



# The Impact of High Quality Early Childhood Programs on Improving the Educational Achievement of At-Risk Children

April 30, 2010

## Introduction

Economic research shows that investments in children-age 5 and younger-improve school readiness and decrease crime, teen pregnancy, delinquency, substance abuse, and welfare dependency. The science of early brain development demonstrates how child development, before the age of 5, is the foundation for a prosperous society. Brain architecture is constructed through an ongoing process that begins before birth. Early experiences affect the quality of that architecture by establishing either a sturdy or fragile foundation for learning, health, and behavior in later years.<sup>1</sup>

The improved outcomes for at-risk children associated with high quality early childhood programs are significant when considering approaches to addressing Utah's achievement gap. Studies show that one of the most important predictors of third-grade test performance is school readiness at kindergarten entry.<sup>2</sup>

According to the Rand Corporation:

“Scientifically rigorous studies show that well-designed preschool programs serving three- and four-year olds can improve the school readiness and raise performance on academic achievement tests in the early elementary grades. Some studies with longer-term follow-up show such benefits as achievement gains and reduced special education use through the middle school years, and higher rates of high school completion. The effects in the early grades have been demonstrated not only for small-scale model programs, but also for large scale publicly funded programs currently in operation in a number of states.”<sup>3</sup>

### ***Leading Economists and Business Think Tanks Support Investments in Young, At-Risk, Children***

James Heckman, Nobel Laureate and Professor of Economics at the University of Chicago, has written extensively on the productivity argument for investing in early childhood development: “Early interventions for disadvantaged children promote schooling, raise the quality of the workforce, enhance the productivity of schools and reduce crime, teenage pregnancy and welfare dependency.”

Federal Reserve Bank of Minneapolis economists Arthur J. Rolnick and Rob Grunewald contend that investments in human capital prior to kindergarten provide a high public return and the *most efficient way to increase the productivity of the future workforce is to invest in today's youngest, especially at risk, children.*

According to research by the Rand Corporation, a business oriented think tank, *targeted investments in early childhood for disadvantaged children reap significant rewards for society through increased educational attainment rates leading to higher earnings and reduced outlays for social welfare programs and criminal justice.*

This report examines the educational and life outcomes of at-risk children associated with three types of early childhood programs: publicly funded high quality preschool, high quality early childhood pilot programs, and evidenced-based home visitation programs.

Publicly funded high quality preschool programs include Utah's Granite School District Title I Preschool Program, New Jersey's Abbott Preschool program, Oklahoma's Early Childhood Four-Year Old Program, and the Michigan School Readiness Program. The evaluations of these programs demonstrate the impact of preschool on the school readiness and academic achievement of at-risk children.

High quality early childhood programs include the Perry Preschool Program, the Abecedarian Early Childhood Intervention, and the Chicago Child-Parent Centers. Since these programs began in the 1960s and 1970s, evaluations followed at-risk participants into adulthood and, as a result, educational outcome data is available with respect to high school graduation and college attendance. In addition, these studies gathered information with respect to crime, earnings and welfare dependency.

While home visitation programs provide voluntary guidance to parents primarily to promote health and prevent child abuse and neglect, several programs have demonstrated that improved parenting skills promote both school readiness and subsequent academic achievement of the child. The programs included in this section are the Parents as Teachers program and two examples of the Parent-Child Home Programs.



## **Publicly Funded High Quality Preschool Programs**

### ***Utah's Granite School District High Quality Title I Preschool Program (2006 – present)***

The Granite School District (GSD) Preschool Program is a comprehensive, high quality, and effective educational program serving 2,126 students (based on 2008-2009 year end enrollment) in regular education and special education settings in 43 schools across the Salt Lake Valley. Of these schools, 31 are identified as eligible for Title I funding based on the rates of National School Lunch eligibility. Eighteen of the Title I eligible schools most impacted by poverty receive Title I funding to help these children in preschool through grade six. The preschool program is primarily funded through federal Title I and Special Education funds and sliding scale tuition co-pays.<sup>4</sup>

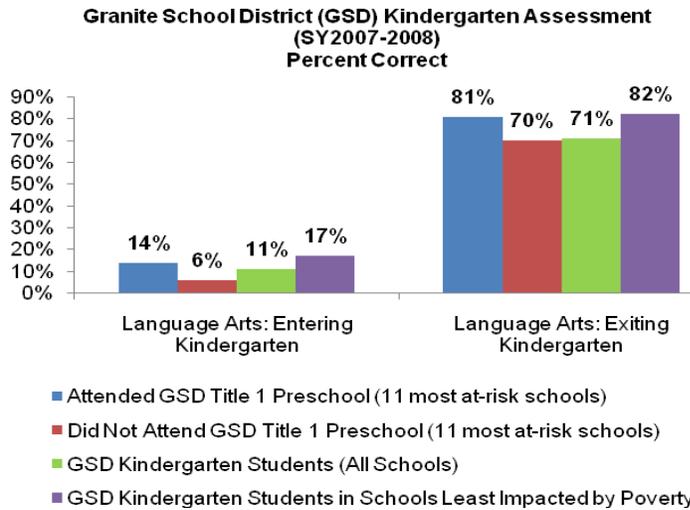
- Three and four year old children attending preschool are provided with a full range of age-appropriate instruction in early literacy, numeracy, and social-emotional, physical, and cognitive growth.
- Additional support is provided by special education consultants, speech-language pathologists, and other service providers who provide specialized instruction for children with disabilities as well as other children with special needs.
- Each classroom educates approximately 18 students with two full-time instructional staff, for an adult to child ratio of 1 to 9.
- The GSD Title I /Early Reading First preschool program was designated a “Center of Excellence” by the U.S. Department of Education in their first year of implementation.

The GSD preschool programs demonstrate improvements in literacy, language arts and kindergarten readiness. The data presented in the graphs below is based on the results of the GSD Kindergarten Assessment for all kindergarten students for the 2007-2008 school year (SY2007-2008). Upon entering kindergarten, children who attended high quality Title I preschool in the 11 schools most impacted by poverty outperformed children in the same schools (and same demographic) who did not attend the Title I preschool. They also outperformed all GSD kindergarten students.

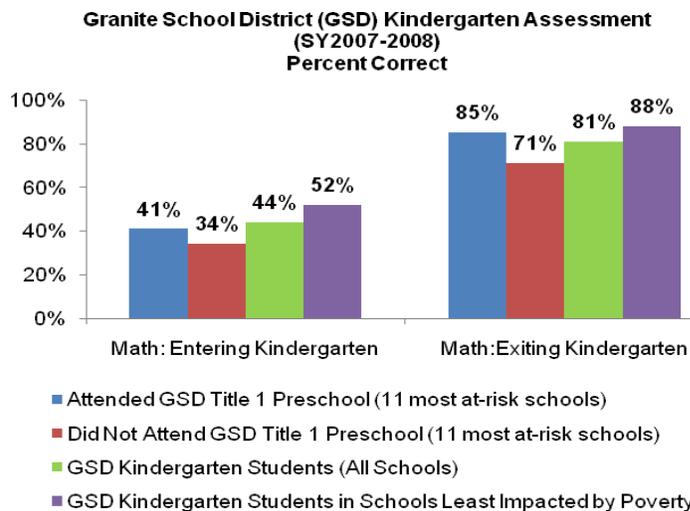
The GSD preschool program significantly reduced the school readiness gap in Language Arts between children in the schools most impacted by poverty who attended preschool and children in the schools least impacted by poverty. The mean score in Language Arts for children who attended preschool in the schools most impacted by poverty was 14 percent, just slightly below the 17 percent mean score for children in the schools least impacted by poverty. This compares to a mean score of 6 percent for the children who did not attend preschool in the schools most impacted by poverty.



