
Outcomes of the High/Scope Perry Preschool Study and Michigan School Readiness Program

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Evaluations of ongoing early childhood development (ECD) programs yield lessons for improving the design of ECD programs, certainly in industrialized countries and probably in developing countries. Several U.S. programs are known worldwide for demonstrating the extraordinary value of high-quality preschool education.

Two longitudinal evaluation studies, in particular, show the beneficial effects of ECD programs on young children who are living in poverty and otherwise potentially vulnerable to failure in school. In addition, a multicountry early childhood study found relationships between early childhood practices and child outcomes that were the same in all the countries studied.

In the High/Scope Perry Preschool Study, researchers followed 123 low-income children, who entered the ECD program at ages 3–4 years, through age 40. In the Michigan School Readiness Program Evaluation, researchers tracked 596 children, who entered the program at age 4 years, through age 10. These two different studies offer similar and complementary lessons for designing effective ECD programs.

Measuring ECD Outcomes

**High/Scope Perry Preschool Study
Michigan School Readiness Program Evaluation
Lessons for Program Design**

Measuring ECD Outcomes

High/Scope Perry Preschool Study

The High/Scope Perry Preschool Study is a scientific experiment identifying the short- and long-term effects of a high-quality preschool education program for young children living in poverty

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(Schweinhart and others 2005). In 1962–67, David Weikart and colleagues operated the High/Scope Perry Preschool program for young children in the Ypsilanti, Michigan, school district (Weikart and others 1970). The aim was to help the children avoid school failure and related problems.

Study Design

For the evaluation study, the researchers:

- Identified 123 African American children ages 3–4 years who were living in poverty and were at high risk of school failure
- Assigned the children randomly to two groups: 58 children to a high-quality preschool “program group” and 65 children to a “no-program group”
- Collected data on both groups—annually from age 3 through age 11 and at ages 14, 15, 19, 27, and 40
- Compared the outcomes for children who did and did not participate in the ECD program.

The researchers defined “children living in poverty” as those whose parents had little schooling (9th grade, on average) and low occupational status (i.e., unemployed or in unskilled jobs) and who lived in high-density households (i.e., 1.4 persons per room). The program group consisted of several classes of 20–25 children who met daily with certified teachers. The children participated in their own education by planning, doing, and reviewing their activities. The teachers also made weekly home visits.

Evaluation Results

Figure 1 presents the evaluation results over time and chronologically for the program group and no-program group. All comparisons are statistically significant at $p < 0.05$. The missing-data rate across all measures was only 6 percent.

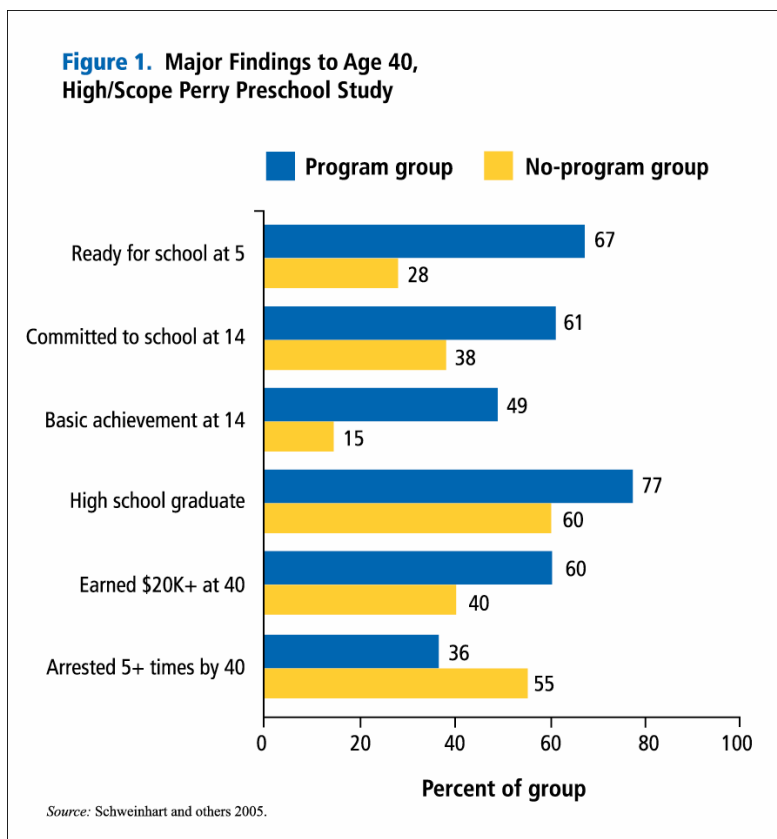
Because the study was based on random assignment and the characteristics of the children in the two groups were almost exactly alike—

Preschool experience is the best explanation for the differences in the children’s subsequent performance over time.

