

**Core research studies<sup>1</sup>**

1. Organizational Research Services (2010). Evaluation of the Parent-Child Home Program/Play & Learn Group Demonstration Project 2005-2010: Final Report. Seattle: Business Partnership for Early Learning. (ORS Evaluation)
  - In an independent evaluation of the Program's Seattle sites, participation data shows that the Program is reaching its target population of ethnically diverse, low-income families and that the vast majority of families completed the full two-year program (85% of enrolled families). ORS's research finds that the Program has optimal effects on families who complete the full two-years, consistent with initial research conducted on optimal program dosage. Since 2006, when the study began, 467 families enrolled in Seattle's ParentChild+ across four completed cohorts. Almost 90% of enrolled families had an income below the 2010 poverty line; almost 70% of families spoke a language (10 non-English languages were reported) other than English at home, and approximately 22% of families were African American. Between each data collection point, caregivers exhibited statistically significant increases in the frequency of positive behaviors and interactions on all PACT assessment<sup>2</sup> items and on an average score across items, providing strong and consistent evidence of enhanced caregiver-child interactions and increases in caregivers' use of positive parenting behaviors as a result of the Program. By the end of the second year of the Program, over 90% of caregivers exhibited positive parenting behaviors and interactions with an average frequency of "most of the time" or greater. Between the end of the first and second years of the Program, children also exhibited statistically significant increases in ratings of their pre-literacy skills on the Teacher Rating of Language and Literacy (TROLL) items. These significant increases held true for an overall average score as well as for each of three TROLL subscales: Language Use, Reading, and Print Concepts; all of these domains are critical components of school readiness.
  
2. Mann, V, Sandoval, M, Garcia, L, & Calderon, D. (2009). Using Spanish in the home to promote school readiness in English. In A. Harrison (ed.), *Speech disorders: Causes, treatment and social effects* (pp. 97-118). USA: Nova Science Publishers, Inc. (Santa Anna Evaluation)

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<sup>1</sup> A complete annotated bibliography listing all studies involving ParentChild+ is available upon request.

<sup>2</sup> Replication sites are required to collect pre- and post-program data regarding parent-child interaction using the Parent and Child Together (PACT), a validated assessment provided as part of the Program. The tool consists of twenty items, each of which rates on a 5 point scale the frequency of behaviors considered to be positive parent-child interaction behaviors.



Indiana County Intermediate Unit PCHP program, Center for Educational and Program Evaluation located at Indiana University of Pennsylvania. (Indiana University Study)

- Evaluators examined caretaker-child dyads who participated in the ParentChild+ replication in Armstrong and Indiana Counties, Pennsylvania. The participant families had been identified as the neediest families enrolled in the local Women, Infants, Children program. On videotapes of caretaker and child interactions recorded by the Home Visitor and scored independently by the Center for Educational and Program Evaluation, the average number of verbal interactions increased from 6 to 108 and from 6 to 119 (positive verbal and total verbal, respectively) at the midpoint evaluation, and to 203 and 208 at the final evaluation. The average number of positive nonverbal interactions increased from 8 to 17. According to the final assessments by the home visitors, positive change occurred on all 20 items of Parent and Child Together (PACT) test, and positive behaviors of children increased dramatically on all 20 items of the Child Behavior Traits (CBT) test (significant for every item,  $p < .001$ ). On the Home Screening Questionnaire, 17 of 41 children (41%) were identified as “at risk” at program start, whereas only eight (20%) were found to still be at risk at program completion. All respondents to the Parent Satisfaction Survey agreed or strongly agreed with positive responses on all items, and all rated the overall quality of the Program as good or excellent.
5. Levenstein, P., Levenstein, S., & Oliver, D. (2002). First grade school readiness of former child participants in a South Carolina replication of the Parent-Child home program. *Journal of Applied Developmental Psychology*, 23, 331-353. (S.C. Study)
    - To study the effects of a South Carolina replication of ParentChild+ on the school readiness of 84 former child participants in four successive first grade cohorts (1997, 1998, 1999, 2000), their scores on the Cognitive Skills Assessment Battery (CSAB), given to all first graders statewide, were compared to scores statewide and in the school district. Scores indicating school readiness were achieved by 82.4% of first graders statewide and by 84.5% of all ParentChild+ children (by 92.2% when 7 Program children with severe developmental delays [SDD] were excluded). Among those receiving free lunch, 74.4% of statewide children but 93.2% of the non-SDD ParentChild+ first graders passed the CSAB readiness score of 88 ( $p < .01$ ). The pass rates of non-SDD ParentChild+ children were higher than those of at-risk non-ParentChild+ participants in the school district ( $0.05 < p < 0.1$ ). All parents invited into ParentChild+ accepted enrollment, and 96.2% who remained in the district completed the two-year program at a cost of approximately \$2,000 (in 1997-2000) per family.
  6. Levenstein, P., Levenstein, S., Shiminski, J. A., & Stolzberg, J. E. (1998). Long-term impact of a verbal interaction program for at-risk toddlers: An exploratory study of high school outcomes in a replication of the Mother-Child Home Program.