The gains made in preschool provided the foundation for success in kindergarten. Upon exiting kindergarten, there was no difference in the mean Language Arts assessment scores between those children in the schools most impacted by poverty who had attended preschool and those children who attended schools with low rates of poverty.



Similarly, while kindergarten students in the schools least impacted by poverty scored higher in math when entering kindergarten, the results show that the GSD Title I Preschool Program succeeded in reducing the school readiness gap in math. Again, the gains made in the preschool program laid the foundation for success in kindergarten. Upon exiting kindergarten, the students at the most at-risk schools for poverty who attended preschool scored comparably on the math assessment (85% correct) to the students in the school that are the least impacted by poverty (88%).

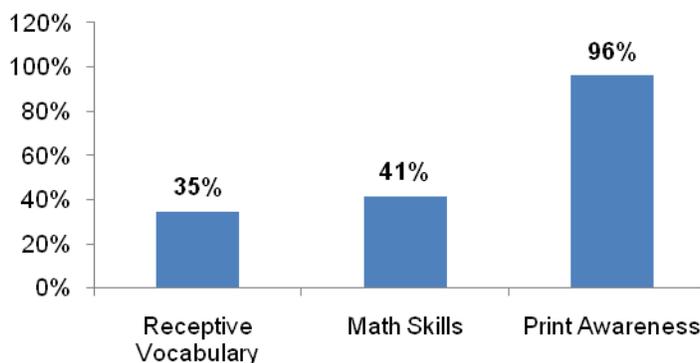


## ***New Jersey's Abbott Preschool Program (1999 – present)***

The Abbott Preschool Program is a high quality public preschool program for three and four year old children in the highest-poverty school districts in New Jersey. Funding for the Abbott Preschool Program is provided by state funds.<sup>5</sup> The program was established in the 1999-2000 school year. During 2007-2008, over 43,000 children were enrolled in the program. The preschool program is delivered by a mixed public-private delivery system overseen by the public schools. Private childcare providers and Head Start agencies contract with local boards of education to serve approximately 60 percent of the children. The rest of the preschool children are served in public classrooms.

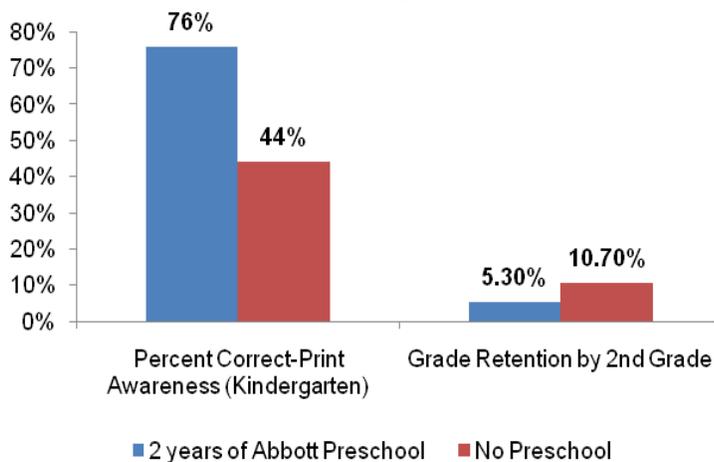
- Abbott classrooms combine 6 hour, 180 day pre-k with daily before and after child care and summer programs. In total, the full-day, full-year program is available up to 10 hours per day, 245 days per year.<sup>6</sup>

**Abbott Preschool Program Outcomes**  
Percent Increase in Growth Over Comparable Child  
Not Attending Preschool



Children who attended the Abbott Preschool experienced greater growth in literacy and math skills at kindergarten entry relative to comparable children that did not attend the preschool program.<sup>7</sup>

**Abbott Preschool Program Outcomes**



The Abbott Preschool Program Longitudinal Effects Study (APPLES) investigated the persistent educational effects of the Abbott Preschool Program. Abbott preschool children outperformed non-preschool children on the kindergarten assessment and experienced half the rate of grade retention by 2<sup>nd</sup> grade.<sup>8</sup>

A follow-up study of children in the 2<sup>nd</sup> grade showed the gains made in preschool persisted through to the elementary grades.<sup>9</sup>

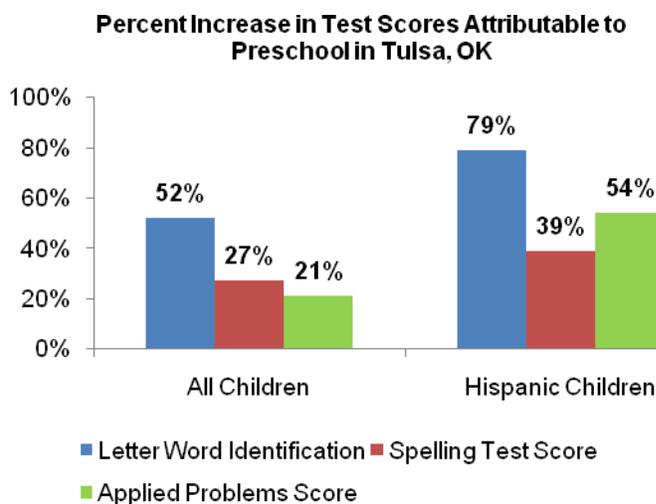
## **Oklahoma's Early Childhood Four-Year-Old Program (1991 - present)**

In the early 1990s, Oklahoma implemented a targeted pre-kindergarten program for economically disadvantaged children. The Oklahoma Early Childhood Program is funded through state, federal and local government.<sup>10</sup> Based on its success, Oklahoma established a universal pre-k program for four year olds in 1998. Under the 1998 legislation, participation by school districts was voluntary. As of 2002-2003, 91 percent of the school districts were participating and 65 percent of all four year olds participated. The Oklahoma program utilizes school districts to implement the program, is based in schools, and places a strong emphasis on quality. The program also serves a very diverse population in terms of race, ethnicity, and social class.<sup>11</sup> The components of the program include:

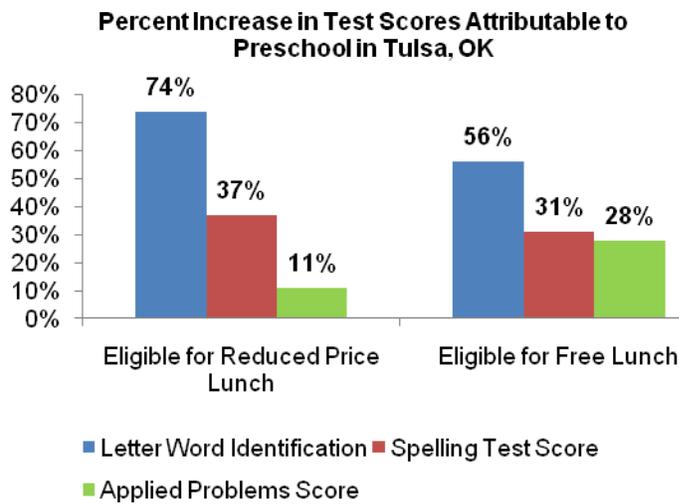
- A teacher-student ratio of 1 to 10.
- Teachers are paid on a comparable scale with public elementary school teachers.
- Every preschool teacher has a college degree and an early childhood certificate.<sup>12</sup>
- The program requires comprehensive curriculum standards.<sup>13</sup>