The figure shows that, compared with children in the no-program group, more children in the program group—

- Were ready for school at age 5 (67 percent versus 28 percent).

- Were committed to school at age 14 (61 percent versus 38 percent)—a higher percentage did their homework and talked with their parents about school.
- Attained a basic level of achievement at age 14 (49 percent versus 15 percent).
- Graduated from high school (77 percent versus 60 percent).



Beyond High School. The benefits of participating in the ECD program extended beyond high school. The findings for the program group compared with the no-program group are as follows:

- The program group had higher median annual earnings at age 27 (\$12,000 versus \$10,000) and age 40 (\$20,800 versus \$15,300).
- More were employed at age 27 (69 percent versus 56 percent) and age 40 (76 percent versus 62 percent).
- More owned their own homes at age 27 (27 percent versus 5 percent) and age 40 (37 percent versus 28 percent).
- More raised their own children (57 percent versus 30 percent).

In addition:

- Fewer were arrested five or more times by age 40 (36 percent versus 55 percent).
- Fewer were arrested for violent crimes (32 percent versus 48 percent), property crimes (36 percent versus 58 percent), and drug crimes (14 percent versus 34 percent).
- Fewer were sentenced to prison or jail by age 40 (28 percent versus 52 percent).

Gender-specific Program Effects. The findings indicated that females and males gained different advantages from participating in the ECD program. Females' advantages were in educational placement: fewer program females than no-program females were retained in grade (21 percent versus 41 percent), fewer were treated for mental impairment (8 percent versus 36 percent), and fewer dropped out of high school (12 percent versus 54 percent). Males' advantages were in reduced crime: fewer program males than no-program males were arrested five or more times by age 40 (45 percent versus 69 percent).

Causal Model. The data show consistent effects of participation in the ECD program from ages 4 to 40 years. The researchers documented a causal model that tracks cause–effect paths from the children's preschool experience and pre-program intellectual performance to their post-program intellectual performance, school achievement and commitment to schooling, and then on to their educational attainment, adult earnings, and lifetime arrests.

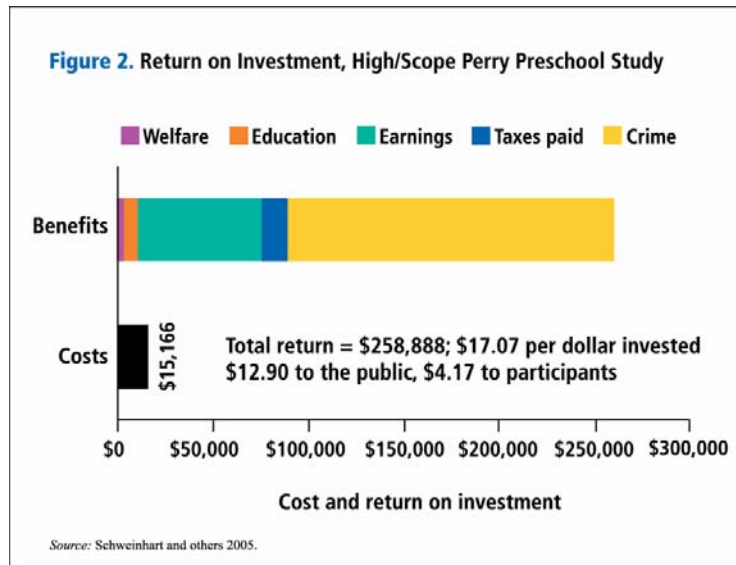
Cost-Benefit Analysis. One of the most well-known findings of the High/Scope Perry Preschool Study is that the preschool program had a large return on investment. A cost-benefit analysis indicates that (in constant U.S. dollars, 2000, discounted at 3 percent)—

The economic return to society for the program was \$258,888 per participant on an investment of \$15,166 per participant—or, \$17.07 per dollar invested.