Journal of Applied Developmental Psychology; 19, 267-285. (High School Graduation)

- This subject-randomized control trial in Pittsfield, Massachusetts found that participation in ParentChild+ improved high school graduation rates. Among 123 young adults who were eligible for the Program as toddlers, those who completed the full two years were significantly less likely than those from a small group of randomized non-program controls to have dropped out of high school (15.9% vs. 46.2% dropout,  $p = 0.03$ ) and more likely to have graduated (84.1% vs. 53.9%,  $p = 0.01$ ). Their graduation rate matched the nationwide rate (83.7%) of middle-income students. When children who completed only one year of the Program were included, the gains over controls remained statistically significant. The Odds Ratio for high school graduation (a measure of the advantage of Program participants over controls), adjusted for baseline IQ, was 2.12 for the entire group assigned to receive the Program, 2.23 for those with baseline IQ of  $< 100$ , and 2.40 for those with baseline IQ of  $< 90$ , indicating that ParentChild+ provided the greatest advantage for the lowest-IQ toddlers. Initial acceptance rate for the Program had been 100%.
7. DeVito, P.J. & Karon, J.P. (1984). Pittsfield Parent-Child Home Program, Chapter 1. Longitudinal Evaluation Pittsfield Public Schools. Final report. (DeVito Study)
- The final report of a third-party evaluation of the Pittsfield, Massachusetts ParentChild+ replication presenting achievement data on 155 Program graduates, who were enrolled in the Program during the 1983-84 school year. Program groups surpassed the national average (50) in 12 out of 16 subject areas (i.e. reading, language, math), and their lowest average score was just under the national average at 48. Data were collected at second, third, fourth, fifth, and sixth-eighth grades. The evaluators found that the District was successful in reaching the intended target population with the Program. According to the evaluators, the Program “selects those students for participation who appear to be most at risk at two years of age and for whom the prognosis of adequate school performance throughout their school years is doubtful. Overall, it appears that ParentChild+ intervention for these students as two- and three-year-old had lasting effects. As a group throughout school they met or exceeded national achievement norms and generally outperformed the groups to which they were compared.”
8. Madden, J., O’Hara, J. M., & Levenstein, P. (1984). Home again. Child Development, 55, 636- 647. (Home Again)
- This article reports on a study that enrolled four successive cohorts of families who were individually randomized in a "lottery" to receive either ParentChild+ or a control condition (a) only yearly evaluations or (b) toys and books without home visits. For groups with pretest (baseline) and posttest (follow-up) IQ tests, the posttest scores (statistically adjusted to achieve baseline equivalence) were higher in Program participants than in controls immediately after home visits ended (106 vs. 102).