An evaluation of the Tulsa Public Schools (TPS) system preschool program shows Hispanic children and economically disadvantaged children have benefited significantly with respect to improvement in cognitive and language skills. The Tulsa Public Schools (TPS) system is the largest in Oklahoma and, as of October, 2002, 77 percent of its students qualified for free and reduced lunch. TPS offers both full-day and half-day preschool, depending on the school.<sup>14</sup>

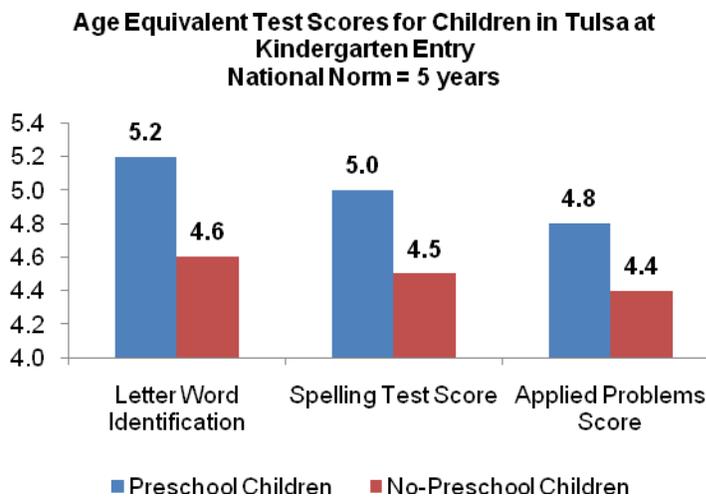
Hispanic children exhibited a 79 percent increase in Letter Word Identification, a 20 percentage point increase greater than that experienced by all children in the preschool program. Hispanic children also experienced a 54 percent increase in test scores on Applied Problems, 30 percentage points greater than the increase demonstrated by all children.



Students who were eligible for free and reduced price lunch achieved greater gains in language skills relative to all children in the program.



Children in Tulsa who attended preschool exceeded or equaled the national norm of age equivalent years in terms of skills in Letter Word Identification and Spelling. Children who did not attend preschool scored below the national norm for their age group.

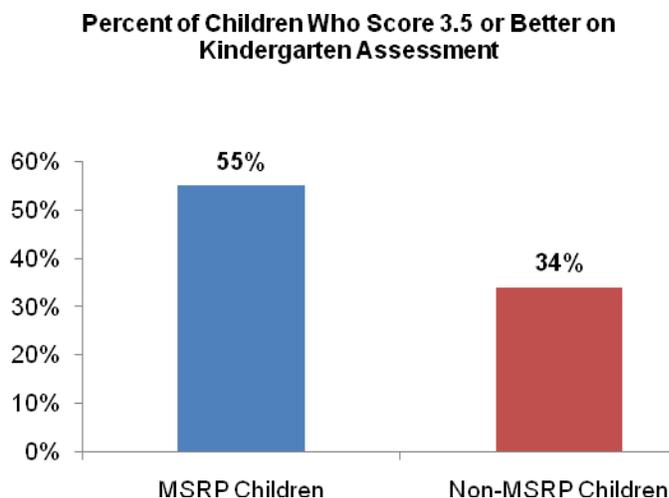


### **Michigan School Readiness Program (1985 – present)**

The Michigan School Readiness Program (MSRP) is designed to help poor children and other children at risk for school failure to start school ready to learn. The MSRP is funded by state government.<sup>15</sup> The preschool program began in 1985 and serves 26,000 children per year in 456 school districts and 65 community agencies.<sup>16</sup> The MSRP provides:

- 9 months of educational experiences to at-risk children at age four.
- A curriculum designed to promote children’s intellectual and social growth through age appropriate activities.
- Full and part-day programs.
- Lead teachers required to have a bachelor’s degree.
- A teacher-child ratio 1 to 8 or better.
- Family participation through parenting support, guidance, and referrals to community.<sup>17</sup>

For the evaluation of the MSRP, 338 children who had participated in the program and 258 comparison children who did not participate were followed from their entrance to kindergarten through the 4<sup>th</sup> grade.

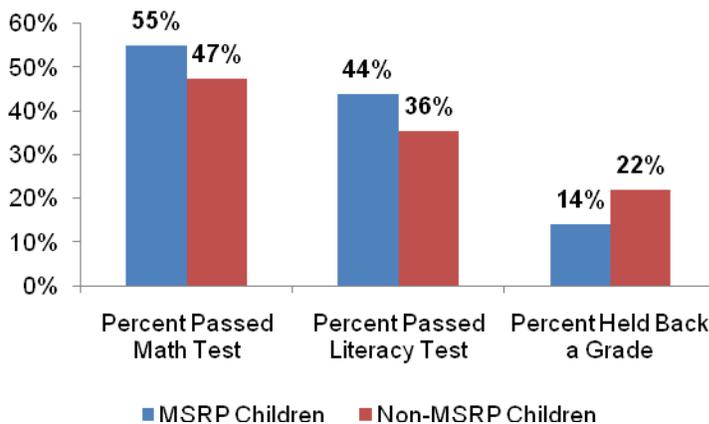


MSRP children outperformed non-MSRP children on the kindergarten assessment. 55 percent of the MSRP children scored a 3.5 or better, on a scale from 1 to 5. Only 34 percent of non-MSRP children scored a 3.5 or better on the same assessment.<sup>18</sup>

*“Many children-including 65 percent of poor children-do not receive a preschool experience. By age 5, a child’s brain reaches 85 percent of its adult weight, developing 700 neural synapses every second-the connections that help a child learn. And yet, only 5 percent of our public investment in education goes to support early childhood education.”*

-The Manufacturing Institute

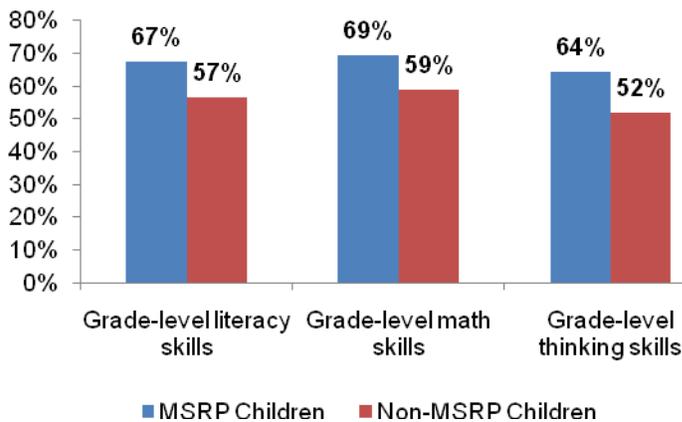
**Academic Performance of Michigan School Children at Grade 4**



The benefits of the MSRP program persisted into the 4<sup>th</sup> grade. Greater percentages of MSRP children passed the math and literacy tests in 4<sup>th</sup> grade. MSRP children were also less likely to be held back.

