear and specific directions in positive terms
- Helping students make choices
- Using nonverbal cues and signals as a classroom management strategy
- Understanding the process, implementation, and benefits of a good behavior plan

Training 2: Teacher Attention, Praise and Encouragement, Teacher Coaching, and Child-Directed Play and Friendship Skills

- Enhancing children's self-esteem and confidence by using praise
- Praising positive social and academic behaviors
- Using descriptive comments to facilitate children's social learning
- Developing children's abilities to praise themselves and their peers
- Helping children appreciate the achievement of others

Training 3: Motivating Students Through Incentives and Decreasing Inappropriate Behavior

- Understanding and effectively using the classroom discipline plan, or hierarchy of consequences
- Understanding the advantages and disadvantages of using incentives
- Setting up and using developmentally appropriate incentives
- Using incentives to facilitate children's internal learning processes
- Using logical consequences to foster appropriate behavior

Training 4: Teaching Children to Be Socially Competent

- Increasing children's awareness of different feelings
- Building children's emotional vocabulary
- Understanding children's anger and helping them to manage it successfully
- Promoting children's responsibility in the classroom
- Fostering positive reputations

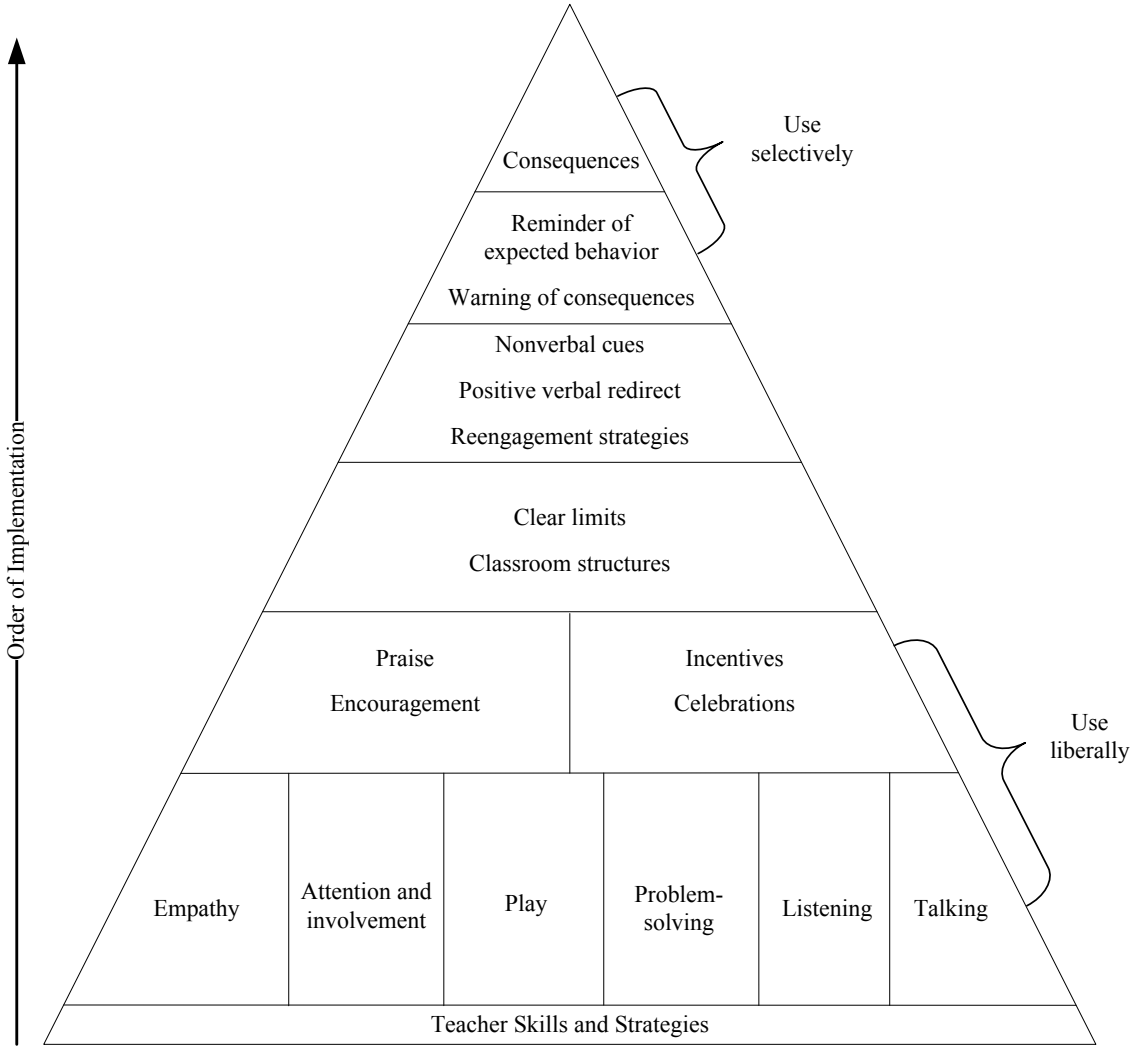
Training 5: Training Review and Wrap-Up

- Overview of previous training content
- Targeted review of previous topics or training content that teachers request

The Foundations of Learning Demonstration

Figure 2.2

The Incredible Years **Teaching Pyramid**



SOURCE: Adapted from *The Incredible Years* Teaching Pyramid. See www.IncredibleYears.com/Resources/teacher-program-pyramid.pdf.

ible Years Teaching Pyramid,[5] which illustrates the sequence of classroom management strategies.

Classroom Consultation

Training alone is often insufficient to ensure that teachers implement new practices.[6] Therefore, the FOL program design called for a master's-level CCC to provide in-class support one day per week to reinforce the lessons from the training, to model appropriate techniques, and to act as a sounding board for teachers. This regular in-class presence, which began even before the teacher training workshops started, contrasted with the "on call" approach used in many programs.[7] In the FOL study, master's-level CCC Coordinators were responsible for overseeing training and support efforts for the CCCs.

Stress Management

In addition, because stress in teachers' personal and professional lives can reduce their effectiveness,[8] teachers attended a stress management workshop in January or February that was customized to respond to the lead and assistant teachers' particular needs. The 90-minute workshop was delivered conveniently on-site in the teachers' school or center. The CCC also provided support to the teachers throughout the year on issues related to stress and burnout.

Individualized, Child-Centered Consultation

Finally, the FOL intervention recognized that teachers' improved classroom management skills (the universal component of the model) might not be enough to support the social and emotional needs of all children in the classroom.[9] Therefore, the CCC provided individualized consultation services to children who needed additional support. However, the clinical services were deferred until the final third of the school year (March through May) to ensure that the universal component was implemented fully and the children had sufficient time to respond to the teachers' new strategies. In addition to providing direct support to children, the insights that were gathered from the individualized consultation sessions were shared with

[5]See www.IncredibleYears.com/Resources/teacher-program-pyramid.pdf.

[6]Raver (2002); Raver et al. (2008); Webster-Stratton, Reid, and Hammond (2001); Neuman and Wright (2010).

[7]For a detailed discussion of the programs reviewed, see Alkon, Ramler, and MacLennan (2003); Farmer-Dougan, Viechtbauer, and French (1999); Gilliam (2007); Hennigan, Upshur, and Wenz-Gross (2004); Kagan (2003); Lehman et al. (2005).

[8]Curbow et al. (2000); Deery-Schmitt and Todd (1995); Manlove (1993).

[9]There is some evidence of positive results from a "blended" program of teacher training supplemented by individualized services for high-risk children in kindergarten and first grade (August, Realmuto, Hektner, and Bloomquist, 2001; August, Egan, Realmuto, and Hektner, 2003).

teachers in an effort to help them reframe potentially negative perceptions about children who displayed particularly challenging behaviors in the classroom.

Technical Assistance and Oversight

In Newark and Chicago, the FOL intervention was accompanied by a comprehensive technical assistance plan to support the CCCs, teachers, and administrators at program sites. Technical assistance efforts were carried out by a core group of New York City-based project staff at MDRC. The primary technical assistance activities included meetings with key early childhood education stakeholders, observations of FOL training activities, periodic site visits to FOL program classrooms, and supervision of consultation staff through regular meetings and review of consultation documentation.

Meetings with Key Stakeholders

The early childhood education systems in both Newark and Chicago included multiple agencies that were responsible for funding, monitoring, and providing support services to the schools and community-based organizations that operate early childhood education programs. (See Appendix Table B.1.) For example, the early childhood education systems in Newark and Chicago included on-site special education services and mental health consultation for children, as well as professional development (for example, mentors for teachers). These support services were provided by field-based professionals who were employed by the local school district, a local government agency, or a private contractor. Meetings were held with key stakeholder groups to inform them of the plans for the FOL demonstration and to ensure that professionals in the field, such as special education providers, understood the purpose of the intervention to ensure that teachers would not receive information that conflicted with the FOL approach.

Observations of Training

Members of the technical assistance team at MDRC attended all of the intervention training workshops to track teacher attendance and to observe teachers' responses to the information that was presented. Information that was gathered during the observations was shared with CCCs and trainers during debriefing meetings after each training session. Debriefing meetings included discussions about the session content and quality and aspects of the session that worked particularly well or poorly. CCCs were then tasked to work with any teachers who missed the training session to bring them up to speed on the training content. In addition, CCCs attempted to understand and help resolve teachers' barriers to attending the workshops.

Site Visits

Site visits to program classrooms provided the technical assistance team with the opportunity to observe FOL implementation first-hand and solicit feedback from teachers about their experiences with the intervention, including their work with the CCCs, their reactions to the training content and its delivery, their implementation of *The Incredible Years* strategies and techniques, any issues that constrained intervention implementation, and data collection procedures. Site visits also provided an occasion for the technical assistance team to connect with center directors and school principals to discuss the implementation of FOL and understand their operating environments. In general, there were monthly technical assistance visits to FOL program classrooms in Newark (with some variability by individual site), but there were only two site visits in total to FOL-Chicago classrooms because of resource constraints that limited travel.

Supervision of Consultation Staff

Supervision of consultation staff was provided in two different formats: one-on-one clinical meetings and full-team technical assistance meetings. The purpose of the full-team technical assistance supervision was to monitor and understand the quality of the consultation services that were provided to teachers as well as the teachers' implementation of the FOL intervention (based on CCC reports). The full team meetings were co-facilitated by the CCC Coordinator and the MDRC Project Manager. Both levels of supervision are described in more detail in the section on classroom consultation that follows.

The remainder of this chapter describes in detail the classroom consultation model, which sets FOL apart from other early childhood interventions or professional development programs because of the intensity, duration, and multilevel focus of the classroom consultation support. The prescribed approach to classroom consultation as well as the processes for hiring and supervising consultation staff are outlined here to provide administrators, school district officials, and others with a framework to understand what it takes to bring the FOL consultation model to scale in preschool sites.

An In-Depth Look at the FOL Classroom Consultation

Interest in classroom consultation as part of professional development efforts for early childhood educators has increased in recent years, both as part of a comprehensive intervention, such as FOL, and as a stand-alone effort to increase the quality of instruction and the preschool

environment. However, there is currently very limited information about the design of consultation models or how effective they are in particular contexts.[10]

The consultation model that was adopted for FOL accounted for the intervention's goals and the needs of the participating preschool classrooms, including the selection and training of CCCs, expectations for the consultation process, and supervisory oversight and support.

FOL consultation differed in many respects from typical early childhood coaching models:[11] (1) it was multilayered, providing support to both adults and children; (2) it was preventive, with both a programmatic and clinical focus designed to change teachers' practice and, later in the year, to change the behavior of selected children; (3) it was time-intensive, spanning the entire academic year and including a full day per week of in-classroom consultation; (4) it aimed to be culturally sensitive by including deliberate racial/ethnic matching of CCCs to the teachers and children they serve; and (5) CCCs were hired outside of the preschool systems in which they were working and were highly skilled clinicians with master's degrees.[12]

Consultant Qualifications

The CCC's role was complementary, but distinct, and required hiring individuals with a wide range of knowledge, skills, and experience. In FOL, individuals with expertise in early childhood were sought, but the project also prioritized recruitment and hiring of individuals with strong interpersonal and clinical skills because of the importance of (1) building positive working relationships between CCCs and teachers; (2) promoting productive working relationships among teaching partners in the classrooms; and (3) working one-on-one in a clinical capacity with individual children. In addition, the project sought individuals who were culturally sensitive, had experience supporting adult learning, and had the ability to work in complex early childhood settings in urban environments.

Recent graduates with a master's degree in social work, psychology, and/or counseling were considered to be ideal because they were thought to have the clinical skills needed to support teachers and children. They were also thought to be more open to the process of learning and taking on a new intervention, since they were likely to be less focused than veteran mental health professionals might be on one particular method of practice or service delivery. Box 2.2 presents the job description and qualifications that were used to recruit CCCs. Appendix

[10]For information about the design of consultation models, see Lloyd and Modlin (2012); and Sheridan, Edwards, Marvin, and Knoche (2009). For information about various models' effectiveness in particular contexts, see Zaslow et al. (2010).

[11]For a review of coaching models, see Alkon, Ramler, and MacLennan (2003); and Duran et al. (2009).

[12]CCCs were employed by local, independent agencies for each demonstration that were not a part of the school district.

Box 2.2

Clinical Classroom Consultant Job Description

The job description and qualifications presented below were used to recruit clinical classroom consultants (referred to here as "mental health consultants") for the FOL-Newark and FOL-Chicago demonstrations. Bracketed text has been added for clarification.

Mental health consultants will provide and assist in the implementation of research-based behavioral strategies and classroom interventions that are geared toward reducing children's problem behavior in the classroom and supporting teacher's roles in this process. To achieve this goal, successful candidates will both attend and then apply behavioral modification/training to urban early childhood classrooms using a consultation model. This on-site presence supports teachers in handling children's challenging and disruptive behaviors, and provides teachers with concrete problem-solving skills to ensure that all children in the classroom are better able to learn.

Essential Functions

- **40 percent:** Provide services to teaching staff in early educational settings, following a manualized consultation approach [that is, the protocol for consultation services] that includes helping teachers to implement strengths-based improvements in instructional practices [that is, drawing on teachers' individual strengths], providing behavioral and stress management training for teachers, attending weekly clinical supervision, and research based staff meetings.

- **40 percent:** Participate in data collection efforts by completing weekly documentation for both teachers and provide classroom-based interventions for children unresponsive to teachers' efforts at implementing behavioral management strategies. Participate in documenting the process of implementing the intervention.

- **20 percent:** Sustain the mental health needs of children through capacity building, including creating treatment plans co-jointly with parents, teachers, and other professionals to monitor children seen for direct intervention, and referring children to community-based mental health agencies.

Qualifications

- Master's degree from an accredited school of social work, counseling, or psychology
- Current social work or counseling licensure or board-eligible
- Commitment to working with ethnically diverse children, families, and professionals
- Understanding of early childhood development
- Experience working with families from high-risk, low-income, and urban backgrounds
- Ability to work independently and within a team
- Comfort in working in a host environment
- Strong reading, writing, and communication skills
- Bicultural and bilingual in English and Spanish is highly preferred
- Valid driver's license
- Access to own transportation necessary

Table B.2 presents the CCCs' demographics and characteristics for the FOL-Newark and FOL-Chicago demonstrations. It was challenging to recruit CCCs with the broad set of skills desired for FOL implementation. Recruitment was made all the more difficult because the project was a time-limited research initiative.

Training

Once hired, CCCs were provided with an initial orientation to their roles and the project, in addition to training on *The Incredible Years* curriculum. This orientation occurred approximately one week before the start of the school year and was designed to provide CCCs with a basic understanding of the intervention and their role in it. The orientation was also structured to facilitate a sense of camaraderie and rapport among the CCCs, including ice-breakers, interactive exercises, and multiple opportunities for CCCs to share, reflect, and ask questions.

The orientation of CCCs was a two-day seminar for FOL-Newark but, based on the Newark experience, was expanded to a three-day seminar for FOL-Chicago. The Chicago training included all of the Newark content as well as additional topics, such as the CCCs' role with respect to the intervention's implementation and the research initiative.

Box 2.3 provides an overview of the various components of the CCCs' training.

In advance of the orientation, CCCs were given a description of the research study, the book *How to Promote Children's Social and Emotional Competence*,[13] the intervention manual, and the policies and procedures manual for their hiring agency. Once the school year began, CCCs joined the teachers at their training workshops on *The Incredible Years* approach. Trainings were held roughly once a month from late September through January of the school year. Co-training enabled the CCCs and teachers to interact outside of the classroom; it also ensured that both CCCs and teachers received the same information about the intervention, providing them with a common language and framework for discussing classroom implementation.

Consultation Process

CCCs followed a manual that not only specified the amount of time that they should spend in classrooms, but also provided clear guidance about the activities in which they should engage. The clinical consultation model specified that CCCs spend six to seven hours per week (during one specified weekday) on-site at the participating preschool programs and outlined a

[13]Webster-Stratton (1999).

Box 2.3

Overview of Training Content for Clinical Classroom Consultants

Training Day 1

Overview of MDRC, the Hiring Agency, and the Study. Covered the purpose and mission of MDRC, information about the consultant hiring agency, and a review of the Foundations of Learning project.

Staff Roles and Responsibilities. Overview of the roles of all staff associated with the project, including the research and technical assistance team, supervisory staff, classroom consultants, treatment and comparison teachers, and, in Chicago, other professionals in the preschool environment such as family workers, resource teachers, and mental health consultants.

FOL Timeline and Model Components. A review of the research project, the program model, and the intervention timeline. Particular attention was paid in the Chicago orientation to the relationship of the intervention, the consultant role, and the data collection processes.

City and Preschool Contexts. History of the cities in which the intervention was being implemented and an overview of the preschool contexts in each city. Tips for working within preschool settings were also provided.

Training Day 2

Intervention Implementation and Maintaining Fidelity. Clarification of the steps that were necessary to ensure that the intervention was implemented as intended and including a review of the various phases of the consultant model and the expectations around dosage for teachers and children.

Practical Application of the Model. CCCs used the CCC manual as a framework for reviewing a "typical" day in the life of a consultant, including the types of issues CCCs might face and expectations for their role in the project, such as the phases of the consultant's role and activities to complete while working in classrooms.

Modeling and Role Play. Using field-based scenarios derived from FOL-Newark and CSRP (formerly the Chicago School Readiness Project), this aspect of the training provided an opportunity for consultants to role-play challenging situations they might encounter in their work. Time was built in to reflect on and refine their practice based on feedback and guidance from the administrative and supervision teams as well as their peers.

Training Day 3

Intervention Documentation. A line-by-line review of the data collection instruments. Consultants also practiced completing the forms and used feedback from the orientation facilitators to refine their documentation skills.

Site Assignments. Consultants received their assigned list of sites; spent time as a group touring the neighborhoods, centers, and schools where they were assigned; and reflected on their observations and any concerns with the team.

Evaluation. CCCs provided written feedback on the orientation.

progression of phases for the CCC's role, as explained in Box 2.4. *The Incredible Years* curriculum developers supplement teacher training with a mentoring process as part of the intervention model; however, consultation in FOL was designed to be more intensive than the model that typically accompanies the curriculum. The intended dosage and duration of classroom consultation were quite high by design because CCCs were expected to take on multiple roles and perform several tasks during each consultation session. This also served to establish consistency in the provision of consultation services, and gave CCCs the time to develop a clear understanding of the intricacies of each classroom's environment. CCCs were expected to take into account variations in program context and teachers' responsiveness, with deviations from prescribed guidelines made in consultation with their supervisors and the MDRC technical assistance team.

CCCs entered the classrooms in September. As part of the entry and joining phases, they were expected to spend about a month becoming familiar with the site and surrounding environment as well as establishing positive relationships with the teachers, administrators, and other key early childhood players such as mental health consultants. During this time, the CCCs did not engage in active consultation; their primary task was to acclimate themselves to classroom routines and norms, while also allowing teachers to become more familiar with them and the project. CCCs were advised to support teachers with basic classroom tasks by assisting with meals, clean-up, and set-up of daily materials. This support was expected to continue throughout the year and was designed to help ease the transition of the CCCs into the classrooms, increasing the potential for the development of trusting working relationships between CCCs and teachers.

After the first teacher training session in late September, CCCs were expected to support teachers in their efforts to incorporate the strategies from the training into the classroom environment. Promoting implementation of the strategies involved activities such as reviewing information from the training workshops, modeling *The Incredible Years* techniques, and supporting teachers with stress management. Although the consultation support lasted throughout the year, the FOL model stipulated that *active consultation* activities related to implementation of *The Incredible Years* techniques and stress management would be most intensive from October to January. CCCs were also supposed to continue providing support on basic classroom tasks in an effort to maintain positive relationships with the teachers and children.

Focused weekly debriefings, conducted over lunch, during students' rest time, or after school, were expected to be a formal part of the consultation process. The debriefings ensured that teachers and CCCs were "on the same page" and communicated with each other regularly. The debriefings were also a valuable opportunity to review classroom challenges and successes, whether the goals of the teachers and the intervention were being met, and ways to adapt the classroom management strategies if needed. The debriefings encouraged the teachers to reflect

Box 2.4

Phases of the Clinical Classroom Consultant's Role

Pre-entry: Before entering the classroom, the Clinical Classroom Consultant (CCC) needs to learn about the preschool site and the community it serves. The information collection process should include a visit to the community.

Entry: Lasting as much as a month, the entry phase begins when the CCC first meets the teacher, typically at the preschool site. The key goal for this phase is to lay the foundation for trusting relationships with the teachers, other staff, children, and parents by "hanging out, helping out, and being checked out."

Joining: The goal of joining is not only to enter, but also to become part of the setting. CCCs learn from the setting and the people in it, communicate openness to give and take, and share information about themselves.

Assessment: Overlapping with the entry and joining phases, the purpose of assessment includes developing a more complete understanding of the strengths, challenges, and resources of the preschool site, the surrounding community, and the people in them.

Consulting: This is a structured, collaborative process in which the CCC models and reinforces the lessons from the teacher training to promote the teachers' effective classroom management and children's social and emotional development.

Stress and burnout: Throughout the school year, the CCC who is assigned to the classroom helps teachers address issues of personal and professional stress. In January or February, the CCC Coordinator, often in conjunction with the CCC who is assigned to the classroom, conducts an on-site stress management workshop of 90 minutes to 2 hours that is customized for the lead and assistant teachers.

Direct services to children: In February, the teachers and the CCC identify selected children for whom the universal classroom management strategies have not been effective. The CCC provides individualized attention to help address these children's continuing social and emotional needs.

Referral: In May, when the FOL program winds down, some of the children who had been receiving individualized services are referred for other services in the community.

Termination: As the intervention year comes to an end, the CCC prepares teachers, other staff, children, and parents for the CCC's eventual departure. This includes addressing any unresolved issues and making plans with teachers for ways that they can continue to use their newly acquired skills in the future.

NOTE: This box is adapted from Madison-Boyd et al. (2006).

on their own practice, as well as the children's responses to the changes teachers made in their practice.

The documentation requirements for CCCs supported the supervision and quality assurance processes that are described in the section that follows. CCCs submitted a weekly Service Provision Form (SPF) for each teacher.[14] The SPFs were used to direct discussions during CCC supervision and served as a data source for monitoring implementation of the intervention. CCCs were also responsible for documenting their individual-level clinical sessions with children once those sessions were initiated in March.

CCC Supervision

An important aspect of the model was ongoing supervision. This was conceptualized as a way to support to CCCs individually and as a team, and was also designed to provide programmatic updates and to prevent inappropriate deviation from the program model. To accomplish these goals, CCCs received two forms of supervision: one-on-one clinical meetings and full-team technical assistance meetings.

Clinical Meetings

CCCs received individualized weekly supervision from a licensed clinical social worker, as well as regularly scheduled group supervision. This supervision was designed to strengthen the CCCs' clinical skills in an effort to help them better serve teachers and children. Topics included building relationships with teachers, setting boundaries between teachers and the CCCs, time management, navigation of intra- and inter-organizational relationships and politics, and therapeutic techniques for one-on-one work with individual children.

Technical Assistance Meetings

Technical assistance meetings were conducted by the master's level CCC Coordinators and the MDRC Project Manager. The meetings took place in a group format — meaning that all CCCs and, whenever possible, the CCC Coordinators and Project Manager were present. The meeting was structured so that CCCs could report on the work they were doing and the teachers' responses to the intervention. The meeting was held weekly, but because of the number of classrooms that were participating in the demonstration, each classroom was discussed every other week.

[14]The SPFs were a structured template that provided a platform for CCCs to document and guide their work with teachers. See Appendix B for a sample SPF.

The focus was on ensuring that the model was being implemented as intended and deciding whether any deviations from the model were acceptable adaptations to the local implementation context. For example, a CCC in a site that experienced significant teacher turnover had to return frequently to the "joining" phase of the model to develop relationships with new teachers, a prerequisite to active consultation. Immediate problems were identified and handled quickly. Notes were taken during each meeting to provide an ongoing record of developments in the classrooms.

Finally, CCCs were supported in completing the programmatic documentation, which helped to facilitate fidelity to the model and keep the work on track. The content of the SPFs was to be presented verbally in weekly meetings with the Project Manager. The project's administrative assistant was responsible for documenting receipt of the forms to ensure that (1) they were being completed in an accurate and timely manner; and (2) teachers and CCCs were meeting as planned. If documentation was missing, the CCCs and the CCC Coordinator were contacted to facilitate receipt of the data.

The following case study presents a hypothetical scenario that illustrates selected phases of the consultation process and the CCCs' roles and responsibilities in the FOL intervention classrooms.

A Day in the Life of an FOL Clinical Classroom Consultant

Nancy, a CCC, has been in the classroom with Marcia, the lead teacher, and Kim, the assistant teacher, for nearly two months. During these initial months, Nancy worked hard to develop solid relationships with both teachers. Of critical importance was spending time to ensure a shared understanding with them about Nancy's role, the intervention, and how things would unfold over the course of the year. Marcia has a bachelor's degree in early childhood education and more than 10 years of classroom experience. She has expressed limited interest in implementing the intervention, but is committed to attending the training sessions. She has said to Nancy, "I like you, but these strategies can't tell me anything new. I have been teaching for years." Kim, the assistant teacher, has also been in the preschool field for more than 10 years and in that time has earned a Child Development Associate credential. She is excited about the intervention, but as the assistant teacher, she lacks the authority and ability to make changes in the classroom.

On this particular visit, the teachers have set a goal to use circle time (or "group time") to implement "proximity praise" — praising children who are exhibiting the behavior that the teachers want to see. While helping the teachers clean up the breakfast tables, Nancy engages both of them in reviewing what they plan to do during circle time and how. They also decide that Nancy's role will be only to observe. Nancy plans to sit in the circle with the teachers and children to hear and see what is happening, but she will not intervene in the activity in any way.

Circle time starts and Kim focuses her attention on Ian, a child who often acts out during the school day. When Kim notices that he is following directions, she initiates the proximity praise strategy by commenting, "Great job, Ian. I really like the way you are sitting 'criss-cross applesauce' with your hands in your own space and your eyes on me." Marcia follows Kim's comment with one of her own: "I do not like the way Bella is touching others and not paying attention to our story." Bella responds by pouting and turning away from the circle. Nancy, meanwhile, is making mental notes of what the teachers say and how the children are responding to the teachers' comments.

Nancy wanted to hold a debriefing meeting with the teachers right after circle time ended, but there was not enough time. Kim was asked to cover another classroom where the lead teacher was absent, leaving Marcia and Nancy in the classroom until the substitute arrived. This was the third time Kim had been pulled out of the classroom during a consultation session. Nancy knew she would need to discuss this issue with the center director, since she was not supposed to serve as a teacher but now was expected to play that role in Kim's absence.

After lunch, Kim returned and Nancy led a debriefing meeting during the children's rest time. Nancy began by reviewing the goal for the use of proximity praise that they had all agreed to in the previous week. She then asked both teachers to reflect on how the activity had gone, including what went well and what could have gone better. Nancy focused on listening to the teachers' reflections and withheld feedback until each teacher had a chance to share her perspective. Both teachers deemed the technique a success, stating that they implemented proximity praise appropriately and with ease, and that the children responded to the technique as they expected. Nancy gently challenged them about their perspectives. She shared her observation of children who were having trouble paying attention during the beginning of circle time, but who, after hearing Kim's positive feedback directed at Ian, were more engaged in the activity. She also shared her observations of Bella's behavior, wondering if they had noticed the same thing and what could be done differently.

In addition, Nancy gave the teachers an assignment to review a segment from one of the training videos that showed proximity praise in action. She also made herself a note to inform the trainer about her circle time observations, so that the technique could be highlighted during the upcoming training, and other teachers would have the opportunity to share their experiences. Finally, a plan was developed for the teachers to continue to try to use proximity praise both in and outside of circle time during the rest of the week and to reflect on their experiences with each other in Nancy's absence.

As the day progressed, Nancy modeled other strategies from the training for the teachers during small group activities and free play, actively describing how and what she was doing as she did it. Toward the end of the day, as the teachers were preparing for the children to be

picked up, Nancy encouraged the teachers to complete "Happy Grams," an *Incredible Years* tool for sharing information with caretakers. She explained that providing "Happy Grams" gives families an opportunity to receive positive communication and feedback about children's time at school. For Ian, this was particularly important, since most interactions with his parents had been about things that went wrong at school. Engaging in this activity would help lay a foundation for positive experiences in his educational process.

Before leaving for the day, Nancy and the teachers quickly reviewed their goals again and the teachers agreed to contact Nancy by phone or e-mail if any questions or concerns came up before her next visit. Nancy completed her Service Provision Form after leaving the classroom, chronicling the day's occurrences and noting the goals for the following week.

At the end of the week, Nancy and her clinical supervisor used her SPF to review her classroom experiences with Marcia and Kim. Nancy said that she was particularly concerned about working with Marcia on managing children's behaviors, and while she wanted Marcia to be more reflective about her use of the strategies, she was concerned about damaging the solid relationship they had developed early on in the school year. Nancy's supervisor suggested that Nancy use praise in her work with Marcia, supplementing it with examples of Marcia using *The Incredible Years* techniques successfully. Nancy left supervision with a plan to observe Marcia's interactions with the children and to document particularly positive examples that she could then use as a way to describe the connection between Marcia's correct use of *The Incredible Years* strategies and the children's responses to them. She hoped this approach would encourage Marcia to be more enthusiastic about implementing the intervention. Nancy would report back on how well this strategy went in the next supervision session.

