

Effects of Preschool Curriculum Programs on School Readiness

Report from the Preschool Curriculum Evaluation Research Initiative



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Preschool Curriculum Evaluation Research Consortium

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¹ The members of the Preschool Curriculum Evaluation Research (PCER) Consortium include the principal investigators and co-principal investigators from each of the 12 funded research projects, Institute of Education Sciences (IES) staff, and staff from RTI International (RTI) and Mathematica Policy Research (MPR), Inc., the evaluation contractors.

² This University of California, Berkeley research team partnered with researchers at the University at Buffalo, State University of New York to evaluate the *Pre-K Mathematics supplemented with DLM Early Childhood Express Math software* curriculum in California and New York.

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Acknowledgments

The findings reported here are based on research conducted by the Preschool Curriculum Evaluation Research (PCER) program research teams, the evaluation contractors, and Institute of Education Sciences (IES) staff. This report is a product of the collaborative efforts of the PCER Consortium. The PCER Consortium consists of research teams from each participating grantee site, IES staff, and the evaluation contractors: RTI International (RTI) and Mathematica Policy Research (MPR), Inc. Appendix B of the report was authored by Randall Bender (RTI), Jun Liu (RTI), Ina Wallace (RTI), Melissa Raspa (RTI), and Margaret Burchinal (University of North Carolina at Chapel Hill).

The PCER Consortium would like to acknowledge Dr. Susan J. Kontos who served as the principal investigator for the *Project Approach* (Wisconsin) evaluation study from July 2002 to September 2003. Dr. Kontos, one of the country's leading researchers in early childhood education and care, died September 12, 2003.

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The listed authors represent only a part of the research team involved in this project. We would like to thank the research staff at each grantee site, especially the grantees' site coordinators who worked closely with the local preschool programs, kindergarten school staff, and the contractors' data collection teams to facilitate the successful collection of child-, parent-, teacher-, and classroom-level data. We appreciate the efforts of the classroom observers and the child assessors who were critical to the successful completion of data collection at each research site. We are also grateful to the many contractor staff members who have worked on data collection and data analysis tasks over the duration of the study.

The mention of trade names, commercial products, or organizations in the description of the projects, or the reporting of study findings, does not imply endorsement by the U.S. Government.

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Disclosure of Potential Conflicts of Interest

The PCER Consortium consists of research teams (principal investigators and co-principal investigators from each grantee site), IES staff, and the evaluation contractors, Mathematica Policy Research (MPR), Inc. and RTI International (RTI). Most of the grantee research teams, IES staff, and contractor staff from MPR and RTI have no interests that could be affected by findings from the evaluation of the curricula that are highlighted in this report.

It is important to note that four of the PCER initiative research teams developed curricula that were implemented at their respective research sites. The Success for All Foundation (SFA) developed the *Curiosity Corner* curriculum, which was implemented in preschool classrooms in Florida, Kansas, and New Jersey. Dr. Christopher Lonigan and his colleagues at Florida State University developed the *Literacy Express* curriculum, which was implemented in public pre-kindergarten classrooms in Florida. Drs. Prentice Starkey and Alice Klein are the developers of the *Pre-K Mathematics* curriculum. Drs. Douglas Clements and Julie Sarama are the developers of the *DLM Early Childhood Express Math software*. The *Pre-K Mathematics* curriculum and the *DLM Early Childhood Express Math software* were implemented jointly in Head Start and public pre-kindergarten classrooms in California and New York. Drs. Cheryl Fountain, Madelaine Cosgrove, and Janice Wood are on staff at the Florida Institute of Education, University of North Florida, where the *Early Literacy and Learning Model (ELLM)* was developed. These researchers were selected to receive funding for their PCER research projects in a competitive grant application process. Each research team implemented its curriculum and conducted site-specific analyses examining the effects of these curricula on child outcomes. RTI and MPR, the evaluation study contractors, conducted independent evaluations of these and the other treatment curricula that were included in the PCER study. The developers/implementers of these curricula did not conduct the impact analyses that are summarized in this report. Members of the RTI data analysis team completed the impact analyses.

In addition to their role as developers and implementers, Drs. Starkey, Klein, Clements, Sarama, and Lonigan developed measures that were included in the PCER child assessment battery. Drs. Starkey and Klein developed a preschool mathematics assessment, the Child Math Assessment (CMA) that was adapted for use in the PCER evaluation study. The Child Math Assessment-Abbreviated (CMA-A) was added to the assessment battery as a measure of children's early mathematical knowledge and skills using manipulative materials. The *Building Blocks*, Shape Composition task was also included in the child assessment battery. This task was adapted from the *Building Blocks* assessment tool, which was developed by Clements, Sarama, and Liu. The Elision subtest from the Preschool Comprehensive Test of Phonological and Print Processing (Pre-CTOPPP) was used in the pre-kindergarten year of the evaluation study. Dr. Christopher Lonigan and his colleagues developed the Pre-CTOPPP, Elision subtest. The assessment was not commercially available at the time it was selected for inclusion in the study or during the data collection phase of the study. A revised version of the assessment became commercially available as the Test of Preschool Early Literacy (TOPEL) in January 2007, after the PCER data collection. Dr. Lonigan has a financial interest in the commercial version of this measure.