Based on these results, the program annually prevents an estimated 1,700 Michigan children from having to repeat a grade, saving an estimated \$11 million each year in remediation alone.<sup>19</sup>

**Percentage of Teachers Who Agree/Strongly Agree Grade 4**



As part of the evaluation, 4<sup>th</sup> grade teachers were surveyed with respect to the school readiness of the children in their classes. The results show that MSRP children outperformed non-MSRP children on the assessment with respect to grade-level literacy, math and thinking skills.

*“Our recommendation to state and federal policymakers is to ensure that America’s children have access to high-quality early education. That is the best way to make certain that more young Americans will meet the tough standards of the United States military should they choose to serve. A strong commitment today to high-quality early education will keep America strong and safe tomorrow.”*

-A Message from America’s Retired Generals, Admirals and Civilian Military Leaders, Mission Readiness

## High Quality Early Childhood Pilot Projects

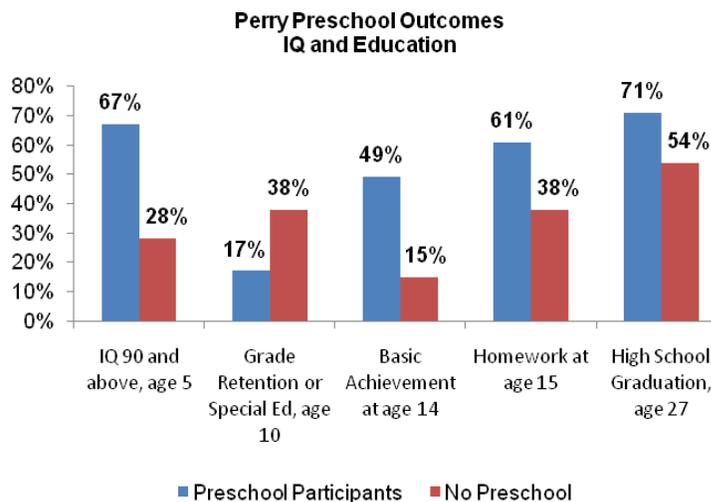
### ***The High/Scope Perry Preschool Program (1962-1967)***

The High Scope/Perry Preschool Program provided high quality preschool and home visits to 123 low income three and four year old African American children in Ypsilanti, Michigan from 1962 to 1967. The program was funded by the Ford Foundation and the U.S. Administration of Children, Youth and Families. Additional funding was provided by the U.S. Department of Education Office of Special Education Programs, the National Institute of Mental Health, and several other private foundations.<sup>20</sup>

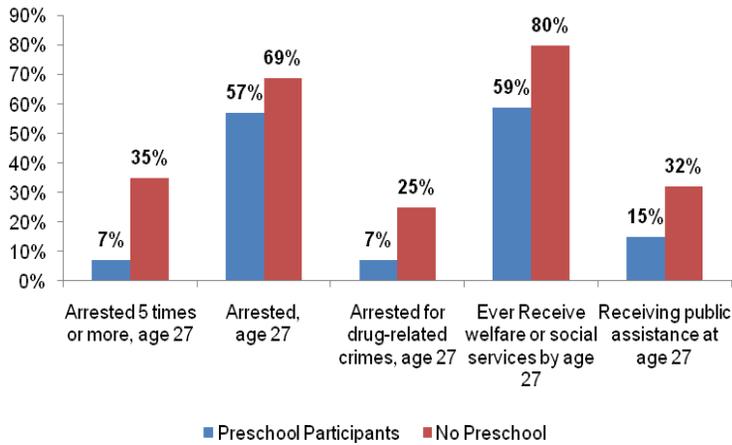
The program combined high quality preschool with home visits. The components of the program included:

- Children from low-income African American families with low IQs were randomly assigned to the preschool program and to a control group (children that did not attend preschool). Those enrolled in the preschool attended for 2 years at ages 3 and 4.
- 2 1/2 hour preschool program, 5 days a week, 9 months a year.
- Teachers in the program conducted weekly home visits for 1 ½ hours each.
- Evaluations were performed annually from ages 3 through 11, and then again at ages 14, 15, 19, 27 and 40.<sup>21</sup>

Longitudinal studies of the life outcomes of the children who participated in the program show gains made with respect to IQ, educational achievement, and high school graduation, and reductions in special education and grade retention. Almost three times the number of Perry Preschool children demonstrated an IQ of 90 than the control group. Rates of special education usage and grade retention for the preschool group were half that of the control group. As teenagers, the program group outperformed the control group with respect to academic achievement. By age 27, a significantly higher percentage of the program group had graduated from high school.

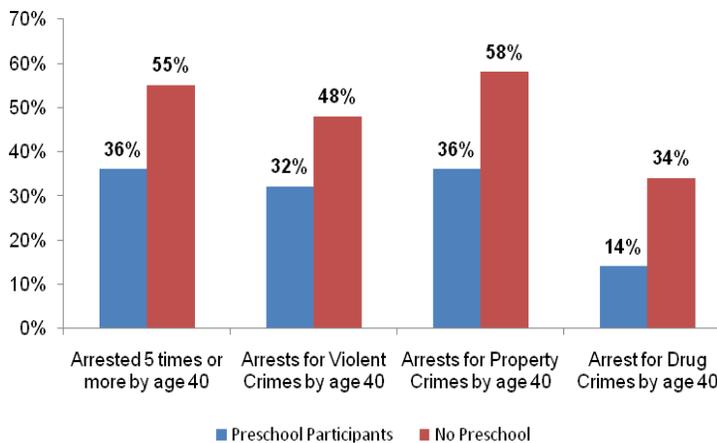


**Perry Preschool Outcomes  
Crime and Public Assistance, age 27**



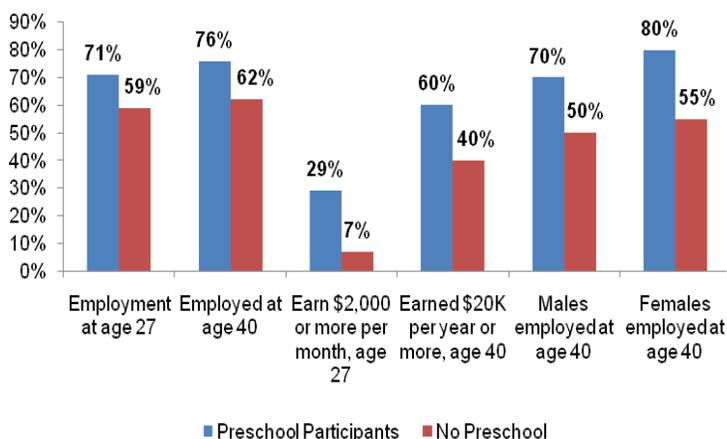
Perry preschool participants were less likely to be arrested or receive public assistance at age 27 and age 40.<sup>22</sup> Four times as many children from the control group were arrested five times or more. Half as many of the preschool group was receiving public assistance at age 27 versus the control group.

**Perry Preschool Outcomes  
Crime and Public Assistance, age 40**



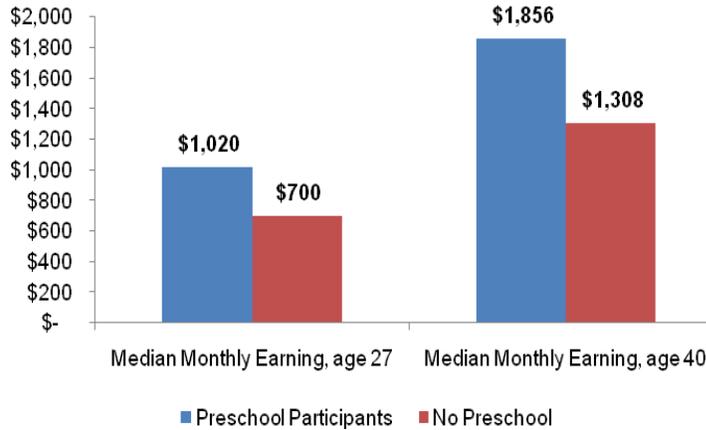
Significantly, these gains with respect to crime reduction persisted into the adulthood.