This hypothetical case study highlights selected phases and activities that are part of the consultation process. The CCC spent time joining with teachers, working toward becoming an integral part of the classroom. She assessed the environment, including the teachers' roles, weaknesses, and strengths; engaged in active consultation by modeling and reinforcing training content; and worked closely with teachers, debriefing with them about their work and setting goals. Finally, she spent time in supervision reviewing her work and making plans for subsequent visits. These tasks, while straightforward, were implemented in a fairly complex environment, illustrating the need to understand not only what should be happening, but how context can ultimately have an impact on the delivery of consultation services.

•

Using data from the FOL-Newark and FOL-Chicago implementation studies, Chapter 3 shows how each component of the intervention was delivered in practice. The discussion is framed by the context in which implementation occurred, including the level of organizational resources and staffing, the delivery of consultation services, and teachers' receptivity to the intervention.

Chapter 3

Implementation of the Foundations of Learning Intervention

Chapter 2 described the core components of the Foundations of Learning (FOL) intervention, which, if implemented well, were expected to lead to direct changes in teachers' classroom practices and, consequently, to positive outcomes for children. The implementation analysis in this chapter addresses the dosage (that is, the amount) and quality of the core components that were delivered in practice, as well as teachers' engagement in the implementation process. Presenting these data in tandem helps to clarify whether the teachers actually understood and internalized the classroom management strategies and the factors that facilitated and impeded the delivery of the intervention components.

The analysis also provides an explicit basis for understanding what is needed to support implementation of the FOL intervention in distinct settings. Of particular interest are differences in the way classroom consultation took place in the two cities, an important facet of the intervention to understand given the increased interest in and funding of coaching and consultation in early childhood settings.[1]

Summary of Findings

- **The core FOL components were delivered at relatively high levels of dosage in both Newark and Chicago, two very different contexts. Quality was also high as rated by teachers.** FOL-Newark was implemented in a preschool system that is rich in resources, which is fairly uncommon in large, urban educational systems. FOL-Chicago, by contrast, was implemented in classrooms with considerably fewer resources as well as staffing shortages. Despite the differences in resources, the intervention components were generally delivered at high levels of dosage in both settings. Moreover, teachers in Newark and Chicago reported similarly high levels of satisfaction across the components of the intervention.

- **Clinical Classroom Consultants (CCCs) in Newark consulted with teachers on classroom management strategies twice as frequently as CCCs in Chicago.** Although the overall amount of teacher-focused class-

[1] Lloyd and Modlin (2012).

room consultation was high in both Newark and Chicago, the focus of consultation differed somewhat in the two sites. CCCs engaged teachers in Newark in implementing classroom management strategies from *The Incredible Years* consistently across classrooms. In Chicago, however, the focus on classroom management strategies was less consistent across classrooms. Analysis of qualitative data from interviews indicates that several factors may have contributed to inconsistencies in consultation services that were provided to teachers: classroom environment and teacher stress, teacher receptivity to new methods, and CCCs' comfort level in working with teachers.

Implementation Study Design and Data Sources

Building on evidence from CSRP, the FOL-Newark and FOL-Chicago studies included implementation analyses to shed light on the mechanisms that might have facilitated or impeded good-quality implementation. The implementation analysis in FOL was designed to help researchers understand the delivery of the individual intervention components. The studies used a mixed methods approach to document the dosage and quality of the core components of the intervention, and the process and procedures for the delivery of each component.[2] The data on the dosage and quality of FOL implementation were drawn from a number of sources:

- Dosage data were collected on a regular basis throughout the intervention year for the training, classroom-level consultation, individualized child-level consultation, and stress management components. Dosage was measured by attendance logs that documented (1) teacher attendance at the training sessions; (2) CCC attendance in the classroom; (3) teacher attendance in the classroom; (4) Individualized Child Treatment Plans, which included the behavioral goals for children; and (5) One-on-One Reports, which documented the clinical interventions that CCCs used in one-on-one sessions with children in order to meet the behavioral goals that were set for the children.

- Measures of quality were drawn from (1) lead and assistant teacher evaluations at the end of each training; (2) teacher evaluative reports of the CCCs; (3) stress management workshop surveys; (4) focus groups and individual interviews with lead and assistant teachers; (5) intervention and programmatic research notes; and (6) focus groups with the field-based staff in Newark, who are described below. Training quality was also assessed by MDRC

[2]See Appendix B for a description of all implementation data sources used in FOL-Newark and FOL-Chicago.

through observation of each training session and the surveys that were completed after each session. In addition to an end-of-the-year survey completed by teachers, the quality of classroom-level consultation was assessed by periodic conversations with teachers, classroom observations by the technical assistance/research team,[3] and ongoing contact with the CCC supervisor. Stress management quality was assessed through an end-of-workshop, close-ended survey that teachers completed.

- Measures that captured the day-to-day operational procedures and that were used to implement the intervention were drawn from (1) Service Provision Forms (SPFs) that CCCs completed on a weekly basis; (2) research notes from weekly supervision meetings with CCCs and the technical assistance/research team; (3) focus groups with CCCs; and (4) teachers' perspectives on FOL implementation as expressed in focus groups, open-ended individual interviews, and surveys.[4] CCCs were the primary reporters of the process of FOL implementation, and their process measures (through SPFs) included such details as the type of consultation activities that were conducted, teachers' application of key strategies from *The Incredible Years* within the classroom, and teachers' responsiveness to the overall intervention.

Implementation Context

The Newark and Chicago policy contexts that are described in Chapter 1 directly affected the structure of the local early childhood education system as well as the resources available at the classroom level (for example, funding, staffing, school supplies). The Newark preschool system had been infused with substantial resources as a result of the *Abbott v. Burke* court decisions,[5] while Chicago was more representative of a typical urban preschool system.

Newark Classrooms

The *Abbott v. Burke* rulings in New Jersey mandated that the State provide free preschool education to all children in certain low-income municipalities whose parents wish to enroll them. Additionally, the Court ordered that:

[3]The technical assistance team comprised MDRC staff who were responsible for carrying out the technical assistance activities described in Chapter 2. Members of the technical assistance team also served on the implementation study research team.

[4]All focus group data were analyzed in NVivo. Survey data were analyzed in SAS or Excel.

[5]New Jersey Department of Education (2008).

- All lead teachers are required to have a minimum of a bachelor's degree.[6]
- All classrooms must have a lead teacher and an assistant teacher.
- Each preschool classroom must have no more than 15 students.
- The size of each preschool classroom must be at least 950 square feet. (Since this mandate could necessitate construction or renovation of facilities, program sites with classrooms that were smaller than this size were initially allowed to remain within the Abbott system.)
- Each preschool classroom must have a standard set of materials and distinct activity areas for children, including a sand and water table, a dramatic play area, a library, and an area specifically for playing with blocks.
- All facilities must provide special education, bilingual education, and health services.
- Teachers must use a standard curriculum assigned by the school district. At the time of this study, Newark used the Creative Curriculum.[7]

Despite the infusion of resources into Newark preschool classrooms, initial pilot testing of FOL identified a shortfall in resources to address the social and emotional needs of children. Newark's primary mechanisms to address these issues were the Preschool Intervention and Referral Team (PIRT), which operates through the public school district, and mental health consultants (MHCs), who are available to Head Start centers as part of the program's federal mandate.[8] This field-based staff was responsible for conducting observations of children and referring children for additional services once a need was identified. Teachers in public schools also had "as needed" access to school-based social workers.

Teachers also had access to resource teachers (that is, mentors) who provided information and support on a wide range of educational issues, such as development of lesson plans, classroom set-up, and accessing school-based, center-based, or external resources for children or families who were in need of additional support. Importantly, teachers reported that school- and center-based referrals for services to address children's challenging behaviors often took a significant amount of time to process in Newark. While the staff was committed to meeting the

[6]This requirement, coupled with a substantial increase in financial resources, made Abbott-funded Newark preschool teachers among the highest paid and most credentialed in the nation (Barnett et al., 2008).

[7]See www.creativecurriculum.net for more information on this curriculum.

[8]See Appendix Table B.1 for a description of supplemental staff who worked within the early childhood education system in Newark and Chicago.

needs of the highest-risk children, they readily acknowledged that the system could benefit from a greater number of adults to attend to children with challenging behaviors.

Chicago Classrooms

Although the FOL-Chicago classrooms were located in a range of settings, they were all part of the Head Start system. This meant that they were held to Head Start regulations set at the national level, which at the time of the demonstration included:[9]

- All lead teachers are required to have a minimum of a Child Development Associate degree (CDA).[10]
- All classrooms must have two co-teachers or a lead teacher and a teacher's aide or assistant.
- Each classroom has a mandated maximum child-teacher ratio of 20:2.
- Facilities must have 35 square feet of indoor space per child.
- Classroom materials must be supportive of educational objectives and children's culture, and must be developmentally appropriate and safe.
- All centers must have a mental health professional available on a schedule that is of sufficient frequency to meet the needs of the children.
- Developmental screenings must be completed on all children, and families should be linked to appropriate resources for special education if necessary.

Thus, the educational requirements for teachers were lower in Chicago than in Newark, while the minimum child-teacher ratio was higher in Chicago. Moreover, in weekly technical assistance meetings and a focus group, CCCs reported entering understaffed classrooms in which the 20:2 ratio was not met in Chicago because only one permanent teacher was present. Teachers and CCCs recalled situations in which teaching staff were either reassigned to different classrooms in a center or school or were floating between classrooms throughout the day to cover staffing shortages. During interviews, CCCs and teachers alike echoed the stress that teachers experienced as a result of staffing shortages in Chicago Head Start classrooms and the ways in which the stress affected their implementation of FOL, as described by this CCC:

[9]For more information, see "Head Start Program Performance Standards and Other Regulations" at http://eclkc.ohs.acf.hhs.gov/hslc/standards/Head%20Start%20Requirements.

[10]Head Start was also moving toward requiring bachelor's degrees for lead Head Start teachers.

> A lot of my teacher's stress came from staffing. [There] is always a shortage of staff....There's a change on a daily basis, so it's very inconsistent. That's always stressful.

Teachers had access to "master teachers" who served as mentors and to social workers employed by the Chicago Public Schools.[11] The FOL-Chicago classrooms also had access to MHCs because of their status as Head Start sites. The MHCs were typically employed through a contract with an outside agency and were available to provide parent training, teacher training, and referrals to mental health professionals or other services that a child or family might need. (One center had an on-site MHC who provided therapy to children.) Teachers found the additional support services from these professionals to be helpful in informing their practice; however, they also reported a lack of consistency in the receipt of these services. During the implementation year, teachers and CCCs observed master teachers who, instead of providing training and coaching to classroom teachers, would at times serve as a classroom teacher themselves to compensate for staffing shortages. This limited the master teachers' ability to provide professional development support to classroom teachers, as noted by one teacher:

> I wish she [the master teacher] would be around more often but the reason is that they still need a teacher in her [another teacher's] room so she has not been able to co-teach in both rooms the way that we would like it to be.… I mean, she has not been inside the [my] classroom. We only meet in the morning.

Implementation of the FOL Components

The dosage and quality were measured for each FOL component (with quality measured by the satisfaction of those who were participating in the service). As discussed below, the FOL intervention was delivered with the intended dosage, and teachers reported a high level of satisfaction with the training, consultation, and stress management components of the model. However, the financial and child care incentives seemed to be more instrumental in getting teachers to attend the Chicago trainings (but not necessarily getting them to be more engaged in the training activities), and the CCCs in Chicago spent their time in the classroom differently from the way the Newark CCCs spent their time.

Teacher Training

Attendance at FOL training sessions was consistently high in both Newark and Chicago throughout the months of October through January. Table 3.1 shows that in Newark 22 out of

[11] See Appendix Table B.1 for a description of supplemental staff who worked within the early childhood education system.

Foundations of Learning Demonstration

Table 3.1

Attendance at Teacher Training Sessions, Newark and Chicago

	Newark			Chicago		
Attendance	Number of Lead Teachers	Number of Assistant Teachers	Number of Sites with Both Teachers Attending	Number of Master or Lead Teachers[a]	Number of Assistant Teachers	Number of Sites with at Least 2 Teachers Attending
Attended 4 to 5 trainings	22	19	17	20	15	14
Attended 2 to 3 trainings	3	4	5	4	6	3
Attended fewer than 2 trainings	1	3	4	1	5	3
Sample size	26	26	26	25	26	20

SOURCE: MDRC calculations from attendance records for the five Foundations of Learning Demonstration Preschool Teacher and Clinical Classroom Consultant Training sessions.

NOTE: [a]There were five master teachers included in the sample. One master teacher served as a lead teacher in one classroom. One classroom had two lead teachers.

26 lead teachers received the full dosage of training, defined as attending either four or all five sessions. Chicago experienced a similarly high dosage of training, with 20 out of 25 lead and master teachers attending four or five sessions.[12] FOL teachers were given a stipend that was equivalent to an hourly rate for their teaching positions to attend at each of the training sessions.[13] The financial incentives for attendance played a part in initially drawing Newark and Chicago teachers to the trainings. Particularly in Chicago, teachers reported being under stress because of personal financial pressures, and they valued, and in some cases were very much in need of, the additional income that the stipends provided. In fact, the stipends seemed to be key to increasing attendance at the trainings in Chicago, attracting teachers who might not have attended because training on a weekend was less than desirable and/or because the stipend met a financial need, as this teacher explained:

> I think the stipends really helped.… On Saturdays [we] really don't want to do nothing…[and] the stipends [were] really a motivator. And I hope that [doesn't] sound tacky…'cause we are underpaid….

Another teacher stated, "I've been working at the center for 20 years. I've got two raises since I've been there, and that was, like, 50 cents. So, that [stipend] means a lot.…"

The quality of the training was assessed primarily through ratings provided by the lead and assistant teachers in exit surveys that were conducted at the end of each session. Teachers rated the session on a scale of 1 to 5, with 1 meaning "strongly disagree" and 5 meaning "strongly agree." As shown in Table 3.2, teacher satisfaction with the training was high. The Newark teachers' average ratings of training quality ranged from 4.6 to 4.7 on a scale of 1 to 5. Chicago teachers' average ratings were only slightly lower, ranging from 4.5 to 4.6. On average, teachers from both sites were in strong agreement that the training content was clear and was delivered in an environment that was conducive to learning, and that the trainings enhanced their professional development.

Although teachers expressed a high level of satisfaction with the training, opinions varied about the strategies that were presented in the sessions, driven mostly by personal factors such as whether certain strategies reflected or conflicted with teachers' own philosophies about classroom management. Some teachers firmly disagreed with a few of the key techniques that the trainers presented, and they made decisions not to incorporate those techniques into their

[12]Master teachers were employed by Head Start centers to provide on-site support to preschool teachers on a routine basis.

[13]In Newark, teachers received a $300 stipend to attend each training session, and in Chicago the stipend was $225. The stipend amount reflects the variation in teachers' average salary between the Newark and Chicago demonstration sites. Teachers who expressed a need also received financial assistance for child care.

The Foundations of Learning Demonstration

Table 3.2

Quality of Teacher Training, as Rated by Teachers

Teacher Feedback	Mean Rating[a]	
	Newark	Chicago
Training content was clear	4.7	4.5
Training environment was conducive to learning	4.7	4.6
Trainers were effective and clear	4.6	4.6
Training enhanced professional development	4.7	4.5
Sample size (teachers)	52	51

SOURCE: MDRC calculations from the Teacher and Clinical Classroom Consultant Training evaluation forms.

NOTES: Responses come from teachers at 5 training sessions.

[a]Training sessions were rated on a scale from 1 to 5, with 1 representing "strongly disagree" and 5 representing "strongly agree." These ratings represent an average across the five training sessions for all participating teachers.

classroom practices. A lead teacher stated,

> "[T]ime out" is not something we use…and maybe it's just your own values, your own beliefs, your own cultural upbringing.… It doesn't make it [the strategies] a bad thing; [they are] something you just disagree with.… Like with the "turtle" [technique][14]…I just don't like that.

The statement below illustrates how training attendance by both the lead and assistant teachers in the classroom provided a vehicle for discussion about classroom management preferences, allowing teachers who had differing perspectives to discuss their disagreements using a common framework:

> I think one of the most helpful things, just in retrospect, is that every person at the center came to these trainings, and I think that's so valuable because…a lot of this [training content] aligned with my personal philosophies on how to interact with children, but…every person comes at it from a different vantage [point].… It's really helpful to have a bottom line common

[14]The turtle technique is an *Incredible Years* strategy used to help a child regulate his or her emotions. The child is asked to imagine she has a shell and to take three deep breaths to relax as she calmly reminds herself that she is in control.

> ground where you come together…[and have] some expectations for how we should be interacting with children.

Teachers also welcomed confirmation that some of what they were already doing in the classroom reflected best practices. An assistant teacher stated,

> It [the training] let me know that I was doing some of the things that I should have been doing. Just reassurance. 'Cause some of the things that I do, I didn't know why I did it.

Another teacher agreed:

> Some of the things that I was already implementing, to see that it is a strategy…a technique…giving what I was already doing a new name, so to speak.… I was reassured in what I was doing that, okay, there's a reason behind it.…

Given that teachers were able to establish this connection with what they were already doing, it was fairly easy for them to incorporate the training techniques into their teaching.

However, teachers often did not internalize the complete philosophy of *The Incredible Years* curriculum and training content. Interviews with teachers revealed that they regularly chose strategies without regard for the fact that *The Incredible Years* curriculum is based on a specific sequencing pattern.

As one teacher reported,

> No one is going to walk away with the whole book and do everything — but the things that actually stood out, the things that I felt as though they were important enough to be implemented, I think they will go along whether the CCC is there or not.

When asked whether teachers understood that the intervention was based on a pyramid and should be implemented strategically and in a sequenced manner, one CCC responded,

> I ended up revisiting the discipline hierarchy. Because even that discipline hierarchy is…based on…the bigger thing [intervention], and to them [teachers] it was, like, "Wow!".… They still got the main concepts, maybe not the building on it.

The training seemed to serve several purposes, including validation of current classroom practices, provision of opportunities for co-teachers to collaboratively reflect on and discuss classroom procedures, and development of a beginning understanding of *The Incredible Years* curriculum.

The classroom consultation component, described in detail below, provided an additional opportunity to work with teachers to deepen their understanding of *The Incredible Years* strategies, including how to appropriately apply the strategies within their classrooms in accordance with the staged and sequenced curriculum tenets.

Classroom Consultation

CCCs in Newark provided an average dosage of 183 hours (or about 26 days) of classroom consultation services to individual classrooms over the course of the program year.[15] In Chicago, the dosage of classroom-level consultation was higher, at 217 hours (31 days). Implementation in Chicago drew on lessons from the Newark experience, which was expected to facilitate a higher dosage of classroom-level consultation hours. For example, the CCCs in Chicago were hired sooner and, unlike in Newark, there was no turnover in staff.[16] Chicago consultants also received explicit guidance that vacations could be taken only during times when programs were not in session. These differences account for some, but not all, of the variation in consultation hours.

While the overall dosage of consultation that teachers received was high in Chicago, an examination of what actually occurred when CCCs and teachers spent their time together is critical in order to understand how CCCs worked with teachers to help them improve their effectiveness. The consultation model stipulated that CCCs focus their initial work with teachers on establishing positive relationships, which also included time spent clarifying roles and responsibilities. Despite the consultant orientation and written guidelines about this part of the work, teachers, administrators, and CCCs in both Newark and Chicago struggled to understand how and in what capacity CCCs could be utilized. As one CCC explained,

> It was kind of challenging…trying to explain your role.… At the beginning, it [CCC role] was really hazy, even for myself…[it] felt really abstract. I didn't know really what that meant until…we went to the training. And…that solidified everything for us.…Then we needed to revisit…what my role was in the classroom.… It had to be done several times and sometimes even with the administration….

This role clarification appeared to be important to set expectations for how teachers and CCCs should engage with each other. The quotation above also suggests that roles may need to

[15]In a previous report (Lloyd and Bangser, 2009), the average dosage of consultation services in Newark amounted to 162 hours (23 days) when calculated based on an average of the hours spent with lead and assistant teachers. The program anticipated that there could be as many as 36 days of classroom consultation over the course of the year.

[16]Two of the CCCs in Newark were hired late and two were replaced.

be reviewed over the course of the year with multiple stakeholders, including administrators, who are important to the intervention implementation process.

In addition to role clarification, more generalized relationship-building activities, such as assisting teachers and children in the classroom, were expected to continue throughout the program year. However, activities that were directly related to the implementation of *The Incredible Years* curriculum were also expected to occur routinely as part of classroom visits beginning around the end of October (after the first training session). Data from the Service Provision Forms, submitted by CCCs after each classroom visit, were analyzed to understand the content of the CCCs' sessions with teachers.

Table 3.3 shows that relationship-building activities did indeed take place throughout the year (approximately 26 weeks) in both Newark and Chicago. In Newark, substantial attention was also given to the implementation of *The Incredible Years,* including reviewing training material with teachers, and a sustained focus on the classroom-based intervention. CCCs in Newark spent 15 weeks consulting with teachers on strategies from *The Incredible Years* cur-

Table 3.3

Average Number of Weeks and Percentage of Total Weeks Spent on Each Consultation Activity

	Newark		Chicago	
Type of Consultation Activity Reported	Average Number of Weeks	Percentage of Total Weeks	Average Number of Weeks	Percentage of Total Weeks
Assisting activities[a]	26.5	73.5	26.8	74.4
Coaching teachers on *The Incredible Years*	15.1	41.9	7.2	19.9
Reviewing training materials with teachers	14.8	41.2	8.2	22.8
Classroom-based intervention	13.3	37.1	6.6	18.3
Teacher stress reduction	5.1	14.1	4.1	11.4
Collaboration with other field-based professionals[b]	3.2	8.9	0.9	2.5
Direct child-level service provision	3.0	8.3	5.1	14.2
Consulting with parents/guardians	2.5	7.1	1.1	2.9
Securing parental consent for one-on-one intervention	1.9	5.3	1.7	4.6
Referral/providing resources to parents	0.5	1.4	0.3	0.7
Total number of weeks of consultation[c]	36		36	

SOURCE: MDRC calculations from weekly Service Provision Form (SPF).

NOTES: "Referral/providing resources to teachers" and "Collaboration with center staff (for example, director, cook)" were two activities on the SPF that did not occur, according to the responses given.

[a]These activities include assisting with morning activities, meals, recess, classroom clean-up, and field trips.

[b]On-site professionals may include the Preschool Intervention and Referral Team, mental health consultants, social workers, nurses, and resource teachers.

[c]Actual number of program weeks may vary by site since programs started at different times and site closures (holidays, professional development) were not consistent across sites.

riculum and 15 weeks reviewing the content from training. By contrast, CCCs in Chicago spent only 7 weeks consulting on *The Incredible Years* strategies and 8 weeks reviewing training content, or roughly half the time that CCCs in Newark spent on these consultation activities, but they devoted significant time to routine "assisting activities," as did the CCCs in Newark.

Figures 3.1 and 3.2 show the percentage of classrooms in Newark and Chicago, respectively, that are engaged in three general categories of consultation activities during each month of the school year: (1) activities related to assisting teachers with routine tasks in the classroom; (2) activities directly related to implementation of strategies from *The Incredible Years* curriculum; and (3) activities to increase organizational support for the FOL intervention, such as meeting with administrators, mental health consultants, and other key early childhood staff. Figure 3.1 indicates that Newark CCCs generally adhered to the intervention timeline that was illustrated in Chapter 2 (Figure 2.1) and articulated in the manual and training. In Chicago, fewer classrooms engaged in activities that were directly related to implementation of *The Incredible Years* program immediately following the first training, as well as for the remainder of the program year, as depicted in Figure 3.2.

The analyses of SPFs also indicate that CCCs in Newark spent more time collaborating with other field-based professionals (as shown in Table 3.3 and Figure 3.1). Given the greater presence and frequency of professional supports that were provided to Newark classrooms, CCCs may have simply had more opportunities to interact with these professionals. Moreover, regularly scheduled meetings with the field-based staff in Newark, such as the PIRT team and resource teachers,[17] led to the development of relationships and shared knowledge about each other's roles and coordination around children's needs that did not occur in Chicago, despite multiple efforts by the technical assistance team to coordinate these activities.

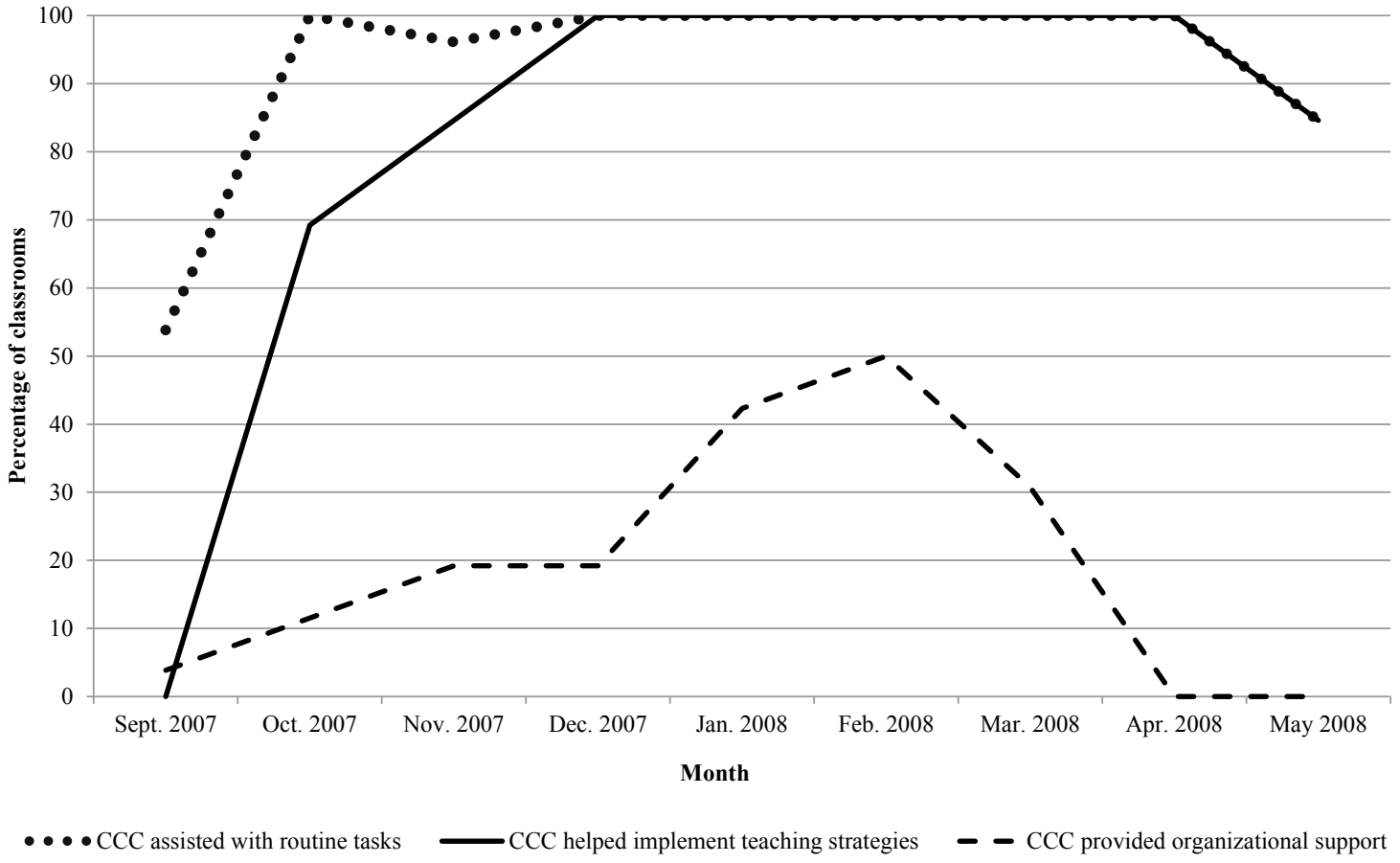
Thus, the emphasis and timing of consultation activities in Chicago shifted from what the training and manual originally advised. Several factors affected the CCCs' and teachers' capacity to engage in the classroom management strategies. As noted earlier, teachers in Chicago were often stretched thin because of staffing shortages in their classrooms. This constraint undoubtedly limited the ability of teachers and CCCs to focus on implementing strategies from the FOL training in those Chicago classrooms that were understaffed, as illustrated by the comments of one Chicago teacher: "We are so understaffed, with really difficult children…I can't tell whether or not…anyone's trying to do the best practices….Everyone's…at their wit's end."

Not only did the lack of staffing impede teachers' ability to take on the intervention in-depth, it also had the potential to derail the primary focus of the CCCs' work in the classroom,

[17]See Appendix Table B.1 for a description of the supplemental staff who worked with the early childhood system.

Figure 3.1

Percentage of Newark Classrooms Engaged in Each Category of Consultation Activities

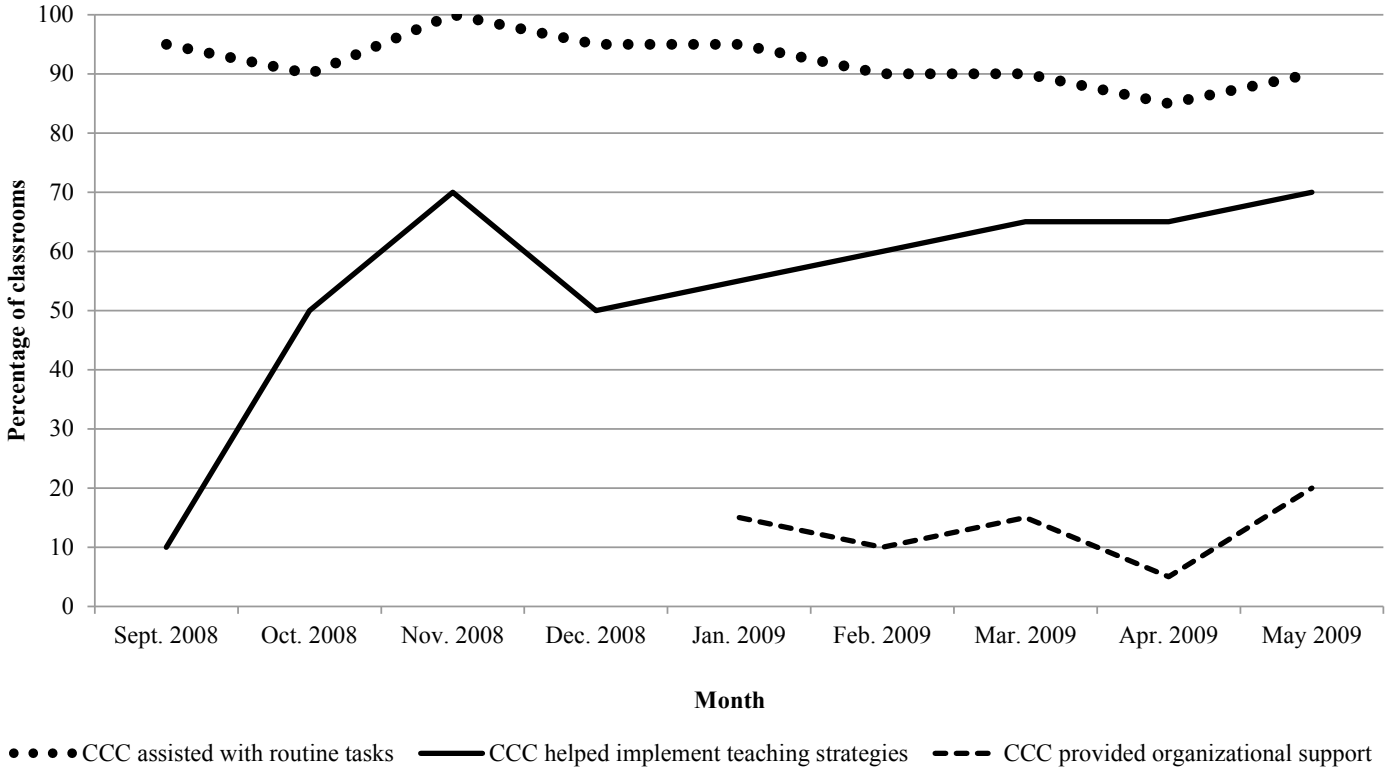


SOURCE: Based on coaches' responses on Service Provision Form.