This return benefited both the general public and the participant. Of the total return, \$195,621 was a return to the general public, and \$63,267 was a return to the participant. The distribution of the public return was calculated as follows:

- 88 percent represented savings from crime, whereas up to 7 percent represented savings from special education and welfare, as well as increased funds from taxes on higher earnings.
- Remarkably, 93 percent of the public return was attributed to males because of the program's substantial reduction in crime committed by males, and only 7 percent of the public return was attributed to females.

Figure 2 graphically portrays the costs and benefits.



- The full report of the High/Scope Perry Preschool Study, entitled *Lifetime Effects: The High/Scope Perry Preschool Study through Age 40*, is available from the High/Scope Press. Summaries are available at: <http://www.highscope.org/NewsandInformation/PressReleases/PerryP-Age40.htm>.

Michigan School Readiness Program Evaluation

The Michigan School Readiness Program (MSRP) is Michigan’s preschool program for 4-year olds who are at risk of school failure. The program is intended to help these children get ready for school. The program serves approximately 22,000 children each year who qualify for the program by having two risk factors (e.g., parents with low income, living in a single-parent family).

The High/Scope Foundation, as commissioned by the Michigan State Board of Education, has led evaluation of the MSRP for a decade (Xiang and Schweinhart 2002).

Study Design

Evaluation of the MSRP consists of two major efforts:

- Local program evaluations conducted by MSRP grantees, with support from the High/Scope Foundation.
- A state evaluation conducted by the High/Scope Foundation at selected sites—following 596 children ages 5–10 who participated in the MSRP in 1995–96 at six sites in and around the Michigan cities of Detroit, Grand Rapids, Grayling, Kalamazoo, Muskegon, and Port Huron.

The state evaluation serves as a scientific model for ECD evaluation. It was conducted by trained data collectors and included a comparison group of children who have not participated in the MSRP.

For each site, evaluation researchers tracked and compared children who did and did not participate in the preschool program. In this quasi-experimental model, the two groups of children were similar in age, mothers' and fathers' schooling, presence of the father in the home, number of persons per household, and household income.

Evaluation Results

The effects of participating or not participating in the preschool program were documented for the program and no-program children as they entered kindergarten and at age 10 (4th grade).

On Entering Kindergarten:

- Observers rated the graduates of the preschool program significantly better in language and literacy, creative representation, music and movement, initiative, and social relations, compared with their no-program classmates.
- Elementary school teachers rated the program children significantly more ready for school (i.e., they were more interested in school and were more likely to take initiative, have good attendance, and retain learning), compared with their no-program classmates.
- The parents of the program children became significantly more involved in their children's school activities and talked with the elementary school teachers more often, compared with the parents of the no-program children.

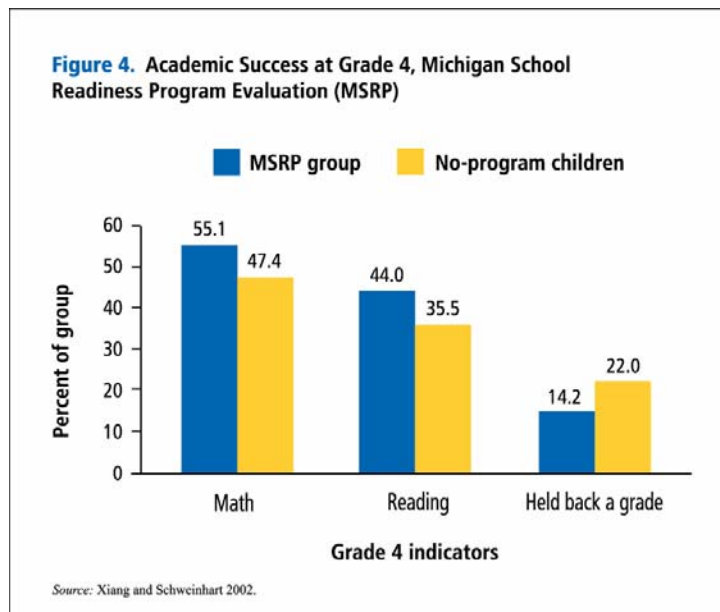
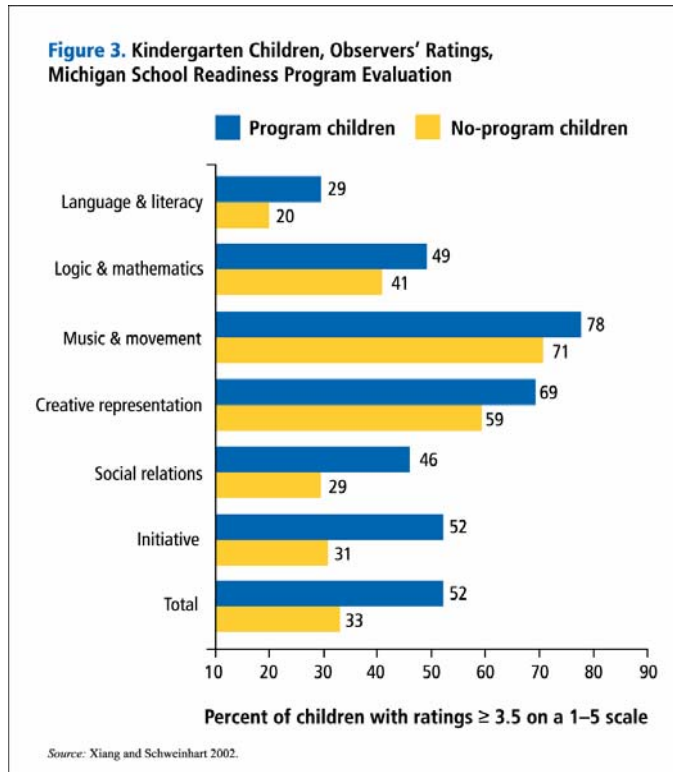
Figure 3 presents the observers' findings.

