

How many participants are still in the study? What was the attrition over the years?

A: 128 participants were initially enrolled in the study. Five were dropped due to extraneous reasons. Out of the core sample of 123 participants, 102 were interviewed at around age 55, with an attrition rate of less than 20% over the 50 years of follow-up. ([Source](#))

Why is there such a huge gender gap and is it more at the level of the first generation or the second generation? If the latter is it a function of who they married?

A: There is an emerging consensus across various disciplines that males are more vulnerable than females to adverse early childhood environments. Thus, it is intuitive that there are much larger treatment effects on crime, especially violent crime, for the first-generation males relative to females. These effects also translate into effects on earnings for the first-generation males as well as their stable marriage rate. The treated males are thus able to provide their own children more stable two-parent homes and more parental income resources during childhood. While we see effects on both male and female children of the male participants, the crime effects are stronger on the male children of the male participants. We also see effects on the male children of the female participants, but not on the female children of the female participants. The gender gaps in the treatment effects also persist across generations. This does not mean that there are no effects on females. In fact, we see treatment effects on their post-midlife health, for example. But it remains the case that males across generations benefit more from these programs since they are more vulnerable to early life conditions.

How invested were the parents and willing to be a part of the program?

A: The parents of all children eligible for the program agreed to participate in the study, so our results are not biased due to issues of noncompliance. Since the Perry program teachers did not expect the parents of the children to be fully invested at the outset, they conducted weekly home visits to promote parental engagement. We find that the treated participants had fewer adverse childhood experiences and more parental attachment than the control subjects. Thus, conducting home visits is one way to promote parental engagement in targeted early childhood programs.

What is the racial breakdown of the Perry study?

A: All Perry participants are African American, since it was one of the eligibility criteria, in addition to developmental and socioeconomic disadvantage.

What was the toolkit given to parents?

A: There was no specific toolkit given to the program parents, except that the Perry teachers conducted weekly home visits and promoted parental engagement with the child. In doing so, the teachers took into account the individual circumstances and progress without resorting to any specific formula.

Was there any focus on social capital and how "connected and supported" families were?

A: The Perry teachers focused on socioemotional skills of the child in addition to cognitive development. To this end, they conducted weekly home visits to promote parental engagement with the child to build social capital and to make families more connected.

Where was the preschool located?

A: Ypsilanti, Michigan

How do I get a copy of the curriculum?

A: The curriculum was developed over time, borrowing from highly developmental, child-centric early childhood education (ECE) approaches. A version of the Perry curriculum evolved into the current HighScope curriculum used by many high-quality Head Start centers nationwide.

What are the key components to maintain a successful program at a sustainable large scale?

A: First, it is important that preschool programs are of high-quality and promote parental engagement as well as child-centered developmental learning. Second, from the viewpoint of economic efficiency, it is important to target these programs toward socioeconomically and developmentally disadvantaged children, since they would have the highest benefits from these programs. The first and second points go hand in hand: if the programs are targeted, it is possible to allocate more resources per disadvantaged child. Third, educators should be trained to be responsive to individual children and families, modifying approaches to individual needs and working together as teams on continuous improvement.

Was the duration of maternity leave considered in the research results? How long did the children have their mother with them in the first months of life?

A: We do not have this information. Most of the mothers in the program were not employed. There were a few mothers who were employed at the baseline age of three years. These mothers placed in the treatment group continued to work and were able to participate in the program because of special accommodations provided by the program staff.

If one were to try to identify a target audience for an educational program aimed to improve academic achievement, do these results suggest that achievement at age eight or third grade (when fadeout tends to occur) is a poor indicator of program outcomes?

A: Achievement at age eight or third grade is an insufficient indicator of program outcomes. Cognitive tests alone are poor indicators of success in life. It is important that we measure the success of these programs holistically from a human development perspective. It is not enough to measure simple test scores. We must measure benefits on multiple aspects of economic, social and family lives of the children

who are provided the intervention since these holistic improvements have spillover effects across multiple generations.

Is there heterogeneity in the intergenerational effects by cultural backgrounds? For example, northeastern Asian families tend to have good attitudes towards learning in early life for their children and then these cultural backgrounds may play a role in the effects.

A: We cannot answer this question because Perry only studied children from one cultural background.