NOTE: CCC = Clinical Classroom Consultant.

Figure 3.2

Percentage of Chicago Classrooms Engaged in Each Category of Consultation Activities



SOURCE: Based on coaches' responses on Service Provision Form.

NOTE: CCC = Clinical Classroom Consultant.

47

as suggested by this teacher's comment: "I know I enjoy having her there, just to have an extra body, and extra set of eyes.… So we actually need her to be there to help us." This teacher was quite fond of the CCC who was assigned to her classroom; however, her comment indicates that she viewed the CCC primarily as a helper, or someone to pick up the slack in the day-to-day program operations, rather than as someone with whom to engage in professional interactions and active consultation.

Lead teachers also completed surveys that contained specific questions about the ways that the CCCs helped them implement what they learned from the training sessions. Table 3.4 shows that teachers in both Newark and Chicago rated their CCCs as "very effective" in helping with classroom management, building relationships with children, and spending more time teaching despite the differences between the two demonstrations in the types of consultation activities that CCCs reported. Although the ratings were still relatively high for managing relationships with their coworkers and with parents, and managing personal issues such as stress, teachers from both demonstrations tended to rate their CCCs as less effective in these categories.

Given that the focus of the FOL intervention, including the teacher training sessions, was on teacher-child interactions, it is not surprising that teachers rated their CCCs as most effective in domains related to their work with the children. However, even though Chicago CCCs engaged teachers in the implementation of classroom management techniques less frequently than did the CCCs in Newark, both sets of FOL teachers rated their CCCs as "very effective" in this area.

These findings raise an important question: did the variable amount of support from CCCs generate the amount of teacher change that is necessary to exert a positive impact on student behavior, and if yes, how? To some extent, this question is answered in Chapter 4. Understanding the second half of this question about mechanisms of change and how the model works is a more complex issue and one that can only be discussed theoretically at this point.

The implementation data suggest that two types of teachers might be more apt to benefit from the FOL intervention. One group, teachers who were new to the field and/or engaged in educational pursuits, may have been more open to taking on the intervention. A comment by a Chicago-based CCC sheds light on this consideration:

> The ones who were more open were either…in school part time or kind of fresh in the field. Whereas the ones who were more set in their ways, you know, had been there for a *long* time…and might not necessarily have the level of education that some of the others had.… Something about that school thing…somehow, they had a way to relate to the material; [they] still had that energy to want to try different things.

The Foundations of Learning Demonstration

Table 3.4

Teacher Evaluation of the Clinical Classroom Consultants

Teacher Feedback	Mean Rating	
	Newark	Chicago
How effective was the Clinical Classroom Consultant in helping me:		
Work on classroom management techniques	3.6	3.8
Work on building your relationships with children	3.8	3.9
Manage relationships with parents and coworkers	3.1	3.5
Manage personal issues, like stress	3.0	3.3
Spend more time teaching	3.8	3.8
Sample size	23	16

SOURCE: MDRC calculations of teacher responses to Clinical Classroom Consultant evaluation form.

NOTE: Clinical Classroom Consultants' effectiveness was rated on a scale from 1 to 4, with 1 representing "not at all effective" and 4 representing "very effective."

A second group of teachers, those who were struggling and who had a clear and immediate need for the intervention, might also be particularly responsive to consultation. One CCC stated:

> I noticed…the teachers that were more open were more desperate...they were like, "Help me. Somebody, help me...I'm gonna do everything you say, if it doesn't work, it doesn't."… One teacher in particular…I [also] had two more…from day one to the end, she stayed at the same level of [high] engagement.… She would change from not having a [co-]teacher, having a [co-]teacher…having a problem child, not having him. [The year] was very inconsistent for her and…that level was still there because she just was at a loss.... Desperation played a part in how open some of those teachers were.

In addition, the administrative staff at the preschool sites had a role in supporting teachers' capacity to engage in the classroom management strategies. Responses from CCCs and teachers during qualitative interviews described a range of characterizations of the administration, from offering overt support for teachers, to having little or no involvement, to sabotaging teachers' efforts to practice the classroom management strategies. Administrators who had a clear sense of the intervention and the CCCs' purpose tended to share information about the intervention with teachers at the beginning of the year, which appeared to support an initial level of buy-in among the classroom teachers:

> Upon being hired, my director explained to me that the classroom that I was going in would be participating in the study.… She explained what the research was going to be about…and I was excited.

Administrative staff who lacked a full understanding of the intervention in some cases hindered teachers' capacity to engage in the classroom management practices. For instance, a program director or school principal may undermine a teacher's application of a particular strategy by pulling a child into his or her office as opposed to allowing the teacher to consistently work on ignoring certain negative behaviors, which is an *Incredible Years* strategy. A CCC described how an administrator's actions could potentially derail not only the effectiveness of the strategy, but also the teacher's motivation to engage in the intervention:

> At one point, after a while [he] just kind of gave up and went back to where he was originally and said, "Well, you know, I'm not going to fight administration, I've got to work with them here.… I've got to do what they're asking me to do." So, when I was there, you would see him trying to do it, and then of course all the other days he was just trying to do what administration was trying to do.

Teachers' openness to consultation was, however, only one part of the equation. Preparing CCCs for their role might also be important. In particular, CCCs struggled to provide feedback that was robust enough to change teacher practices, and they cited fear of damaged consultant-teacher relationships as a barrier to this process. Indeed, teachers often said they were initially leery about the presence of a CCC in their classroom as an intrusion and worried that CCCs might "spy" on them and report back to administrators.

One CCC reflected the sentiments of both the FOL-Newark and FOL-Chicago CCCs:

> I had meetings with all the teachers once a week with those debriefings and I would push myself to bring up things. But it took me a long time to be comfortable to address an issue, like, while it's happening, or confront the teacher, you know?… I didn't want to push them or make them feel like they were being pushed. So it took me a while, probably more than halfway into it [the academic year], to feel comfortable to bring something up.

Some teachers, however, wanted more constructive feedback:

> I really would have liked her to talk about how I could improve or how I was actually doing things…because it was more of, like, I'm here for you, whatever you need, but that often turned into, like, sweeping the floor.

When feedback was provided skillfully, consultant-teacher relationships were not threatened, and the conversations created a forum for teachers to reflect upon and improve their practices. The process, however, was not as straightforward as was designed. CCCs were ex-

pected to engage in weekly meetings with both the lead and assistant teacher present to reflect on intervention implementation processes and to set goals for the following week. The quotation below and data from the SPFs suggest that it might not be realistic to expect CCCs to find separate dedicated time for reflection, debriefing, and goal setting with both teachers. Instead, feedback might need to be provided in conjunction with other, more routine consultation activities. A lead teacher stated:

> Our consultant was…very good…very helpful.… She did give us feedback, like around the time the kids [were] laying down, and she would say…"[What] did you think about trying…the different strategies that we had tried to implement?" She was, like, did they work, did it not work?… Are you going to do it for the rest of the week or, you know, things like that.… At the same time she was very helpful within the classroom, too.… It is good that they're able to multitask, because at the same time of helping you, they're still, you know, observing…and noticing things that's working or…that may not be working.... She instigated a lot of reflection.

Helping CCCs feel empowered enough to address these issues with teachers required a strong supervision component. In Newark, technical assistance meetings with CCCs and the CCC supervisor occurred in person, with a member of the technical assistance team in attendance to lead the discussion. In addition, the technical assistance team completed periodic check-ins and coordinated regularly with the clinical supervisors. The in-person meetings, coordination with the clinical supervisor, and the consistent presence of the technical assistance team in the preschool sites allowed for direct communication among the technical assistance team, the CCCs, and CCC supervisors; this provided a clear understanding of on-the-ground implementation of the classroom-level consultation model and promoted more responsiveness to emerging challenges and support for CCCs. In Chicago, however, the technical assistance meetings proved more difficult to coordinate from a distance. The technical assistance team was based in New York, so face-face-meetings were held less often and most communication occurred by phone. This long-distance coordination of technical assistance for the consultation staff may have been a factor in the CCCs' reduced focus on initiating classroom management consultation in the Chicago classrooms.

Individualized Child-Centered Consultation

The CCCs provided one-on-one services to a total of 63 children in Newark and 58 children in Chicago. The number of children receiving one-on-one services ranged from zero to five per classroom in Newark. In Chicago, two to four children per classroom received these services. Over the course of three months, children in Newark received an average of 4.7 one-on-one sessions, and in Chicago, children received an average of 7.8 sessions. In Newark, CCCs encountered delays in the initiation of one-on-one services because of difficulties secur-

ing parental consent. After learning from the implementation experience in Newark, CCCs in Chicago were asked to begin seeking parental consent for individualized services early in the school year, which likely facilitated the higher dosage. In addition, CCCs in Newark were required to be licensed to provide clinical services, and delays in licensure led to fewer one-on-one sessions.

By design, the one-on-one services did not follow a standardized format, leaving CCCs with the autonomy to conduct sessions and develop individualized treatment plans for children based on their own clinical knowledge and skills. They did, however, receive support for and review of this work from their clinical supervisors. Because the sessions were largely individualized for each child, the implementation analysis does not provide information about the specific types or the variation of the one-on-one activities that occurred, leading to less clarity about the effects of this work in causing behavior change among children.

Despite the more fluid structure, the prospect of the one-on-one sessions had been a major factor in gaining teachers' initial buy-in to FOL. Even before the services were initiated, teachers expressed enthusiasm about the possibility of clinical services for children, the overarching sentiment being that it was one less concern that they would need to address. One teacher in Chicago shared her impression that the availability of one-on-one services reduced her initial hesitancy about FOL:

> I just thought it [FOL] was…something extra that I probably didn't want to be a part of. But the high points of the project that did strike a note in me were the fact that they were going to provide the clinical consultant…because I felt that someone who's trained to deal with children with behavioral issues or problems that maybe we and my staff [were] not…as able to contend with…if they had another person there who may be able to offer some strategies or ideas on how to deal with those type[s] of problems with children, that would be beneficial.

Teachers felt that one-on-one sessions benefited their classrooms and the individual children who received the services. The sessions relieved teachers so they could focus on instruction for the entire class, without the need to respond to disruptions caused by challenging behaviors:

> [I]t's like you're leaving a smoke-filled room, walking out into a breath of fresh air.…You have this one person who comes in and lets the child know it's all about you.…We [teachers] never say, "Yeah, it's all about you"…because you have to give a piece of yourself to everybody that's in the classroom.

Teachers reported a high level of satisfaction with the children's response to the one-on-one sessions, citing examples during the interviews and focus groups of the changes they ob-

served in children's behaviors. The one-on-one services not only improved their perception of children's behaviors, but also helped to reframe teachers' understanding of children who were exhibiting difficult behaviors. As described by teachers, this new lens eventually led to better understanding about the cause of the behaviors, and in some cases increased the teachers' sensitivity toward the children and decreased the tendency to label them as a problem. One teacher who had experienced significant anxiety when engaging with a particular child eventually felt differently, as she describes here:

> This kid did not have any friends. He did not have friends in this class because he would hit.… No one wanted to get close to him. Well, thanks to the planning that the [CCC] helps me with…to help that specific kid…that kid today…plays with everyone.… I feel so happy to see that kid now.

Moreover, teachers' felt that the one-on-one support and the resulting decrease in classroom disruptions enabled them to focus on supporting the whole class, providing space in the day for learning opportunities that might have otherwise been lost.

> I['ve] seen the change in him and I['ve] seen that the program is working for him, for a lot of kids. And now I can just sit in the room with them.… I can really teach the children…and I don't have to chase them all over the room [any]more.

Stress Management

The final component of the FOL intervention was stress management. While this was a small component of the overall intervention, it resonated universally with teachers in both cities, but especially in Chicago, likely in part because of the challenges with classroom staffing and resources there. Teacher stress resulted from a number of factors, including the demands of their job, lack of consistent staffing and resources necessary to carry out their lessons and activities, children exhibiting difficult behaviors, and teachers feeling overwhelmed by their work responsibilities. In addition, teachers felt that stress from their personal lives at times carried over into their work.

FOL addressed teachers' stress in multiple ways: providing concrete classroom management strategies during training, as well as the consultants' reinforcement of those strategies in the classroom; the provision of individualized, one-on-one interventions for children who exhibited challenging behaviors; stress management workshops; and ongoing support from CCCs about stress-related issues throughout the year. Teachers reflected on the ways in which their participation in FOL effectively decreased the stress they felt in their classroom by giving them the training and tools they need to manage behaviors:

> It really calmed me down because I didn't know what to do.… Now I know that I can use words to praise my children, ignore the children, and I don't get frustrated [any]more. I don't [get] stressed out.… I [don't] wanna go home.

In addition, the reduction of acting-out behavior, which some teachers saw as a direct result of the CCCs' consultation activities with them and with the children, helped to relieve some of the stress they felt in response to the difficult behaviors:

> Well, I was a little under stress.…That's really important not to be stressed at home and then go to work and be stressed out.…When you've got this child jumping and flipping all over…once she stopped…once she slowed down, it's like the whole entire classroom [calmed down]. So I tip my hat to this program....

Finally, FOL included a stress management workshop to provide the teachers with techniques for developing an awareness of their own stress levels and ideas for addressing the source of their stress, whether it is personal or work-related. Attendance at stress management workshops was generally high in both demonstrations, and teachers expressed a significant level of satisfaction with this component. Forty-nine out of 52 lead and assistant teachers in Newark and 39 out of 51 lead teachers, assistant teachers, and master teachers in Chicago attended a workshop and completed an evaluation of it. Attendance was facilitated by providing the workshops at the teachers' schools or centers. In addition, the content for the workshops was individualized based on the CCCs' knowledge of teachers' personal and professional stressors. The topics that were discussed during the workshops included managing deadlines, dealing with difficult colleagues, lack of personal autonomy and self-efficacy at work, domestic violence, financial challenges, physical and mental health, and managing familial responsibilities.

Teachers were asked to complete an evaluation at the end of each workshop. Evaluation criteria included teachers' understanding of stress and what impact it had on them professionally, their ability to identify the sources and symptoms of stress, and their understanding of how they could manage stress. Finally, teachers were asked whether the workshop was useful in helping them to manage and/or reduce their stress levels.

Table 3.5 shows that lead and assistant teachers in FOL rated the workshops and the facilitators very positively, with Newark teachers rating them slightly higher. Teachers found the stress management workshop helpful because it provided them with an opportunity to express the difficulties they were experiencing within their professional environment and personal lives and to reflect on how much their stress contributed to challenges in the classroom. In both cities, teachers found the workshops to be valuable enough to recommend that the intervention incorporate additional and longer stress management workshops.

The Foundations of Learning Demonstration

Table 3.5

Stress Workshop Evaluation by Teachers

Teacher Feedback	Mean Rating	
	Newark	Chicago
Overall rating of instruction[a]		
Content and knowledge	4.85	4.87
Presentation and style	4.83	4.85
Training ability	4.87	4.82
Teacher self-assessment[b]		
I have learned and can implement concrete tools/skills to help me cope with stress	4.75	4.64
This workshop was useful in helping me manage/reduce my stress	4.83	4.59
Sample size	24	20

SOURCE: Responses from teacher survey during Stress Workshop in Newark and Chicago.

NOTES: [a]Average score for all instructors, based on a range from 1 = poor to 5 = excellent.
[b]Average score for all instructors, based on a range from 1 = strongly disagree to 5 = strongly agree.

•

Overall, the implementation analyses indicate that the FOL intervention components were delivered at relatively high levels of dosage and quality. The analysis of process data from consultation sessions as well as qualitative data from teachers and CCCs also point to several implementation challenges. The low level of program resources, especially staffing, presented barriers to implementing the intervention in Chicago. Delivery of the classroom consultation component appeared to be affected by staffing shortages and teacher receptivity more than any of the other components of the intervention. As is discussed in Chapter 6, other factors such as the CCCs' willingness to initiate feedback and differences in supervision of the CCCs between the two cities also likely affected the delivery of consultation services. Furthermore, adjustments to the dosage of the consultation model may be warranted given the pattern of impacts on teachers and children in the FOL-Newark and FOL-Chicago demonstrations.

Chapter 4

The Impact of Foundations of Learning on Classrooms and Children

The Foundations of Learning (FOL) impact evaluation addressed four questions: (1) whether teachers who received FOL training and in-class consultation structured more emotionally positive, behaviorally supportive classroom environments than similar teachers in the control group did; (2) whether the FOL teachers demonstrated higher-quality instructional practices, something that was not specifically targeted in the training or in-class consultation; (3) whether preschool children were positively affected by the implementation of the FOL model in their classrooms and, if so, in what developmental domains; and (4) whether any changes that were observed in children's skills during the preschool year were sustained when the children moved on to elementary school.

As discussed in Chapter 1, these findings are based on the results of three rigorous studies — CSRP, FOL-Newark, and FOL-Chicago. In all three studies, outcomes for children were assessed in preschool and, to a lesser extent, as they moved into elementary school. It is unusual to be testing the same program model successively in three separate studies. Similar results across sites would allow substantially stronger statements to be made about the generalizability of effects. Alternatively, divergent impacts across sites could provide a basis for developing hypotheses about how the program model interacts with the preschool context.

Summary of Findings

- **Based on observers' ratings, teachers in the program groups had more warm and positive interactions and fewer sarcastic and angry interaction, were more sensitive, and were better able to prevent misbehavior than teachers in control group classrooms; increased instructional time was also observed in the program group classes.** The first and most fundamental question was whether the intervention had an impact on the strategies in which teachers were trained, and, indeed, relatively large improvements were observed in the two sites where this was examined. Moreover, in Newark, the intervention was found to improve the teachers' management of classroom time and the time spent on instruction, suggesting that FOL increased children's opportunities for learning.
- **For children, FOL led to reductions in problem behavior between peers and improvements in children's approaches to learning (children's abil-**

ity to engage in the learning tasks of preschool); however, no clear evidence of benefits to children's academic skills was demonstrated. While moderate-sized benefits were observed in child outcomes targeted by the program (problem behavior and approaches to learning), there were no clear benefits for child outcomes that the program addressed less directly (that is, secondary outcomes) — children's social skills (how they get along with other children) and early academic skills that will later support reading and math. This latter finding shows that benefits to children's social and emotional development may not have the kind of spillover effects in children's academic achievement that were thought possible at the outset of the demonstration.

- **With regard to longer-term outcomes for children, the limited data that were collected show no evidence of sustained benefits for children as they make the transition into elementary school.** Teacher reports and school records of children's academic achievement show no impacts of FOL in kindergarten and first grade across the three tests of the intervention, although rates of grade repetition and special education are too low in these elementary school years to detect impacts.

The rest of this chapter presents a more detailed discussion of these findings on classrooms and children during preschool. The findings are presented for CSRP, FOL-Newark, and FOL-Chicago, in that order; they are then summarized across sites to identify patterns of impacts. The final section of the chapter presents the information that was collected as the children moved into elementary school, setting the stage for the discussion of costs and potential benefits in Chapter 5.

Study Design

As discussed in Chapter 1, in all three demonstrations, preschool centers were assigned, using a lottery-like process, to a program group that received the CSRP or FOL intervention, or to a control group that provided services as usual. As such, these studies provide information about the added effects — or "value added" — of the FOL intervention to preschool services in these communities. The sample size was largest in the Newark demonstration, and rich baseline information that was collected in the CSRP study increased the power of that study to detect program impacts; the power to detect impacts was lowest in the Chicago-FOL site.

Based on funding constraints, the team decided to focus on collecting complementary rather than identical information across the two FOL sites, so that information from one site could build on information from the other (and vice versa) and on the earlier findings from

CSRP. More specifically, FOL-Newark focused primarily on outcomes that occurred in the preschool classrooms (among teachers and children), while FOL-Chicago focused on outcomes for children that could be linked to longer-term outcomes in elementary school. In both cases, information was collected from sources other than the teachers themselves. Since the teachers were the target of the intervention program, they might perceive changes in themselves or in the children that would not be reflected in more objective assessments by trained observers who are blind to the intervention status. Thus, these more objective measures are critical to the study of the impact of the intervention. A summary of the information that was collected across the three sites is presented in Table 4.1.

CSRP collected the most extensive information on classrooms and children. It was designed as a rich efficacy study of the impacts of the model on teachers' behavior that might represent key pathways of influence of the program. In addition, CSRP was designed to collect information on outcomes for children who were considered direct targets of the intervention (children's behavior problems and approaches to learning) as well as more distal, or secondary, child outcomes, such as children's early academic skills. This information was collected from a variety of sources, including trained observers, trained interviewers, and teachers themselves.

In FOL-Newark, the priority was to test whether impacts on the most direct targets of the intervention — teachers' ability to provide a supportive emotional climate and manage

Table 4.1

Measures Used in CSRP, FOL-Newark, and FOL-Chicago

Measures Used	CSRP[a]	FOL-Newark	FOL-Chicago
Classroom outcomes			
Observer rating	X	X	
Preschool child outcomes			
Observer ratings of children's behavior in classroom	X	X	
Teacher ratings of classroom behavior and academic skills	X	X	X
Direct assessment of approaches to learning	X		X
Direct assessments of early academic skills	X		X
Kindergarten and first-grade child outcomes			
Teacher ratings of classroom behavior and academic skills	X	X	
School records	X		X

NOTE: [a]CSRP was formerly known as the Chicago School Readiness Project.

children's behavior — would be similar to those in CSRP (which took place in Chicago), given the substantially different base of resources required by the Abbott court decision in New Jersey. A secondary question that was addressed in FOL-Newark was whether there would be "spillover" in secondary *classroom* outcomes, such as teachers' language instruction and amount of instructional time. Rather than entirely forgoing any understanding of impacts on children, trained observers were sent to classrooms to rate children's behavior with peers, teachers, and activities to determine whether training teachers might also lead to changes in outcomes for children in the classroom context. It is less expensive to collect information on these outcomes than to conduct direct child assessments; however, while these outcomes are conceptually linked in the theory of change, they have not been used extensively in the preschool intervention literature.

In FOL-Chicago, the priority was to focus on those outcomes that the literature suggests are most strongly linked to outcomes later in middle childhood and adolescence. That focus led to the collection of information through direct assessments, with a particular focus on early academic skills (which have been linked most strongly in the literature to later outcomes) as well as children's approaches to learning, a direct target of this intervention. Outcomes for teachers and classrooms, while critical to the test of the FOL theory of change, cannot be linked to long-term benefits, and therefore were not a focus of the data collection in FOL-Chicago.

In the quantitative impact analyses presented in this chapter, the means of key outcomes are compared for program and control group classrooms and children. For all outcomes, the analyses account for the grouping of children within classrooms. The model includes selected baseline characteristics at each level, intended to increase the precision of the impact estimates that are presented. Because random assignment occurred within prespecified "blocks," that block membership is included in all impact analyses.

Key Dimensions of Children's Social Behavior and Approaches to Learning

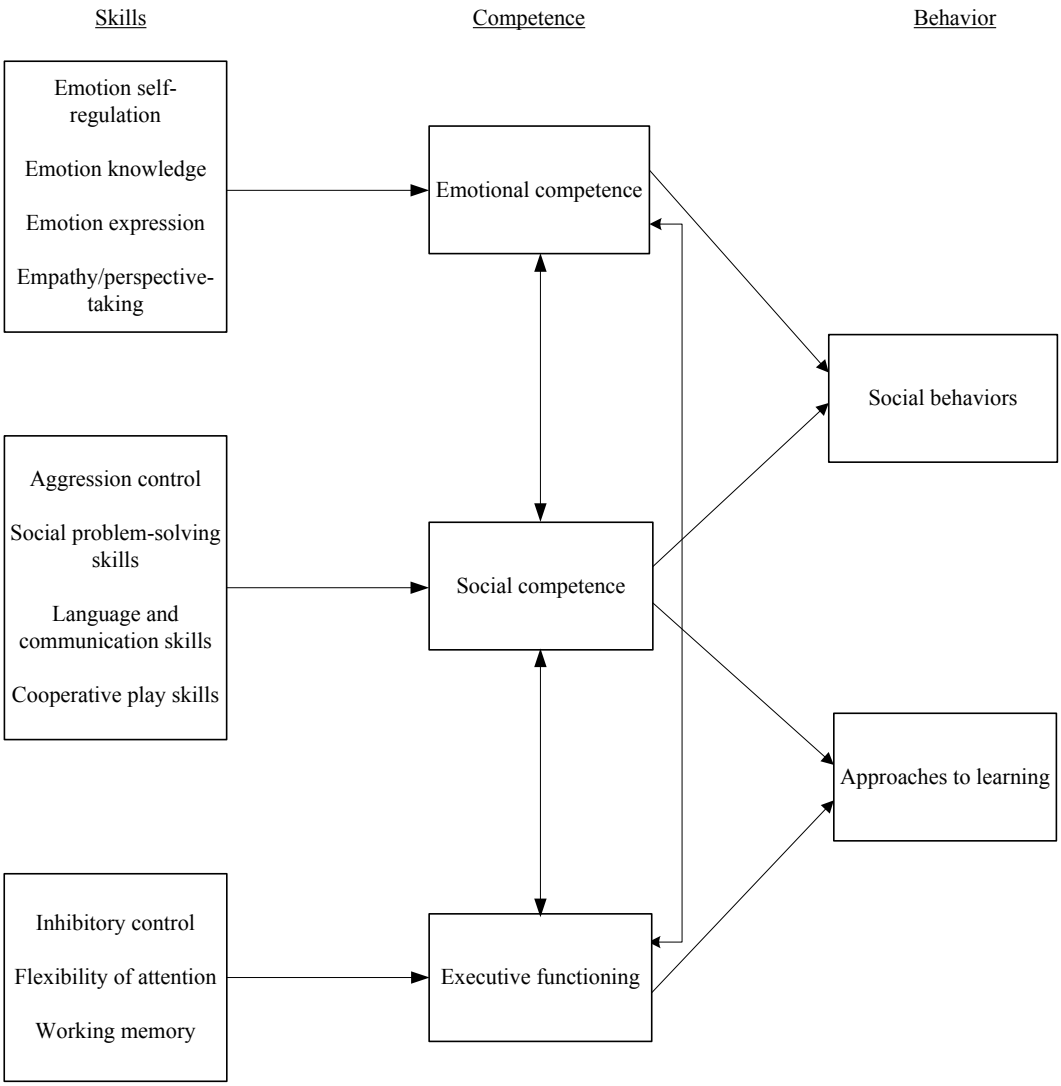
As discussed briefly in Chapter 1, the intervention was designed to promote children's social and emotional competence through the training of preschool teachers to proactively support children's positive behavior and effectively limit children's problem behaviors. In this report, the term "competence" is used to indicate the child's capacity to do something and "behavior" is the manifestation of those competencies in everyday life. Social and emotional competence is thought to underlie children's behaviors, particularly in two critical areas that are central to longer-term success in school: (1) social behaviors, or children's positive interactions with peers and teachers; and (2) approaches to learning, or children's ability to focus their attention and behavior during classroom activities.

Figure 4.1 depicts child competencies — emotional competence, social competence, and executive functioning — and the smaller discrete skills that each one comprises, such as the capacity to control negative emotions or aggression (aggression control) in the social competence domain. Possessing competence is generally a precursor to being able to display closely related behaviors, which are shown in the right-hand column of the figure.

The Foundations of Learning Demonstration

Figure 4.1

Heuristic Model of Children's Social and Emotional Competence and Executive Functioning



Notably, the training that is provided by *The Incredible Years* program targets teachers' support of some of these underlying skills more so than others. In particular, improvements in classroom management should be most strongly associated with children's emotional self-regulation in the emotional competence domain and children's aggression control and behavior regulation in the social competence domain. Other early childhood programs that focus on social and emotional skills (for example, the Preschool PATHS program)[1] emphasize different skills, such as "emotion knowledge" and social problem-solving skills, in the emotional and social competence domains, respectively.

Strongly related to emotional and social competence and associated behavioral correlates is executive function, shown as a third competency in Figure 4.1. Its underlying skills are inhibitory control (children's ability to control their immediate or automatic response in favor of a planned response), flexibility of attention, and working (or short-term) memory. In addition to being directly associated with learning outcomes such as achievement, executive function is thought to be strongly associated with children's approaches to learning.[2] As with social and emotional competence, *The Incredible Years* program is thought to support some of the skills that underlie executive function more than others, with the strongest effects expected on children's attention and inhibitory control as compared with their working memory.[3]

While all three studies collected somewhat different information on outcomes for children, all of them assessed the two core behavioral outcomes of the intervention in some fashion. That is, all collected some information on children's social behaviors and their approaches to learning through teacher reports as well as through more objective observations and assessments.

Findings from CSRP

As discussed in Chapter 1, the FOL intervention model drew heavily on the lessons from its precursor, CSRP, in which trained observers had rated program and control classrooms using four dimensions of the highly regarded measure of classroom quality, the Classroom Assessment Scoring System (CLASS).[4] Teachers in the CSRP program group classrooms had more positive interactions and fewer sarcastic and angry interactions and were more sensitive than teachers in control classrooms when observed in the spring of the academic year. Teachers in program group classrooms were also more likely to demonstrate improved classroom management practices, showing better skills in monitoring and preventing children's misbehavior in proactive ways.

[1]Domitrovich, Cortes, and Greenberg (2007).
[2]Blair and Razza (2007).
[3]Webster-Stratton, Reid, and Hammond (2001).
[4]La Paro, Pianta, and Stuhlman (2004); Pianta, La Paro, and Hamre (2006).

