

A Study of Classroom Literacy Interventions and Outcomes in Even Start

Executive Summary

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Disclosure of Potential Conflicts of Interests¹

The research team for this evaluation consists of a prime contractor, Westat, and a subcontractor, Abt Associates. Neither of these organizations or their key staff has financial interests that could be affected by findings from the Even Start Classroom Literacy Interventions and Outcomes Study.

No one on the Technical Work Group, convened to provide advice and guidance, has financial interests that could be affected by findings from the evaluation. One of the members of the study's Technical Work Group, Dr. Christopher Lonigan of Florida State University, is the lead author on the Test of Preschool Early Literacy. The CLIO study used components of a prepublication version of this assessment called the Preschool Comprehensive Test of Phonological and Print Processing (Pre-CTOPPP).

¹ Contractors carrying out research and evaluation projects for IES frequently need to obtain expert advice and technical assistance from individuals and entities whose other professional work may not be entirely independent of or separable from the particular tasks they are carrying out for the IES contractor.

Contractors endeavor not to put such individuals or entities in positions in which they could bias the analysis and reporting of results, and their potential conflicts of interest are disclosed.

EXECUTIVE SUMMARY

The Even Start Family Literacy Program was established in 1989 (P.L. 107-110, Sec. 1231) to help break the cycle of poverty and illiteracy for low-income families, by improving the literacy skills of parents and their young children (U.S. Department of Education 2003). Even Start projects offer family literacy services, defined as four integrated instructional components (P.L. 107-110, Sec. 9101 (20)):

- Early Childhood Education (ECE);
- Parenting Education (PE);
- Parent-Child Literacy Activities (PC); and
- Adult Education (AE).

Two previous studies of the Even Start Program showed that parents and children who participated in Even Start did not have better literacy outcomes than parents and children in a randomly assigned control group that did not receive Even Start services. The Even Start Classroom Literacy Interventions and Outcomes (CLIO) Study is the third randomized study of Even Start. As opposed to the earlier evaluations that investigated the effectiveness of Even Start relative to randomly assigned control groups in which parents and children were not enrolled in Even Start, the CLIO study was intended to intervene by offering the combination of research-based, literacy-focused early childhood education and parenting education curricula (the “CLIO combined curricula”). The CLIO study was intended to determine (1) whether the CLIO combined curricula were more effective than existing Even Start instructional services, and (2) whether research-based parenting education curricula that focus on child literacy (the “CLIO parenting curricula”) added value to research-based, literacy-focused early childhood education curricula (the “CLIO preschool curricula”).

This report presents 2-year impacts of the CLIO curricula on child language, literacy, and social competence; parenting skills; parent literacy; and instructional practices and participation in preschool and parenting classes.

Main Findings

The main findings from the CLIO impact analyses are that (1) the CLIO combined curricula had statistically significant, positive impacts on some of the hypothesized precursors to the development of children’s early literacy skills, including instructional supports for literacy, child social competence, and parenting skills; but (2) the CLIO combined curricula did not have statistically significant impacts on any of the child language development and early literacy outcomes.

The CLIO combined curricula had statistically significant positive impacts on

- two of five measures of preschool instruction: support for print knowledge and literacy resources in the classroom;
- one of three measures of parenting instruction: the amount of parenting education time spent on child literacy;
- both measures of parenting outcomes: parent interactive reading skill and parent responsiveness to their child; and
- child social competence.

The CLIO combined curricula did not have statistically significant impacts on:

- three of five measures of preschool instruction: support for oral language, support for phonological awareness, and support for print motivation;
- two of three measures of parenting instruction: the amount of parenting education time spent on parenting skills not related to child literacy or the amount of parent-child time spent with parents and their children interacting on child literacy activities;
- monthly hours of preschool instruction received by children or monthly hours of parenting instruction received by parents;
- parent English reading skills (includes vocabulary); and

- child expressive language (in English or Spanish), receptive vocabulary, phonological awareness (Elision or Blending), print knowledge, or syntax and grammar.

The CLIO parenting curricula added value to the CLIO preschool curricula by increasing significantly the amount of parenting education time spent on child literacy, the amount of parenting education time spent on parenting skills not related to child literacy, and parent interactive reading skill. The CLIO parenting curricula did not significantly add value to the CLIO preschool curricula with respect to parent responsiveness, child literacy outcomes, or child social competence.