By Age 10:

- Fewer program children had repeated a grade, compared with their no-program classmates of similar background (14 percent versus 22 percent).
- More program children passed Michigan's 4th grade reading and mathematics tests, compared with the no-program children (44 percent versus 36 percent for reading, 55 percent versus 47 percent for mathematics).

Figure 4 presents these findings.

The benefits of the MSRP to the state of Michigan are significant. For example, extending the 14 percent of fewer program children repeating a grade by age 10 to the total number of children participating in the MSRP each year, the program is preventing an estimated 2,100 children in Michigan each year from having to repeat a grade by age 10. This benefit alone—reduced grade repetition—potentially saves Michigan an estimated \$13.6 million annually.



➤ The full report of the Michigan School Readiness Program Evaluation is available on the High/Scope website: <<http://www.highscope.org/research/success>>.

Lessons for Program Design

The two evaluation studies—of the High/Scope Perry Preschool Program and the MSRP—yield important lessons. Ten lessons are suggested below, both for designing preschool programs and supporting early childhood development.

1. Evaluation Is Critical for Determining the Effectiveness and Value of an ECD Program

This lesson is most obvious. Without evaluation, individuals can only assume or guess whether a program is worth the money spent on it.

2. The Best Program Directors Understand Evaluation and Are Immersed in the Evaluation Process

The High/Scope Perry Preschool Study has been criticized at times because the program director was also the first evaluation director. However, instead of compromising the objectivity of the evaluation, the program director's knowledge and desire to achieve the measured outcomes for the children may well have been the major reason for the success of the program and the evaluation. ECD programs in developing countries may be better served by having program directors who understand and are immersed in the evaluation.

3. Experimental Designs Are Preferable to Quasi-Experimental Designs

Although experimental studies are more difficult to implement because of practical considerations, they yield much more trustworthy results because the two groups—program and no-program—are exactly alike except for the program's effect.

Both the High/Scope Perry Preschool and the MSRP evaluations measured child performance in two groups, one that participated in the program and one that did not. The no-program group could be considered counterfactual, because the group's performance is an estimate of how well the program group would have done without the program. The difference between the two groups' performance is an estimate of the program's effect.

Establishing this effect with certainty is more difficult in quasi-experimental studies than in experimental studies because of the possibility of selection bias. In quasi-experimental studies, the two selected groups may differ in a variety of ways and the difference in their performance may be due to factors other than the program's effect.

- In an *experimental* study, such as the High/Scope Perry Preschool Study, a sample of children is randomly assigned into groups.
- In a *quasi-experimental* study, such as the MSRP evaluation, children in the population are selected randomly to represent two pre-existing groups.