Likely because of these changes in classroom climate, impacts on outcomes for children were observed as well. CSRP reduced preschoolers' internalizing (sadness and withdrawal) and externalizing (aggression and defiance) behavior problems, as reported by teachers.[5] Similar effects were noted based on independent classroom observations; there were fewer observed instances of externalizing, disruptive behavior (for example, physical and verbal aggression) among children in program group classrooms. On outcomes assessed by trained interviewers, children in the program group demonstrated significantly higher executive function and early academic skills than did their control group counterparts.[6] Similarly, despite these benefits during the preschool intervention year, there were no sustained effects in CSRP, on average, for children's skills.[7]

Findings from Foundations of Learning in Newark

As presented in a previous report,[8] FOL-Newark addressed whether the intervention made a difference in classrooms, with a focus on teachers' behavior in multiple domains of practice as well as in children's behavior. Impacts of the FOL-Newark intervention are discussed below. (See Box 4.1 for an explanation of how to interpret the impact tables in this chapter and Box 4.2 for an explanation of effect sizes.)

Impacts on Classrooms and Teachers' Behavior

As in CSRP, trained observers visited the program and control group classrooms in the FOL-Newark site, but in FOL-Newark the full CLASS standardized assessment tool was used to assess not only the emotional climate but also the instructional climate of the classrooms and the amount of instructional time that teachers provided to children. (See Appendix C for a description of these measures.) Observers, who were blind to classroom random assignment status and were not part of the research team, rated classrooms on a scale of 1 to 7 on each of the CLASS dimensions, with 1 to 2 indicating low scores, 3 to 5 indicating moderate scores, and 6 to 7 indicating high scores. Observations in the program group classrooms occurred on a day that the CCC was not in attendance to keep observers blind to the treatment condition and to understand how the teachers conducted the class independently.

[5]Raver et al. (2009b).

[6]Notably, effects differed somewhat depending on the model specification, with more stringent models showing fewer impacts; see Raver et al. (2011).

[7]Zhai, Raver, and Jones (2012). In further analyses using propensity score matching, CSRP did show positive kindergarten impacts for children who attended higher-quality schools compared with children who had similar propensity scores and attended lower-quality schools.

[8]Morris et al. (2010).

Box 4.1

How to Read the Impact Tables in This Report

In the context of this demonstration, an "impact" is a measure of the effect of the intervention, represented by the difference between those teachers and children in centers that were randomly assigned to the program group compared with those that were randomly assigned to the control group. All the tables in this chapter that show impacts use a similar format, with information provided for teachers, classrooms, and children in each of the program and control groups. Because centers were assigned randomly either to the program group or to the control group, the effects of the program can be estimated by looking at the difference in outcomes between the two groups, controlling for the grouping of children within classrooms and centers and teachers within centers.

The "Difference" column in the tables shows the differences between the two groups' outcomes — that is, the intervention's estimated *impacts* on the outcomes. The asterisks show the probability that this difference, or impact, arose by chance, with one asterisk indicating a 10 percent probability, two asterisks indicating a 5 percent probability, and three asterisks indicating a 1 percent probability.

The "effect size" creates a common metric to compare impacts for measures that are based on different scales. The effect size allows comparisons of impacts across studies and provides some indication of the magnitude of the impact.

An examination of subgroup impacts requires an additional test of statistical significance to assess the magnitude of differences in impacts across subgroups. Therefore, an additional column, "Difference Between Subgroup Impacts," is included in the tables showing subgroup impacts. Similar to the asterisks described above, the daggers in this column correspond to the level of statistical significance. One dagger corresponds to the 10 percent level; two daggers, the 5 percent level; and three daggers, the 1 percent level. Whenever such differences are statistically significant, one can have greater confidence that the underlying impacts for the subgroups involved are actually different.

- **Based on observers' ratings in FOL-Newark, teachers in the program group had more positive interactions and fewer sarcastic and angry interactions and were more sensitive and better able to prevent misbehavior than teachers in control classrooms; instructional time also increased in the program group classrooms.**

As shown in Table 4.2, the FOL program group classrooms were rated significantly better than the control group classrooms on a composite measure of positive classroom management — a measure that reflects teachers' positive affect with children, lack of sarcasm and anger, and ability to comfort children and prevent misbehavior by setting clear expectations and

Box 4.2

Understanding and Contextualizing Effect Sizes

The effect size is used to compare the impacts in this study with those from other studies, yielding an assessment of the magnitude of the impact for different measures. Technically, the effect size indicates the proportion of a change in standard deviation that is caused by the intervention.

How large are these effects? FOL's effect sizes on children (of approximately one-third of a standard deviation) are in the range of those of other studies that have evaluated enhancements to an existing preschool curriculum. For example, in the Preschool PATHS evaluation, effect sizes on proximal child outcomes were approximately one-third of a standard deviation, with larger effect sizes for teacher-report outcomes;[*] in the Head Start REDI trial, effect sizes on children were as large as one-third of a standard deviation, with effects on targeted outcomes typically in the 0.2 range;[†] in the Tools of the Mind evaluation, effect sizes on outcomes were as large as 0.5 for teacher-reported behavior, but ap-proximately one-fourth to one-third of a standard deviation for standardized test scores.[‡]

Comparisons with other widely cited preschool evaluations, such as Perry Preschool and the Head Start Impact Study, are more difficult.[§] These studies tested a particular form of pre-school, rather than an enhancement to an existing preschool curriculum, and therefore are comparing differences between groups of children with very different care experiences. However, as a point of reference, FOL's impacts on children of a little more than one-third of a standard deviation are neither as small as those of Head Start (about 0.15 of a standard deviation) nor as large as those found in Perry, which is often touted as a re-sounding success (and which on some measures had effect sizes as large as 1 standard deviation).

NOTES: [*]Domitrovich, Cortes, and Greenberg (2007).
[†]Bierman et al. (2008).
[‡]Barnett et al. (2008).
[§]Wickart, Bond, and McNeil (1978).

using effective praise. The effect size of 0.75 indicates a relatively large improvement in teachers' behavior on this measure — with scores improving from 5.2 (for the control group) to 5.8 (for the program group), on average, on the seven-point scale. This finding implies that the first hurdle for the intervention was cleared: the FOL training improved teachers' classroom management skills and the emotional climate of the classrooms.

Teachers in FOL program group classrooms also scored higher on measures of their management of classroom time, with an effect size of 0.63. In addition, the amount of instruct-tional time was significantly longer in the FOL classrooms, by an average of 10 minutes out of a 120-minute observation period. If such gains were representative of gains achieved every weekday, this would translate to 50 minutes more instruction per week, or a week's more

The Foundations of Learning Demonstration

Table 4.2

Newark Program Impacts on Observed Ratings of Teacher Behavior in the Classroom, Pre-Kindergarten Year

Outcome	Mean Score[a] Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size
Positive classroom management					
Composite	5.8	5.2	0.6 **	0.3	0.75
Positive climate	5.6	5.0	0.6	0.4	0.60
Negative climate[b]	1.1	1.8	-0.6 ***	0.2	-0.90
Teacher sensitivity	5.2	4.8	0.4	0.3	0.46
Behavior management	5.4	4.7	0.8 **	0.4	0.72
Use of classroom time					
Management of classroom time	5.4	4.9	0.5 *	0.3	0.63
Amount of instructional time (minutes)	35.6	25.1	10.6 **	4.4	0.96
Quality of language instruction					
Composite	4.3	3.8	0.5	0.3	0.56
Regard for student perspectives	5.1	4.9	0.2	0.3	0.28
Use of engaging teaching methods	4.2	3.5	0.6 *	0.3	0.61
Promoting understanding through conversation	3.5	3.0	0.4	0.4	0.44
Encouragement of students' language use	4.3	3.6	0.7	0.5	0.54
Sample size	26	25			

SOURCES: MDRC calculations using classroom observations in September-October 2007 and April-May 2008.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

The table presents adjusted means that control for random assignment blocks and baseline (fall) Classroom Assesssment Scoring System (CLASS) dimension scores.

The effect size equals the impact divided by the standard deviation of the outcome measure for the control group.

[a]For each CLASS dimension observers rated classrooms on a scale from 1 to 7, with 1 representing "low" and 7 representing "high." Amount of instructional time is measured in minutes rather than scored.

[b]"Negative climate" is reverse-coded for the composite score.

instruction over a school year.[9] These improvements are consistent with a central hypothesis of the demonstration — that children with challenging behaviors may divert teachers from providing instruction to all children and that addressing teachers' classroom management skills would reduce unproductive time in preschool classrooms.

The increased instructional time in FOL-Newark did not, however, lead to statistically significant improvements overall in the quality of language instruction that children received. At the outset of FOL, it was not clear whether the intervention would enable teachers to engage in

[9]This concluson is based on calculations for a 40-week year.

better instruction or whether the focus on behavior management would interfere with instruction. Neither appeared to be true, as statistically significant differences in instructional quality were very rare.

Descriptive Analysis of Teacher's Behavior One Year Later

As presented in a previous report of the FOL-Newark site,[10] there was also interest in whether the program group teachers sustained their changes in practice into the following school year, after the intensive training and coaching support they received during the year the program implementation had ended. To address this question, observations were conducted of FOL-assigned lead teachers who were still teaching preschool the following year, most of whom were provided with a very short refresher course. Unlike the analyses described elsewhere in this chapter, these analyses compare FOL teachers' classroom practices in spring of the follow-up year with their *own performance* one year earlier, near the completion of their participation in the intervention. Thus, these observational findings do not reflect impact analyses (or comparisons of the program and control groups), and they should not be interpreted as such.

The results from this descriptive analysis are quite positive. In most cases, there were no differences in the classroom behavior observed during the intervention year and a year later, with teachers showing similar levels of positive classroom management, management of classroom time, and instruction. Indeed, even overall student engagement was unchanged from the prior year. In addition, teachers who were initially enrolled in the program group continued to show *further* improvements in their ability to maintain positive classroom climate, their sensitivity to children, and their use of engaging teaching methods relative to their own performance in the spring of the prior academic year, which was not expected. Only on one measure did teachers show reductions in the benefits of the program from the prior year, with small increases in teachers' emotionally negative climate. These findings suggest that teachers in Newark, surprisingly, *did* appear to sustain practice in the year following the intervention, showing that investments in their professional development in one year may affect successive cohorts of the children they teach in preschool, a point that is discussed in Chapter 5 with regard to the costs and benefits of the program.

Impacts on Child Behavior in the Classroom

While FOL succeeded in changing the way teachers managed their classrooms, the next question that was addressed in FOL-Newark was whether exposure to the program would lead to improvements in children's behavior in the classroom. To address this question, an observa-

[10]Morris et al. (2010).

tion team rated a subset of children on their conflicts and positive interactions with teachers and peers;[11] as described in Appendix C, the team also assessed the extent to which children were engaged in classroom activities, using the same 1-to-7 scale that was used for the classroom observations,[12] and teachers were asked to rate children's behavior.

- **For children in FOL-Newark, the intervention led to reductions in conflicts with teachers and peers and higher levels of engagement in the classroom.**

Findings on children's observed behavior are shown in Table 4.3. As shown in the first panel under "Problem behavior," FOL led to statistically significant reductions in children's conflicts with teachers and peers, but the intervention did not otherwise change the quality of teacher-child or peer interactions. In addition, children in the FOL-Newark program group demonstrated greater levels of engagement in the classroom and showed greater ability to control their behavior. Effect sizes on these impacts are moderate, ranging from 0.27 to 0.34 for child-specific outcomes and 0.60 for overall student engagement. Not surprisingly, these effect sizes are slightly smaller than those for the classroom impacts discussed above; this is consistent with the theory of change of the intervention, with the most proximal target of the intervention (teacher behavior) expected to demonstrate the largest impact.

Notably, while observers in program classrooms found lower levels of conflict and greater engagement in classroom activities, the same was not true for teachers, who reported no differences in children's behavior or skills between the program and control groups; impacts on these measures are shown in the bottom panel of Table 4.3, under "Teacher reports." One hypothesis is that the training that teachers received primed them to see challenging behaviors, even as it increased their capacity to effectively manage those behaviors when they occurred. In addition, while not shown in the tables, FOL led to a statistically significant reduction in the prevalence of children's challenging behaviors, as reported by teachers when they were asked about the frequency of each of a number of behaviors in their classrooms as a whole rather than about individual children.

[11]Five children in each classroom were selected for the observations based on their gender and baseline behavior problems score as rated by teachers. More specifically, the subsample was selected to ensure an equal number of boys and girls overall, as well as representation of children at low, moderate, and high levels of behavior problems at preschool entry.

[12]Downer et al. (2010).

The Foundations of Learning Demonstration

Table 4.3

Newark Program Impacts on Observed and Teacher Ratings of Child Behavior, Pre-Kindergarten Year

Outcome	Mean Score: Program Group	Mean Score: Control Group	Difference (Impact)	Standard Error	Effect Size
Observations[a]					
Problem behavior					
Teacher conflict	1.2	1.5	-0.2 ***	0.1	-0.40
Peer conflict	1.4	1.6	-0.2 *	0.1	-0.27
Approach to learning					
Task engagement	4.9	4.6	0.2 *	0.1	0.31
Task self-reliance	3.1	3.1	-0.1	0.2	-0.07
Task behavior control	5.4	5.1	0.3 *	0.2	0.34
Overall classroom student engagement	5.7	5.2	0.6 *	0.3	0.60
Positive social behavior					
Teacher communication	2.2	2.4	-0.2	0.1	-0.20
Teacher positive engagement	3.2	3.4	-0.2	0.2	-0.27
Peer communication	2.5	2.6	-0.1	0.2	-0.14
Peer sociability	3.4	3.5	-0.1	0.1	-0.11
Peer assertiveness	2.1	2.3	-0.2	0.2	-0.21
Teacher reports[b]					
Problem behavior					
Internalizing problems	2.7	2.3	0.4	0.6	0.11
Externalizing problems	4.1	3.7	0.4	0.7	0.08
Teacher-student conflict	12.4	12.3	0.1	0.9	0.02
Attention problems	3.6	3.5	0.1	0.6	0.02
Approach to learning					
Work-related skills	4.8	4.8	0.1	0.1	0.08
Positive social behavior					
Compliance with teachers' directives	4.0	4.0	0.1	0.1	0.08
Social competence	4.0	4.0	0.0	0.1	0.06
Teacher-student closeness	34.5	35.8	-1.3	0.9	-0.24
Early academic skills					
Language and literacy skills	3.9	3.6	0.3	0.2	0.27
Math knowledge	3.7	3.6	0.1	0.2	0.05
General knowledge	3.9	3.7	0.3	0.2	0.28
Sample size					
Observations of students	130	121			
Teacher reports on students	283	248			
Classrooms	26	25			

(continued)

Table 4.3 (continued)

SOURCE: Based on MDRC calculations of classroom observations and teacher surveys.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Regression-adjusted means control for random assignment status and blocking, baseline Classroom Assessment Scoring System (CLASS) measures, and baseline child characteristics.

The effect size equals the impact divided by the standard deviation of the outcome measure for the control group.

[a]The observed outcomes under "Problem behavior," "Positive social behavior," and "Approach to learning" are Individualized CLASS (inCLASS) observations. "Overall classroom student engagement" is a CLASS measure. For each dimension, observers rated children and classrooms on a scale from 1 to 7, with 1 representing "low" and 7 representing "high."

[b]Teacher-reported outcomes control for the child's baseline score on a given measure, when available. These include baseline measures for the Cooper-Farran Behavioral Rating Scales (CFBRS), the Behavior Problems Index (BPI), and the Positive Behavior Scale (PBS). "Internalizing problems" and "Externalizing problems" refer to the internalizing and externalizing subscales of the BPI. "Teacher-student conflict" and "Teacher-student closeness" refer to the Student-Teacher Relationship Scale conflict and closeness subscales. "Attention problems" refers to the Caregiver-Teacher Report Form attention problems subscale. "Compliance with teachers' directives" and "Social competence" refer to the PBS compliance and social competence subscales. "Work-related skills" refers to the CFBRS work-related skills subscale. "Early academic skills" includes the subscales of the Academic Rating Scale.

Findings from Foundations of Learning in Chicago

FOL-Chicago focused on outcome measures that were not obtained in Newark, by collecting information from assessments that were conducted directly with the children. These assessments measured children's executive function (a combination of their attention, inhibitory control, and memory, underlying their approach to learning), children's social problem-solving skills, and their early academic skills (math and pre-literacy). (See Appendix C for further explanation.) As discussed below, the impacts of FOL-Chicago varied across outcomes assessed, as well as by the source of that information. More specifically, there is some evidence of positive impacts on children's approaches to learning (executive function), but not on outcomes that were less centrally targeted by the intervention (social problem-solving skills and early academic skills).

- **In FOL-Chicago, the intervention led to improvements in children's approaches to learning (children's ability to engage in the learning tasks of preschool).**

As shown in Table 4.4, interviewers evaluated children on three tasks designed to assess their executive function — Head to Toes, in which children are asked to point to their heads or their toes when the interviewer does the opposite; Pencil Tap, in which children are asked to tap once with a pencil when the interviewer taps twice, and vice versa; and Gift Wrap,

The Foundations of Learning Demonstration

Table 4.4

Chicago Program Impacts on Approaches to Learning, Pre-Kindergarten Year

Outcome	Mean Score: Program Group	Mean Score: Control Group	Difference (Impact)	Standard Error	Effect Size
Executive Functioning (assessed)					
Head to Toes (gross motor)[a]	6.7	4.4	2.3 *	1.24	0.37
Pencil Tap (fine motor)[b]	0.6	0.6	0.0	0.07	0.05
Gift Wrap (measured in seconds)	42.5	34.2	8.3 *	4.23	0.34
Positive engagement (observed)[c]	2.1	1.8	0.2	0.13	0.38
Attentiveness/inhibitory control (observed)[d]	2.5	2.4	0.0	0.10	0.06
Sample size					
Students (total = 307)	155	152			
Classrooms (total = 40)	20	20			

SOURCE: Based on MDRC calculations of direct child assessments in April-May 2008.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Regression-adjusted means control for random assignment status and matched pairs and select baseline child, teacher, and site characteristics.

The effect size equals the impact divided by the standard deviation of the outcome measure for the control group.

[a]Scores on this measure may range from 0 to 20, with 0 representing no success and 20 representing success across the task's 10 trials.

[b]Scores reflect the percentage of correct responses across the task's 16 trials.

[c]This outcome represents an average score of 6 items on a scale of 1 to 4.

[d]This oucome represents an average score of 16 items on a scale of 1 to 4.

in which children are asked to "not peek" while a gift is noisily wrapped behind them. These tasks are critical because they reflect the same skills that children need to successfully engage in classroom activities — attention, inhibitory control, and working memory — and have been validated extensively in their association with concurrent classroom behavior and long-term academic achievement.[13] As shown in Table 4.4, in two of these three tasks (Gift Wrap and Head to Toes), FOL-Chicago had statistically significant impacts. The effect sizes of these impacts were 0.34 and 0.37, respectively, showing moderate differences between program and

[13]Blair, Granger, Razza (2005); Blair and Diamond (2008).

control groups on these assessments (and impacts that were similar in size to those reported by trained observers of children's behavior in FOL-Newark). Interviewers also rated children's "positive engagement" and "attentiveness/inhibitory control" based on the children's behavior during these activities. Statistically significant program impacts were not found for either of these measures. In addition to children's executive function skills, interviewers in FOL-Chicago also assessed children on their social problem-solving skills (children's ability to generate solutions in response to negative peer interactions that reduce rather than exacerbate the conflict) and their early academic skills (language, literacy, and math), none of which was directly targeted by the program, as shown in Table 4.5 and explained in Appendix C. To assess their social problem-solving skills, teachers showed the children pictures and described vignettes of peer conflicts. The children were rated on the extent to which their responses were competent (prosocial or seeking adult support as compared with aggressive or avoidant). There were no differences in children's responses to stories in FOL and control classrooms. On a receptive language test (assessing children's understanding of words using the Peabody Picture Vocabulary Test, or PPVT)[14] and on a literacy test (assessing children's knowledge of letters, sound-letter correspondence, and early reading skills using the Woodcock Johnson Letter-Word Identification subtest),[15] there were no differences between children in FOL and control classrooms. On the math skills portion of the same test (assessing children's early understanding of counting, size, money, time, addition, and subtraction on the Woodcock Johnson Applied Problems subtest), children in FOL classrooms outperformed their peers in control classrooms, although the difference fell short of statistical significance (with an effect size of 0.49).

As in FOL-Newark, teachers in FOL-Chicago were asked to assess children's behavior in the classroom on measures directly targeted by the intervention (problem behavior and approach to learning) as well as on indirect targets (academic skills and social problem-solving skills). Similar to FOL-Newark, while some benefits were found based on information that was collected by trained assessors, there were no impacts in the teacher-reported data. (These findings are shown in Appendix Table C.3.)

Subgroups of Children

In both Newark and Chicago, analyses were conducted to detect whether the impacts differed for several key subgroups: (1) for children at different levels of behavioral risk; (2) by children's age (for three-year-olds compared with four-year-olds in Chicago); (3) by gender; and (4) by children's race/ethnicity (for Hispanic and black, non-Hispanic in Newark). These analyses are

[14]Dunn and Dunn (1997).
[15]McGrew, Schrank, and Woodcock (2007).

The Foundations of Learning Demonstration

Table 4.5

Chicago Program Impacts on Secondary Child Outcomes Assessed, Pre-Kindergarten Year

Outcome	Mean Score: Program Group	Mean Score: Control Group	Difference (Impact)	Standard Error	Effect Size
Social problem-solving skills					
Adaptive problem solving[a]	8.9	8.8	0.1	0.38	0.06
Early academic skills[b]					
Peabody Picture Vocabulary Test	85.4	81.7	3.7	5.40	0.24
Woodcock Johnson					
Early math knowledge	99.4	93.9	5.4	2.98	0.49
Early language/literacy skills	101.5	98.8	2.7	2.88	0.20
Sample size					
Students (total = 306)	154	152			
Classrooms (total = 40)	20	20			

SOURCE: Based on MDRC calculations of child assessments in April-May 2008.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Regression-adjusted means control for random assignment status and matched pairs and select baseline child, teacher, and site characteristics.

The effect size equals the impact divided by the standard deviation of the outcome measure for the control group.

[a]The problem-solving subscale of the Challenging Situations Task rates children's responses to 4 hypothetical situations. Scores range from 4 (more negative) to 12 (more positive).

[b]All test scores are standardized, based on child's age and raw score, with a mean of 100 and a standard deviation of 15.

presented in Appendix C. Overall, there were only limited statistically significant differences in impacts across the subgroups that were examined.

Putting the Impact Findings Together Across All Three Studies

One of the strengths of this body of research is that the same program model was evaluated in three different random assignment evaluations: two cohorts in Chicago (CSRP and FOL-Chicago) and one in Newark (FOL-Newark). Such rich information provides a more complete picture of impacts than is typical in intervention studies. Similar findings across the sites on

related constructs provide greater evidence of program impacts, if they exist. While precisely the same data were not collected in each trial, comparing and contrasting the results provides critical information to begin to build an understanding of the pathways by which the FOL model played out in terms of impacts on classrooms and children.

This cross-site comparison was conducted in two ways: First, impacts were compared and contrasted across the sites, "eyeballing" the pattern of impacts (shown in Figure 4.2). Having two or more studies with statistically significant impacts for a single construct provides greater confidence in the findings than if the findings are found in only a single site. In Figure 4.2, favorable statistically significant effects are denoted by plus signs (+) and no effect as zero (0); constructs that were not measured are indicated by "NA" (not available). Second, where possible, the data across sites were pooled and impacts were estimated on this combined sample. Given concerns about statistical power in CSRP and FOL-Chicago because of small sample sizes, the pooled results provide some confirmation of the results of the individual studies.

- **Across studies, the intervention changed the way teachers interact with students in their classrooms.**

In terms of classroom outcomes, impacts in CSRP and FOL-Newark show that the program, as intended, changed the way teachers interact with their students in their classrooms. In both sites, the intervention was found to improve *teachers' positive classroom management,* the key domain on which teachers were trained. The similarity in results across the two sites where these data were collected and the fact that implementation findings show participation in training at high levels in all three sites bolster confidence in these results. These findings show that this training and coaching model is effective in changing its primary target of teachers' ability to sensitively manage problem behavior in their preschool classrooms. The effect sizes in this domain are sizeable — ranging from approximately 0.5 to nearly 1.0.

While findings from FOL-Newark suggest that this improvement in positive classroom management led to increased instructional time, there is no corroborating evidence in the other two sites on this point, as neither CSRP nor FOL-Chicago collected this information. The finding is consistent with the hypothesis behind the intervention — that children with challenging behaviors might distract teachers from being able to find time for instruction — but this finding must be replicated to establish confidence in its role as a potential link in a theory of change that relies on improved classroom management to improve academic outcomes for children. That said, the finding is important in suggesting that FOL may increase the opportunity for children's learning.

The Foundations of Learning Demonstration

Figure 4.2

Summary of Pre-Kindergarten Findings Across Studies: CSRP, FOL-Newark (FOL-N), FOL-Chicago (FOL-C)

Teacher and Classroom Outcomes		Child Outcomes	
Directly Targeted	**Secondary**	**Directly Targeted**	**Secondary**
Positive Classroom Management CSRP: + FOL-N: + FOL-C: NA	**Classroom Productivity and Amount of Instructional Time** CSRP: NA FOL-N: + FOL-C: NA **Quality of Instruction** CSRP: NA FOL-N: 0 FOL-C: NA	**Problem Behavior** Conflict/Externalizing Behavior Problems (observed) CSRP: + FOL-N: + FOL-C: NA Conflict/Externalizing Behavior Problems (teacher report) CSRP: + FOL-N: 0 FOL-C: 0 **Approaches to Learning** Executive Functioning CSRP: + FOL-N: NA FOL-C: + Attentiveness/Behavior Control CSRP: + FOL-N: + FOL-C: 0 Positive Engagement CSRP: 0 FOL-N: + FOL-C: 0	**Positive Social Behavior (observed)** CSRP: NA FOL-N: 0 FOL-C: NA **Early Academic Skills** CSRP: + FOL-N: NA FOL-C: 0 **Social Problem-Solving Skills** CSRP: NA FOL-N: NA FOL-C: 0

NOTE: A plus sign (+) indicates that there was a statistically significant impact on that outcome; a zero (0) indicates that there was no statistically significant impact; and "NA" indicates that the outcome was not measured in the given study.

- **Across the three studies, the intervention consistently improved children's approaches to learning. There is also promising evidence that the intervention reduced children's problem behavior.**

In terms of outcomes for children, both CSRP and FOL-Newark show *benefits in reducing children's problem behavior*, with each reducing observations of children's conflicts with peers. Moreover, the intervention had the most consistent impacts on *children's approaches to learning*, with evidence of positive impacts observed across all three studies. In Newark, positive impacts are found on ratings based on observations of children in the classroom; in CSRP and in FOL-Chicago, positive impacts are found on children's executive function skills based on direct assessments. The data that were collected in CSRP and FOL-Chicago are especially powerful, as the executive function outcomes assessed in these sites have been shown in other research to be associated with children's ability to engage in the learning tasks of school as well as with children's academic skills.[16] Pooled results of CSRP and FOL-Chicago (not shown in the tables) confirm these cross-study impacts, showing statistically significant improvements in children's executive function tasks.

- **There was no clear evidence that the intervention had a positive effect on secondary child outcomes, such as early academic skills and positive social behavior, which were less directly targeted.**

It was originally hoped that impacts on children's problem behavior and approaches to learning might influence other outcome domains such as positive interactions with peers and especially early academic skills. While there was some initial positive evidence of this in CSRP, significant impacts on these secondary outcomes were not found in either of the FOL sites. Pooled results of CSRP and FOL-Chicago show no statistically significant impacts on measures of children's early academic skills. As discussed in more detail in Chapter 6, perhaps the focus of this intervention is not sufficient to boost such skills.

On the one hand, these results are encouraging: they suggest that the program changed teacher behavior as intended, and this led to some improvements in children's approaches to learning and problem behavior — the outcomes for children that were most centrally targeted by the intervention. At the same time, it was hoped that the greater time for instruction would increase learning, and the positive effects on executive function skills and related approaches to learning would increase early academic skills, but these impacts were not observed.

[16]Blair, Granger, Razza (2005); Blair and Diamond (2008).

Looking Ahead: A Glimpse at the Children as They Make the Transition into Elementary School

All three studies collected limited information about how children fared when they entered elementary school. In CSRP and FOL-Newark, the information was gathered through surveys that were conducted with kindergarten teachers. In FOL-Chicago, the information was collected through school records. Since the kindergarten and first grade data reflect not only children's behavior and skills, but also teachers' perceptions and school policies, they are much less reliable than the preschool data collected by trained observers and interviewers.

Notably, children were widely dispersed in the year following the intervention, from 20 to 50 preschools in each of the demonstration studies to 100 to 150 schools the following year. As a result, the children from the intervention classrooms entered elementary school classrooms with many children who had not experienced the intervention model.

Based on teacher reports, FOL-Newark had very few sustained impacts on children the year after they received the intervention. Surprisingly, the only statistically significant effects were observed in the negative direction — with higher levels of internalizing and externalizing problems on the part of children who came from program group preschools compared with those who came from control group preschools, as shown in Appendix Table C.9. This may have been a chance finding or may reflect children's difficulty adjusting to less supportive environments. Similarly, despite these benefits during the preschool intervention year, there were no sustained effects in CSRP, on average, for children's skills when they entered kindergarten.

In FOL-Chicago, similar findings emerged, with no sustained effects of FOL, although the information that was provided by school records is quite sparse. Results for the four-year-old children (who were old enough to enter kindergarten in the year following FOL) are presented in Table 4.6. In kindergarten, children were presented with an early literacy test that was scored by teachers (called the Dynamic Indicators of Basic Early Literacy Skills, or DIBELS), which provided both a mean score and a recommendation for instructional support. A sizeable 10 to 15 percent of the children were rated as being in need of intensive instructional support on this measure. School records also provided information on regular attendance and whether children had a disability based on the presence of an Individualized Education Plan (IEP). Rates on this latter measure were especially low — only 5 to 8 percent of children had a learning disability or social-emotional disorder and only 1 to 2 percent reportedly had a social or emotional disorder. FOL had no impacts on measures of literacy skills, attendance, or disability status for these children.