Background

The Even Start Family Literacy Program provides grants to local projects to provide family literacy services to low-income families. Family literacy services are defined as the integration of the four instructional services mentioned above with sufficient intensity in terms of hours and duration to make sustainable changes in a family. An important premise underlying the Even Start program is that the combination of early childhood education, parenting education, parent-child literacy activities, and adult education adds value to participant outcomes. That is, language and literacy outcomes for children in Even Start should be improved directly, through the effects of participation in preschool, and indirectly, through enhancements in both parenting skills and parent literacy. Parenting skills are expected to be enhanced through participation in parenting and parent-child activities, and parent literacy through participation in adult education literacy training.

Since the inception of Even Start in 1989, the U.S. Department of Education has sponsored three national evaluations of the program that focused on performance and effectiveness. Two of the three national evaluations included experimental studies that randomly assigned eligible and interested families to participate in Even Start or a control group of families who would delay participation in Even Start for at least 1 year (St.Pierre et al. 2003; St.Pierre et al. 1995). The results of these studies showed that Even Start projects were not effective at improving the literacy skills of participating preschool-age children and their parents. That is, literacy gains made by Even Start parents and children were no different from literacy gains made by control parents and

children. The control group for these randomized studies was composed of parents who wanted to enroll their children in Even Start but who were randomly assigned to participate in Even Start in the year following the evaluation. About two-thirds of these control parents were unable to arrange any other formal early childhood education (ECE) services during the period of the evaluation, so the control condition mostly corresponded to at-home care by parents or extended family members (St.Pierre et al. 2003, p. 162).

The absence of significant effects of Even Start on literacy skills, along with new requirements in the reauthorized Even Start legislation to base instruction on scientifically based reading research (Sec. 1231(2)(D)), prompted an examination of the Even Start model to determine how it could be improved. The lead investigators of the most recent national Even Start evaluation (St.Pierre, Ricciuti, and Rimdzius 2005) addressed several questions about Even Start's apparent ineffectiveness: (1) whether the Even Start model was fully implemented, (2) whether Even Start's instructional services were sufficiently intensive, (3) whether Even Start families participated sufficiently, and (4) whether the quality of Even Start's instruction and curriculum content was sufficient to lead to positive effects.

The CLIO study was, therefore, designed to test the extent to which research-based, literacy-focused curricula strengthen Even Start services and lead to significant impacts on parents and children.² Specifically, the CLIO study was designed to address two primary research questions:

- Is the combination of research-based, literacy-focused preschool, parenting, and parent-child curricula (the CLIO combined curricula) more effective than the existing combination of services in Even Start?
- Do research-based parenting and parent-child curricula (the CLIO parenting curricula) that focus on child literacy add value to the CLIO preschool curricula?

² This is consistent with Even Start's second legislative evaluation requirement (Sec. 1239 (2)), which is to identify effective programs that can be duplicated and used in providing technical assistance. CLIO is also consistent with the requirement for research (Sec. 1241) that examines successful family literacy services.

Thus, the study was an evaluation of the *incremental* effectiveness of providing the CLIO curricula to Even Start projects.

CLIO Study Design and Curricula

Through a competitive process, the CLIO study selected two combined preschool and parenting education curricula,³ each of which were based on the most current research on the development of children’s early literacy skills. CLIO used these curricula in four combinations—two that implemented the combined research-based preschool and parenting curricula and two that implemented the research-based preschool curricula in combination with existing parenting education services. The CLIO study used an experimental design in which 120 Even Start projects were randomly assigned to implement one of the four CLIO curricula combinations or to be in a control group that provided their regular pre-CLIO instructional services (see table ES-1).

The CLIO combined curricula and CLIO preschool curricula were implemented in the sample of Even Start projects during program years 2004-2005 and 2005-2006. Implementation included summer training sessions for project directors and teachers in each year, as well as ongoing support for preschool and parenting education staff from the curriculum developers over the 2-year period.

The CIRCLE group at the University of Texas-Houston Health Sciences Center teamed with Abrams & Company Publishers to provide the Let’s Begin with the Letter People preschool curriculum to CLIO. Let’s Begin is a preschool curriculum that builds early literacy skills and uses 26 imaginary characters that represent the letters of the alphabet. The CIRCLE group provided the Play and Learning Strategies (PALS) parenting curriculum to CLIO. PALS focuses on responsive parenting and teaches parents techniques to build their children’s language and cognitive development.

³ The study team decided not to include Even Start’s adult education component in the test of research-based curricula because (1) most projects provided a variety of adult education services at different levels (adult basic education (ABE), general equivalency diploma (GED), English as a second language (ESL)) to meet family needs, (2) a substantial portion of projects used community service providers to deliver adult education services, and (3) the research on effective adult education models is still in its infancy.