What other data figures have we found other than the 13 percent ROI?

A: The 13 percent ROI is for the Abecedarian program, one that started at birth and for which we were able to calculate adult health benefits. A previous Perry study estimated the rate of return to the Perry program at between 7 and 10 percent. Our new study on the late midlife outcomes of the participants can be [accessed here](#). We do not as yet have a new cost-benefit analysis of Perry based on the intergenerational effects.

How do you see some of this research being applied in international contexts—in low-income countries?

A: We are also seeing success of [programs in Jamaica and China](#) that share some aspects of the Perry intervention, such as visits by the program teachers to the homes of the children to promote parental engagement. We also examined intergenerational mobility created by Denmark's early childhood programs for disadvantaged children and found that it had beneficial effects. ([Source](#))

To what extent are these results generalizable to other populations/context?

A: Although we only study a disadvantaged African American sample in the United States, there is reason to believe that high-quality, child-centric early childhood programs targeted toward developmentally and socioeconomically disadvantaged children would have high rates of return across contexts.

How much teacher training was there and how was it done?

A: The teachers in the program had bachelor's degrees or higher. They were highly skilled, had autonomy as professionals and worked together in teams to document and adjust education and outreach. Perry teachers also believed in parental agency and work with parents as partners. However, one of the main components of the program involved the program teachers visiting the homes of the child and improving interactions between the parents and children. This can be done at relatively low cost, as done in some [programs in Jamaica and China](#).

How do you reconcile the socioeconomic gains (as opposed to the "fadeout") when K-12 education is largely judged and weighed on academic indicators?

A: Academic indicators are just of many possible predictors of life success. Certainly, more highly educated people earn more in the labor market. However, there is a full range of skills that make for a good person and productive member of society. It is important that we measure the success of these programs holistically from a human development perspective. It is not enough to measure simple test scores. We must measure benefits on multiple aspects of economic, social and family lives of the children who are provided the intervention since these holistic improvements have spillover effects across multiple generations.

Will you send the PowerPoint to the participants?

A: The presentation recording and slides can be [accessed here](#).

Can you tell us about the type of home visits that they did-what did it cover, the frequency and what follow-up was done?

A: The Perry teachers conducted weekly home visits. Each session lasted for about 1.5 hours. The aim was to involve the treatment group mothers in the socioemotional development of their children.

Can you tell us about the participation of fathers in the study?

A: Although the program teachers mainly worked with the mothers of the participants, the fathers were also involved when they were present.

For those who were married and stayed married, did they come from married homes? Is there any further information about that?

A: We do not have the data to prove that they came from married homes.

What are some key components that you use to measure health outcomes?

A: We consider various health outcomes, including body fat, blood pressure, peak flow, pulse, cortisol, cholesterol, hemoglobin levels, arterial inflammation, kidney function, various diseases, smoking, alcohol consumption, drug use, eating habits and hospitalization.

For the second slide on the Heckman scale, were there any exemplary programs outside of the Perry study that yield the results of this scale.

A: Yes, another example is the [Abecedarian program](#), a birth-to-age-five program that delivered a higher return on investment.

As per other contributors, is this program generalizable to the UK?

A: There is reason to believe that the results from the study are generalizable to developmentally and socioeconomically disadvantaged children.

What type of pedagogy was used at the Perry Preschool?

A: The Perry curriculum fostered highly developmental, child-centered learning through intensive interactions between the children and program teachers, as well as working with parents as partners. Starting at age three, treatment in the following two years included preschool for 2.5 hours per day on weekdays during the academic year. Another major component of the program consisted of weekly home visits by the Perry teachers to promote parental engagement with the child.

What type of success has ECE had on boys of color?

A: The Perry Preschool program (and this research) included only African American students. The positive gains were even greater for the male Perry program participants, as well as for the male children of male participants, especially on crime outcomes. The birth-to-five Abecedarian program also had strong beneficial effects on males, particularly in health outcomes.

From your research, what are the essential components of a quality ECE?

A: Highly developmental, child-centered learning and home visiting to promote parental engagement with the child. Care and instruction should take into account the needs of individual children and families and be culturally responsive.

Through your studies, do you think that IQ is genetic or can be changed, improved through prenatal infant care early education?