Emerging research in the field suggests that the quality of elementary schools may play a significant role in the longer-term impacts of an intervention. Given the dispersion of children

The Foundations of Learning Demonstration

Table 4.6

Chicago Program Impacts on Child Outcomes, Kindergarten and First Grade

Outcomes	Mean Score: Program Group	Mean Score: Control Group	Difference (Impact)	Standard Error	Effect Size
First year of school follow-up (kindergarten)					
Early literacy standardized score[a]	-0.1	0.1	-0.1	0.14	-0.20
Recommended for intensive instructional support (%)	14.6	9.6	4.9	6.15	0.16
Poor attendance[b] (%)	22.3	15.2	7.1	5.31	0.19
Disability (%)					
Social-emotional disorder	0.9	1.7	-0.9	1.49	-0.07
Social-emotional or learning disability	7.6	5.4	2.2	5.97	0.10
Second year of school follow-up (first grade)					
In kindergarten[c] (%)	-2.0	5.9	-7.8	4.87	-0.48
Average of all academic grades[d]	3.8	3.8	0.0	0.16	0.04
Average of reading, math, and writing grades[e]	3.6	3.5	0.1	0.18	0.05
Poor attendance[b] (%)	16.9	19.0	-2.1	5.23	-0.05
Disability (%)					
Social-emotional disorder	0.7	2.5	-1.8	1.78	-0.12
Social-emotional or learning disability	7.8	8.2	-0.4	5.72	-0.01
Sample size (total = 267)	133	134			

SOURCE: Based on MDRC calculations from Chicago Public School student records.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Regression-adjusted means control for random assignment status, matched pairs, and baseline child characteristics.

The effect size equals the impact divided by the standard deviation of the outcome measure for the control group.

[a]Scores from the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) are presented as standardized scores with a mean of 0 and a standard deviation of 1.

[b]"Poor attendance" means that the child was absent 10 percent of the time or more during the school year (measured in days).

[c]"In kindergarten" refers to those who entered kindergarten a year older than their typical peers based on Chicago Public Schools' age requirements (n = 2) and children who were retained in kindergarten (n = 1).

[d]All academic grades average includes Chicago Reading Framework, Mathematics Standards, Writing Standards, Listening Standards, Speaking Standards, Science Standards, and Social Science Standards. Grades are based on a scale of 1 to 5, where 1 = F and 5 = A.

[e]Grades are based on a scale of 1 to 5, where 1 = F and 5 = A.

in Chicago, publicly available school-level data were used to investigate this further. Appendix Table C.10 uses achievement test scores (specifically, the percentage of students receiving a passing score in math and reading tests) as an indicator of school quality. However, among the limited outcome data available, there was no pattern of differences in impacts among students based on the quality of the elementary school they attended for kindergarten.

In first grade, children's grades in the academic subjects were available, with grades reflecting children's achievement in reading, math, writing, listening, speaking, science, and social studies. An average grade of 3.8 was just below a "B," based on a scale of 1 to 5 (where 1 = F and 5 = A). The second panel of Table 4.6 illustrates that, as in the first-year follow-up, FOL had no impacts on achievement or on attendance rates in this second post-intervention year. Notably, only three children delayed the start of kindergarten by staying in preschool an additional year, and only one child was retained in kindergarten. The same is true for the presence of an emotional and behavioral disorder, where only two children in the sample are scored as having such a disability. On both of these measures, the very low rates make it difficult to detect program impacts (although impacts on both measures are in the direction of favorable effects of the intervention), suggesting it is simply too early to fully assess the long-term effects of this program. However, children typically do not complete the process for placement into separate programs like special education until second or third grade.[17]

•

In sum, findings from both Newark and Chicago show no evidence of sustained effects of the program in the early elementary school years. Notably, as discussed earlier, the information that was gathered for those years in both studies was substantially weaker than that collected during the preschool year. However, given the context of the typical urban elementary school, with a larger number of children, higher student-to-teacher ratios, and greater expectations of independence and discipline, the absence of positive effects is perhaps not surprising.

[17]National Association of Special Education Teachers (n.d.); The IRIS Center (n.d.).

Chapter 5

Cost and Benefits of Foundations of Learning

This chapter documents the full economic cost of the Foundations of Learning (FOL) intervention as implemented in Newark and Chicago. The chapter begins by analyzing the cost of delivering the FOL program and describing the implications for replicating it in other sites. The next sections outline the potential for FOL or similar interventions to generate dollar benefits that can be weighed against the program costs, taking into account challenges in assigning dollar values to the impacts that are presented in Chapter 4.

Summary of Findings

- **At approximately $1,750 per child, FOL represented a 14 percent increase in program costs over normal operating costs in Newark and a 21 percent increase in Chicago.** Although the average cost per classroom was higher in Chicago ($34,884) than in Newark ($26,873), the larger class size in Chicago meant that the per-child costs were similar in the two sites: $1,792 in Newark and $1,744 in Chicago. These costs are somewhat higher than the cost for the more typical approach of assigning a mental health consultant to intervene on an as-needed basis with children who exhibit difficult behaviors.

- **Based on the limited data that are available on outcomes when the children from FOL classrooms went to elementary school, there is no evidence that the program's monetary benefits will outweigh its costs.** In nonexperimental research, measures of problem behavior and approaches to learning have been shown to be associated with improvements in these and other outcomes in the later school years. However, the limited follow-up data that were collected in the FOL studies did not show that benefits were sustained into the early elementary grades. In the case of some outcomes — for example, a child's placement into special education — it is too soon to know whether the intervention had any effect, although, in this example, reductions in special education placements for even a small number of children could result in major savings that would outweigh the intervention's cost.

Cost of the FOL Intervention

The net cost analysis that is presented below captures the incremental costs of the new services that were provided in the FOL intervention in Newark and Chicago, over and above existing services that were available to the control sites. Using cost information that was collected by MDRC, the analysis disaggregates the cost of each key component of the intervention. All costs are expressed in 2010 dollars. Additional detail on the derivation of the cost estimates is provided in Appendix D.

The financial costs of the FOL intervention services are disaggregated into three main components:

- **Teacher training:** This includes the cost of compensating the trainers and any associated indirect or overhead costs, the cost of compensating the teachers and the Clinical Classroom Consultants (CCCs) for their time in the training, and any costs of the training materials.

- **Clinical classroom consultation:** This includes the cost of CCCs' orientation, time spent modeling in the classroom and coaching teachers to reinforce the training, time spent providing targeted services to the highest-risk children and making referrals for them to outside services, and time spent in weekly clinical supervision.

- **Support for the intervention:** This includes any ongoing technical assistance, advice, and support given to the trainers and CCCs to strengthen the intervention. It excludes the costs of activities that are conducted purely for data collection or other research purposes, which do not contribute to the quality of the intervention itself.

For each of these components, the total cost of the FOL intervention is equivalent to the net cost because there is no analogous activity for classrooms in the control group. For example, as long as the teacher training does not substitute for additional training that teachers in the control group would have received, the total cost of the teacher training is all treated as a net new cost. However, if the control group received the services but received them at rates that differed from the FOL program group rates (for example, if children in the control group were referred to mental health services, but at lower rates than children in the program group), the costs for both the program and control groups would have to be estimated, with the net cost

being the difference between these two costs. However, no such differences in services used were found, based on data collected from teachers in both sites.[1]

Cost Analysis

Table 5.1 reports the results of the cost analysis, shown separately for Newark and Chicago. The total cost for FOL teacher training, classroom consultation, and support or technical assistance is estimated to have been $698,699 for Newark and $697,675 for Chicago. The largest costs by far were for clinical consultation, which accounted for nearly three-fourths of the total costs of the intervention. Of the remaining costs, teacher training cost twice as much as the additional support for the intervention.

Costs in FOL-Newark and FOL-Chicago were quite similar. In Chicago, costs were slightly higher for clinical consultation because CCC salaries were slightly higher there ($51,700 compared with $44,000 in Newark); in Newark, costs were slightly higher for the teacher training because more staff participated in the training there (253 staff payments compared with 218 in Chicago). Yet these small differences offset each other and yield similar total estimates, such that the total costs came within $1,000 of each other across the two sites.

Since the Newark program served 26 classrooms, whereas the Chicago program served 20 classrooms, the average cost per classroom was lower in Newark — $26,873 compared with

The Foundations of Learning Demonstration

Table 5.1

Estimated Program Costs, FOL-Newark and FOL-Chicago

	Total Cost		Cost per Classroom		Cost per Student	
Component	Newark	Chicago	Newark	Chicago	Newark	Chicago
Teacher training ($)	132,560	109,956	5,098	5,498	340	275
Clinical classroom consultations ($)	507,638	534,429	19,525	26,721	1,302	1,336
Support for the intervention ($)	58,501	53,290	2,250	2,665	150	133
Total for all components[a] ($)	698,699	697,675	26,873	34,884	1,792	1,744

SOURCES: MDRC calculations based on fiscal and budget data.

NOTES: Costs shown are for 26 classrooms in Newark with an average of 15 students per classroom, and 20 classrooms in Chicago with an average of 20 students per classroom. All costs are shown in 2010 dollars.

[a]Includes all teacher training expenditures, classroom consultant expenditures, and technical assistance provided by MDRC.

[1]See Morris et al. (2010).

$34,884 in Chicago. Although the intervention essentially operated at the classroom level, it is also informative to examine the cost of the program per child served in the two settings. As shown in Table 5.1, average class size was 15 students in Newark and 20 students in Chicago. Thus, even though the per-classroom costs were higher in Chicago, the larger class size there relative to Newark means that the per-child costs were similar in the two sites: $1,792 in Newark and $1,744 in Chicago. Using estimates of program costs per child for each city,[2] these per-child costs represent a 14 percent increase in program costs in the Newark sites and a 21 percent increase in program costs in the Chicago sites.

Considerations for Replication

The costs of FOL that are reported here represent the costs of adding FOL fully *on top of* existing training and professional development in preschool settings. Moreover, these estimates represent the full economic costs of program implementation, including the opportunity cost of teacher training time and other resources (for example, meeting facilities). However, if FOL were integrated into an existing preschool program, the incremental financial cost of implementing the intervention could be reduced in a number of ways.

For example, FOL training could be offered as part of existing professional development days and delivered on-site, thereby saving the costs that are associated with additional teacher training time and training space. Also, management costs might be reduced. But the largest costs of FOL are the salaries of the credentialed and skilled CCCs, for whom cost-saving options are not as clear. Notably, however, Head Start does have mental health consultants who serve individual children; these same staff members could be used in a coaching role in FOL, although that would substitute for their other activities and may result in a net reduction of the associated benefit. Given the findings on teachers' sustaining practice (see Chapter 4), the estimated costs of implementing FOL that are presented in Table 5.1 represent a single-year investment in teachers that may have benefits that continue beyond one year. For example, subsequent cohorts of children, at least for the majority of preschool teachers who remain in the preschool setting from one year to the next, may also benefit from this program.[3]

The Challenge of Valuing Outcomes of the FOL Intervention

Through improvements in educational outcomes, FOL has the potential to generate economic benefits for children who participate in the intervention, as well as for society as a whole, although positive impacts on outcomes that are easily monetized as benefits were not observed

[2]Barnett et al. (2010). Spending per preschool child in Newark under the Abbott regulations was $12,859; for Head Start in Chicago, spending per child was $8,413.

[3]National preschool teacher turnover rates ranged from 25 to 50 percent in 2003 (Barnett, 2003).

as part of this evaluation. That is, positive impacts were not observed on measures of children's pre-academic skills that have been linked repeatedly with longer-term outcomes in prior research; instead, positive impacts were observed on measures of executive function and classroom engagement, which have been shown to be associated with later benefits but that cannot be easily monetized in a cost-benefit study.

In a benefit-cost analysis of a particular program or policy, social benefits and costs are typically disaggregated into three stakeholder groups. First, the government or public sector is one stakeholder and consists of all members of society in their role as taxpayers or citizens. Public sector benefits or costs may accrue at the federal, state, or local levels. Second, program participants may also experience private gains or losses as a result of the intervention. Third, in addition to any gains or losses to taxpayers as a group, other members of society (who have not participated in the intervention) may also experience economic benefits or costs as private individuals. Summing across these three stakeholder groups gives the perspective of society as a whole, including both public and private sector benefits and costs.

Table 5.2 illustrates some of the educational outcomes that could be affected by FOL and the associated dollar benefits or costs that may accrue to different stakeholders, as well as the net economic effect for society as a whole (though, again, such outcomes were not actually observed in this demonstration). For example, if FOL were to reduce grade repetition, children would spend fewer years in the public education system, thereby saving state and local education expenditures. This cost savings represents a monetary benefit to the government sector and to society as a whole. Likewise, if FOL were to reduce the number of children in special education classes, the differential cost of special education over regular education classes would be a savings to government and a benefit to society as a whole. Or, if FOL were to increase teacher retention (not shown in table), the savings from fewer new teacher trainings and the increased value of more experienced teachers would be a savings to government and a benefit to society as a whole. Finally, if as a result of the FOL intervention more students eventually graduate from high school, there are a number of different potential economic consequences. If students spend more time in school instead of dropping out, education costs increase, which is a cost to the public sector and to society as a whole. However, as a result of their higher educational attainment, FOL participants would be expected to have greater lifetime earnings, which benefits them as individuals and society as a whole. The higher earnings would also be associated with increased tax revenue (for example, payroll and income taxes), a benefit to the public sector (the government) that is offset by the lost income to the individual in the taxes paid, with a net effect on society as a whole of zero.

Table 5.2

Potential Monetary Benefits and Costs of Improved Educational Outcomes from FOL, by Stakeholder

		Stakeholder			
Outcome Affected	Monetary Benefit or Cost	Government	Program Participants	Rest of Society (did not participate in program)	Society as a Whole
Reduced grade repetition	Fewer excess years spent in K-12 education	+			+
Reduced use of special education	Lower costs for special education	+			+
Increased high school graduation rate	(More years spent in K-12 education when dropping out is avoided)	–			–
	Increased lifetime earnings for participants		+		+
	Increased tax revenue to government from higher earnings	+	–		0

SOURCE: Based on Karoly, Kilburn, and Cannon (2005), Table 4.1.

NOTE: Parentheses denote costs as opposed to benefits. A plus sign indicates a monetary benefit; a minus sign indicates a cost; and a 0 indicates that the benefit(s) and cost(s) cancel each other out.

Using this same framework, benefit-cost analyses of a number of early childhood interventions have demonstrated the potential for high-quality early childhood programs to generate benefits to society that exceed the program costs.[4] Cost savings to government accrue from short-term effects related to the decreased need for special educational services and grade retention, as shown in Table 5.2. Other potential longer-term economic benefits to the public sector come from reductions in the use of social services and in criminality, and increased taxes paid on the gains in earnings.[5] That is, program participants benefit from higher income (net of taxes and transfers) and other members of society gain through the reduction in the social costs of crime. Summed across all stakeholders, early childhood programs can generate social benefits net of program costs that exceed zero.

Much of the evidence of favorable economic returns to early childhood programs comes from interventions with long-term follow-up, with data on program participants' experiences in adolescence, young adulthood, and even adulthood.[6] Participants in programs such as Perry Preschool, Abecedarian, and the Chicago Child-Parent Centers have been followed into their late twenties and beyond. At these ages, potential impacts can be observed for such outcomes as school performance (for example, grade repetition, special education use, high school graduation rates), antisocial behavior (for example, substance abuse, delinquency, crime), and economic outcomes (for example, employment and earnings, use of social services) — all of which can be more readily valued in dollar terms than the outcomes that were observed as part of the FOL demonstration.

Benefit-cost analysis is also possible for early childhood programs without longer-term follow-up, but it is often more challenging to place an economic value on the types of outcomes that are typically observed when the intervention ends. Impacts on measures that are assessed in preschool or at kindergarten entry that are related to children's cognitive development, social-emotional behavior, and other developmental measures are not as readily valued in economic terms as other outcomes, such as increases in earnings, reduction in crime, or the use of public services. However, drawing on evidence of the relationship between developmental measures in early childhood and outcomes later in life,[7] some studies have imputed the potential longer-term economic impacts that are associated with outcomes in early childhood. For example, evidence of impacts on achievement tests that is collected in the early elementary grades can be linked to subsequent educational outcomes such as high school graduation, which in turn affects labor market earnings.[8] However, such findings are strongest when they are based on data that are

[4]Karoly (2012).
[5]Belfield, Nores, Barnett, and Schweinhart (2006); Heckman et al. (2010); Reynolds et al. (2011).
[6]Karoly (2012).
[7]See, for example, Duncan et al. (2007).
[8]Aos et al. (2004); Aos et al. (2012).

collected in the early elementary grades for outcomes that have been studied extensively with regard to their long-term effects.

Based on the impacts that are presented in Chapter 4, the FOL intervention led to positive impacts on some of the outcomes measured but the monetary value of these impacts cannot be reliably translated into economic benefits. Significant impacts in the preschool year were found on measures of approaches to learning in CSRP and in the Newark and Chicago FOL sites,[9] and on problem behavior in CSRP and in FOL-Newark. (This was not assessed directly in Chicago.) In other work, such measures of approaches to learning and problem behavior have been shown to lead to long-term benefits for children.[10] However, the subsequent follow-up data that were obtained from available kindergarten and first-grade records in Chicago did not show any significant impacts on measures of school performance, such as test scores, grade repetition, or rates of special education use. Although these measures have been valued in other benefit-cost analyses of early childhood programs, the ability to identify impacts on grade repetition and special education was severely limited in the FOL study by the low frequency with which such events occurred by first grade in the Chicago Public Schools. Data that were reported by teachers in Newark also show few, if any, sustained benefits of FOL. It is not known whether the initial effects on approaches to learning or problem behavior were sustained into the early elementary grades in either site, since data were not collected on these measures specifically. In the absence of such follow-up data on these domains, dollar benefits were not assigned to the impacts on these measures as observed in the preschool year.

The Potential for Economic Benefits from the FOL Intervention

The findings to date for the FOL intervention in Newark and Chicago that are detailed in Chapter 4 do not provide a sufficient basis to calculate the dollar value of the program benefits that can be weighed against the program costs presented in Table 5.1. However, given the estimates of program costs, it is possible to consider how large the impacts on specific outcomes would have to be in either the short term or the longer term in order to cover the cost of the intervention and generate positive economic returns.

For example, in one study the social cost of dropping out of high school measured over the individual's lifetime but valued as of birth (the earliest point at which an intervention could begin) in terms of lost productivity, fringe benefits, and other nonwage public and private benefits (such as better health status and improved child rearing) was estimated to be $300,000 to $450,000 in 2007 dollars.[11] This dollar figure is the present discounted value of the stream of

[9]CSRP was formerly the Chicago School Readiness Project.
[10]Zhai, Raver, and Jones (2012).
[11]Cohen and Piquero (2009).

future benefits. That is to say that the future dollars are discounted at each age to the value they would have as of birth to account for the fact that a dollar in the future is worth less today. Thus, out of 100 children served, if one fewer child drops out of high school as a result of the FOL intervention (reflecting a 1 percentage point increase in the high school graduation rate), the benefits to society that are spread across all 100 children who received the intervention would be $3,550 to $5,330 dollars per child participant, or about two to three times the per-child cost of the intervention shown in Table 5.1.[12] In other words, for each child who participates in FOL, the economic benefit to society would surpass the cost of the program.

Is it likely that FOL would eventually produce an increase in high school graduation rates of 1 percentage point or more? By way of comparison, the Perry Preschool intervention, as of the age 40 follow-up, increased the high school graduation rate by 17 percentage points,[13] while the Chicago Child-Parent Centers increased the rate by 7 percentage points as of age 26.[14] Although it is unlikely that FOL would generate impacts of a similar magnitude as these two more intensive interventions (which measured the effects of a high-quality preschool program that was implemented at a time when the control group had little access to alternative early learning programs), it is possible that the favorable effects of FOL on approaches to learning could generate modest improvements in educational outcomes in later school years.

In addition to improved high school graduation rates, early childhood interventions have demonstrated other educational benefits, such as reductions in special education use and reduced rates of grade retention, both of which are associated with substantial costs to the public education system.[15] A recent benefit-cost analysis of the Chicago Child-Parent Centers program provides estimates of these potential educational savings.[16] For example, a year of special education in the Chicago public school system, valued in 2007 dollars, is estimated to cost the public sector $9,910 in added educational costs, or $10,422 in 2010 dollars. Assuming that the savings from a reduction in special education use accrue at age 12 (the assumption made in the benefit-cost analysis of the Child-Parent Centers program), these savings at age 12 need to be discounted to age 4, the age at which the FOL program costs are incurred. The resulting present value savings is about $8,200 per year of special education costs averted (measured in 2010 dollars). With a per-child cost of $1,744 (shown in Table 5.1), if FOL reduced special education

[12]This result can also be derived by noting that in Chicago, for example, the FOL intervention cost $34,900 per classroom serving 20 children on average. Thus, providing the intervention to 100 children would entail delivery of FOL to five classrooms for a total of $174,400. If the intervention results in one additional high school graduate among the 100 children served, the total benefit to society would be roughly two to three times the cost of FOL for the 100 children served.

[13]Schweinhart et al. (2005).

[14]Reynolds et al. (2011).

[15]Karoly (2012).

[16]Reynolds et al. (2011).

use across all participants by 0.2 year on average, the cost of the intervention would be repaid through the savings in educational costs alone. By way of comparison, the Chicago Child-Parent Centers program reduced special education use by 0.7 year per child by age 18,[17] so the FOL impact would not have to be as large to pay back the intervention cost.

A similar hypothetical calculation can be made about the potential value of reducing grade repetition. The benefit-cost analysis for the Chicago Child-Parent Centers program estimated that the average per pupil cost for a year of regular education in Chicago public schools in 2007 dollars was $9,173, or $9,647 in 2010 dollars. Again, following the Chicago Child-Parent Centers program benefit-cost analysis and assuming that one less grade repeated saves educational costs at age 19, and discounting to age four, gives a savings of about $6,200 for each year of reduction in grade retention. Thus, if FOL reduced grade retention on average by 0.3 year, the cost of the intervention would be covered by the reduction in grade repetition. The Chicago Child-Parent Centers program reduced the percentage of students who were retained by 15 percentage points as of age 15,[18] a smaller impact than what would be required of FOL.

These calculations for high school dropout, special education use, and grade retention have assumed that the costs of FOL would be recovered by improvements in a single education outcome. However, smaller impacts on some combination of these three education outcomes could sum to generate sufficient savings to offset the cost of the program. Thus, although FOL may not generate impacts on any one of these outcomes that would be as large as a more intensive intervention like the Chicago Child-Parent Centers program, even small changes in any one of these outcomes would generate hundreds of dollars in savings that could at least partially offset the per-child cost of the FOL intervention.

Analyses of longitudinal data suggest that the current evidence base is too limited to assume that preschool children's improved attention or similar noncognitive measures provide a strong causal link to later outcomes such as high school graduation, college attendance, or crime.[19] While there is some very promising work linking executive function, in particular, to measures of achievement in the early elementary grades,[20] it is not known whether those benefits translate into longer-term gains for children. Given the per-child cost of the FOL intervention relative to the cost to society of a high school dropout or the cost to the public sector of special education use or grade retention, even a relatively small change in any of these educational outcomes as a result of the FOL intervention could produce sufficient dollar benefits to cover the program costs and perhaps generate a positive economic return.

[17]Reynolds et al. (2011).
[18]Reynolds et al. (2011).
[19]See Duncan and Magnuson (2011) for a summary of these analyses.
[20]Blair and Razza (2007).

Chapter 6

Summary of Findings and Lessons Learned

This chapter summarizes the findings from the three rigorous studies that are examined in this report. The studies evaluated a multicomponent intervention that focused on strengthening teachers' classroom management as a means to improve the social and emotional competence of preschool children. The intervention included 30 hours of teacher training, weekly in-class teacher consultations, stress management activities for teachers, and one-on-one clinical services for selected children. Building on the initial findings from CSRP in Chicago, MDRC then conducted two demonstrations of the CSRP program model, now called Foundations of Learning (FOL), in Newark and Chicago.

The CSRP and FOL demonstrations provided an important opportunity to test the program model in two quite different urban preschool systems. The research team selected outcome measures to maximize what could be learned across the studies, given the available funding. This chapter ties together the findings and lessons from these studies, drawing on the analysis of program impacts in all three and the implementation and cost analyses in FOL-Newark and FOL-Chicago.

The Context

As described in Chapter 3, the New Jersey Supreme Court's *Abbott v. Burke* decisions, requiring the State to increase funding for certain low-income school districts, positioned Newark ahead of most of the country in implementing structural changes to promote quality in preschools. For example, the Abbott mandates required smaller class sizes, a lead and assistant teacher in each classroom, higher teacher salaries, and lead teachers with a minimum credential of a bachelor's degree. The resources that were available to the Chicago preschool programs, which were all part of Head Start in this study, were more typical of urban districts, as reflected, for example, in the larger class sizes than in Newark and reports of staffing shortages.

Given these differences, it was thought that the Chicago classrooms might have a greater need for, and potential benefit from, the FOL intervention. On the other hand, it was also possible that the resource limitations in Chicago might compromise the ability to fully implement FOL.

Key Implementation, Impact, and Cost Findings

As described in Chapter 3, while the key components of the intervention were implemented in both Newark and Chicago, the resource limitations in FOL-Chicago did appear to influence certain aspects of program implementation there. Chapter 4 showed that the FOL intervention nevertheless had a positive impact on key targeted outcomes in both Newark and Chicago, and Chapter 5 presented data related to the costs of implementing FOL in both cities.

- **The FOL intervention components were delivered at relatively high levels of dosage and quality, as rated by teachers in both Newark and Chicago. The shortage in classroom resources and staffing in Chicago did, however, appear to affect the focus of in-class consultation there.**

The CSRP and two FOL studies demonstrate that the components of the intervention can be delivered in diverse implementation settings and that teachers in both cities considered FOL to be a worthwhile and high-quality program. As discussed in Chapter 3, attendance at the teacher training was strong in both Newark and Chicago, and teachers in both cities expressed high levels of satisfaction with the training.

While the overall *amount* of in-classroom consultation was similar in Newark and Chicago, the *focus* of the consultation differed somewhat across the sites. The Clinical Classroom Consultants (CCCs) and teachers in Newark were engaged in activities that were related to the implementation of *The Incredible Years* strategies consistently across classrooms. However, in Chicago, consultation was more varied, with some CCCs focusing more on assisting teachers with basic classroom tasks (such as helping children during lunch time, monitoring recess, and cleaning in the classroom) rather than on consultation directly related to implementation of the classroom management strategies. This perhaps reflected more limited staffing of preschool programs in Chicago compared with Newark.

Despite these differences in implementation, differences in impacts between the two sites were not very different with respect to the child outcomes for which information was collected in both Newark and Chicago.

- **CSRP and FOL improved teachers' positive classroom management, specifically in areas that were directly targeted by the intervention. In addition, some evidence suggests that program group teachers' positive classroom management was sustained one year later in FOL-Newark.**

Well-attended and well-received trainings, along with the consultation component of the model, led to improved teachers' practices that the intervention targeted directly. Specifically, trained observers found that, compared with control group teachers, the teachers who received the intervention had more warm and positive interactions and fewer sarcastic and

angry interactions with children and managed problem behavior more effectively when it occurred. In addition, the magnitude of these impacts is relatively large. These were all aspects of practice that were directly targeted by the training and consultation that teachers received. Moreover, teachers who received the intervention in Newark were observed to be still using selected components of the classroom strategies a full year after FOL implementation ended and CCCs were no longer working with them. This suggests that teachers continued to accept at least portions of *The Incredible Years* approach because it was both a good fit and feasible to implement even with only the initial year of in-classroom support.

- **Likely because of teachers' improved classroom management, FOL classrooms had greater amounts of instructional time.**

In FOL-Newark, where this issue was examined, fewer disruptions and more orderly transitions appeared to free up additional classroom instructional time, with FOL classrooms having an average of 10 more minutes of instruction out of a 120-minute observation period. If this was representative of gains that could be achieved every school day, it would translate to 50 minutes more instruction per week, or a week's more instruction over a school year. These improvements are consistent with a central hypothesis of the demonstration: that children with challenging behaviors may divert teachers from providing instruction to all children, and improving teachers' classroom management skills can reduce unproductive time in preschool classrooms.

- **Conflict decreased among children in the intervention classrooms. In addition, FOL improved children's approaches to learning and executive function skills.**

There is strong evidence that the FOL intervention improved the two child outcomes that it targeted most directly: children's problem behavior and approaches to learning. With respect to problem behavior, the intervention reduced children's negative interactions with their peers. With respect to approaches to learning, children were observed to be more engaged in the classroom and tasks of learning. The children also did better on tests of executive function, a competence that underlies approaches to learning through a combination of attention, inhibitory control, and short-term memory skills. All of these effects were moderate in size — smaller than the effects of the most widely touted programs (like Perry Preschool) but larger than the effects of large-scale evaluations (like Head Start).

- **The study provided no clear evidence that FOL improved children's early literacy and mathematics skills.**

During the planning of the demonstrations, it was hypothesized that improving young children's social and emotional competence would be both an important outcome in its own

right *and* a pathway to improved academic achievement. This premise was based on a body of research suggesting that children's behavior problems and challenges that make it difficult to regulate their behavior are linked with long-term difficulties in schooling.[1]

However, the positive impacts that were found in FOL-Newark and FOL-Chicago did not consistently translate into improvement in early academic skills. CSRP showed some initial evidence of improved early academic skills as a result of the intervention, but those effects were not corroborated by findings in the FOL sites or by the pooled analysis across CSRP and FOL. This absence of a clear link between social and emotional development and achievement outcomes is consistent with earlier work suggesting that measures of behavior problems and social skills, and to a lesser extent attention, may be weak predictors of later reading and math achievement.[2]

- **At approximately $1,750 per child, FOL represented a 14 percent increase in program costs in Newark and a 21 percent increase in Chicago. There is no evidence at this point that the benefits of FOL outweigh its cost.**

The roughly $1,750 per-child cost of FOL, reflecting both the teacher training and in-classroom consultation, was much higher than the cost of *The Incredible Years* training alone;[3] however, the costs are on a par with the cost of other programs that use a mental health consultant in the classroom on a routine basis.[4] Because of the limited data that are available on outcomes when the children from FOL classrooms went to elementary school and beyond, there is no evidence that the cost of the intervention is outweighed by its benefits.

If further data on children were collected as they continue through school, some of the intervention's greatest potential cost savings could come from its impact on special education placement and eventual high school completion for individual children.[5] Previous studies of preschool interventions have not found significant effects on special education placement until later in elementary school,[6] and determining impacts on high school completion would require many years of follow-up data. The cost of special education services in comparison with the FOL intervention is quite high, and those who complete high school have higher individual earnings compared with the future earnings of those who drop out. This has implications for the

[1]Raver (2002).

[2]Duncan et al. (2007).

[3]The costs associated with *The Incredible Years* training sessions were higher in FOL than in the training package offered by the curriculum developer because of the additional cost of travel for the trainers.