Table ES-1. Specification of the Five CLIO Study Groups

	Study group				
	Group 1	Group 2	Group 3	Group 4	Group 5
Even Start instructional component	LET'S BEGIN with the Letter People (ECE) CLIO preschool curriculum	LET'S BEGIN with the Letter People and Play and Learning Strategies (PALS) (ECE/PE) CLIO combined curriculum	Partners for Literacy (ECE) CLIO preschool curriculum	Partners for Literacy (ECE/PE) CLIO combined curriculum	Control
Early childhood education	LET'S BEGIN	LET'S BEGIN	Partners for Literacy	Partners for Literacy	As usual
Parenting education	As usual	PALS	As usual	Partners for Literacy	As usual
Parent-child joint literacy activities	As usual	PALS	As usual	Partners for Literacy	As usual
Adult education	As usual	As usual	As usual	As usual	As usual

NOTE: Shaded areas identify instructional components that were provided by the CLIO curriculum developers.

The University of North Carolina at Chapel Hill provided the Partners for Literacy curriculum to CLIO. The preschool Partners curriculum is based on game-like activities conducted with pairs of children and instructional strategies designed to support children’s cognitive and language development. The parenting Partners curriculum adapts the game-like activities and instructional strategies from the preschool curriculum and trains parents to use these with their children at home. The Partners curriculum also includes training in problem-solving skills for children and parents.

CLIO Contrasts

As discussed earlier, the CLIO study addressed two key research questions:

- 1) Is the combination of research-based, literacy-focused preschool, parenting, and parent-child curricula (the CLIO combined curricula) more effective than the existing combination of services in Even Start?

- 2) Do research-based parenting and parent-child curricula (the CLIO parenting curricula) that focus on child literacy add value to the CLIO preschool curricula?

The first research question was addressed analytically by combining projects that received the CLIO combined curricula (study groups 2 and 4 in table ES-1) and comparing their outcomes with those of control projects (study group 5). The study's second research question was addressed analytically by combining projects that received the CLIO combined curricula (study groups 2 and 4), and comparing their outcomes with those of projects that received the CLIO preschool curricula (study groups 1 and 3).

CLIO Data Collection and Outcome Constructs

The study team collected data over a 3-year period. The first year of data collection was 2003-2004, prior to implementation of the CLIO curricula. The second and third years of data collection (2004-2005 and 2005-2006) corresponded to the two CLIO curricula implementation years.⁴

The study team conducted the following types of data collection in all CLIO projects: direct assessments of child language and literacy; teacher ratings of child social competence; videotapes of parent-child interactions; interviews of parents; direct assessments of parent literacy; observations of classroom instruction in preschool, parenting education, and parent-child classes; surveys of teachers and project directors; and tallies of child and parent participation in instructional services. The study team also observed and rated the fidelity of implementation of the CLIO curricula. The outcome constructs used in the CLIO impact analyses are presented in table ES-2.

⁴ The CLIO study is also following children into kindergarten and first grade.

Table ES-2. CLIO Outcome Measures

	Outcome		Data collection instrument	Mode of data collection	Domain
CHILD	1	Expressive language: English	Individual Growth and Development Indicator (IGDI)	Child assessment	Emergent literacy
	2	Expressive language: Spanish			
	3	Receptive vocabulary	Peabody Picture Vocabulary Test (PPVT)		
	4	Phonological awareness: Elision	Comprehensive Test of Phonological and Print Processing (Preschool – CTOPPP)		
	5	Phonological awareness: Blending			
	6	Print knowledge			
	7	Syntax and grammar	Test of Language Development (TOLD-3)		
8	Social competence	Teacher rating form	Teacher rating	Socio-emotional development	
PARENT	9	Parent interactive reading skill	Read Aloud Together Profile & Parent Interview	Video observation, parent report	Parenting skills
	10	Parent responsiveness			
	11	Reading & vocabulary skill	Parent assessment battery		Parent assessment
INSTRUCTIONAL	12	Support for oral language development	Observation Measures of Language and Literacy Instruction (OMLIT) and Parenting Education and Child/Parent Observation (PECAP)	Classroom observation	Preschool classroom instruction
	13	Support for print knowledge			
	14	Support for phonological awareness			
	15	Support for print motivation			
	16	Literacy resources in classroom			
	17	Parenting education time spent on child literacy			
	18	Parenting education time spent on parenting skills			
	19	Parent-child time spent interacting on child literacy activities			
	20	Child: Monthly hours of preschool instruction received			
	21	Parent: Monthly hours of parenting and parent-child instruction received			