**Perry Preschool Outcomes  
Employment and Earnings**



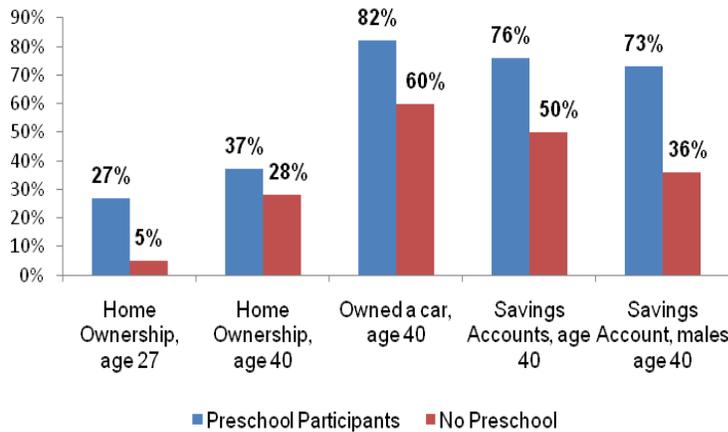
Those who participated in the program experienced greater earnings and were more likely to be employed, both at age 27 and age 40.

**Perry Preschool Outcomes  
Median Monthly Earnings**



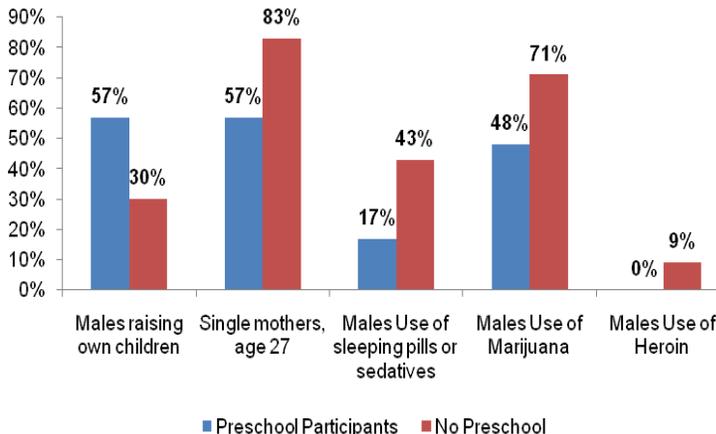
Median monthly earnings were 46 percent greater for the preschool participants at age 27, and 42 percent greater at age 40.

**Perry Preschool Outcomes  
Home Ownership and Savings**



Adults who participated in the preschool program were also more likely to own a home, a car, and to have a savings account. Male preschool participants were twice as likely to have a savings account at age 40 than the control group.

**Perry Preschool Outcomes  
Parental Involvement and Drug Use**



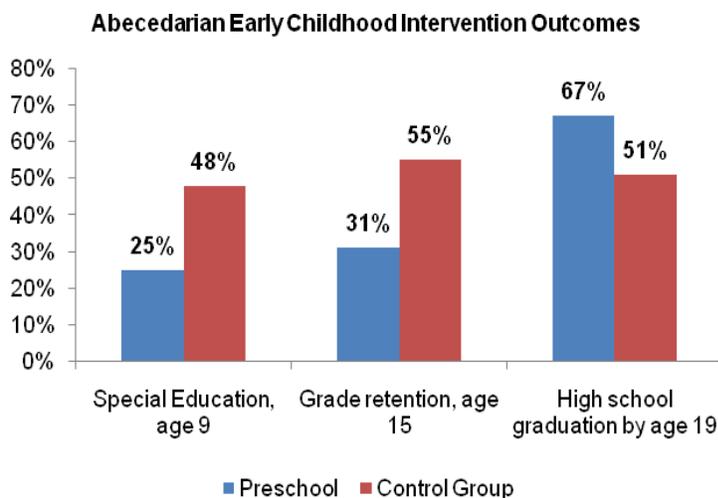
Men from the preschool group were almost twice as likely to raise their children and a higher percentage of female preschool participants were married as compared to the control group. Men from the preschool program were also less likely to use prescription or illegal drugs.

### ***The Abecedarian Early Childhood Intervention (1972-1985)***

The Abecedarian Early Childhood Program was a high quality early childhood development program, that enrolled at-risk low-income children in North Carolina between the ages of 6 and 12 weeks old from 1972 to 1985. The early phases of the Abecedarian Program were funded by grants from The Mental Retardation and Development Disabilities Branch of the National Institutes of Child Health and Human Development and The Department of Human Resources of the State of North Carolina.<sup>23</sup>

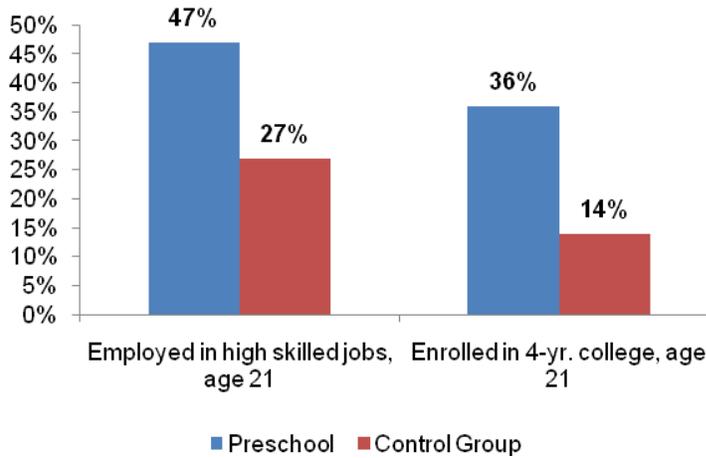
An evaluation of the program examined the outcomes with respect to four cohorts of families that were enrolled between 1972 and 1977. A total of 109 eligible families (111 infants) took part. The components of the program included:

- The children were randomly assigned to a preschool group or a control group (the control group did not attend the program). The characteristics of the two groups were very similar: all families met the poverty guidelines.
- The preschool ran full day, five days a week, and 50 weeks per year. The intervention began early in infancy, with full-day childcare year round. In infancy, the children were exposed to age-appropriate development “games,” and as the children grew, the educational content became more conceptual and skill-based. The preschool program stressed language, social development, medical and nutritional needs of the children, with an emphasis on individual development.
- At age 5, all the children were reassigned to either a special school-age intervention program through age 8 or a control group. The special intervention program was designed to support early learning in the primary grades through increased parental involvement and individualized classroom instruction.
- Data on program outcomes was collected at ages 3, 5, 8, 12, 15, and 21.<sup>24</sup>



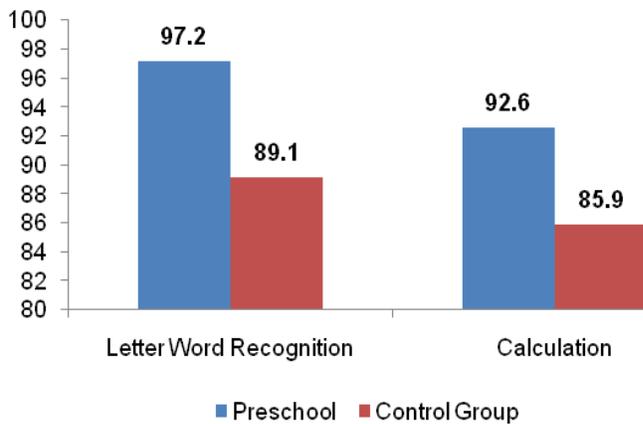
Children who participated in the Abecedarian Early Childhood Program (the preschool group received intervention from infancy to age 5) were half as likely to need special education or repeat a grade. Sixty-seven percent of the preschool children graduated high school by age 19, as compared to 51 percent of the control group of children who did not participate in the program.