4. The Longer the Follow-Up, the More Can Be Said about the Extent and Duration of a Program's Effects

In both the High/Scope Perry and MSRP studies, data were collected over a number of years—through age 40 in the High/Scope Perry study, and through age 10 in the MSRP study. Practical considerations make long-term follow-up difficult. The missing-data rate of only 6 percent across all measures in the High/Scope Perry study is a far-from-typical accomplishment. Tracking individuals over time is a difficult problem anywhere, especially in developing countries.

5. Poverty and Its Effects May Not Be the Same Everywhere

Both High/Scope Perry and MSRP focused on children who were living in poverty and at special risk of school failure. Whereas the evidence for positive effects of ECD programs targeted to these children is substantial, there is little evidence for effects on children who do not live in poverty or are at special risk of school failure. With their focus on at-risk children living in poverty, the studies may have applicability in developing countries.

However, both studies were conducted in the United States, so the children in the study were living in the midst of U.S. conditions, rather than conditions of developing countries. Although the *absolute poverty* of the children in the studies may be at the same level or even higher than that of most children in developing countries, the *relative poverty* of the U.S. children (i.e., their income levels relative to others in their community) is far worse.

The effects of this poverty may differ. For example, if relative poverty motivates economic initiative, then the children in the U.S. studies would be more motivated than would most children in developing countries. But, if relative poverty generates greater discouragement, the children in the U.S. studies would be less motivated than would most children in developing countries.

6. High-Quality ECD Programs Have Certain Key Characteristics

To obtain the results achieved by the High/Scope Perry Preschool Program, an ECD program must have characteristics similar to this program. Much of High/Scope's success is attributable to its preschool teachers. A quality ECD program has teachers who:

- Are educationally qualified and trained in participatory education
- Help children participate in their own education—by having them plan, do, and review their own activities
- Hold daily classes for children ages 3–4, including those at risk of school failure
- Fulfill a 1:8 ratio of adults to children
- Visit with families frequently to discuss their children's development with them.

IEA Pre-Primary Study

The results of this large, multinational, longitudinal study, which was sponsored by the International Association for the Evaluation of Educational Achievement (IEA), complement the High/Scope findings and are especially relevant to developing countries. The study included more than 5,000 children ages 4–7 years who were followed in nearly 2,000 settings across 15 countries in Africa, Asia, Europe, and North America (Montie, Xiang, and Schweinhart 2006). The purpose was to identify how characteristics of pre-primary settings in various communities affect children’s language and intellectual development at age 7.

In the study, four characteristics of preschool programs that predicted children’s abilities later were:

- Having free choice in participatory learning activities
- Engaging in few whole-group activities
- Having many, varied materials available
- Having teachers with higher general levels of schooling.

Any limitations in the applicability of U.S. studies of ECD programs to developing countries are not shared by the IEA Pre-primary Project. This project shows what works in a great variety of countries.

➤ *A summary of the IEA Pre-Primary Study is available at <<http://www.iea.nl/ppp.html>> or <http://www.highscope.org/Research/international/iea_preprimary.htm>.*

7. Evaluations Must Be Well-designed and Include Program-sensitive Outcome Measures

ECD programs cannot be known to be successful unless they receive good evaluations. An effective evaluation assesses three components of ECD programs:

- Program implementation—to ensure that an ECD curriculum is being implemented as expected
- Teacher and child engagement—to ensure that teachers are actively engaged with children and that children are actively engaged in learning
- Child outcomes—to ensure that the program contributes to the children’s intellectual, social, and physical development and motivation.

The evaluation must demonstrate that the children participating in the program are developing better than they would without the program. Each component of the evaluation must be carefully designed and incorporate program-sensitive measures. For example—

- For program implementation and teacher and child engagement, the evaluation design should include visits by trained observers (data collectors) to see the programs in action. To assess program implementation, data collectors would observe the program and interview teachers. To assess teacher and child engagement, the data collectors would use a systematic observation technique.
- For child outcomes, the evaluation design should include assessments of children before and after their participation in the program. Assessments would be made across a variety of measures and compared to a standard. This standard for comparison may be the norms for an assessment tool which provides norms, or the performance of a comparison group. In a quasi-experimental study, the comparison group is a pre-existing group; in an experimental study, the comparison group is a randomly assigned control group.

8. Child Assessment Tools Must Be Suitable to the Country and Culture of the Children Who Are Being Assessed

A variety of tools are available for assessing child outcomes. The evaluation could include systematic observation tools (e.g., the High/Scope Child Observation Record) and/or tests (e.g., the Woodcock-Johnson Achievement Test). Assuring that the tools which are used are suitable to the children's country or culture is often challenging—many instruments are developed in the United States and may or may not be translated into various languages. The designers of an evaluation study must closely scrutinize the instruments to be used to verify that they are aligned with the program's goals and the children's culture.