Implementation of the CLIO Curricula

Fidelity to Planned CLIO Curricula. Fidelity of implementation to the CLIO curricula in the sample projects was rated both by independent observers and by the curriculum developers. Both sets of ratings indicated that, on average, implementation of the CLIO combined curricula and the CLIO preschool curricula only reached about 50 percent of full implementation. Fidelity ratings for the Let's Begin and PALS projects were generally higher than those for the Partners for Literacy projects, for both the preschool and parenting classrooms but particularly for preschool classrooms. Most of the average fidelity ratings by observers and developers were higher in 2006 than in 2005 with the exception of observer ratings for Partners for Literacy preschool classrooms.

Exposure to the CLIO Curricula. Participants (parents and children) in any intervention need a minimum level of exposure to the curriculum to obtain the hypothesized benefits. Even Start guidelines do not specify an expected level of exposure for children or parents, and the hours of instruction offered by local projects vary widely. In each implementation year, while projects reported that they offered preschoolers an average of 80 hours of preschool education per month, children in CLIO projects actually participated in preschool an average of 50 hours per month. Parents also received only partial exposure to the parenting curricula. Projects reported that they offered parents an average of 25 hours of parenting education and parent-child activities per month, but parents participated for an average of 13 hours of parenting education and parent-child activities per month. These levels of participation relative to hours of services offered are in line with what was documented in previous Even Start evaluations (St.Pierre et al. 2003, p. 129).

Control Projects. Project directors reported that about 75 percent of the CLIO control projects used a formal early childhood curriculum (most often High/Scope or Creative Curriculum), and about 60 percent used a formal parenting curriculum (most often locally developed). Observations of control classrooms showed that they spent about 45 percent of the day in activities that are often considered by developmental psychologists to have particularly high value for children because of the opportunities for children to construct knowledge and receive feedback on their interactions with materials, peers, and adults in the classroom (Bruner and Watson 1983). The remainder

of the control group day was spent in daily group activities including review of the calendar/weather/attendance, gross motor play and transition, and meals/snacks.

Impact Findings

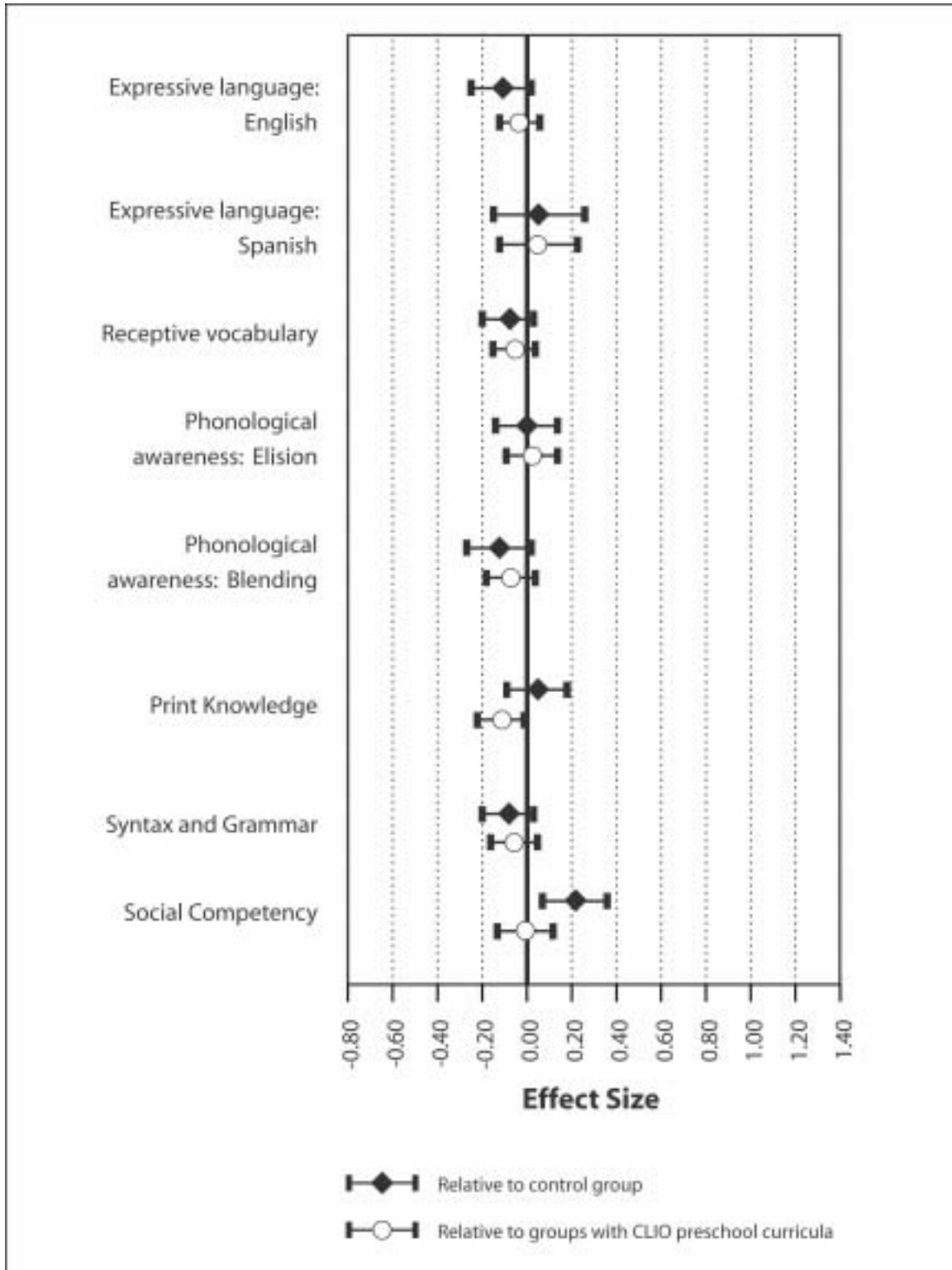
Impacts of the CLIO Combined Curricula. The study showed that Even Start projects assigned to the CLIO combined curricula did not exhibit better child language and literacy outcomes than Even Start projects assigned to the control group (figure ES-1). In the figures in this section, effect sizes for the combined curricula are indicated by filled diamonds (relative to the control group) and open circles (relative to the preschool curricula), and 95 percent confidence intervals⁵ are shown as horizontal bands on either side of the diamond or circle. Effect size indicates the difference in outcome between the average subject who received the treatment and the average subject who did not.⁶