### Abecedarian Early Childhood Intervention Outcomes



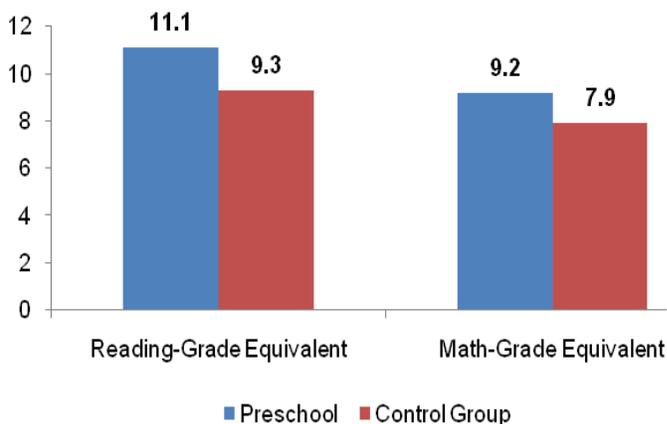
More than twice the number of children who attended the Abecedarian program were enrolled in a four-year college at age 21. Similarly, twice as many Abecedarian children were employed in a high skilled job.

### Abecedarian Early Childhood Intervention Outcomes Age 21 Mean Test Scores



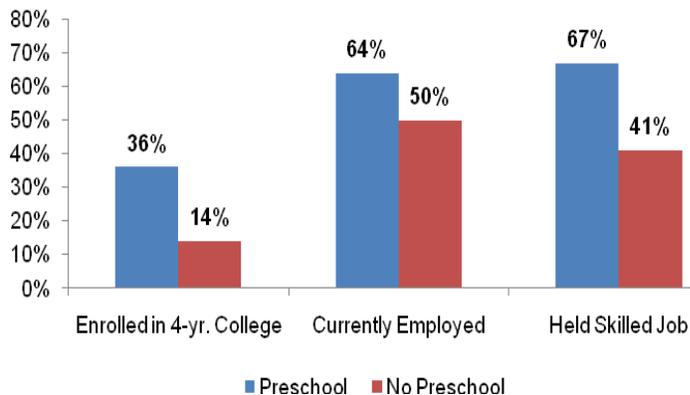
At age 21, participants in the Abecedarian preschool program had higher test scores than the control group with respect to literacy and math skills.

### Abecedarian Early Childhood Intervention Outcomes Age 21 Mean Test Scores



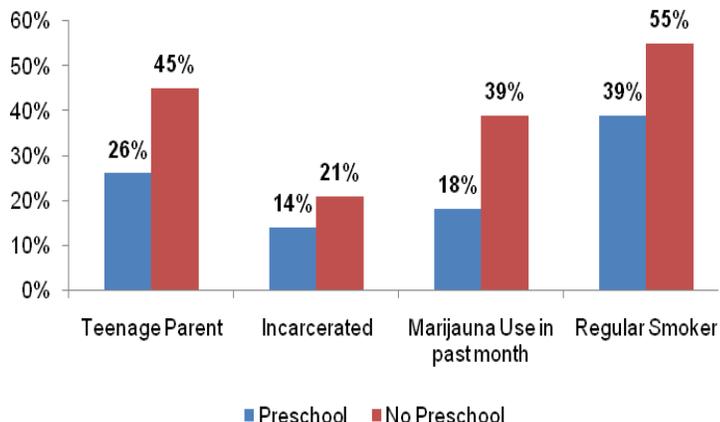
Similarly, participants in the Abecedarian program had, at age 21, higher grade-equivalents in reading and math.

**Abecedarian Early Childhood Intervention Outcomes  
Age 21**



At age 21, preschool participants were twice as likely to be enrolled in a four-year college. A greater percentage of the preschool group was currently employed, and significantly, 67 percent of the preschool group held a skilled job compared to 41 percent of the control group.

**Abecedarian Early Childhood Intervention Outcomes  
Age 21**



The Abecedarian preschool intervention also resulted in reductions in teenage pregnancy, incarceration, drug and tobacco use.



*“Although education and the acquisition of skills is a lifelong process, starting early in life is crucial. Recent research...has documented the high returns that early childhood programs can pay in terms of subsequent educational attainment and in lower rates of social problems, such as teenage pregnancy and welfare dependency.”*

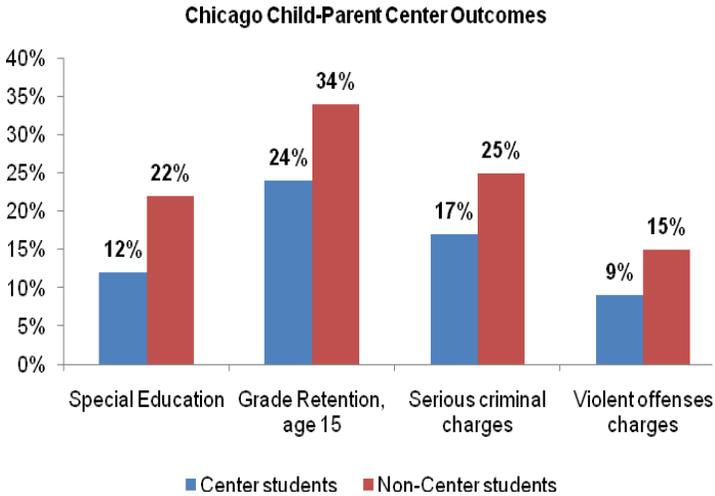
-Federal Reserve Chairman Ben Bernanke

**The Chicago Child-Parent Center Program (1967 – present)**

Located in or near public elementary schools, The Child-Parent Centers (CPC) provide educational and family support services to children, ages 3 to 9. The Chicago Child-Parent Centers have served low-income children age three and four in half day preschool services from 1967 to the present. Funding for the program was provided through Title I of the Elementary and Secondary Education Act of 1965.<sup>25</sup> The centers are located in the poorest sections of Chicago. Community participation exceeded 80%, as low-income families were not able to access non-public care or education programs. At the time a sample was taken in order to conduct the study, each of the 24 centers served approximately 100 to 150 three to five year olds.<sup>26</sup> The components of the program include:

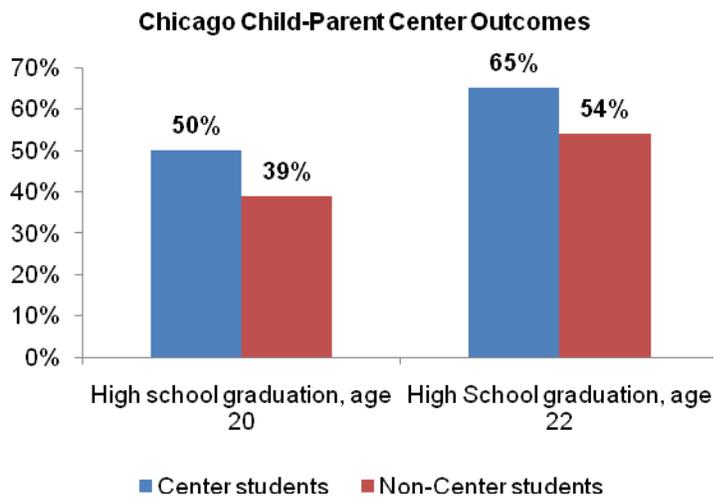
- The preschool program runs 3 hours per day, 5 days a week during the 9 month school year and usually includes a 6-week summer program.
- Educational activities emphasize reading and math skills.
- A child-staff ratio of 17 to 2 in preschool and 25 to 2 in kindergarten.
- An intensive parent program that includes parent room activities, volunteering in classrooms, attending school trips, and completing high school.
- Outreach activities including home visitation.
- Well-paid public school teachers with bachelor’s degrees and early childhood education certificates. Regular staff development activities are available.
- Health and nutritional services.
- Comprehensive school-age services including reduced class size, teacher’s aides, parental involvement, and individualized activities to promote reading and math achievement.

Data was collected on over 1,000 children for 19 years (different outcome measures were based on different sample sizes, but all were significantly large), until the children were 22 years old. Statistical methods were used to isolate and analyze the outcomes associated with the preschool program alone.<sup>27</sup> The comparison group (the non-center students) was a random sample of 550 children who were eligible,



did not participate in the centers, but did attend an all-day kindergarten program. The groups were comparable on many background measures.<sup>28</sup>

Center students experienced reductions in special education and grade retention relative to non-center students. Center students were also less likely to commit serious criminal and violent offenses.<sup>29</sup>



Center students had higher rates of high school graduation at ages 20 and 22.<sup>30</sup>

*“The quality of life and the contributions a person makes to society as an adult can be traced back to the first few years of life. If a child from birth through age 5 receives support for development in cognition, language, motor skills, adaptive skills, and social/emotional functioning, he or she is more likely to succeed in school and in the workplace. However, if a child doesn’t have support for healthy development at an early age, the child is more at risk for negative outcomes, including dropping out of school, committing crime and receiving welfare payments as an adult.”*

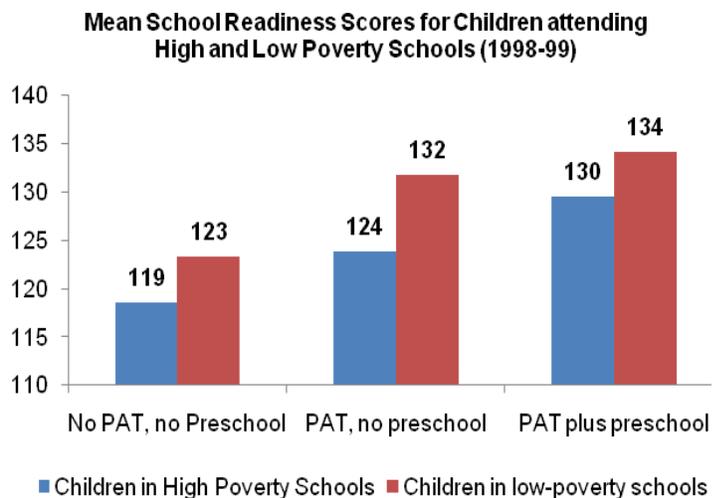
-Art Rolnick and Rob Grunewald, Minneapolis Federal Reserve Economists

## Home Visitation Programs

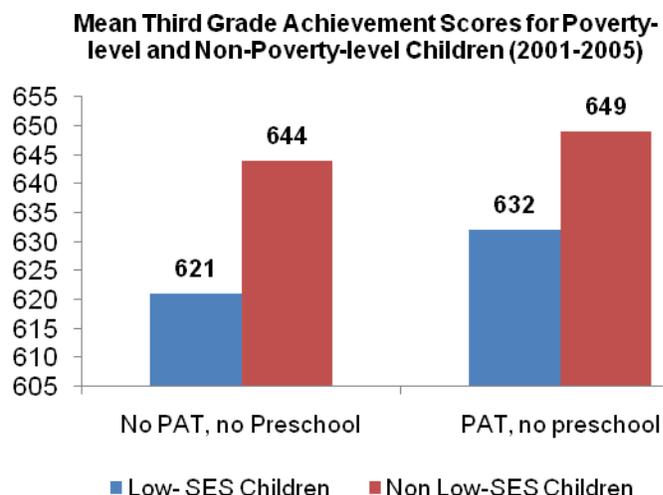
### ***Parent as Teachers (1981-present)***

The Parents as Teachers (PAT) program was founded on the belief that parents are their child's first and most important teacher. Home visitation is the core of the PAT program. PAT-certified parent educators, trained in child development and home visiting, help parents learn appropriate expectations for each stage of their child's development and involve parents in activities with their children that encourage learning.<sup>31</sup>

A study conducted as part of the Missouri School Assessment Project of the school readiness of kindergarten students for the 1998-99 school year found the PAT program improved the school readiness of the program's participants.

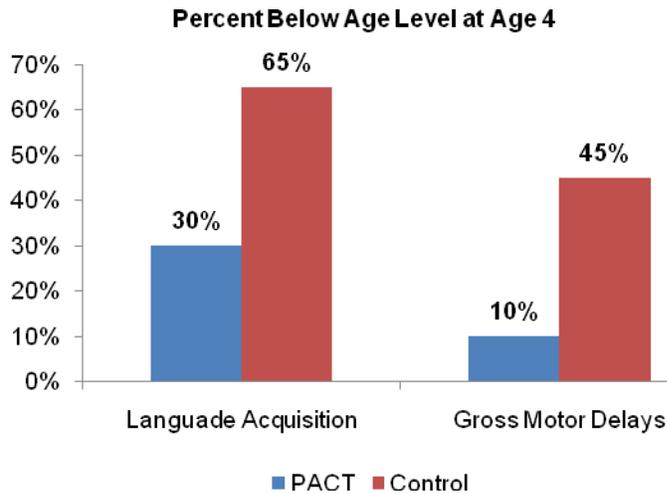


Children entering high-poverty schools whose parents received the PAT program (even without attending preschool) had comparable school readiness scores to children entering low poverty schools who had not received any preschool or PAT enrichment.<sup>32</sup>



A follow-up study of the Missouri program compared the mean third grade achievement scores for children with low socio-economic status (low-SES) with non-low-SES children. While non low-SES children outperformed low-SES children, the PAT program succeeded in raising the achievement scores of economically disadvantaged children and reduced the third grade achievement gap by 11 points.<sup>33</sup>

An evaluation of the Parents and Child Together Program (a program based on the PAT program) in Binghamton, New York showed that children who participated in the program from birth to age 3 demonstrated greater language and motor skills than children in the comparison group. A below-average score at age four predicts failure in reading readiness in at-risk children.<sup>34</sup>