[4]Florida State University, Center for Prevention and Early Intervention Policy (2006).

[5]See Chapter 5 for hypothetical cost-benefit projections.

[6]Weikart, Bond, and McNeil (1978); Karoly et al. (1998).

larger economy,[7] as long-term impacts on either special education placement or high school completion for even a small number of children would result in major savings that far outweigh the intervention's cost.

Implications for Program Implementation, Public Policy, and Research

Previous reports highlighted early lessons on the implementation and impacts of the CSRP and FOL-Newark interventions.[8] This final report on the FOL demonstration provides the opportunity to identify additional lessons as well as potential next steps in a policy and research agenda to increase the impact of preschool programs for low-income children.

- **Low levels of institutional resources and supports as well as teachers' varied receptivity to new strategies may present challenges to implementing classroom-based strategies.**

The analyses of implementation data from FOL illustrated differences between the focus of consultation activities in the Newark and Chicago classrooms, indicating that there was variation in the extent to which CCCs were able to engage teachers in implementing the classroom management strategies. Qualitative analyses revealed that classroom resource and staffing constraints as well as a lack of support by center directors and principals could sometimes be major barriers to implementation. Teachers and CCCs alike had difficulty focusing on improving classroom management strategies when classrooms were understaffed. CCCs also reported that teachers' receptivity to the intervention varied depending on their openness to learning and trying new techniques and their perception of their own immediate needs for assistance with classroom management.

Although FOL addressed teacher stress, application of new classroom management strategies may still be challenging for highly stressed teachers in understaffed classrooms. Moreover, center directors and school principals should be engaged in initial and ongoing conversations about implementation to ensure that they understand, and agree with, the key tenets of the model and will support its implementation in the classroom.

- **Consultation models would benefit from the inclusion of a comprehensive plan for supervision and support of the consultants.**

[7] Aos et al. (2012).

[8] Lloyd, Bangser, and Parkes (2009); Morris et al. (2010).

Even though qualified consultants were hired in FOL, they needed ongoing support, supervision, and professional development to provide consistently high-quality services to teachers and children in the classroom. While qualitative analyses suggest that consultation services varied based on individual classroom and teacher characteristics, the data also suggest that consultants found it difficult to provide critical feedback to teachers, an activity theorized to facilitate teacher change. Supervision of consultation staff could be strengthened by frequently monitoring the *content* of their consultation sessions to ensure that teachers are receiving the type of feedback that will facilitate changes in classroom practices that are aligned with the model.

- **More research is needed to understand the mechanisms through which consultation contributes to improvements in teacher practice.**

Multiple studies on the effectiveness of classroom consultation (also referred to in the literature as "coaching") have demonstrated positive effects on teacher practice, over and above any effects realized from training alone. Not only do teacher practices change, but outcomes for children also trend in a positive direction.[9] The "value added" of consultation goes beyond simply an extra pair of hands in the classroom. For example, the positive impacts on teachers' practice and children's outcomes that were observed in CSRP occurred in the context of control classrooms that had a teacher's aide who worked for the same amount of time as the consultant in the program classrooms. The question, however, is what dosage and combination of consultation activities is most appropriate for classroom consultation models.

Research on the appropriate dosage for consultation is inconclusive.[10] Findings from the FOL studies suggest that the level of intensity (six to seven hours per day once per week) and/or the duration of consultation (a full academic year) in this model may not be necessary. Impacts for children in Chicago were on a par with those in FOL-Newark despite the lower level of consultation activities that were directly related to *The Incredible Years* training content in FOL-Chicago. Perhaps because *The Incredible Years* strategies were relatively simple to implement, minimal use of proactive coaching strategies was sufficient to change teachers' behavior. Important topics for future research include understanding the level and type of in-class consultation that is needed for relatively straightforward models such as *The Incredible Years* as well as for more complicated models.

- **Although an intervention such as FOL can improve children's social and emotional competence, this is only one aspect of preschool quality.**

[9]Joyce and Showers (2002); Landry, Anthony, Swank, and Monseque-Bailey (2009); Pianta et al. (2008).
[10]Wasik, Mattera, Lloyd, and Boller (forthcoming).

Improved classroom management and the resulting changes in children's behavior freed up more time for instruction in FOL classrooms. In addition, children in these classrooms might well have been ready and able to take advantage of the increased instruction, since they had greater executive function skills of memory, attention, and inhibitory control. In this way, FOL set the preconditions for improved learning. However, focusing on children's behavior alone does not appear to be enough. It is possible that children did not benefit academically from the FOL intervention because the teachers were not trained sufficiently in the literacy and mathematics curricula and instructional approaches that would have enabled them to take advantage of the increased instructional time. Therefore, FOL can be adopted by preschool programs that are seeking to improve classroom management and children's social-emotional competence and increase the amount of instructional time. However, in order to improve children's academic skills in ways that carry over into elementary school, FOL may need to be augmented with an evidence-based literacy/language and/or mathematics program.

- **Interventions that focus on increasing preschool children's competencies may need to be reinforced by continued support in kindergarten and beyond.**

The long-term impacts of preschool interventions may differ depending on the classroom environments and quality of instruction to which children are exposed once they complete their pre-kindergarten year. While the hope is that improvements in social and emotional competence will extend beyond the preschool year, kindergarten often represents a challenging transition for children, with higher student-teacher ratios, less attention on supporting a positive emotional and social climate, and greater expectations of independence and discipline. Therefore, it may be important to link the techniques that are learned in an intervention model like FOL with training for kindergarten and other elementary school teachers in order to reinforce the social and emotional competence that children develop during preschool.

- **Longer-term follow-up of children will be the best mechanism to determine whether preschool interventions are cost-effective.**

At a minimum, follow-up data into third grade would provide a clearer picture of the implications of social-emotional and other interventions for special education placement. In addition, measures of academic performance in the third and fourth grades are more predictive of long-term educational outcomes such as high school completion than are such measures in earlier grades.[11] Long-term studies of preschool interventions suggest the added value of collecting information on a range of child outcomes. Interestingly, impacts of some of the best-known preschool interventions, such as Perry Preschool, appear to fade with regard to test

[11]Duncan et al. (2007).

scores only to reemerge in adult outcomes.[12] Long-term follow-up is therefore important to determine whether there are critical domains of young children's development that lead to sustained effects on later outcomes.

In conclusion, realizing the full potential of preschool education will require a greater understanding of which programs and educational strategies can most effectively boost long-term outcomes for low-income children. It is important for practitioners to think about the goals for their program within the context of their organization's capacity. The CSRP and FOL interventions present one approach to improving an important aspect of preschool quality. Other evaluations — including Head Start CARES (Classroom-based Approaches and Resources for Emotion and Social skill promotion), an early childhood education (preschool) research demonstration that operated in Head Start centers across the country — will continue to further the field's understanding of children's social and emotional competence, including how to achieve longer-term positive impacts. Other research is also seeking to understand the link between early academic skills and long-term school achievement and adult outcomes. One such study at MDRC will focus on the impact of early mathematics skills, and other studies by leading researchers are also under way. This collective body of work on preschool interventions should provide answers about how to produce high-quality, effective preschool programs.

[12]Weikart, Bond, and McNeil (1978); Karoly (2012).

Appendix A

Baseline Characteristics of Students

The Foundations of Learning Demonstration

Appendix Table A.1

Baseline Characteristics of Students in Research Sample, Newark

Characteristic	Program Group	Control Group	
Female (%)	48.6	48.0	
Age[a] (years)	4.4	4.3	*
Race/ethnicity[b] (%)			
African-American, not Hispanic	42.2	43.7	
White, not Hispanic	9.5	9.1	
Hispanic	35.8	34.4	
Other	0.4	1.2	
Number of government benefits received in household	1.4	1.4	
3 or more children in the household (%)	33.1	30.4	
Single-parent household (%)	47.8	50.0	
Primary language spoken at home is Spanish (%)	18.2	17.5	
Sample size	319	304	

SOURCES: MDRC calculations from responses to teacher and parent surveys.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Means are adjusted for random assignment block but not for nesting of students within classrooms.

[a]Age at start of school year, September 2007.

[b]Means do not sum to 100 percent because the values represent adjusted means, and race/ethnicity is not available for all students.

The Foundations of Learning Demonstration

Appendix Table A.2

Baseline Characteristics of Students in Research Sample, Chicago

Characteristic	Mean		
	Program Group	Control Group	
Female (%)	54.7	47.5	*
Age[a] (years)	4.1	4.1	
Race/ethnicity[b] (%)			
Black/African-American, not Hispanic	67.7	72.9	
Hispanic	30.1	26.4	
Other	2.3	0.8	
Child's family receives TANF (%)	7.9	8.1	
Child's family income is at or below 50% of poverty line (%)	44.7	46.0	
Single-parent household (%)	92.0	91.0	
Primary language spoken at home is Spanish (%)	29.7	23.9	
Sample size	298	282	

SOURCES: MDRC calculations from responses to teacher and parent surveys.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Means are adjusted for random assignment block but not for nesting of students within classrooms.

[a]Age at start of school year, September 2008.

[b]Means do not sum to 100 percent because the values represent adjusted means, and race/ethnicity is not available for all students.

Appendix B

Supplemental Material for Chapters 2 and 3

Data were obtained from the following sources for the Foundations of Learning (FOL) implementation study:

- **Attendance Logs.** Measures of program dosage were collected using attendance logs from (1) teacher attendance at the training sessions; (2) Clinical Classroom Consultant (CCC) attendance in the classroom; and (3) teacher attendance in the classroom.

- **Service Provision Forms (SPFs).** The CCCs completed the SPFs (shown in Appendix Figure B.1) on a weekly basis. The SPFs provided a variety of information on the CCCs' role in the classroom, the order of treatment implementation, the type of challenging behaviors that children were exhibiting in the classroom, the ways that teachers responded to these behaviors, goals for the upcoming week, and whether the intervention strategies as implemented by teachers were effective for the current week. The forms also provided insight into the presence of behavior problems, the presence of modeling and consulting (as reported by CCCs), and the use of the intervention strategies in the CCCs' absence (as reported by teachers to CCCs). In addition, the forms provided a snapshot of what the CCCs were doing in the classroom beyond consultation with teachers and children, such as assisting with meals and recess, collaborating with other school staff, and meeting with parents. This was useful for understanding the nature of program implementation and the amount of time the CCCs were present at the site.

- **Teacher Evaluations of Training.** At the end of each training session, lead and assistant teachers at the FOL program sites were asked to complete evaluations of the training session. These evaluations measured teacher satisfaction with the training component of the intervention as well as the extent to which they perceived the training to be useful and relevant to their work in the classroom.

- **Teacher Evaluative Reports of CCCs.** Lead teachers were asked to complete evaluations that reflected their experience and satisfaction with the CCCs. Teachers also documented whether or not they experienced the CCC services as useful and valuable to them and their students.

- **Stress Management Evaluations and Stress Management Workshop Surveys.** Administered before and after the stress management workshops to lead and assistant teachers at FOL program sites, these surveys identified

sources of teacher stress and determined the extent to which these workshops helped to mitigate teacher stress.

- **Focus Group and Individual Interviews with Lead and Assistant Teachers.** Interviews with lead and assistant teachers at FOL program sites were conducted to gain an understanding of the daily experiences and problems teachers in the classroom faced. In addition, the interviews provided an opportunity to discover the prevalence of disruptive and challenging behaviors in the classroom, the strategies teachers used to handle them, the services available to assist with this process, and how useful and/or successful teachers found them to be. Finally, teachers were asked to share their ideas about what might be done to improve the quality of services available to them and their students as part of the FOL intervention and within the school district at large.

- **Intervention and Programmatic Research Notes.** These data included a variety of observational notes written by program staff during and after site visits, and notes from weekly CCC intervention fidelity meetings.

- **Individualized Child Treatment Plans and One-on-One Reports.** These forms provided data on the dosage of services received by children who were getting individualized consultation, the types of interventions conducted, and the number of referrals made once the consultation process was completed.

- **Focus Group with the Preschool Intervention and Referral Team (PIRT) and the Head Start Mental Health Consultants (MHCs).** The focus group data from the PIRT and MHCs in Newark illuminated their perceptions about the FOL intervention implementation processes, provided insight into the extent to which the PIRT and MHCs coordinated with CCCs, and identified challenges associated with the collaboration effort.

The Foundations of Learning Demonstration

Appendix Table B.1

Early Childhood Field-Based Professionals in Newark and Chicago

Site	Title	Site Category	Frequency of Site-based Work	Responsibilities
Newark	Preschool Intervention and Referral Team (PIRT) worker	Public school; community-based organization (CBO)	Weekly in public schools; varies in CBOs	Child observations; child intervention plans; universal intervention programs[a]
	Resource teacher	Public school	Every 1 to 2 weeks	Refer children for observations by PIRT; train, support, and monitor teacher implementation of curriculum;[b] on-site teacher support in wide range of preschool instruction topics
	Mental health consultant	Head Start	On call/as needed	Teacher training; child observations; referrals for children and families; parent trainings
Chicago	Mental health consultant	Head Start[c]	On call/as needed	Teacher training; child observations; direct child services; referrals for children and families; parent trainings
	Social worker	Public school Head Start	On call/as needed	Child observations; direct child services; referrals for children and families
	Master teacher	Public school	Monthly (approximately)	On-site teacher support in wide range of preschool instruction topics[d]

NOTES: [a]At the time of the study, Newark Public schools were using the Second Step curriculum. For more information, see www.cfchildren.org/second-step.aspx.

[b]Creative Curriculum was the mandated curriculum in Newark preschool classrooms. For more information, see www.teachingstrategies.com/page/73756-creative-curriculum-system-preschool.cfm.

[c]Chicago operates some Head Start programs in public schools.

[d]In some cases, master teachers acted as lead classroom teachers when there was an unfilled position in a classroom.

The Foundations of Learning Demonstration

Table B.2

Clinical Classroom Consultants' Demographic Information

Characteristics	Newark	Chicago
Female (%)	85.7	100
Average age (years)	32.4	30
Race and ethnicity (%)		
Caucasian	28.6	20
Black/African-American, not Hispanic	14.3	40
Hispanic/Latino	14.3	20
Other[a]	42.9	20
Bilingual[b] (%)		
Spanish	14.3	20
Other[c]	14.3	20
Educational background (%)		
Social work	57.1	60
Art therapy	14.3	0
Psychology[d]	14.3	20
Counseling	14.3	20
Professional experience in educational settings (%)		
0 to 4 years	57.1	60
5 to 10 years	42.9	20
Unknown	0	20
Professional experience working with young children (%)		
0 to 4 years	42.9	60
5 to 10 years	57.1	20
Unknown	0	20
Sample size	7	5

SOURCE: MDRC calculations from Clinical Classroom Consultant (CCC) demographics surveys.

NOTE: "Unknown" indicates that the CCC omitted an answer to the question.
[a]Other includes "mixed" race/ethnicity or other race/ethnicity not listed.
[b]Fluent in a second language in addition to English.
[c]Other languages include Portuguese or language not specified by the CCC.
[d]One CCC had a master's degree in psychology and education.

The Foundations of Learning Demonstration

Appendix Figure B.1

Sample Service Provision Form

SELECT TEACHER

SPF #

CCC Name
Date / /
Site/Room #
Teacher:

Visit Report: Time in: Time out:

****

1. Teacher received: ☐ 1st training ☐ 2nd training ☐ 3rd training ☐ 4th training ☐ booster ☐ all trainings
Received in: **SELECT** **SELECT** **SELECT** **SELECT** **SELECT**

2. Phase of model:

☐ 1. pre-entry
☐ 2. entry
☐ 3. joining
☐ 4. assessment
☐ 5. consulting
☐ 6. stress and burnout
☐ 7. direct services to children
☐ 8. referral
☐ 9. termination

3. Did you spend time on:

☐ a) Assisting with morning activities (i.e. reading materials, coloring, manipulatives)
☐ b) Assisting with meals
☐ c) Assisting with recess
☐ d) Assisting with classroom cleanup
☐ e) Assisting with field trips
☐ f) Attending school-related event/mtg.
☐ g) Reviewing training materials with teachers
☐ h) Coaching teachers on Webster-Stratton
☐ i) Classroom-based intervention
☐ j) Teacher stress reduction
☐ k) Referral/providing resources to teachers
☐ l) Consulting with parents/guardians
☐ m) Referral/providing resources to parents
☐ n) Securing parental consent for 1-1 intervention
☐ o) Direct child-level service provision
☐ p) Collaboration with center staff (i.e. director, cook)
☐ q) Collaboration with other on-site professionals (i.e. PRC, MHC, social worker, nurse, resource teacher) Who:
☐ r) Other: (explain)

(continued)

Appendix Figure B.1 (continued)

4. Goal

a. State the goal(s) for this visit
b. Who identified goals? **SELECT**

5. Techniques

(1) Select the Webster-Stratton techniques used during this visit.
(2) How did teacher rate the technique's effectiveness?
(3) How would you rate the teacher's success using the Webster-Stratton technique?

a. Work with parents

1) SELECT **2) SELECT** **3) SELECT**

Please explain any additional observations:

b. Build positive relationships with students

1) SELECT **2) SELECT** **3) SELECT**

Please explain any additional observations:

c. Proactive Teaching

1) SELECT **2) SELECT** **3) SELECT**

Please explain any additional observations:

d. Promote Positive Behavior
(teacher attention, encouragement and praise)

1) SELECT **2) SELECT** **3) SELECT**

Please explain any additional observations:

e. Using Incentives to Motivate Students

1) SELECT **2) SELECT** **3) SELECT**

Please explain any additional observations:

f. Managing Misbehavior (ignoring and redirecting)

1) SELECT **2) SELECT** **3) SELECT**

Please explain any additional observations:

g. Managing Misbehavior (consequences)

1) SELECT **2) SELECT** **3) SELECT**

Please explain any additional observations:

h. Teaching students to problem solve

1) SELECT **2) SELECT** **3) SELECT**

Please explain any additional observations:

(continued)

Appendix Figure B.1 (continued)

i. Peer problems and friendship skills

1) SELECT **2) SELECT** **3) SELECT**

Please explain any additional observations:

j. Handling Emotions

1) SELECT **2) SELECT** **3) SELECT**

Please explain any additional observations:

k. **1)** Were there other techniques used?

2) How did teacher rate the technique's effectiveness? **SELECT**

3) How would you rate the teacher's success using the Webster-Stratton technique? **SELECT**

6. Coaching Cycle

Did you and the teacher attempt any steps in the coaching cycle? **SELECT , SELECT, SELECT, SELECT, SELECT, SELECT**

Observation Notes:

7. CCC/Teacher

Discuss debriefing (any successes/issues/concerns/challenges brought up by teachers)

8. Goal Attainment

Have the goal(s) of this visit been met? **SELECT**

Explain:

9. Plans for next visit

1. What goals does the teacher want to work on for the upcoming week?

2. Please describe the intervention(s) that you and the teacher will use to meet these goals

3. With the intervention, please describe the roles of the:
   - Teacher:
   - Teaching Assistant:
   - CCC:
   - PRC:
   - MHC (if NPSC only):
   - Resource teacher:
   - Others:

Clinical Classroom Consultant Signature: Date: / /

Appendix C

Supplemental Material for Chapter 4

Observed Ratings of Classroom Climate in FOL-Newark

Trained observers in the FOL-Newark classrooms assessed the emotional and instructional climates of the classrooms using CLASS (Classroom Assessment Scoring System).[1] Average scores across observers and across four cycles of observations on a single day were computed for each of the following dimensions. In each dimension, scores ranged from 1 (low) to 7 (high).

Positive Classroom Management

- **Positive climate** reflects the overall emotional tone of the classroom. Observers evaluate the relationships between teachers and students, positive affect or joint experiences of positive emotions (like group laughter), the degree of respect the teacher shows toward the students, and interactions among the students.

- **Negative climate** gauges the severity and intensity (duration) of both teacher- and peer-expressed negativity in the classroom. Negativity refers to sarcasm, anger, and disrespect by the teacher and arguing, aggression, and bullying by students.

- **Teacher sensitivity** measures the extent to which teachers comfort students, address students' needs (academic and emotional), and create age-appropriate activities. Observers evaluate whether a teacher effectively addresses student concerns and notices when they need assistance and whether the students feel comfortable enough to seek the teacher's support.

- **Behavior management** reflects a teacher's ability to prevent student misbehavior by setting clear expectations, using effective praise to reinforce positive behavior, and proactively monitoring and redirecting possible problems. Time taken to deal with behavioral issues and occurrences of misbehavior are also factors.

Quality of Language Instruction

- **Regard for student perspectives** gauges the degree to which a teacher prepared activities that support students' autonomy, expression of their ideas, taking on responsibilities, and socializing with peers. Teachers should be flexible during lessons by responding to student's ideas.

[1] LaParo and Pianta (2003).

- **Use of engaging teaching methods** focuses on the teacher's preparation of lessons and activities and the mode with which they deliver these activities. Teachers should use a variety of materials that promote exploration and actively question students.

- **Promoting understanding through conversation** assesses how a teacher phrases and uses feedback to promote understanding of a topic and not simply to express whether or not students provide the correct answer. Teachers should prolong student-initiated conversations in order to get the student to garner a greater understanding of a specific topic or give hints when necessary.

- **Encouragement of students' language use** measures the quality and amount of a teacher's use of language to stimulate and encourage student conversation and responses. Teachers should frequently converse with children using open-ended questions about students' responses and use of language that may be new to the students.

Time Management

- **Management of classroom time** measures the degree to which instructional time is effectively managed, including minimal down time, through lesson planning, use of classroom routines, and the teacher's ability to minimize disruptions. Management of classroom time also takes into account the amount of time spent making the transition between activities.

Observed Ratings of Child Behavior in FOL-Newark

The team in Newark assessed the extent to which children were engaged in classroom activities, using the dimensions described below and the same 1-to-7 scale that was used for the classroom observations.[2]

Problem Behavior

- **Teacher conflict** measures the magnitude, consistency, and build-up of the child's interactions with the teacher when they are characterized by tension, resistance, and negativity. The degree of verbal or physical ag-

[2]Downer et al. (2010); LaParo and Pianta (2003).

gression, noncompliance, negative affect, whining, and complaining directed toward the teacher is assessed.

- **Peer conflict** gauges the magnitude, consistency, and build-up of the child's interactions with his or her peers when they are characterized by tension, resistance and negativity. The degree of verbal or physical aggression, uncooperative behavior, negative affect, and whining and complaining, as well as whether the child sets children against one another, bullies, or is intrusive, are also evaluated.

Approach to Learning

- **Task engagement** measures the amount of time the child remained actively engaged, focused, and on task. Also evaluated are the child's ability to follow directions, enthusiasm for classroom tasks and activities, and his or her willingness to voluntarily participate in these tasks.

- **Task self-reliance** reflects the child's ability to seek out learning opportunities, work independently, and make the best use of classroom resources (including the teacher). The child's persistence during frustrating tasks and his or her ability to link concepts to personal experience are also assessed.

- **Task behavior control** measures the child's ability to regulate his or her movement, physical activity, and verbalizations so that they match the expectations of the classroom activity. This dimension also focuses on children's patience and ability to keep their hands to themselves and respect the personal space of others.

Positive Social Behavior

- **Teacher communication** reflects the child's communication with all adults. This includes children's ability to initiate and sustain conversations and their overall use of language to convey needs and emotions as well as to communicate socially and share opinions with teachers.

- **Teacher positive engagement** assesses the degree to which the child is emotionally connected to teachers. This can be expressed by seeking out and enjoying interactions with teachers and the child's proximity to adults during tasks, along with his or her display of shared positive emotions (for example, laughing, smiling) with teachers.

- **Peer communication** reflects the child's communication with his or her peers. Similar to teacher communication, this includes children's ability to initiate, join, and sustain conversations and their overall use of language to convey needs and emotions as well as to communicate socially and share opinions with their peers.

- **Peer sociability** measures the child's experiences of positive emotions and behaviors with peers. The child's desire to seek out and willingness to respond to interactions with his or her peers and the child's popularity are evaluated. Observers also assess the child's proximity to and conversation and eye contact with other children as well as his or her social awareness and ability to share.

- **Overall classroom student engagement** is the only student-focused dimension of the CLASS observations and captures students' focus and participation during activities, across all children in the classroom. A distinction is made between active and passive engagement and whether the engagement is sustained throughout the day.

Teacher-Reported Outcomes for Children

For all teacher-reported outcomes that are measured in this report, scores were computed if 75 percent or more of the scale's items were completed on the surveys.

Problem Behavior

- The Behavior Problem Index assessed children's externalizing (such as aggression) and internalizing (such as withdrawal) problem behavior. The measure determines the frequency, range, and type of childhood problem behavior for children age 4 and older.[3] Teachers are asked to rate each of 30 items according to how characteristic it was of the child on a 3-point scale ("not true," "sometimes true," "very true"). A total score was created by summing answers to the individual items. A 14-item **Externalizing Problems** subscale was created to assess the extent to which the child engaged in acting out and aggressive behaviors. A 14-item **Internalizing Problems** subscale assessed the extent to which the child was anxious or depressed. See Appendix Table C.1 for factor loadings and a list of all items.

[3]Zill and Petersen (1986).

- The **Attention Problems** subscale of the Caregiver-Teacher Report Form asked teachers to answer a series of questions about the child's behavior "now or within the past two months."[4] The 3-point scale allowed teachers to report whether behaviors (for example, fidgets, wanders away, or fails to carry out assigned tasks) occur often ("very true"), sometimes ("somewhat true"), or never ("not true"). The subscale score is an average of nonmissing items and scores ranging from 0 to 18 in this sample.

- Teachers' perceptions of conflict and closeness with children were assessed with the Student-Teacher Relationship Scale (STRS).[5] The **Teacher-Student Conflict** and **Teacher-Student Closeness** subscales (included in Positive Social Behavior, below) include a total of 15 items that use a 5-point Likert-type rating scale to assess a teacher's perceptions of his or her relationship with a child, a child's interactive behavior with the teacher, and a teacher's beliefs about the child's feelings toward the teacher.

Positive Social Behavior

- Teachers reported on a child's positive behavior in the classroom using the **Compliance with Teachers' Directives** (Compliance) and **Social Competence** (Social Competence and Sensitivity) subscales of the Positive Behavior Scale (PBS).[6] The teacher responds on a 5-point scale, ranging from 1 ("never") to 5 ("all of the time") for the 11-item Social Competence subscale (for example, gets along well with other children, shows concern for other people's feelings); and the 8-item Compliance with Teachers' Directives subscale (for example, thinks before he/she acts, usually does what I tell him/her). Reported scores are an average of nonmissing items.

Approach to Learning

- Teachers assessed children's task engagement using the 16-item **Work-Related Skills** subscale of the Cooper-Farran Behavioral Ratings Scale (CFBRS).[7] The full measure is designed for use by teachers in assessing

[4]Achenbach (1997).
[5]Pianta (2001).
[6]Quint, Bos, and Polit (1997).
[7]Cooper and Farran (1991).

classroom behavior, with teachers asked to report on children's behavior during classroom activities such as "designated work time," and has been used extensively with preschool-age and kindergarten-age children. Showing good predictive validity for children's later academic outcomes, the 7-point scale has descriptive phrases, which differ by item, to anchor responses to points. The scores shown for the Work-Related Skills subscale used in this report are an average, not standardized, score of nonmissing items.

Early Academic Skills

- Academic skills were assessed using the Academic Rating Scale (ARS).[8] The scale was designed to indirectly assess the process and products of children's learning in school. The 21 items are divided into three subscales: **General Knowledge** (five items), **Language and Literacy** (nine items), and **Mathematical Knowledge** (seven items). Teachers compare the target child with his or her peers on a 5-point scale, reflecting the degree ("not yet" to "shows proficiency") to which a child demonstrates skills, knowledge, and behaviors. Total and subscale scores were calculated as an average of nonmissing items.

Direct Assessments of Children's Approaches to Learning

Executive Functioning and Self-Regulation Tasks

- The **Head-to-Toes** measure consisted of 10 test trials in which children were asked to do the opposite of what the assessor did (for example, to touch his or her head when the assessor touched his or her toes). Children received two points for a correct response and one point if they initially started to respond incorrectly but self-corrected and ended in the correct position. Thus, scores ranged from 0 to 20, and in the FOL sample the average score was 5.5 (standard deviation = 6.8).

- The **Pencil Tap** measure is an adaptation of Luria's"peg tap" task.[9] The task asks the child to do the opposite of the assessor (for example, tap a pencil two times on a table when the assessor taps one time, or vice versa), and involves familiarization and practice segments in addition to test

[8]National Center for Education Statistics (n.d.).
[9]Luria (1966); Diamond and Taylor (1996).

trials. Pencil Tap scores range from 0 percent correct to 100 percent correct across 16 test trials (with children who do not proceed to test trials receiving a score of 0), and in the FOL sample the average score was 56 percent correct (standard deviation = 36 percent).

- The **Gift Wrap** measure was used to assess children's ability to inhibit their behavior.[10] Children were asked to turn around, to close their eyes, and to not "peek" while the assessor noisily wrapped a gift that the children were told they would get after the "wrapping" was complete. Scores represent the time in seconds until children peek, ranging from 0 (peeked immediately) to 60 seconds (never peeked), and in the FOL sample the average score was 38.4 seconds (standard deviation = 24.2).

Children's Assessment-Related Behavior

- The **Preschool Self-Regulation Interviewer Assessment (PSRA)** was used to measure children's attentiveness, inhibitory control, positive engagement, and negative emotionality during the assessments that observers administered to children. Assessors rated children on a scale of 1 to 4 over 26 items, and exploratory factor analyses identified the dimensions of attention, inhibitory control (16 items), and positive engagement (6 items).[11] See Appendix Table C.2 for factor loadings.

Direct Assessment of Non-Targeted Child Outcomes

Social Problem-Solving Skills

- The problem-solving portion of the **Challenging Situations Task** (CST) was used to measure children's behavioral responses to common peer-related conflict situations.[12] Children are presented with pictures that represent four hypothetical peer situations (for example, "You are building a tower with blocks and Bobbi came and knocked your tower down"), and are asked what they would do in such a situation. Children are presented with four pictures of behavioral responses (representing "prosocial," "aggressive," "avoidant," and "adult-dependent" responses) and asked to

[10]Kochanska et al. (1996).

[11]A fourth factor, negative emotionality (four items), was also identified but was not evaluated for the impacts of FOL.

[12]Denham, Bouril, and Belouad (1994).

choose one. Frequency counts for each behavioral response were calculated across the four situations, each with a possible range of 0 to 4. An adaptive problem-solving composite score was created by reverse-coding the aggressive and avoidant scores and adding these to the prosocial and adult-dependent scores, with scores ranging from 4 (more negative) to 12 (more positive).[13] The FOL-Chicago sample had a mean score of 8.84 and a standard deviation of 2.16.