There were no statistically significant impacts of the CLIO combined curricula on any of the seven measures of child language and literacy skills (six in English and one in Spanish), as can be seen by the fact that none of the confidence bands exclude zero, even before adjustment for multiple comparisons. Estimated effect sizes on emergent literacy outcomes were all smaller than 0.13 in absolute value, with confidence interval limits all bounded by 0.27 in absolute value. However, the CLIO combined curricula did have a statistically significant positive effect on child social competence (behavior in class) as rated by preschool teachers. The effect size of the impact of the CLIO combined curricula on child social competence was 0.22.

⁵ The confidence intervals may be interpreted as follows. If the experiment were to be independently repeated a very large number of times under the same general conditions, drawing on the same population of schools and students, and on every repetition both an effect estimate and a confidence interval on that estimate were calculated, then, over the long run, 95 percent of the confidence intervals would contain the long-run average of estimated effects.

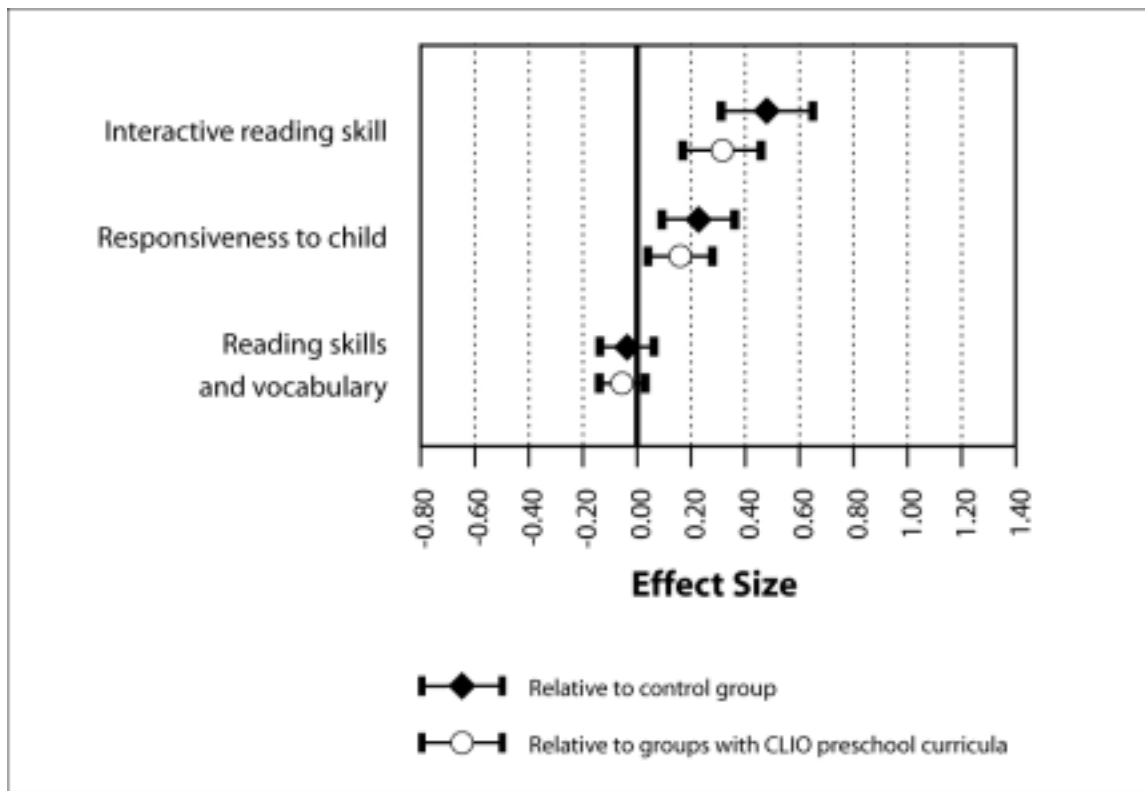
⁶ Effect size was calculated by taking the difference between the treatment and control group means and dividing that difference by the standard deviation of the control group's scores in 2005.