*“While it is clear from research that all children can benefit from quality early childhood programs, those who are most at risk for later failure in school, in the workplace and in society will benefit the most from these programs. Studies show that far too many children enter school ill prepared and that a wide gap exists between lower- and higher-income children even before they enter kindergarten.”*

-The Business Roundtable

## Parent-Child Home Programs

The earliest of the home visitation programs was the 2-year Mother-Child Home Program created in 1965 and subsequently renamed the Parent-Child Home Program (PHCP) to reflect the participation of fathers. The PHCP was designed to enrich the parenting skills of low-income parents, especially their verbal interaction with their young children and to foster attachment between parent and child. The two goals of the PHCP are:

- To increase the cognitive and emotional development, school readiness, and literacy of at-risk toddlers.
- To promote parenting skills.<sup>35</sup>

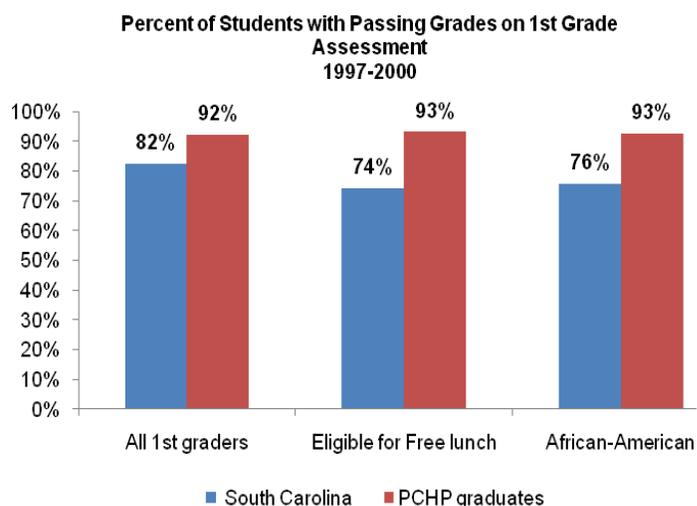
Evaluations of PHCP programs in South Carolina and Houston demonstrate the impact of the program on the school readiness and academic performance of their participants.

### *The Parent-Child Home Program in South Carolina (1997-2000)*

The Parent-Child Home Program (PCHP) in South Carolina was a 2-year home-based program for low-income parents and their 2 and 3 year old children who were at risk for educational disadvantage. The components of the program were:

- Home visitors provided twice-weekly home play sessions with parents and their children, showing them a curriculum of conceptual verbal interaction and demonstrating other positive parenting techniques.<sup>36</sup>
- 84 South Carolina PCHP participants were followed through the 1<sup>st</sup> grade.

A longitudinal study of a PCHP in Florence County School District in South Carolina found participants scored higher than non-participants on 1<sup>st</sup> grade school readiness tests. PCHP graduates outperformed all 1<sup>st</sup> graders in South Carolina.



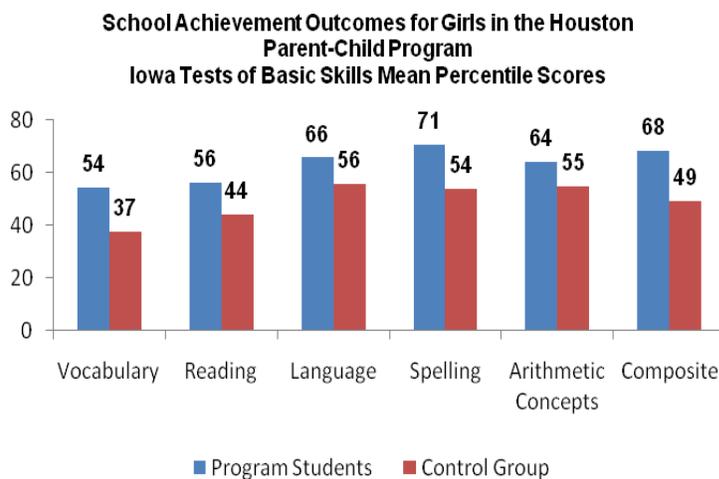
Significantly, PCHP children (who qualify for the National School Lunch program) outperformed eligible children who did not participate in the program by 20 percentage points. Minority PHCP children (African-American) also outperformed minority children who did not participate in the program by 17 percentage points, exhibiting a significantly higher pass rate than African-American children statewide.<sup>37</sup>

### **Houston Parent-Child Development Center**

The Houston Parent-Child Development Center was a 2-year parent-child education program for low-income Mexican-American families. Families enter the program when the child is 1 year old.

- The first year of the program was in the home, where home visitors provided the mother with information on infant behavior and how to stimulate cognitive, social and language development.
- Entire families attended several weekend sessions on decision-making and communication.
- During the second year, the mother and child attended the project center 4 mornings per week and participated in classes on child management, health and safety in the home, child cognitive and language development.
- Fathers continued participation by attending classes on topics of their own choosing, such as home-buying, family planning and interacting with schools.<sup>38</sup>

Families were assigned to a program or control group. School data were collected when the children were in the 2<sup>nd</sup> through 5<sup>th</sup> grades. While the program did not yield statistically significant results for boys, results from the Iowa Tests of Basic Skills Percentile Scores show girls that participated in the program had significantly higher test scores than girls who did not participate. On the composite score, (which includes both language and math) girls who participated in the program scored in the 68<sup>th</sup> percentile, 20 percentage points higher than girls who did not participate.<sup>39</sup> This project demonstrated that a parent-child education program can have lasting effects that improve school performance.<sup>40</sup>



## **Conclusion**

A study conducted by the Rand Corporation on the achievement gap in California concludes that the same patterns of achievement gaps between groups in the 2<sup>nd</sup> grade appear on kindergarten assessments. The same groups that are behind in 2<sup>nd</sup> and 3<sup>rd</sup> grade were also behind when they entered school.<sup>41</sup> Children who start behind, stay behind. Learning is a cumulative process, and the science of brain development illustrates how early cognitive, social and emotional development provides the foundation for future academic success. Foundations for learning built prior to school entry can make the difference between school success and failure, especially for at-risk children. Educational success is one of the most important indicators of economic success. The economic cost of the achievement gap shows this is true for society as well as for the individual.

The evaluations of the early childhood programs discussed in this report show that high quality early intervention can improve the school readiness of children who are at risk for educational failure. In addition, the gains made with respect to school readiness at kindergarten entry can persist into the elementary and secondary grades, and improve high school graduation rates and college attendance. Furthermore, longitudinal studies of the life outcomes of early childhood program participants in the 1960s and 1970s indicate that these interventions also improve life outcomes with respect to employment and earnings and reduce juvenile crime, adult crime and welfare dependency. While evidence suggests that early childhood programs do benefit all children, the most significant impact is for at-risk children.

The first step in addressing Utah's achievement gap is to provide access to high quality early childhood programs for children who are at-risk for school failure. An increase in access to high quality preschool for at-risk children ages three and four could be accompanied by home visitation programs that promote parenting skills. The Perry Preschool Program included a home visitation component and the Abecedarian program began in infancy.

It is important to note that not all early childhood programs are considered high quality. In order to replicate the gains reported in this report, efforts to address the achievement gap through early childhood development must include high quality components.



For more information, please contact Janis Dubno, Senior Early Childhood Policy Analyst,  
Voices for Utah Children: 801-364-1182; [janis@utahchildren.org](mailto:janis@utahchildren.org)

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## Endnotes:

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