

# Links Between Early Educational Experiences and Later Achievement Outcomes

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The evidence is in: High-quality early learning experiences in childcare and preschool settings can have very long-lasting effects on educational achievement for individuals at risk for poor outcomes due to poverty—effects that persist all the way to graduation from college. Some of the best evidence for this was obtained in a study conducted here in North Carolina; it began in the early 1970s, and follow-up is still ongoing.

The Carolina Abecedarian Project is a randomized control trial of the effects of early education in a childcare setting for children raised in poverty. Half of the children in the trial were assigned to a group that participated in an early childhood program from infancy through age 5, and half were assigned to a control group; children in the control group experienced any combination of home and/or community childcare that their families needed and were able to obtain [1]. Four cohorts of children born between 1972 and 1977 participated. A total of 111 children were enrolled and randomly assigned to the treated or control group. The childcare program, housed at the Frank Porter Graham Child Development Institute in Chapel Hill, had many of the features that constitute high-quality care, such as good caregiver-to-child ratios, well-trained and well-compensated teachers, and a developmentally appropriate, individualized curriculum. The children who were in the program and control groups have been assessed in a series of follow-up studies—at age 12, age 15, age 21, and most recently age 30—which demonstrated that the early learning experiences offered to the children in the program group have produced long-term positive effects. Of the 111 originally enrolled, 57 were randomly assigned to the treated group and 54 were assigned to the control group. By age 5 (end of the program), 105 children were still participating in the study (4 were deceased, 1 was withdrawn, and 1 was found to be ineligible due to

biological conditions not apparent at birth). At age 21, all 105 living and eligible study participants were located, 104 agreed to participate. In the most recent age 30 follow-up, 2 more participants had died, leaving 103 living and eligible. Of these, 101 participated at age 30 (52 in the treated group and 49 in the control group). The strong scientific features of the study (eg, randomized assignment, low attrition) allow for greater confidence in the findings.

Children in the program group entered elementary school with higher cognitive abilities than those of children in the control group [1] and also appeared to be more engaged with people and objects in their environment [2]—that is, they were more “ready” for school success. Then in primary and secondary school they consistently demonstrated higher academic achievement in both reading and math than did children in the control group [3], a difference that was maintained through young adulthood. Furthermore, when individuals who had been in the program group reached early adulthood, they were more likely to attend a 4-year college or university [4]. Exciting findings recently reported from the age 30 follow-up showed that not only were those who participated in the childcare program more likely to attend college, they were also 4 times more likely to remain in college and graduate than were those in the control group [5].

Given this evidence that early learning experiences can influence educational achievement for poor children, what are we doing now in North Carolina to increase the opportunities of young children living in poverty to receive high-quality early learning experiences? And what outcomes have been associated with those efforts?

One major initiative is the North Carolina Pre-Kindergarten (Pre-K) Program (formerly known as More at Four). The purpose of this state-funded program is to provide a high-quality educational experience in a class-

homes in good communities with high-quality schools. Persons who are poor are more likely to live in substandard housing or in unsafe communities. Their communities may lack grocery stores that sell fresh fruits and vegetables or lack access to outdoor recreational facilities where people can exercise. Children who grow up in poverty generally fare worse in school and end up, on average, with fewer years of education than those in families with higher incomes [1]. Health-related factors such as hunger, physical and emotional abuse, and chronic illness can lead to poor school performance [14]. All of these factors combine to shape a person's health experience across the lifespan.

What is known is that mitigation of many of the social determinants of health disparities and their consequences results from ongoing proactive efforts aimed at improving the overall quality of life of persons in at-risk groups,

beginning early in life [15-17]. Some types of improvement efforts, such as the creation of jobs or the placement of parks or grocery stores, are beyond the scope of clinicians and other health care providers. However, ongoing efforts are being made to improve access to health care. For example, resources can be provided to expand health insurance coverage and health care in under-resourced communities.

Academic success is an excellent indicator for the overall well-being of youth and is a primary predictor and determinant of adult health outcomes [18-20]. Addressing the role of educational attainment early in a person's life is critical, and the earlier this begins the better. The Community Preventive Services Task Force, created by the US Department of Health and Human Services to evaluate evidence and make recommendations about effective community-based interventions, has recommended the

room setting the year before entry into kindergarten for children at risk of reduced school readiness because of such factors as low family income, low English proficiency, disability, or chronic health condition [6]. To date, more than 167,000 children have participated. A recent study conducted at the Frank Porter Graham Child Development Institute investigated the early school-readiness skills associated with participation in the Pre-K Program using a quasi-experimental study design and found that program participation is associated with higher school-readiness skills at kindergarten entry [6]. Children who participated in the Pre-K Program had better language/literacy skills (ie, knowledge of letters and words, phonological awareness, print knowledge) and better math skills (counting abilities and the ability to solve applied math problems) than did children who had not participated. These results demonstrate that this initiative to provide high-quality early learning experiences to North Carolina children at risk for poor achievement outcomes is improving the school-readiness skills of those children.

North Carolina has also emphasized quality by integrating a Quality Rating and Improvement System into its childcare licensing system (the North Carolina Star Rated License system). In addition, the state uses a range of resources and supports (eg, Smart Start, T.E.A.C.H. [Teacher Education and Compensation Helps] Early Childhood®) to promote quality improvement in early care and education settings. Last year's legislation changing the policy regarding which early care and education programs are eligible to receive childcare subsidy funding also emphasized quality, ensuring that children from low-income families receive high-quality early care and education [7].

North Carolina is a national leader in its work to ensure that young children have access to high-quality early learning opportunities. The Early Learning Challenge grant recently awarded to the state will help North Carolina continue to strengthen its early childhood system so that all children, particularly those with high needs, have access to high-quality early learning environments. Continuing efforts are needed to provide the high-quality early oppor-

tunities that will help *each* child in North Carolina grow up to be a productive, successful citizen of the state. **NCMJ**

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establishment of comprehensive, center-based programs for low-income children ages 3 to 5 years. Effective and evidence-based early childhood programs that support early learning opportunities result in improved school readiness, less grade retention, and fewer placements in special education classes [21]. Cutler and Lleras-Muney [10] and others [22, 23] also recommend that the quality of schools be improved. In addition, Cutler and Lleras-Muney promote policies to expand college attendance [5].

Schools can play an important role in promoting the health and safety of young people and helping them establish lifelong healthy behaviors. Studies suggest that school health programs can have positive effects on educational outcomes, health-risk behaviors, and health outcomes [22, 24]. Similarly, programs that are primarily designed to improve academic performance are increasingly recog-

nized as being important public health interventions [11, 13]. Leading national education organizations recognize the close relationship between health and education, as well as the need to foster health and well-being within the educational environment for all students [19-21, 25, 26]. **NCMJ**

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