Figure ES-1. Effect Sizes for CLIO Combined Curricula on Child Outcomes Relative to Both the Control Group and the CLIO Preschool Curricula (average of spring 2005 and spring 2006)



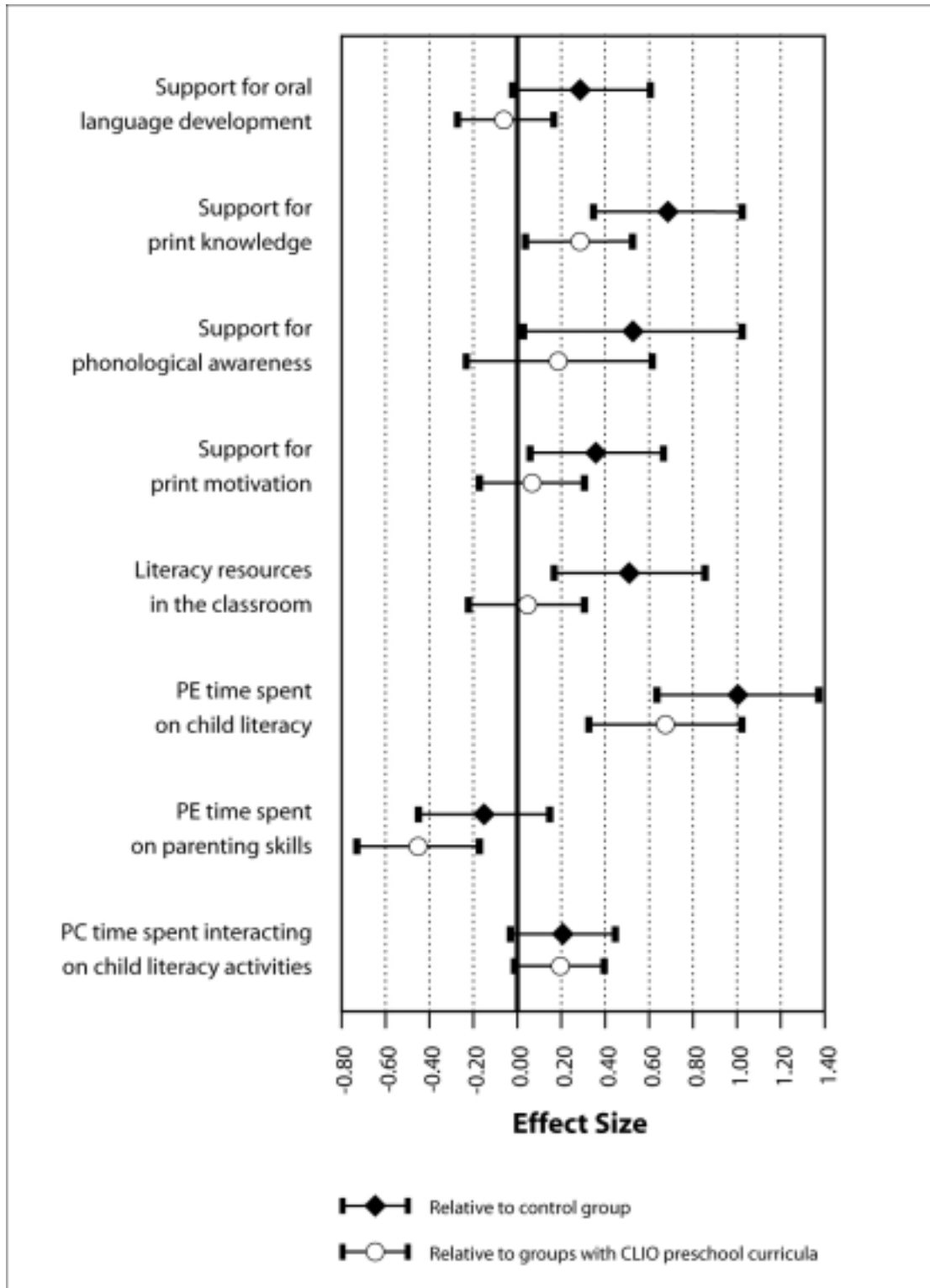
The CLIO combined curricula had a statistically significant positive impact on both of the parent outcomes examined (figure ES-2). The effect size of the impact on parent interactive reading skill was 0.48, and the effect size of the impact on parent responsiveness to their child was 0.22. Even though CLIO did not manipulate adult education curricula, the study assessed parent reading skills and vocabulary and showed that the CLIO combined curricula did not have a statistically significant impact on these skills (figure ES-2).