Early Academic Skills

- The **Letter-Word Identification** and the **Applied Problems** subtests of the Woodcock Johnson Tests of Achievement III (WJ-III) assessed children's early math and early reading skills.[14] Raw scores were standardized using the WJ-III standardization software, which uses the child's age and raw score to determine a standardized score based on population norms. Standardized scores on WJ-III tests have a mean of 100 and a standard deviation of 15.

- The **Peabody Picture Vocabulary Test** (PPVT) measures receptive (hearing) vocabulary for Standard American English and provides a quick estimate of verbal ability or scholastic aptitude.[15] Using the PPVT Form IIIA, children are shown groups of four pictures and are asked to identify the picture that corresponds to a word they are told. Standardized scores are calculated based on a child's age and raw score. Standardized scores on PPVT tests have a mean of 100 and a standard deviation of 15.

[13]Domitrovich, Cortes, and Greenberg (2007).
[14]McGrew, Schrank, and Woodcock (2007).
[15]Dunn and Dunn (1997).

The Foundations of Learning Demonstration

Appendix Table C.1

Items and Factor Loadings for the Behavior Problems Index Subscales

Item in Total Scale	Factor Loading: Internalizing Behavior	Factor Loading: Externalizing Behavior
Is rather high-strung and nervous	0.4	
Is secretive, keeps things to himself/herself	0.6	
Worries too much	0.8	
Is too fearful or anxious	0.6	
Is easily confused, seems to be in a fog	0.4	
Feels worthless or inferior	0.6	
Has difficulty getting his/her mind off certain thoughts	0.5	
Is unhappy, sad, or depressed	0.7	
Is withdrawn, does not get involved with others	0.8	
Clings to adults	0.6	
Cries too much	0.6	
Demands a lot of attention	0.5	
Is too dependent on others	0.6	
Has sudden changes in mood or feeling[a]	0.3	0.5
Hangs around with kids who get in trouble		0.6
Cheats or tells lies		0.7
Argues too much		0.8
Has difficulty concentrating, cannot pay attention for long		0.5
Bullies or is cruel or mean to others		0.8
Is disobedient		0.9
Does not seem to feel sorry after he/she misbehaves		0.8
Has trouble getting along with other children		0.7
Is impulsive, or acts without thinking		0.8
Is not liked by other children		0.5
Is restless or overly active, cannot sit still		0.7
Is stubborn, sullen, or irritable		0.7
Has a very strong temper and loses it easily		0.8
Breaks things on purpose or deliberately destroys his/her own or another's things		0.7
Feels others are out to get him/her		
Feels or complains that no one loves him/her		
Cronbach coefficient alpha for scale	0.9	0.9

SOURCE: Based on MDRC calculations from responses to teacher survey.

NOTES: A promax rotation, two-factor structure was used to identify subscales. Only factor loadings greater than or equal to |.30| are shown, based on factor analysis. Factor loadings indicate items that were used to create the respective scales. Items were included on the factors on which they most highly loaded.

[a]This item was grouped with the Internalizing Behavior subscale based on theory.

The Foundations of Learning Demonstration

Appendix Table C.2

Items and Factor Loadings for the PSRA Assessor Reported Subscales

Item in Total Scale	Factor Loading: Attentiveness/ Inhibitory Control	Factor Loading: Positive Engagement
Pays attention	0.74	
Careful	0.72	
Sustains concentration	0.79	
Daydreams	-0.62	
Distracted by sights	-0.76	
Destructive with materials	-0.63	
Thinks and plans	0.83	
Refrains from touching	0.81	
Does not interrupt	0.82	
Difficulty waiting	-0.83	
Remains in seat	0.70	
Defiant	-0.71	
Passively noncompliant	-0.66	
Regulates arousal in self	0.75	
Aggressiveness aggregate 0-3	-0.35	
Cooperates and complies	0.52	
Alert and interactive		0.67
Actively engages interviewer		0.69
Shows pleasure in accomplishment		0.77
Confident		0.62
Shows intense positivity		0.76
Shows frequent positivity		0.75
Shows intense irritability		
Shows frequent irritability		
Shows intense apprehension		
Shows frequent apprehension		
Cronbach coefficient alpha for scale	0.94	0.86

SOURCE: Based on MDRC calculations from the interviewer assessment segment of the direct child assessment.

NOTES: A varimax rotation, three-factor structure was used to identify subscales. Only factor loadings greater than or equal to |.30| are shown, based on factor analysis. Factor loadings indicate items that were used to create the respective scales. Items were included on the factors on which they most highly loaded. A third subscale was not used in this report.

The Foundations of Learning Demonstration

Appendix Table C.3

Chicago Program Impacts on Teacher-Reported Child Outcomes, Pre-Kindergarten Year

Outcome	Mean Score: Program Group	Mean Score: Control Group	Difference (Impact)	Standard Error	Effect Size
Problem behavior					
Internalizing problems	2.5	1.5	1.0	0.6	0.4
Externalizing problems	5.9	5.0	0.8	1.3	0.15
Teacher-student conflict	12.9	13.2	-0.3	1.8	-0.05
Attention problems	4.8	4.2	0.6	1.7	0.13
Approaches to learning					
Work-related skills	4.8	4.9	-0.1	0.27	-0.09
Positive social behavior					
Compliance with teachers' directives	3.7	3.7	-0.1	0.21	-0.07
Social competence	3.7	3.8	-0.1	0.19	-0.20
Teacher-student closeness	34.5	34.6	-0.1	1.99	-0.02
Early academic skills					
Language and literacy skills	2.9	3.1	-0.2	0.37	-0.12
Math knowledge	2.7	2.8	-0.2	0.46	-0.12
Sample size					
Students	266	257			
Classrooms	20	20			

SOURCE: Based on MDRC calculations of teacher reports on children.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Regression-adjusted means control for random assignment status and pairs, site characteristics, and baseline child and teacher characteristics.

The effect size equals the impact divided by the standard deviation of the outcome measure for the control group.

"Internalizing problems" and "Externalizing problems" refer to subscales of the Behavior Problems Index. "Teacher-student conflict" and "Teacher-student closeness" refer to the Student-Teacher Relationship Scale conflict and closeness subscales. "Attention problems" refers to the Caregiver-Teacher Report Form attention problems subscale. "Work-related skills" refers to a subscale of the Cooper-Farran Behavioral Rating Scales. "Compliance with teachers' directives" and "Social competence" refer to the Positive Behavior Scale subscales. "Language and literacy skills" and "Math knowledge" refer to the subscales of the Academic Rating Scale.

The Foundations of Learning Demonstration

Appendix Table C.4

Chicago Program Impacts on Observed and Teacher Ratings of Child Outcomes, Pre-Kindergarten Year, by Age Range of Child

Outcome	3 Years Old and Younger					4 Years Old and Older					Subgroup Impact
	Mean Score					Mean Score					
	Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size	Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size	Difference (Sig.)
Assessments											
Positive engagment[a]	2.1	1.9	0.2	0.16	0.45	2.1	1.9	0.2	0.15	0.31	
Attentiveness/inhibitory control[b]	2.1	2.3	-0.1	0.21	-0.19	2.6	2.5	0.1	0.12	0.16	
Executive functioning											
Head to Toes (gross motor)[c]	4.0	2.2	1.8	1.62	0.39	8.1	5.7	2.4	2.40	0.36	
Pencil Tap (fine motor)[d]	0.4	0.4	0.0	0.10	0.07	0.6	0.6	0.0	0.11	0.00	
Gift Wrap (measured in seconds)	38.6	29.3	9.3	7.23	0.38	44.3	36.6	7.7	6.33	0.33	
Social problem-solving skills											
Adaptive problem-solving	8.6	8.8	-0.2	0.62	-0.09	8.8	8.9	-0.2	0.54	-0.08	
Early academic skills[e]											
Peabody Picture Vocabulary Test	87.8	80.6	7.2	7.09	0.48	84.3	82.3	2.0	7.03	0.13	
Woodcock Johnson											
Early math skills	107.3	96.2	11.1 **	3.66	0.81	95.7	94.0	1.7	3.72	0.18	†
Early language/literacy skills	107.8	102.5	5.3	4.17	0.32	99.4	97.7	1.6	2.95	0.15	
Teacher reports[f]											
Problem behaviors											
Internalizing problems	2.0	1.7	0.3	0.96	0.19	2.7	1.3	1.4 *	0.71	0.54	
Externalizing problems	5.1	4.8	0.3	2.20	0.06	6.0	5.2	0.7	1.58	0.13	
Teacher-student conflict	9.9	13.9	-4.0	3.42	-0.62	13.2	13.2	-0.1	1.81	-0.01	
Attention problems	4.4	5.4	-1.0	3.40	-0.18	4.0	3.5	0.5	1.48	0.11	
Approaches to learning											
Work-related skills	4.6	4.4	0.2	0.59	0.14	5.1	5.2	-0.1	0.31	-0.07	

(continued)

Appendix Table C.4 (continued)

Outcome	3 Years Old and Younger					4 Years Old and Older					Subgroup Impact
	Mean Score					Mean Score					
	Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size	Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size	Difference (Sig.)
Teacher reports											
Positive social behavior											
Compliance with teachers' directives	3.7	3.6	0.1	0.37	0.18	3.7	3.8	0.0	0.24	-0.06	
Social competence	4.1	3.6	0.5	0.40	0.82	3.8	3.9	-0.1	0.23	-0.19	
Teacher-student closeness	37.6	33.5	4.1	4.66	0.75	34.8	34.9	-0.1	1.64	-0.03	
Early academic skills											
Language and literacy skills	2.2	2.5	-0.3	0.68	-0.25	3.2	3.4	-0.2	0.45	-0.15	
Math knowledge	1.9	2.3	-0.5	0.71	-0.49	3.0	3.1	-0.1	0.63	-0.04	
Sample size											
Observations of students	61	54				92	97				
Teacher reports on students	113	92				152	165				
Classrooms	20	20				20	20				

SOURCES: Based on MDRC calculations of child assessments and teacher reports.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent. The effect size equals the impact divided by the standard deviation of the outcome measure for the control group. The H-statistic test was used to test for statistically significant differences in impact estimates across different subgroups. Statistical significance levels are indicated as follows: ††† = 1 percent; †† = 5 percent; † = 10 percent.

Regression-adjusted means control for random assignment status and pairs, site characteristics, and baseline child and teacher characteristics.

[a]This outcome is an average score of 6 items on a scale of 1 to 4.

[b]This oucome represents an average score of 16 items on a scale of 1 to 4.

[c]Scores on this measure may range from 0 to 20, with 0 representing no success and 20 representing success across the task's 10 trials.

[d]Scores reflect the percentage of correct responses across the task's 16 trials.

[e]All test scores are standardized, based on child's age and raw score, with a mean of 100 and a standard deviation of 15.

[f]"Internalizing problems" and "Externalizing problems" refer to the subscales of the Behavior Problems Index. "Teacher-student conflict" and "Teacher-student closeness" refer to the Student-Teacher Relationship Scale conflict and closeness subscales. "Attention problems" refers to the Caregiver-Teacher Report Form attention problems subscale. "Work-related skills" refers to the Cooper-Farran Behavioral Rating Scales. "Compliance with teachers' directives" and "Social competence" refer to the Positive Behavior Scale compliance and social competence subscales. "Language and literacy skills" and "Math knowledge" refer to the subscales of the Academic Rating Scale.

The Foundations of Learning Demonstration

Appendix Table C.5

Chicago Program Impacts on Observed and Teacher Ratings of Child Outcomes, Pre-Kindergarten Year, by Child's Level of Behavior Problem

	Low					High					Subgroup Impact
	Mean Score					Mean Score					
Outcome	Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size	Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size	Difference (Sig.)
Assessments											
Positive engagment[a]	2.1	1.8	0.30	0.30	0.50	2.0	2.0	-0.01	0.19	-0.02	
Attentiveness/inhibitory control[b]	2.5	2.6	-0.01	0.14	-0.02	2.4	2.3	0.13	0.18	0.23	
Executive functioning											
Head to Toes (gross motor)[c]	8.6	5.3	3.23	1.91	0.46	5.9	3.8	2.13	2.22	0.37	
Pencil Tap (fine motor)[d]	0.7	0.6	0.13	0.08	0.37	0.5	0.6	-0.14	0.11	-0.41	†
Gift Wrap (measured in seconds)	48.1	39.2	8.90	5.55	0.36	38.7	30.0	8.75	7.98	0.36	
Social problem-solving skills											
Adaptive problem-solving	8.9	8.9	-0.03	0.60	-0.02	8.7	9.0	-0.34	0.68	-0.15	
Early academic skills[e]											
Peabody Picture Vocabulary Test	90.1	83.4	6.71	6.11	0.39	81.3	86.8	-5.43	6.14	-0.47	
Woodcock Johnson											
Early math knowledge	103.3	95.1	8.20 *	3.88	0.58	96.6	93.1	3.50	2.63	0.47	
Early language/literacy skills	103.9	102.5	1.41	3.47	0.09	98.6	96.6	2.01	3.28	0.21	
Teacher reports[f]											
Problem behaviors											
Internalizing problems	1.1	1.1	-0.06	0.47	-0.03	4.0	2.4	1.64	1.29	0.57	
Externalizing problems	2.2	2.7	-0.54	1.18	-0.13	10.0	8.5	1.49	2.89	0.23	
Teacher-student conflict	9.6	10.6	-1.08	1.80	-0.21	16.3	17.8	-1.50	2.75	-0.22	
Attention problems	2.5	3.1	-0.66	2.06	-0.13	5.5	5.8	-0.27	2.03	-0.06	
Approaches to learning											
Work-related skills	5.3	5.3	-0.01	0.32	-0.01	4.3	4.5	-0.19	0.43	-0.17	

(continued)

Appendix Table C.5 (continued)

Outcome	Low					High					Subgroup Impact
	Mean Score					Mean Score					
	Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size	Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size	Difference (Sig.)
Teacher reports											
Positive social behavior											
Compliance with teachers' directives	4.0	3.9	0.08	0.21	0.13	3.4	3.5	-0.08	0.27	-0.12	
Social competence	4.0	4.0	-0.04	0.23	-0.08	3.5	3.7	-0.11	0.25	-0.20	
Teacher-student closeness	35.8	35.1	0.71	1.99	0.14	33.2	34.3	-1.16	2.51	-0.22	
Early academic skills											
Language and literacy skills	3.2	3.1	0.18	0.50	0.13	2.7	3.2	-0.52	0.43	-0.45	
Math knowledge	2.9	3.0	-0.03	0.56	-0.02	2.5	3.0	-0.49	0.44	-0.40	
Sample size											
Observations of students	70	61				77	69				
Teacher reports on students	127	103				119	97				
Classrooms	20	20				20	20				

SOURCES: Based on MDRC calculations of child assessments and teacher reports.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent. The effect size equals the impact divided by the standard deviation of the outcome measure for the control group. The H-statistic test was used to test for statistically significant differences in impact estimates across different subgroups. Statistical significance levels are indicated as follows: ††† = 1 percent; †† = 5 percent; † = 10 percent.

Regression-adjusted means control for random assignment status and pairs, site characteristics, and baseline child and teacher characteristics.

[a]This outcome is an average score of 6 items on a scale of 1 to 4.

[b]This oucome represents an average score of 16 items on a scale of 1 to 4.

[c]Scores on this measure may range from 0 to 20, with 0 representing no success and 20 representing success across the task's 10 trials.

[d]Scores reflect the percentage of correct responses across the task's 16 trials.

[e]All test scores are standardized, based on child's age and raw score, with a mean of 100 and a standard deviation of 15.

[f]"Internalizing problems" and "Externalizing problems" refer to the subscales of the Behavior Problems Index. "Teacher-student conflict" and "Teacher-student closeness" refer to the Student-Teacher Relationship Scale conflict and closeness subscales. "Attention problems" refers to the Caregiver-Teacher Report Form attention problems subscale. "Work-related skills" refers to the Cooper-Farran Behavioral Rating Scales. "Compliance with teachers' directives" and "Social competence" refer to the Positive Behavior Scale compliance and social competence subscales. "Language and literacy skills" and "Math knowledge" refer to the subscales of the Academic Rating Scale.

Appendix Table C.6

Chicago Program Impacts on Observed and Teacher Ratings of Child Outcomes, Pre-Kindergarten Year, by Child's Gender

Outcome	Girl					Boy					Subgroup Impact
	Mean Score					Mean Score					
	Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size	Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size	Difference (Sig.)
Assessments											
Positive engagment[a]	2.2	1.9	0.4	0.21	0.70	1.9	1.8	0.1	0.15	0.22	
Attentiveness/inhibitory control[b]	2.4	2.5	-0.1	0.15	-0.19	2.5	2.3	0.2	0.16	0.32	
Executive functioning											
Head to Toes (gross motor)[c]	8.0	2.7	5.3 **	1.65	0.90	6.0	5.3	0.7	2.00	0.10	†
Pencil Tap (fine motor)[d]	0.5	0.6	-0.1	0.10	-0.17	0.6	0.5	0.1	0.08	0.25	
Gift Wrap (measured in seconds)	48.9	39.1	9.8	6.86	0.41	35.6	30.0	5.6	5.75	0.22	
Social problem-solving skills											
Adaptive problem-solving	9.1	8.7	0.4	0.61	0.17	8.7	8.8	-0.1	0.51	-0.05	
Early academic skills[e]											
Peabody Picture Vocabulary Test	87.2	77.7	9.5 *	4.77	0.57	84.2	84.1	0.1	6.48	0.01	
Woodcock Johnson											
Early math skills	99.8	92.9	6.8 *	3.29	0.64	99.4	94.6	4.8	3.19	0.41	
Early language/literacy skills	102.8	98.5	4.3	3.43	0.37	100.0	99.0	1.0	4.02	0.07	
Teacher reports[f]											
Problem behaviors											
Internalizing problems	2.5	1.2	1.3 *	0.67	0.66	2.7	1.8	0.9	0.87	0.35	
Externalizing problems	5.2	3.8	1.4	1.27	0.31	6.3	6.8	-0.5	2.10	-0.07	
Teacher-student conflict	11.7	12.2	-0.5	2.12	-0.09	13.9	14.5	-0.6	2.22	-0.09	
Attention problems	3.9	3.1	0.8	1.97	0.16	5.3	5.1	0.3	1.69	0.05	
Approaches to learning											
Work-related skills	5.1	5.2	-0.1	0.30	-0.05	4.4	4.5	-0.1	0.34	-0.10	
Positive social behavior											
Compliance with teachers' directives	3.8	3.9	-0.1	0.26	-0.12	3.6	3.5	0.1	0.23	0.08	
Social competence	3.9	4.0	-0.1	0.21	-0.29	3.6	3.6	0.0	0.23	-0.02	
Teacher-student closeness	36.5	35.6	1.0	2.02	0.20	32.9	33.8	-0.9	2.37	-0.17	

(continued)

Appendix Table C.6 (continued)

Outcome	Girl Mean Score Program Group	Girl Mean Score Control Group	Girl Difference (Impact)	Girl Standard Error	Girl Effect Size	Boy Mean Score Program Group	Boy Mean Score Control Group	Boy Difference (Impact)	Boy Standard Error	Boy Effect Size	Subgroup Impact Difference (Sig.)
Teacher reports											
Early academic skills											
Language and literacy skills	3.2	3.1	0.1	0.42	0.08	2.6	3.1	-0.5	0.40	-0.37	
Math knowledge	2.9	2.9	0.0	0.54	-0.04	2.4	2.8	-0.4	0.41	-0.33	
Sample size											
Observations of students	76	68				78	81				
Teacher reports on students	140	122				124	133				
Classrooms	20	20				20	20				

SOURCES: Based on MDRC calculations of child assessments and teacher reports.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent. The effect size equals the impact divided by the standard deviation of the outcome measure for the control group. The H-statistic test was used to test for statistically significant differences in impact estimates across different subgroups. Statistical significance levels are indicated as follows: ††† = 1 percent; †† = 5 percent; † = 10 percent.

Regression-adjusted means control for random assignment status and pairs, site characteristics, and baseline child and teacher characteristics.

[a]This outcome is an average score of 6 items on a scale of 1 to 4.

[b]This oucome represents an average score of 16 items on a scale of 1 to 4.

[c]Scores on this measure may range from 0 to 20, with 0 representing no success and 20 representing success across the task's 10 trials.

[d]Scores reflect the percentage of correct responses across the task's 16 trials.

[e]All test scores are standardized, based on child's age and raw score, with a mean of 100 and a standard deviation of 15.

[f]"Internalizing problems" and "Externalizing problems" refer to the subscales of the Behavior Problems Index. "Teacher-student conflict" and "Teacher-student closeness" refer to the Student-Teacher Relationship Scale conflict and closeness subscales. "Attention problems" refers to the Caregiver-Teacher Report Form attention problems subscale. "Work-related skills" refers to the Cooper-Farran Behavioral Rating Scales. "Compliance with teachers' directives" and "Social competence" refer to the Positive Behavior Scale compliance and social competence subscales. "Language and literacy skills" and "Math knowledge" refer to the subscales of the Academic Rating Scale.

The Foundations of Learning Demonstration

Appendix Table C.7

Newark Program Impacts on Observed and Teacher Ratings of Child Outcomes, Pre-Kindergarten Year, by Race/Ethnicity of Child

Outcome	African-American, Not Hispanic					Hispanic					Subgroup Impact Difference (Sig.)
	Mean Score					Mean Score					
	Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size	Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size	
Observations[a]											
Problem behavior											
Teacher conflict	1.3	1.5	-0.2	0.1	-0.43	1.2	1.5	-0.3	0.2	-0.37	
Peer conflict	1.4	1.8	-0.4 **	0.2	-0.46	1.4	1.7	-0.3 *	0.2	-0.48	
Positive social behavior											
Teacher communication	2.2	2.2	0.1	0.2	0.07	2.3	2.5	-0.2	0.2	-0.27	
Teacher positive engagement	3.4	3.3	0.1	0.3	0.15	2.9	3.6	-0.7 **	0.2	-0.86	††
Peer communication	2.8	2.7	0.1	0.2	0.11	2.5	2.9	-0.3	0.3	-0.37	
Peer sociability	3.7	3.7	0.0	0.2	0.01	3.2	3.7	-0.6 **	0.2	-0.64	†
Peer assertiveness	2.4	2.3	0.1	0.2	0.07	1.9	2.6	-0.7 *	0.3	-0.69	†
Approach to learning											
Task engagement	4.9	4.7	0.2	0.2	0.21	5.0	4.8	0.2	0.2	0.21	
Task self-reliance	3.1	3.1	0.0	0.3	0.00	3.1	3.4	-0.3	0.3	-0.29	
Task behavior control	5.4	5.0	0.4	0.3	0.41	5.3	5.1	0.2	0.3	0.22	
Teacher reports[b]											
Problem behavior											
Internalizing problems	3.5	2.4	1.2	0.8	0.38	2.4	2.8	-0.3	1.2	-0.08	
Externalizing problems	4.6	4.1	0.5	1.2	0.09	4.2	4.2	0.0	0.9	0.00	
Teacher-student conflict	12.1	11.6	0.5	1.5	0.08	12.4	12.9	-0.5	1.2	-0.09	
Positive social behavior											
Social competence	4.0	3.9	0.1	0.1	0.15	4.0	4.0	-0.1	0.2	-0.10	
Teacher-student closeness	34.8	36.2	-1.4	1.3	-0.23	34.5	35.6	-1.1	1.1	-0.30	

(continued)

Appendix Table C.7 (continued)

Outcome	African-American, Not Hispanic					Hispanic					Subgroup Impact Difference (Sig.)
	Mean Score					Mean Score					
	Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size	Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size	
Teacher reports (continued)[b]											
Approach to learning											
Work-related skills	4.7	4.7	-0.1	0.1	-0.07	4.9	4.8	0.2	0.2	0.14	
Pre-academic skills											
Language and literacy skills	33.1	30.6	2.4	2.7	0.25	36.3	34.0	2.3	2.1	0.29	
Math knowledge	24.6	23.3	1.3	2.3	0.17	27.6	26.0	1.6	2.4	0.24	
Sample size											
Observations of students	54	51				40	31				
Teacher reports on students	124	126				89	77				
Classrooms[c]	26	25				26	25				

SOURCES: Based on MDRC calculations of Individualized Classroom Assessment Scoring System (inCLASS) observations in April-May 2008 and on responses to teacher survey.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent. The H-statistic test was used to test for statistically significant differences in impact estimates across different subgroups. Statistical significance levels are indicated as follows: ††† = 1 percent; †† = 5 percent; † = 10 percent.

Regression-adjusted means control for random assignment status and blocking, baseline Classroom Assessment Scoring System (CLASS) measures, and baseline child characteristics. Teacher-reported outcomes control for the student's baseline score on a given measure, when available. These include baseline measures for the Cooper-Farran Behavioral Rating Scales, the Behavior Problems Index (BPI), and the Positive Behavior Scale.

The effect size equals the impact divided by the standard deviation of the outcome measure for the control group.

[a]For each observed inCLASS dimension, observers rated children on a scale from 1 to 7, with 1 representing "low" and 7 representing "high."

[b]"Internalizing problems" and "Externalizing problems" refer to the internalizing and externalizing subscales of the BPI. "Teacher-student conflict" and "Teacher-student closeness" refer to the conflict and closeness subscales of the Student-Teacher Relationship Scale. "Social competence" refers to the social competence subscale of the Positive Behavior Scale. "Work-related skills" refers to the work-related skills subscale of the Cooper-Farran Behavioral Rating Scales. "Language and literacy skills" and "Math knowledge" refer to the language and literacy and math knowledge subscales of the Academic Rating Scale.

[c]For teacher-reported outcomes, the sample size is 23 for the control group classrooms.

The Foundations of Learning Demonstration

Appendix Table C.8

Newark Program Impacts on Observed and Teacher Ratings of Child Outcomes, by Child's Level of Behavior Problems

Outcome	Low					High					Subgroup Impact Difference (Sig.)
	Mean Score					Mean Score					
	Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size	Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size	
Observations[a]											
Problem behavior											
Teacher conflict	1.3	1.3	0.0	0.1	0.04	1.4	1.6	-0.2	0.1	-0.40	
Peer conflict	1.5	1.5	0.0	0.2	-0.06	1.5	1.8	-0.3 **	0.1	-0.51	
Positive social behavior											
Teacher communication	2.1	2.5	-0.4 *	0.2	-0.47	2.3	2.3	0.0	0.2	-0.01	
Teacher positive engagement	3.1	3.5	-0.4	0.2	-0.46	3.2	3.3	-0.1	0.3	-0.13	
Peer communication	2.6	2.6	0.0	0.3	-0.05	2.5	2.6	-0.1	0.2	-0.18	
Peer sociability	3.5	3.7	-0.2	0.2	-0.24	3.4	3.6	-0.2	0.2	-0.23	
Peer assertiveness	2.0	2.3	-0.3	0.4	-0.29	2.2	2.2	-0.1	0.2	-0.09	
Approach to learning											
Task engagement	4.9	4.8	0.2	0.2	0.19	4.8	4.6	0.2	0.2	0.27	
Task self-reliance	2.9	3.1	-0.1	0.4	-0.09	3.1	3.2	-0.1	0.3	-0.08	
Task behavior control	5.6	5.2	0.3	0.3	0.36	5.1	4.8	0.3	0.2	0.35	
Teacher reports[b]											
Problem behavior											
Internalizing problems	1.6	1.2	0.4	0.5	0.18	4.0	2.6	1.4	1.1	0.39	
Externalizing problems	1.7	1.7	0.0	0.6	-0.01	6.9	5.2	1.7	1.3	0.28	
Teacher-student conflict	9.6	10.0	-0.4	0.9	-0.10	15.3	13.5	1.9	1.4	0.26	
Positive social behavior											
Social competence	4.3	4.2	0.1	0.2	0.09	3.7	3.8	0.0	0.1	-0.06	
Teacher-student closeness	35.8	35.8	0.0	1.1	0.01	33.5	35.9	-2.4 *	1.2	-0.39	

(continued)

Appendix Table C.8 (continued)

Outcome	Low					High					Subgroup Impact Difference (Sig.)
	Mean Score					Mean Score					
	Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size	Program Group	Control Group	Difference (Impact)	Standard Error	Effect Size	
Teacher reports (continued)[b]											
Approach to learning											
Work-related skills	5.1	5.2	-0.1	0.2	-0.09	4.5	4.6	-0.1	0.2	-0.08	
Preacademic skills											
Language and literacy skills	36.1	34.9	1.2	1.7	0.13	32.8	32.5	0.3	2.0	0.03	
Math knowledge	26.7	27.3	-0.6	1.8	-0.08	23.8	25.3	-1.5	1.9	-0.21	
Sample size											
Observations of students	50	40				58	38				
Teacher reports on students	125	94				128	100				
Classrooms[c]	26	25				26	25				

SOURCES: Based on MDRC calculations of classroom observations in April-May 2008 and responses to teacher survey.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent. The H-statistic test was used to test for statistically significant differences in impact estimates across different subgroups. Statistical significance levels are indicated as follows: ††† = 1 percent; †† = 5 percent; † = 10 percent. The effect size equals the impact divided by the standard deviation of the outcome measure for the control group. Regression-adjusted means control for random assignment status and blocking, baseline Classroom Assessment Scoring System (CLASS) measures, and baseline child characteristics.

This subgroup was created by calculating a median split of baseline teacher-reported BPI scores across the entire sample. BPI scores higher than a 4 fall into the "high" category. Baseline BPI scores were not available for all children.

[a]For each observed Individualized Classroom Assessment Scoring System (inCLASS) dimension, observers rated children on a scale from 1 to 7, with 1 representing "low" and 7 representing "high."

[b]Teacher-reported outcomes control for the student's baseline score on a given measure, when available. These include baseline measures for the Cooper-Farran Behavioral Rating Scales, the Behavior Problems Index (BPI), and the Positive Behavior Scale.

"Internalizing problems" and "Externalizing problems" refer to the internalizing and externalizing subscales of the BPI. "Teacher-student conflict" and "Teacher-student closeness" refer to the Student-Teacher Relationship Scale conflict and closeness subscales. "Attention problems" refers to the Caregiver-Teacher Report Form attention problems subscale. "Compliance with teachers' directives" and "Social competence" refer to the Positive Behavior Scale compliance and social competence subscales. "Work-related skills" refers to the Cooper-Farran Behavioral Rating Scales work-related skills subscale. "Language and literacy skills" and "Math knowledge" refer to the subscales of the Academic Rating Scale.

[c]For teacher-reported outcomes, the sample size is 23 for the control group classrooms.