Dr. Susan Landry and her colleagues at the Center for Improving the Readiness of Children for Learning and Education (CIRCLE) developed one of the study's classroom observation measures and advised on the selection of the child assessments. CIRCLE staff also trained PCER data collection teams to collect classroom observation data using the Teacher Behavior Rating Scale (TBRS), but CIRCLE staff did not collect the data. CIRCLE staff scored the classroom observation data that were collected using the TBRS measure.

Data collection teams from MPR and RTI independently collected all of the data using the measures that are mentioned here. The data analysis team completed descriptive and impact analyses using the scored data. The developers of these measures had no direct role in the completion of the descriptive analyses or the impact analyses that are summarized in this report.

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Glossary

ACF—Administration for Children and Families

ANCOVA—Analysis of Covariance

Arnett—Arnett Caregiver Interaction Scale

CMA-A—Child Math Assessment-Abbreviated

control classrooms—Classrooms randomly assigned to the control condition. Classrooms where the prevailing or existing curriculum was in use during the course of the study

control curriculum—The prevailing/existing curriculum used by teachers in the control condition at each site

CTOPP—Comprehensive Test of Phonological Processing (CTOPP), Elision subtest

ECERS-R—Early Childhood Environment Rating Scale-Revised

ECLS-K—Early Childhood Longitudinal Study, Kindergarten cohort

ELLM—*Early Literacy and Learning Model*

FACES—Family and Child Experiences Survey

FSU—Florida State University

full-day—Preschool program where children spend at least 6 hours per day in the preschool classroom

GED—General Educational Development

grantee—Researcher funded by the Institute of Education Sciences, U.S. Department of Education, to conduct a site-specific study under the Preschool Curriculum Evaluation Research initiative. Grants were awarded to investigators at a single institution or to co-investigators at multiple institutions

half-day—Preschool program where children spend less than 6 hours per day

Head Start center—Preschool that is funded by the U.S. Administration for Children and Families Head Start Bureau

ICC—Intraclass correlation

IES—Institute of Education Sciences, U.S. Department of Education

LBS—Learning Behaviors Scale

MDE—Minimum Detectable Effects

MPR—Mathematica Policy Research, Inc

Glossary—Continued

MPR evaluation sites—Preschool Curriculum Evaluation Research research sites where Mathematica Policy Research, Inc. conducted data collection

PCER—Preschool Curriculum Evaluation Research

PLBS—Preschool Learning Behaviors Scale

PPVT—Peabody Picture Vocabulary Test, Third Edition (PPVT-III)

Pre-CTOPPP—Preschool Comprehensive Test of Phonological and Print Processing, Elision subtest

private pre-kindergarten—Preschool that is funded primarily through tuition or other nongovernmental source

public pre-kindergarten—Preschool that is part of a public school system or receives substantial public funding

random assignment—Determination by lottery under supervision of a researcher whether a study subject will be placed in one experimental group or another

randomized trial—Research study in which subjects are randomly assigned to receive or not receive interventions

research site—Collection of preschool programs/classrooms in a specific geographic location that were recruited by each grantee. Grantees implemented one or more preschool curricula at each research site

RTI—RTI International

RTI evaluation sites—PCER research sites where RTI International conducted data collection

SFA—*Success for All*

site/grantee site—The geographic location of the research sites

SSRS—Social Skills Rating System

SSRS Problem Behaviors—Social Skills Rating System, Problem Behaviors scale

SSRS Social Skills—Social Skills Rating System, Social Skills scale

TBR—Teacher Behavior Rating Scale

TERA—Test of Early Reading Ability, Third Edition (TERA-3)

TOLD—Test of Language Development-Primary, Third Edition (TOLD-P:3)

treatment classroom—Classrooms randomly assigned to the treatment condition where an experimental curriculum was implemented and evaluated

Glossary—Continued

treatment curriculum—One of the 14 intervention curricula that were implemented in treatment classrooms

UNF—University of North Florida

WJ—Woodcock Johnson Achievement Test, 3rd Edition (WJ III)

WJ Applied Problems/WJ Applied Problems test—Woodcock Johnson Achievement Test, 3rd Edition (WJ III), Applied Problems Test

WJ Letter Word Identification/WJ Word Identification test—Woodcock Johnson Achievement Test, 3rd Edition (WJ III), Letter Word Identification Test

WJ Spelling/WJ Spelling test—Woodcock Johnson Achievement Test, 3rd Edition (WJ III), Spelling Test

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