Figure ES-2. Effect Sizes for CLIO Combined Curricula on Parent Outcomes Relative to Both the Control Group and the CLIO Preschool Curricula (average of spring 2005 and spring 2006)



The CLIO combined curricula had a statistically significant positive impact on two of five measures of instructional support for literacy development in preschool classrooms (figure ES-3). The effect sizes of the statistically significant impacts on support for print knowledge and literacy resources in the classroom were 0.69 and 0.52, respectively. There was no statistically significant impact on the following three

Figure ES-3. Effect Sizes for CLIO Combined Curricula on Instructional Outcomes Relative to Both the Control Group and the CLIO Preschool Curricula (average of spring 2005 and spring 2006)



preschool instructional measures: support for oral language development, support for phonological awareness, or support for print motivation.⁷

The CLIO combined curricula had a positive impact on one of the three measures of parenting education and parent-child classroom instruction (figure ES-3). The effect size of the impact on the amount of parenting education time spent on child literacy was 1.01. There was no statistically significant impact on the amount of parenting education time spent on parenting skills not related to child literacy or the amount of parent-child time spent with parents and their children interacting on child literacy activities.

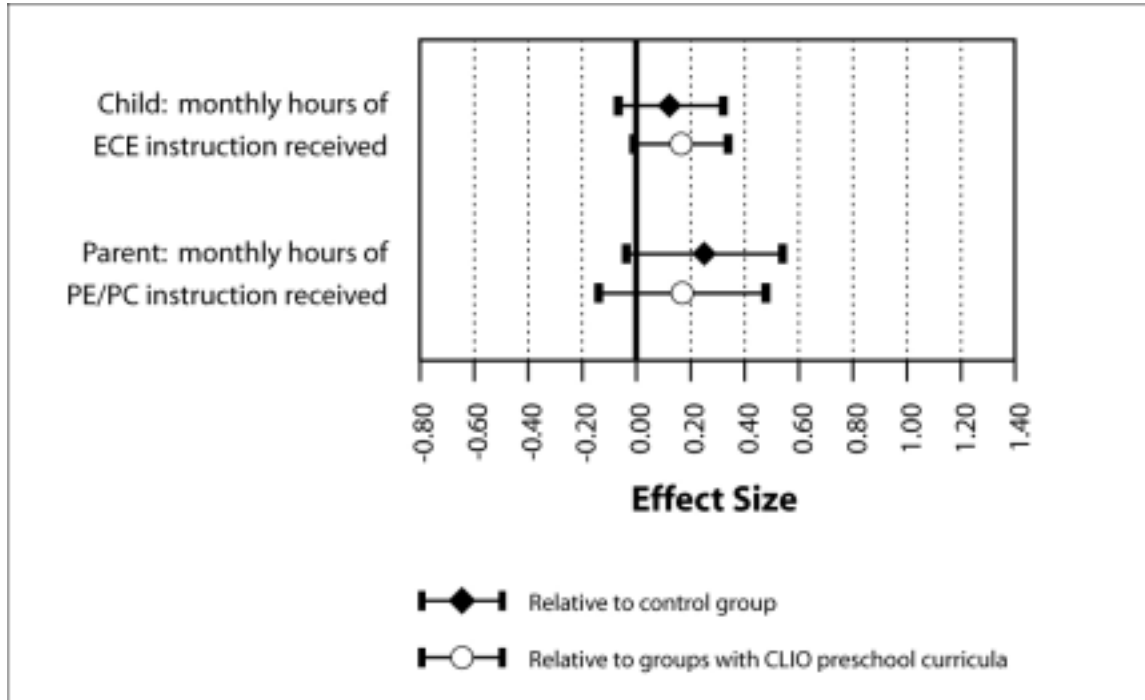
The study also examined whether the CLIO combined curricula had an impact on participation levels (figure ES-4). The results showed that there was no statistically significant impact of the CLIO combined curricula on either child levels of participation in preschool or parent levels of participation in parenting education or parent-child activities. Neither of the confidence bands exclude zero.