The Foundations of Learning Demonstration

Appendix Table C.9

Newark Program Impacts on Teacher-Reported Child Outcomes, Kindergarten Year

Outcome	Mean Score: Program Group	Mean Score: Control Group	Difference (Impact)	Standard Error	Effect Size
Problem behavior[a]					
Internalizing problems	3.2	2.4	0.8 *	0.4	0.2
Externalizing problems	4.7	3.8	1.0 *	0.6	0.2
Teacher-student conflict	12.3	11.5	0.8	0.7	0.1
Attention problems	4.4	4.3	0.1	0.5	0.0
Positive social behavior[b]					
Compliance with teachers' directives	4.0	4.0	-0.1	0.1	-0.1
Social competence	4.0	4.0	0.0	0.1	0.0
Teacher-student closeness	33.1	33.9	-0.8	0.6	-0.1
Approach to learning					
Work-related skills[c]	4.8	4.9	0.0	0.1	0.0
Academic skills[d]					
Language and literacy skills	3.8	3.7	0.0	0.1	0.0
Math knowledge	3.8	3.8	0.0	0.1	0.0
General knowledge	3.8	3.9	0.0	0.1	0.0
Sample size	259	230			

SOURCE: Based on MDRC calculations from responses to teacher survey.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Regression-adjusted means control for random assignment status and blocking, baseline Classroom Assessment Scoring System (CLASS) measures, and baseline child characteristics.

Controls for the child's baseline score on a given measure are also included, when available. These include baseline measures for the Cooper-Farran Behavioral Rating Scales, the Behavior Problems Index (BPI), and the Positive Behavior Scale.

The effect size equals the impact divided by the standard deviation of the outcome measure for the control group.

[a]"Internalizing problems" and "Externalizing problems" refer to the internalizing and externalizing subscales of the BPI. "Teacher-student conflict" refers to the Student-Teacher Relationship Scale (STRS) conflict subscale. "Attention problems" refers to the Caregiver-Teacher Report Form attention problems subscale.

[b]"Compliance with teachers' directives" and "Social competence" refer to the Positive Behavior Scale compliance and social competence subscales. "Teacher-student closeness" refers to the closeness of the STRS.

[c]"Work-related skills" refers to the Cooper-Farran Behavioral Rating Scales work-related skills subscale.

[d]"Language and literacy skills," "Math knowledge," and "General knowledge" refer to the subscales of the Academic Rating Scale.

The Foundations of Learning Demonstration

Appendix Table C.10

Chicago Program Impacts on Child Outcomes, Kindergarten Year, by Level of School Quality

	Schools with Lower Test Scores					Schools with Higher Test Scores					Subgroup
Outcome	Program Group Mean	Control Group Mean	Difference (Impact)	Standard Error	Effect Size	Program Group Mean	Control Group Mean	Difference (Impact)	Standard Error	Effect Size	Impact Difference (Sig.)
Early literacy standardized score[a]	0.0	0.1	-0.2	0.21	-0.23	-0.1	-0.2	0.1	0.30	0.09	
Recommended for intensive instructional support (%)	13.6	17.7	-4.2	7.93	-0.15	15.5	7.6	7.9	13.13	0.24	
Poor attendance[b] (%)	19.9	19.2	0.8	10.47	0.02	17.9	8.5	9.5	13.08	0.29	
Disability (%)											
Social-emotional disorder[c]	-0.9	2.2	-3.1	2.80	-0.19	—	—	—	—	—	
Social-emotional or learning disability	1.8	6.5	-4.7	5.66	-0.18	7.8	-5.9	13.7 *	6.17	0.66	††
Sample size	72	71				48	45				

SOURCE: Based on MDRC calculations from Chicago Public School student records.

NOTES: Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent. The effect size equals the impact divided by the standard deviation of the outcome measure for the control group. The H-statistic test was used to test for statistically significant differences in impact estimates across different subgroups. Statistical significance levels are indicated as follows: ††† = 1 percent; †† = 5 percent; † = 10 percent.

Regression-adjusted means control for random assignment status, matched pairs, and baseline child characteristics. Schools with higher test scores have 60 percent or more of the school's students meeting or exceeding Illinois Standard Achievement Test (ISAT) reading expectations and 70 percent or more of the school's students meeting or exceeding ISAT math expectations.

[a]Scores from the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) are presented as standardized scores with a mean of 0 and a standard deviation of 1.

[b]"Poor attendance" means that the child was absent 10 percent of the time or more during the school year (measured in days).

[c]Information for social-emotional disorders for schools with higher test scores are represented as long dashes (—) because there were no children with social-emotional disorders in those classrooms.

Appendix D

Supplemental Table for Cost Analysis

The Foundations of Learning Demonstration

Appendix Table D.1

Estimated FOL Program Costs, Newark and Chicago

Component	Total Cost		Cost per Classroom		Cost per Student	
	Newark	Chicago	Newark	Chicago	Newark	Chicago
Teacher trainings ($)	132,560	109,956	5,098	5,498	340	275
Trainer fees and travel costs	38,291	38,012	1,473	1,901	98	95
Lead teacher payments	35,832	25,610	1,378	1,280	92	64
Assistant teacher payments	17,374	11,925	668	596	45	30
Clinical classroom consultant payments	12,101	7,488	465	374	31	19
Child care payments	3,044	7,745	117	387	8	19
Incredible Years book	2,068	1,516	80	76	5	4
Location rental and catering	20,461	17,007	787	850	52	43
Other expenses[a]	3,390	653	130	33	9	2
Clinical classroom consultations ($)	507,638	534,429	19,525	26,721	1,302	1,336
Clinical classroom consultant salaries[b]	307,625	258,593	11,832	12,930	789	646
Administration and supervision[b]	88,638	152,959	3,409	7,648	227	382
Unemployment[b]	9,015	0	347	—	23	—
Stress management workshop[c]	4,531	998	174	50	12	2
Clinical classroom consultant orientation	1,772	1,643	68	82	5	4
Other expenses[b]	96,057	120,236	3,694	6,012	246	301
Support for the intervention ($)						
Technical assistance[d]	58,501	53,290	2,250	2,665	150	133
Total expenditures for all components[e] ($)	698,699	697,675	26,873	34,884	1,792	1,744

(continued)

Appendix Table D.1 (continued)

SOURCES: MDRC calculations based on fiscal and budget data.

NOTES: Costs are shown for 26 classrooms in Newark with an average of 15 students per classroom, and 20 classrooms in Chicago with an average of 20 students per classroom. All costs are shown in 2010 dollars.

[a]Other expenses cover additional supplies purchased for training sessions.

[b]The agency used in Newark was Family Connections; the agency used in Chicago was the Institute for Positive Child and Family Development. The numbers for the Institute for Positive Child and Family Development come from the initial budget provided to MDRC. The Institute did not provide a final accurate list of expenditures.

[c]Includes catering, payment for teachers, an incentive for teachers to attend (Newark only), and additional supplies. Workshops were held at individual preschool centers.

[d]Technical assistance was provided by MDRC.

[e]Total expenditures include all teacher training expenditures, classroom consultant expenditures, and MDRC management.

References

Achenbach, Thomas M. 1997. "Caregiver-Teacher Report Form (C-TRF)." Achenbach System of Empirically Based Assessment (ASEBA). Burlington: University of Vermont.

Alkon, Abbey, Malia Ramler, and Katharine MacLennan. 2003. "Evaluation of Mental Health Consultation in Child Care Centers." *Early Childhood Education Journal* 31, 2: 91-99.

Aos, Steve, Elizabeth Drake, Annie Pennucci, Marna Miller, Laurie Anderson. 2012. *Return on Investment: Evidence-Based Options to Improve Statewise Outcomes, April 2012 Update.* Olympia, WA: Washington State Institute for Public Policy.

Aos, Steve, Roxanne Lieb, Jim Mayfield, Marna Miller, and Annie Pennucci. 2004. *Benefits and Costs of Prevention and Early Intervention Programs for Youth*. Olympia, WA: Washington State Institute for Public Policy.

Arnold, David H., Lorette McWilliams, and Elizabeth H. Arnold. 1998. "Teacher Discipline and Child Misbehavior in Day Care: Untangling Causality with Correlational Data." *Developmental Psychology* 34: 276–287.

August, Gerald J., Elizabeth A. Egan, George M. Realmuto, and Joel M. Hektner. 2003. "Parceling Component Effects of a Multifaceted Prevention Program for Disruptive Elementary School Children." *Journal of Abnormal Child Psychology* 31, 5: 515-527.

August, Gerald J., George M. Realmuto, Joel M. Hektner, and Michael L. Bloomquist. 2001. "An Integrated Components Preventive Intervention for Aggressive Elementary School Children: The "Early Risers" Program." *Journal of Consulting and Clinical Psychology* 69, 4: 614-626.

Barnett, W. Steven. 2003. "Preschool Policy Matters: Low Wages = Low Quality." *National Institute for Early Education Research* 3.

Barnett, W. Steven, Dale J. Epstein, Megan Carolan, Jen Fitzgerald, Debra J. Ackerman, and Allison H. Friedman. 2010. *The State of Preschool 2010.* New Brunswick, NJ: National Institute for Early Education Research.

Barnett, W. Steven, Kwanghee Jung, Donald J. Yarosz, Jessica Thomas, Amy Hornbeck, Robert Stechuk, and Susan Burns. 2008. "Educational Effects of the Tools of the Mind Curriculum: A Randomized Trial." *Early Childhood Research Quarterly* 23: 299-313.

Beebe-Frankenberger, Margaret, Kathleen M. Bocian, Donald L. MacMillan, and Frank M. Gresham. 2004. "Sorting Second-Grade Students: Differentiating Those Retained From Those Promoted." *Journal of Educational Psychology* 96, 2: 204-215.

Belfield, Clive R., Milagros Nores, W. Steven Barnett, and Lawrence Schweinhart. 2006. "The High/Scope Perry Preschool Program: Cost-Benefit Analysis Using Data from the Age-40 Followup." *Journal of Human Resources* 41, 1: 162-190.

Bierman, Karen L., Celene E. Domitrovich, Robert L. Nix, Scott D. Gest, Janet A. Welsh, Mark T. Greenberg, Clancy Blair, Keith E. Nelson, and Suhkdeep Gill. 2008. "Promoting Academic and Social-Emotional School Readiness: The Head Start REDI Program." *Child Development* 79, 6: 1802-1817.

Blair, Clancy, and Adele Diamond. 2008. "Biological Processes in Prevention and Intervention: The Promotion of Self-Regulation as a Means of Preventing School Failure." *Developmental Psychopathology* 20, 3: 899-911.

Blair, Clancy, Doug Granger, and Rachel P. Razza. 2005. "Cortisol Reactivity Is Positively Related to Executive Function in Preschool Children Attending Head Start." *Child Development* 76: 554-567.

Blair, Clancy, and Rachel Peters Razza. 2007. "Relating Effortful Control, Executive Function, and False Belief Understanding to Emerging Math and Literacy Ability in Kindergarten." *Child Development* 78, 2: 647-663.

Bohn, Catherine M., Alysia D. Roehrig, and Michael Pressley. 2004. "The First Days of School in Effective and Less Effective Primary-Grades Classrooms." *Elementary School Journal* 104: 269-287.

Bowman, Barbara T., M. Suzanne Donovan, and M. M. Susan Burns. 2001. *Eager to Learn: Educating our Preschoolers.* Washington, DC: National Academies Press.

Brotman, Laurie Miller, Kathleen Kiely Gouley, Daniel Chesir-Teran, Tracy Dennis, Rachel G. Klein, and Patrick Shrout. 2005. "Prevention for Preschoolers at High Risk for Conduct Problems: Immediate Outcomes on Parenting Practices and Child Social Competence." *Journal of Clinical Child and Adolescent Psychology* 34, 4: 724-734.

Chambers, Jay G., Yael Kidron, and Angeline K. Spain. 2004. *Characteristics of High-Expenditure Students with Disabilities, 1999–2000*. Washington, DC: American Institutes for Research.

Cohen, Mark A., and Alex R. Piquero. 2009. "New Evidence on the Monetary Value of Saving a High Risk Youth." *Journal of Quantitative Criminology* 25: 25-49.

Conyers, Liza M., Arthur J. Reynolds, and Suh-Ruu Ou. 2003. "The Effect of Early Childhood Intervention and Subsequent Special Education Services: Findings from the Chicago Child-Parent Centers." *Educational Evaluation and Policy Analysis,* 25, 1: 75-95.

Cooper, David H., and Dale C. Farran. 1991. "Behavioral Risk Factors in Kindergarten." *Early Childhood Research Quarterly* ,3, 1-19.

Curbow, Barbara, Kai Spratt, Antoinette Ungaretti, Karen McDonnell, and Steven Breckler. 2000. "Development of the Child Care Worker Job Stress Inventory." *Early Childhood Research Quarterly* 15, 4: 515-536.

Deery-Schmitt, Deeana M., and Christine M. Todd. 1995. "A Conceptual Model for Studying Turnover Among Family Child Care Providers." *Early Childhood Research Quarterly* 10, 1: 121-143.

Denham, Susanne, Beverly Bouril, and Francesca Belouad. 1994. "Preschoolers' Affect and Cognition About Challenging Peer Situations." *Child Study Journal* 24: 1-21.

Diamond, Adele, Steven W. Barnett, Jessica Thomas, and Sarah Munro. 2007. "Supporting Online Material for Preschool Program Improves Cognitive Control." *Science* 318: 1387-1411.

Diamond, Adele, and Colleen Taylor. 1996. "Development of an Aspect of Executive Control: Development of The Abilities to Remember What I Said And To 'Do as I Say, Not as I Do.'" *Developmental Psychobiology, 29*, 315–334.

Domitrovich, Celene, Rebecca C. Cortes, and Mark T. Greenberg. 2007. "Improving Young Children's Social and Emotional Competence: A Randomized Trial of the Preschool "PATHS" Curriculum." *The Journal of Primary Prevention* 28, 2: 67-91.

Downer, Jason T., Leslie M. Booren, Olivia K. Lima, Amy E. Luckner, and Robert C. Pianta. 2010. "The Individualized Classroom Assessment Scoring System (in CLASS): Reliability and Validity of a System for Observing Preschoolers' Competence in Classroom Interactions." *Early Childhood Research Quarterly* 25, 1: 1-16.

Duncan, Greg J., Amy Claessens, Aletha C. Huston, Linda S. Pagani, Mimi Engel, Holly Sexton, Chantelle J. Dowsett, Katherine Magnuson, Pamela Klebanov, Leon Feinstein, Jeanne Brooks-Gunn, Kathryn Duckworth, and Crista Japel. 2007. "School Readiness and Later Achievement." *Developmental Psychology* 43, 6: 1428-1446.

Duncan, Greg, and Katherine Magnuson. 2011. "The Nature and Impact of Early Achievement Skills, Attention and Behavior Problems." In Greg Duncan and Rick Murnane (eds.), *Social Inequality and Educational Disadvantage*. New York: Russell Sage Foundation.

Dunn, Lloyd M., and Leota M. Dunn. 1997. *Peabody Picture Vocabulary Test-III (PPVT-III)*. Circle Pines, MI: American Guidance System.

Duran, Frances, Kathy Hepburn, Marisa Irvine, Roxane Kaufmann, Bruno Anthony, Neal Horen, and Deborah Perry. 2009. *What Works? A Study of Effective Early Childhood Mental Health Consultation Programs*. Washington, DC: Georgetown University, Center for Child and Human Development.

Farmer-Dougan, Valeri, Wolfgang Viechtbauer, and Tricia French. 1999. "Peer-Prompted Social Skills: The Role of Teacher Consultation in Student Success." *Educational Psychology* 19, 2: 207-219.

Florida State University, Center for Prevention and Early Intervention Policy. 2006. *Mental Health Consultation in Child Care and Early Childhood Settings: Opportunities to Expand the System of Care for Children with Emotional and Behavioral Challenges in Florida*. Tallahassee, FL: Florida Department of Children and Families.

Gilliam, Walter S. 2007. *Early Childhood Consultation Partnership: Results of a Random-Controlled Evaluation.* Farmington, CT: Child Health and Development Institute of Connecticut.

Greenberg, Mark T., Carol A. Kusche, Elizabeth T. Cook, and Julie P. Quamma. 1995. "Promoting Emotional Competence in School-Aged Deaf Children: The Effects of the PATHS Curriculum." *Development and Psychopathology* 7: 117-136.

Hamre, Bridget K., and Robert C. Pianta. 2005. "Can Instructional and Emotional Support in the First-Grade Classroom Make a Difference for Children at Risk of School Failure?" *Child Development*. 76, 5: 949-967.

Heckman, James J., Seong Hyeok Moon, Rodrigo Pinto, Peter A. Savelyev, and Adam Yavitz. 2010. "The Rate of Return to the High/Scope Perry Preschool Program." *Journal of Public Economics* 94, 1-2: 114-128.

Hoglund, Wendy L., and Bonnie J. Leadbeater. 2004. "The Effects of Family, School, and Classroom Ecologies on Changes in Children's Social Competence and Emotional and Behavioral Problems During First Grade." *Developmental Psychology* 40: 533–544.

Joyce, Bruce, and Beverly Showers. 2002. *Student Achievement Through Staff Development.* Third Edition. Alexandria, VA: Association for Supervision and Curriculum Development.

Kagan, Sharon L. 2003. "Children's Readiness for School: Issues in Assessment." *International Journal of Early Childhood* 35, 1-2: 114-120.

Karoly, Lynn A. 2012. "Toward Standardization of Benefit-Cost Analyses of Early Childhood Interventions." *Journal of Benefit-Cost Analysis* 3, 1.

Karoly, Lynn A. 2008. *Valuing Benefits in Benefit-Cost Studies of Social Programs*. Santa Monica, CA: RAND Corporation.

Karoly, Lynn A., M. Rebecca Kilburn, and Jill S. Cannon. 2005. *Early Childhood Interventions: Proven Results, Future Promise*. Santa Monica, CA: RAND Corporation.

Kochanska, Grazyna, Kathleen Murray, Tanya Jacques, Amy L. Koenig, and Kimberly A. Vandegeest 1996. "Inhibitory Control in Young Children and its Role in Emerging Internalization." *Child Development* 67*,* 2: 490-507.

Landry, Susan H., Jason L. Anthony, Paul R. Swank, and Pauline Monseque-Bailey. 2009. "Effectiveness of Comprehensive Professional Development for Teachers of At-Risk Preschoolers." *Journal of Educational Psychology* 101, 2: 448-465.

La Paro, Karen M., and Robert C. Pianta. 2003. *CLASS: Classroom Assessment Scoring System.* Charlottesville, VA: University of Virginia.

La Paro, Karen M., Robert C. Pianta, and Megan Stuhlman. 2004. "The Classroom Assessment Scoring System: Findings From the Prekindergarten Year." *The Elementary School Journal* 104, 5: 409-426.

Lehman, Constance, Callie Lambarth, Barbara Friesen, M. MacLeod, and D. White. 2005. "Evaluation of the Incredible Years and Mental Health Consultation to Child Care Centers." Unpublished paper. Portland, OR: Portland State University, Regional Research Institute for Human Services.

Lepper, Mark R., Jennifer H. Corpus, and Sheena S. Iyengar. 2005. "Intrinsic and Extrinsic Motivational Orientations in the Classroom: Age Differences and Academic Correlates." *Journal of Educational Psychology* 97: 184-196.

Lloyd, Chrishana M., and Michael Bangser, with Farrah Parkes. 2009. *Promoting Preschool Quality Through Effective Classroom Management.* New York: MDRC.

Lloyd, Chrishana M., and Emily L. Modlin. 2012. *Coaching as a Key Component in Teachers' Professional Development: Improving Classroom Practices in Head Start Settings*. New York: MDRC.

Luria, Aleksandr Romanovich. 1966. *Higher Cortical Functions in Man.* New York: Basic Books.

Madison-Boyd, Sybil, Cybele Raver, Elysia Aufmuth, Darleen Jones-Lewis, and Maya Williams. 2006. *Chicago School Readiness Project Mental Health Consultant Manual*. Unpublished manuscript. Chicago, IL: University of Chicago.

Magnuson, Katherine A., Christopher Ruhm, and Jane Waldfogel. 2007. "Does Prekindergarten Improve School Preparation and Performance?" *Economics of Education Review* 26, 1: 33-51.

Manlove, Elizabeth E. 1993. "Multiple Correlates of Burnout in Child Care Workers." *Early Childhood Research Quarterly* 8, 4: 499-518.

McGrew, Kevin S., Fredrick A. Schrank, and Richard W. Woodcock. 2007. *Technical Manual. Woodcock Johnson III Normative Update*. Rolling Meadows, IL: Riverside Publishing.

Morris, Pamela, C. Cybele Raver, Megan Millenky, Stephanie Jones, and Chrishana M. Lloyd. 2010. *Making Preschool More Productive: How Classroom Management Training Can Help Teachers*. New York: MDRC.

National Association of Special Education Teachers. n.d. "Introduction to Learning Disabilities." *LD Report.* Online publication. Web site: www.naset.org/2522.0.html.

National Center for Education Statistics. n.d. *Academic Rating Scale.* Washington, DC: U.S. Department of Education, National Center for Education Statistics.

National Center for Health Statistics. 2005. *NCHS Data About Special Education*. Atlanta, GA: Center for Disease Control.

Neuman, Susan B., and Tanya S. Wright. 2010. "Promoting Language and Literacy Development for Early Childhood Educators: A Mixed-Methods Study of Coursework and Coaching." *The Elementary School Journal* 111, 1: 63-86.

New Jersey Department of Education. 2008. "Preschool Program Implementation Guidelines." Trenton, NJ: New Jersey Department of Education. Web site: www.state.nj.us/education/ece/dap/.

Pianta, Robert C. 2001. *Student-Teacher Relationship Scale: Professional Manual.* Lutz, FL: Psychology Assessment Resources, Inc.

Pianta, Robert C., Andrew J. Mashburn, Jason T. Downer, Bridget K. Hamre, and Laura Justice. 2008. "Effects of Web-Mediated Professional Development Resources on Teacher-Child Interactions in Pre-Kindergarten Classrooms." *Early Childhood Research Quarterly* 23: 431-451.

Pianta, Robert C., Karen M. La Paro, and Bridget K. Hamre. 2006. *Classroom Assessment Scoring System Manual, Preschool (Pre-K) Version*. Charlottesville, VA: Center for Advanced Study of Teaching and Learning.

Quint, Janet C., Johannes M. Bos, and Denise F. Polit. 1997. *New Chance: Final Report on a Comprehensive Program for Young Mothers in Poverty and Their Children.* New York: MDRC.

Raver, C. Cybele. 2002. "Emotions Matter: Making the Case for the Role of Young Children's Emotional Development for Early School Readiness." *Social Policy Reports* 16, 3: 3-18.

Raver, C. Cybele, Stephanie M. Jones, Christine P. Li-Grining, Molly Metzger, Kina Smallwood, and Latriese Sardin. 2008. "Improving Preschool Classroom Processes: Preliminary Findings from a Randomized Trial Implemented in Head Start Settings." *Early Childhood Research Quarterly* 63, 3: 253-255.

Raver, C. Cybele., Stephanie M. Jones, Christine P. Li-Grining, Fuhua Zhai, Kristen L. Bub, and Emily Pressler. 2011. "CSRP's Impact on Low-Income Preschoolers' Pre-Academic Skills: Self-Regulation as a Mediating Mechanism." *Child Development* 82,1: 362-378.

Raver, C. Cybele, Stephanie M. Jones, Christine P. Li-Grining, Fuhua Zhai, Kristen Bub, and Emily Pressler. 2009a. "CSRP's Impact on Low-Income Preschoolers' Pre-Academic Skills: Self-Regulation as a Mediating Mechanism." Unpublished paper.

Raver, C. Cybele, Stephanie M. Jones, Christine P. Li-Grining, Fuhua Zhai, Molly Metzger, and Bonnie Solomon. 2009b. "Targeting Children's Behavior Problems in Preschool Classrooms: A Cluster-Randomized Controlled Trial." *Journal of Consulting and Clinical Psychology* 77: 302-316.

Reynolds, Arthur J., Judy A. Temple, Barry A. White, Suh-Ruu Ou, and Dylan L. Robertson. 2011. "Age-26 Cost-Benefit Analysis of the Child-Parent Center Early Education Program." *Child Development* 82, 1: 379-404.

Roth, Jodie L., Jeanne Brooks-Gunn, Miriam R. Linver, and Sandra L. Hofferth. 2003. "What Happens During the School Day? Time Diaries from a National Sample of Elementary School Teachers." *Teachers College Record* 105: 317-343.

Schweinhart, Lawrence J., Jeanne Montie, Zongping Xiang, W. Steven Barnett, Clive R. Belfield, and Milagros Nores. 2005. *Lifetime Effects: The High/Scope Perry Preschool Study Through Age 40*. Ypsilanti, MI: High/Scope Press.

Sheridan, Susan M., Carolyn Pope Edwards, Christine A. Marvin, and Lisa L. Knoche. 2009. "Professional Development in Early Childhood Programs: Process Issues and Research Needs." *Early Education and Development* 20, 3: 377-401.

Smith, Sheila, Taylor Robbins, Will Schneider, J. Lee Kreader, and Christine Ong. 2012. *Coaching and Quality Assistance in Quality Rating Improvement Systems*. New York: National Center for Children in Poverty.

The IRIS Center. n.d. "The Rationale for RTI: Early Intervening and Identification of Learning Disabilities." *Star Legacy Modules.* Online publication.
Web site: http://iris.peabody.vanderbilt.edu/rti01_overview/rti01_04.html.

Torre, Allison de la, Jennifer V. Doctors, Masooma Hussain, Matthew Mulkey, Albert Wat, and Marci Young. 2011. *Transforming Public Education: Pathway to a Pre-K-12 Future*. Washington, DC: PEW Center on the States.

U.S. Department of Education, National Center for Education Statistics. 2001. *Entering Kindergarten: A Portrait of American Children When They Begin School: Findings from the Condition of Education 2000.* NCES 2001-035. Nicholas Zill and Jerry West. Washington, DC: U.S. Government Printing Office.

Wagner, Mary, and Jose Blackorby. 2002. *Disability Profiles of Elementary and Middle School Students with Disabilities.* Washington, DC: Office of Special Education Programs, U.S. Department of Education.

Wasik, Barbara A., Shira Kolnik Mattera, Chrishana M. Lloyd, and Kimberly Boller. In press. "Intervention Dosage in Early Childhood Care and Education: It's Complicated." In Tamara G. Halle, Allison J. Metz, and Ivelisse Martinez-Beck (eds.), *Implementation Science to Early Care and Education Programs and Systems: Exploring a New Frontier.* Baltimore, MD: Brookes.

Webster-Stratton, Carolyn. 1999. *How to Promote Children's Social and Emotional Competence*. Thousand Oaks, CA: Paul Chapman Publishing.

Webster-Stratton, Carolyn, M. Jamila Reid, and Mary Hammond. 2001. "Preventing Conduct Problems, Promoting Social Competence: A Parent and Teacher Training Partnership in Head Start." *Journal of Clinical Child Psychology* 30, 3: 238–302.

Weikart, David P., James T. Bond, and J. T. McNeil. 1978. *The Ypsilanti Perry Preschool Project: Preschool Years and Longitudinal Results Through Fourth Grade.* High/Scope Educational Research Foundation Monograph No. 3. Ypsilanti, MI: High/Scope Press.

Weist, Mark D. 2005. "Fulfilling the Promise of School-Based Mental Health: Moving Toward a Public Mental Health Promotion Approach." *Journal of Abnormal Child Psychology* 33, 6: 735–741.

Zaslow, Martha, Kathryn Tout, Tamara Halle, Jessica Vick Whittaker, and Bridget Lavelle. 2010. *Towards the Identification of Features of Effective Professional Development for Early Childhood Educators*. Washington, DC: Child Trends.

Zhai, Fuhua, C. Cybele Raver, and Stephanie M. Jones. 2012. "Academic Performance of Subsequent Schools and Impacts of Early Interventions: Evidence from a Randomized Controlled Trial in Head Start Settings." *Children and Youth Services Review* 34, 5: 946-954.

Zigler, Edward, Walter S. Gilliam, and Stephanie M. Jones. 2006. *A Vision for Universal Preschool Education*. New York: Cambridge University Press.

Zill, Nicholas, and James L. Peterson. 1986. *Behavior Problems Index.* Washington, DC: Child Trends.

EARLIER MDRC PUBLICATIONS ON THE FOUNDATIONS OF LEARNING DEMONSTRATION

Making Preschool More Productive
How Classroom Management Training Can Help Teachers
2010. Pamela Morris, C. Cybele Raver, Megan Millenky, Stephanie Jones, Chrishana M. Lloyd.

Promoting Preschool Quality Through Effective Classroom Management
Implementation Lessons from the Foundations of Learning Demonstration
2009. Chrishana M. Lloyd, Michael Bangser.

Can Teacher Training in Classroom Management Make a Difference for Children's Experiences in Preschool?
A Preview of Findings from the Foundations of Learning Demonstration
2009. Pamela Morris, Cybele Raver, Chrishana M. Lloyd, Megan Millenky.

NOTE: All MDRC publications are available for free download at www.mdrc.org.

About MDRC

MDRC is a nonprofit, nonpartisan social and education policy research organization dedicated to learning what works to improve the well-being of low-income people. Through its research and the active communication of its findings, MDRC seeks to enhance the effectiveness of social and education policies and programs.

Founded in 1974 and located in New York City and Oakland, California, MDRC is best known for mounting rigorous, large-scale, real-world tests of new and existing policies and programs. Its projects are a mix of demonstrations (field tests of promising new program approaches) and evaluations of ongoing government and community initiatives. MDRC's staff bring an unusual combination of research and organizational experience to their work, providing expertise on the latest in qualitative and quantitative methods and on program design, development, implementation, and management. MDRC seeks to learn not just whether a program is effective but also how and why the program's effects occur. In addition, it tries to place each project's findings in the broader context of related research — in order to build knowledge about what works across the social and education policy fields. MDRC's findings, lessons, and best practices are proactively shared with a broad audience in the policy and practitioner community as well as with the general public and the media.

Over the years, MDRC has brought its unique approach to an ever-growing range of policy areas and target populations. Once known primarily for evaluations of state welfare-to-work programs, today MDRC is also studying public school reforms, employment programs for ex-offenders and people with disabilities, and programs to help low-income students succeed in college. MDRC's projects are organized into five areas:

- Promoting Family Well-Being and Children's Development
- Improving Public Education
- Raising Academic Achievement and Persistence in College
- Supporting Low-Wage Workers and Communities
- Overcoming Barriers to Employment

Working in almost every state, all of the nation's largest cities, and Canada and the United Kingdom, MDRC conducts its projects in partnership with national, state, and local governments, public school systems, community organizations, and numerous private philanthropies.