

Social Programs That Work Review

Evidence Summary for the Abecedarian Project

HIGHLIGHTS:

- **PROGRAM:** High-quality child care/preschool for children from disadvantaged backgrounds.
- **EVALUATION METHODS:** A single randomized controlled trial (RCT) with a sample of approximately 120 families with infants.
- **KEY FINDINGS:** Large effects on educational attainment, employment, and other important life outcomes, sustained well into adulthood.
- **OTHER:** This was a relatively small study conducted in the early 1970s, and included two substantive departures from random assignment – factors that reduce confidence in the findings. Replication of these findings in a second trial would be desirable to confirm the initial results and establish that they generalize to present-day settings.

I. Evidence rating: **SUGGESTIVE TIER**

The standard for Suggestive Tier is:

Programs that have been evaluated in one or more well-conducted RCTs (or studies that closely approximate random assignment) and found to produce sizable positive effects, but whose evidence is limited by only short-term follow-up, effects that fall short of statistical significance, or other factors. Such evidence suggests the program may be an especially strong candidate for further research, but does not yet provide confidence that the program would produce important effects if implemented in new settings.

II. Description of the Program:

The Abecedarian Project, initiated in 1972 in Chapel Hill, North Carolina, provided educational childcare and high-quality preschool from age 0-5 to children from very disadvantaged backgrounds. The childcare and preschool were provided on a full-day, year-round basis; had a low teacher-child ratio (ranging from 1:3 for infants to 1:6 for 5-year-olds); and used a systematic curriculum of “educational games” emphasizing language development and cognitive skills. The average annual cost of the program was approximately \$19,000 per child (in 2017 dollars). [Click here for Abecedarian Project’s website.](#)

III. Evidence of Effectiveness:

This program was evaluated in a single randomized controlled trial with a sample of approximately 120 families with infants. The families were randomly assigned to either (i) a group that received the Abecedarian program or (ii) a control group that did not, but was given free diapers and formula and could use any other community preschools or childcare centers. Virtually all sample children were African American, only about a quarter lived with both of their biological parents, and most of their families reported no earned income. At the time of the children's births, their mothers averaged 20 years of age and less than a high school education.

Effects of the Abecedarian Project at the age-30 follow-up¹:

All of the following effects are statistically significant at the 0.05 level. Compared to the control group, Abecedarian group members:

- Were 42% more likely to have been employed for at least 16 of the 24 months preceding the age-30 follow-up (75.0% of the Abecedarian group vs. 53.0% of the control group).
- Were 81% less likely to have received welfare for a total of nine months or more between the ages of 22.5 and 30 years (3.9% for the Abecedarian group vs. 20.4% for the control group).
- Were almost four times as likely to have graduated from college (23.1% for the Abecedarian group vs. 6.1% for the control group).
- Completed 1.2 more years of education (an average of 13.5 years for the Abecedarian group vs. 12.3 years for the control group).
- Were 1.8 years older when their first child was born (an average of 21.8 years of age for the Abecedarian group vs. 20.0 years of age for the control group).

The study found no statistically significant effects on high school graduation rates, income, type of employment, marital status, mental or physical health, criminal activity, or substance use. The non-significant effects on high school graduation, income, type of employment, and marital status tended to favor the Abecedarian group. There was no clear pattern of effects – positive or negative – on the other outcomes.

Discussion of Study Quality:

- The study had low sample attrition for all self-reported outcomes: at the age-30 follow-up, data on these outcomes were collected for 83% of the original sample of children, and the follow-up rates were similar for the Abecedarian and control groups (81% vs. 86%). For welfare receipt, sample attrition was in the moderate range: state administrative records on welfare receipt were only available for the 69% of the sample who lived in North Carolina at some point during the

¹ The study has also reported findings at age 35 on health outcomes, but we do not summarize them here due to important study limitations at that follow-up that weaken the findings' reliability (namely, high and differential sample attrition).

7.5 years preceding the age-30 follow-up (the study does not report the separate follow-up rates for the Abecedarian versus control group, but indicates they did not differ significantly).

- The Abecedarian and control group members in the age-30 follow-up sample were highly similar in their observable pre-program characteristics (e.g., gender, age of their mother when they were born, their mother's IQ).
- Other than welfare receipt, all outcomes were measured exclusively through sample members' self-reports in an interview and on several questionnaires. It is not reported whether interviewers were kept unaware ("blind") as to which sample members were in the Abecedarian versus control group. Interviewers were blinded at earlier follow-up points in this study.
- Study limitation: The study as implemented included two substantive departures from random assignment reducing confidence in its findings.
 - › First, 11% of families (7 families) assigned to the Abecedarian group dropped out of the study after learning their group assignment, and their outcomes were not tracked. The same was true of only 2% of control group families (1 family). Such self-selection out of the Abecedarian group, a violation of the "intention to treat" principle, could have distilled the group down to those families most committed to their child's education, and thereby undermined the equivalence of the Abecedarian and control groups in their degree of such commitment. This difference in family commitment between the two groups, rather than the Abecedarian program itself, may at least partly explain the superior outcomes observed for the Abecedarian group.
 - › Second, six months after random assignment, 8 additional families were recruited to replace those who dropped out of the study. It is not clear how these families were recruited, but they were disproportionately, and we presume non-randomly, assigned to the Abecedarian group (7 to the Abecedarian group vs. 1 to the control group). Such non-random allocation of the additional families may have further undermined the equivalence of the Abecedarian and control groups.
- Study limitation: The Abecedarian program was evaluated in the early 1970s in a single childcare center. Replication of the above findings in a second trial, with a larger sample and closer adherence to random assignment, would be desirable to confirm the initial findings and establish that they generalize to present-day settings where the program might be implemented.

IV. References:

Garcia, Jorge L., Heckman, James J., Leaf, Duncan E., and Prados, Maria J. "The Life-Cycle Benefits of an Influential Early Childhood Program." National Bureau of Economic Research, 2016.
<http://www.nber.org/papers/w22993.pdf>.

Campbell, Frances A., Elizabeth P. Pungello, Margaret Burchinal, Kirsten Kainz, Yi Pan, Barbara H. Wasik, Oscar A. Barbarin, Joseph J. Sparling, and Craig T. Ramey. "Adult Outcomes as a Function of an Early Childhood Educational Program: An Abecedarian Project Follow-Up." *Developmental Psychology*, 2012, vol. 48, no. 4, pp. 1033-1043.

Campbell, Frances A., Craig T. Ramey, Elizabeth Pungello, Joseph Sparling, and Shari Miller-Johnson. "Early Childhood Education: Young Adult Outcomes From the Abecedarian Project," *Applied Developmental Science*, 2002, vol. 6, no. 1, pp. 42-57.

Masse, Leonard N. and W. Steven Barnett, *A Benefit-Cost Analysis of the Abecedarian Early Childhood Intervention*, New Brunswick, N.J.: National Institute for Early Education Research, 2002.
<http://nieer.org/resources/research/AbecedarianStudy.pdf>.

Campbell, Frances A., Elizabeth Pungello, Shari Miller-Johnson, Margaret Burchinal, and Craig T. Ramey. "The Development of Cognitive and Academic Abilities: Growth Curves From an Early Childhood Educational Experiment," *Developmental Psychology*, 2001, vol. 37, no. 2, pp. 231-242.

Campbell, Frances A. and Craig T. Ramey. "Effects of early intervention on intellectual and academic achievement: A follow-up study of children from low-income families." *Child Development*, 1994, vol. 65, pp. 684-698.