Added Value of the CLIO Parenting Curricula. CLIO parenting curricula did not add significantly to the effectiveness of the CLIO preschool curricula on any of the seven measures of child literacy skills or on child social competence (figure ES-1). That is, adding research-based parenting components focused on child literacy did not add significantly to children's outcomes beyond what was achieved with the CLIO preschool curricula. (In figures ES-1 through ES-4, the effect sizes for the added value of the CLIO parenting curricula are indicated by open circles.) The estimated effect sizes of the CLIO parenting curricula on emergent literacy outcomes were all smaller than 0.11 in absolute value, with confidence interval limits all bounded by 0.23 in absolute value.

However, the CLIO parenting curricula did have a statistically significant positive incremental effect on parent interactive reading skill (effect size of 0.30) (figure ES-2). The difference on parents' responsiveness to their child between the CLIO combined curricula and the CLIO preschool curricula, while similar in size to the statistically significant difference between the CLIO combined curricula and the control group, was not statistically significant.

⁷ Although the confidence bands for support for phonological awareness and support for print motivation exclude zero, the effect sizes are not significant once adjusted for multiple comparisons.

Figure ES-4. Effect Sizes for CLIO Combined Curricula on Participation Relative to Both the Control Group and the CLIO Preschool Curricula (average of spring 2005 and spring 2006)



There were statistically significant incremental effects of the CLIO parenting curricula on two of the instructional measures. The effect sizes of the incremental effects of the CLIO parenting curricula on the amount of parenting education time spent on child literacy and the amount of parenting education time spent on parenting skills not related to child literacy were 0.68 and -0.45, respectively (figure ES-3). There was no statistically significant incremental effect of the CLIO parenting curricula on how time was spent in parent-child classes or (as expected) in preschool classes.

Finally, the CLIO parenting curricula did not have a statistically significant incremental effect on child participation in preschool or on parent participation in parenting education (figure ES-4).

Secondary Analyses

Three secondary analyses were conducted to examine the variation in impacts of the CLIO curricula.

Year of Implementation. One hypothesis of the CLIO study was that impacts might be greater in the second year, when most projects could be assumed to have had 2 years to reach full implementation. With respect to child outcomes, there is evidence that the CLIO combined curricula had statistically significant negative effects on four of the seven children's language and literacy outcomes in the first year of implementation. By the second year, rough parity with the control group was achieved. There is little evidence of differential effects by year for child social competence, parent outcomes, instructional outcomes, and participation.

Analysis of Growth for Child and Parent Outcomes. While the primary impact analysis measures parent and child outcomes at the end of preschool, the study also examined impacts on the pattern of growth from fall to spring. The only significant finding was that the CLIO parenting curricula had a positive incremental effect on parent responsiveness to their child.

Interactions of Study Group with Ethnicity and Home Language. About half of all children in the CLIO sample spoke a home language other than English. An analysis of interactions found that impacts on children's emergent literacy did not vary significantly as a function of home language or ethnicity.

Summary

Prior studies have established that Even Start does not have statistically significant impacts on children's emergent literacy or on parent literacy. The CLIO study investigated whether the implementation of research-based, literacy-focused curricula would improve literacy outcomes for Even Start children and parents. Although there were positive impacts on some of the literacy supports in preschool classrooms, on time spent on child literacy in parenting education classes, on parenting skills, and on children's social competence, there were no statistically significant impacts on children's language and literacy. There was no evidence that the failure to

find impacts on these core outcomes was due to a lack of fidelity in the treatment classrooms or cross-over in the control classrooms.

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