9. Quality ECD Programs that Contribute to Children's Development Are the Fountainhead of Quality Education and, Hence, a Major Building Block in a Country's Economic Development

ECD programs may founder if they do not receive good evaluations. Providing custodial care to children is not sufficient and does not fulfill the potential of ECD programs to contribute to children's development.

In his book *The World Is Flat*, Thomas Friedman (2005) makes a strong case that initiative and nimble problem-solving are the keys to any country's economic success in the world market. Learning specific skills may be useful in one context, but irrelevant in a different context. However, initiative and problem-solving are always useful, because they help people adapt to changing contexts.

The High/Scope Perry Preschool Study has shown that a good ECD program that focuses on initiative and problem-solving can be the first step toward extraordinary economic and social benefits.

10. Long-Term, Widespread Benefits and Returns Are Possible with a Variety of High-Quality ECD Efforts

The High/Scope Perry Preschool Study is the first study to identify many long-term effects of an ECD program—including economic return on investment—but it is not the only study to do so. Three additional U.S. studies have documented important long-term benefits, including economic return on investment, that can come from a variety of quality ECD programs.

- In the North Carolina Abecedarian Project, Campbell and colleagues (2002) underscored the point that high-quality childcare has long-term effects far exceeding those of typical or low-quality childcare.
- In the Chicago Child–Parent Centers study, Reynolds and colleagues (2001) noted the long-term effects of this large-city service program.
- In Elmira, New York, Olds and colleagues (1998) showed widespread, long-term effects from a nurse home-visiting ECD program. This program is the one of few home-visiting programs in the United States to show such strong effects, a finding that conveys the value that skilled professionals can bring to ECD programs.

Web Resources [as of November 2006]

High/Scope Educational Research Foundations: <<http://www.highscope.org>>

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References

- Campbell, F. A., C. T. Ramey, E. P. Pungello, J. Sparling, and S. Miller-Johnson. 2002. Early Childhood Education: Young Adult Outcomes from the Abecedarian Project. *Applied Developmental Science* 6:42–57.
- Friedman, T. L. 2005. *The World Is Flat: A Brief History of the Twenty-First Century*. New York: Farrar, Straus and Giroux.
- Montie, J. E., Z. Xiang, and L. J. Schweinhart. 2006. Preschool Experience in 10 Countries: Cognitive and Language Performance at Age 7. *Early Childhood Research Quarterly* 21. Summary: <http://www.highscope.org/Research/international/iea_preprimary.htm>.
- Olds, D. L., C. R. Henderson, Jr., R. Cole, J. Eckenrode, H. Kitzman, D. Luckey, L. M. Pettit, K. Sidora, P. Morris, and J. Powers. 1998. Long-Term Effects of Nurse Home Visitation on Children’s Criminal and Antisocial Behavior: 15-Year Follow-Up of a Randomized Trial. *Journal of the American Medical Association* 280:1238–44.
- Reynolds, A. J., J. A. Temple, D. L. Robertson, and E. A. Mann. 2001. Long-Term Effects of an Early Childhood Intervention on Educational Achievement and Juvenile Arrest: A 15-Year

- Follow-Up of Low-Income Children in Public Schools. *Journal of the American Medical Association* 285: 2339–46.
- Schweinhart, L. J., J. Montie, Z. Xiang, W. S. Barnett, C. R. Belfield, and M. Nores. 2005. *Lifetime Effects: The High/Scope Perry Preschool Study through Age 40*. Ypsilanti, Mich.: High/Scope Press. Summaries:
<<http://www.highscope.org/Research/PerryProject/perrymain.htm>>
- Weikart, D. P., D. Deloria, S. Lawser, and R. Wiegertink. 1970. *Longitudinal Results of the Ypsilanti Perry Preschool Project*. Ypsilanti, Mich.: High/Scope Press.
- Xiang, Z., and L. J. Schweinhart. 2002. *Effects Five Years Later: The Michigan School Readiness Program Evaluation through Age 10*. Ypsilanti, Mich.: High/Scope Press.
<www.highscope.org/Research/MsrpEvaluation/msrp-Age10-2.pdf>