Performance on a Program Achievement Test of cognitive skills based on ParentChild+ curriculum was also higher for Program children. There were large effects on parent-child interactions (Maternal Interactive Behavior, MIB) immediately after the Program (mean total MIB scores 282.6 vs. 185.8, statistically significant,  $p < 0.001$ ). The mean frequency of desirable behavior by parents such as labeling and verbalizing actions was from 33% to 51% greater in ParentChild+ groups in the three cohorts for which data was available. The results indicate that ParentChild+ parents are capable of producing the kind of verbal interaction intended by the Program. The improvements in parents' verbal behavior as measured by the MIB persisted on follow-up one or two years later (mean scores 233.9 vs. 157.7, significant  $p < 0.05$ ; see Levenstein & O'Hara, 1983).

9. Lazar, I. & Darlington, R. (1982). Lasting Effects of Early Education: A Report from the Consortium of Longitudinal Studies. Monographs of the Society for Research in Child Development 47 (serial #195). (Lasting Effects)
  - "This longitudinal follow-up study, performed by independent researchers on the location-randomized subjects of the original model program, tracked graduates of 11 programs in the Consortium of Longitudinal Studies through age ten, when the children should have been in fifth grade. Researchers accounted for families' baseline characteristics using multivariate regression analysis. Of 250 toddlers enrolled in ParentChild+, some follow-up data were available for 186, more than twice as many as those reported in Madden et al. (1976). Before the study, Program children had an IQ of 84, similar to the controls' 85. Two years later, average IQ was 105 for Program participants and 96 for controls (statistically significant,  $p < .001$ ). Program children maintained their superiority through age ten. These benefits remained significant in analyses that statistically eliminated the influence of mother's education, number of siblings, sex, ethnicity, presence/absence of the father in the house, and child's baseline IQ" (Levenstein & Levenstein, 2008, p. 191-192).
10. Madden, J., Levenstein, P., & Levenstein, S. (1976). Longitudinal IQ outcomes of the MotherChild Home Program. Child Development, 47, 1015-1025. (Longitudinal IQ Outcomes)
  - This article reports on follow-up data of children (N=96) through age eight who participated in several variations of the ParentChild+ model and three groups of control children (N=55). The data were analyzed to examine various program characteristics and outcomes, including program completion rate. 95% of families completed the first program cycle and 80% completed the full two program cycles. Program dosage was also examined in relation to cognitive outcomes. Results at follow-up were significantly superior for those who completed 92 visits, or the full two program cycles compared to those participating in shorter versions of the Program. The data also revealed Program effects on younger siblings. In 52 families where a younger child was enrolled in

ParentChild+ a year or more after an older sibling, the mean pretest IQ scores was higher for younger siblings (95 vs. 87,  $p < 0.001$ ).<sup>3</sup>

11. Levenstein, P. (1970). Cognitive growth in preschoolers through verbal interaction with mothers. *American Journal of Orthopsychiatry*, 40, 426-432. (IQ & Verbal Interaction Study)
  - The study compared the general and verbal IQs of three groups of 20-43-month-old, low-income preschoolers before and after the one experimental group (N = 33) was exposed to seven months of home sessions stimulating verbal interaction in mother-child dyads. IQ scores were derived from the Cattell Infant Intelligence Scale, the Stanford-Binet Intelligence Scale, and the Peabody Picture Vocabulary Test. The experimental group made highly significant cognitive gains in contrast to the two comparison groups.
  
12. Levenstein, P. & Sunley, R. (1968). Stimulation of verbal interaction between disadvantaged mothers and children. *American Journal of Orthopsychiatry*, 38, 116-121. (Verbal Interaction Study)
  - The verbal IQs of two matched groups of disadvantaged preschoolers (12 to a group) were compared before and after the experimental group was exposed for four months to a stimulation of verbal interaction with their mothers through home visits and play material. There was a significant rise in the verbal IQ of the experimental group. Although this study's sample size is small, this formative work establishes the conceptual foundation of what would become the ParentChild+ model.

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<sup>3</sup> Because of the Program's impact on the home environment and parents' effectiveness at recreating the Program's outcomes with subsequent children, our current best practice is to not enroll younger siblings, except in special high need circumstances.