A: Our study is not concerned with the first question about IQ. We find some evidence of long-lasting treatment effects on executive functioning of the participants, although treatment effects on crude measures of IQ faded out. There is suggestive evidence that cognitive outcomes can be improved through early education. Starting these programs early (say at birth) can lead to larger cognitive gains, as seen in the Abecedarian program. That said, IQ measures alone were never intended to be indicative of life success.

Can you talk a little bit about the approach/components of Perry that are particularly important, and how were they integrated into the earlier years (birth to three)?

A: Although a preschool program, the Perry approach became the model for more comprehensive birth to age five approaches—and all high-quality programs employ the Perry elements. The experimental Abecedarian program built upon Perry, adapting it to a longer and more intense birth to age five program. That model informed North Carolina’s effective Smart Start program for children zero to three and the state’s later expansion into preschool and birth-to-eight integration. Active child-centered learning and home visiting to promote parental engagement with the child were some of the main components of the Perry program. These key components can be integrated into the earlier years.

Did you find that the benefits varied at all by race?

A: That data is not available to us through this study. All participants in the Perry program were African American children.

Are there insights into whether children of Perry participants were more likely to attend high-quality ECE programs relative to children of control children? Or any other insights about the early childhood conditions and experiences of the children of Perry participants compared with children of the control group?

A: About 45 percent of the second-generation children (in the total sample) attended some kind of preschool themselves. However, we do not find statistically significant differences between the number of children of Perry participants who attended preschool and the number of children of the control group who did. Because of this, preschool attendance rates of the second-generation are not driving the intergenerational effects documented.

I was curious if it actually might have been a Montessori program since there was growth in Montessori programs in the 1960s.

A: Montessori was not mentioned in the historical documentation. Nevertheless, elements of it (that are not specific to Montessori) might have been present in the curriculum. The Perry education approach was certainly in line with the highly developmental and child-centric elements of both Montessori and Reggio.

In reference to transitioning to school...does the Perry research provide suggestions for school readiness primary school programming?

A: School readiness is certainly an important milestone, but one of many. The body of research suggests that school readiness is more than literacy and math skills, but a host of social, emotional, behavioral and executive functioning skills that prepare children for effective learning. High-quality programs certainly develop these whole skills and many have proven to have made gains among treated children. It is important that we measure success of these programs holistically from a human development perspective. It is not enough to measure simple test scores and simplistic measures of "school readiness." We must measure benefits on multiple aspects of economic, social and family lives of the children who are provided the treatment since these holistic improvements have spillover effects across multiple generations.

For pedagogy did the teachers consider Montessori models? Or Tools of the Mind?

A: Montessori was not mentioned in the historical documentation. Nevertheless, elements of it (that are not specific to Montessori) might have been present in the curriculum. The Perry education approach was

certainly in line with the highly developmental and child-centric elements of both Montessori and Reggio. Tools of the Mind did not exist during the Perry experiment.

Were outcomes intended in the research design or were they observed after the intervention?

How were they measured?

A: The Perry program was initially intended to be an IQ intervention. However, it also focused on socioemotional development of the children. Although the gains in crude measures of IQ faded out over time, gains on socioeconomic outcomes persisted through late midlife of the participants. Although the initial follow-ups involved mostly cognitive tests, the research design also intended to collect other information on the participants' lives. In the subsequent follow-ups, holistic socioeconomic outcome measures were collected. In the latest follow-up, health measures were also collected. ([Source](#))

Did the studies assess the impact of grandparents in the home or in their own home?

A: No, we do not have data on the grandparents.

Though the parents are being treated as equal partners in ECE, how equipped are the parents to handle their child's development where the parents are more focused on the 3Rs?

A: Parents who are focused on the 3Rs are likely to be engaged in their child's development and simply need more information to incorporate a more holistic approach to skills development. Treating parents as partners means understanding their goals and working with them to add new goals and skills as parents. Explaining how intentional play, social and emotional development and executive functioning support academic performance and life success is one way to help parents achieve their goal of being the best providers for their children.

How would a program like Perry or Abecedarian work with families whose home language is not English? Are equal/comparable gains expected with children who don't speak English and enter the program at age two or three?

A: Our study is not able to answer these questions because Perry only studied English-speaking disadvantaged African American children in the 1960s.

Did study address role of family relatives in the generation of prosocial behavior in young parents and children?

A: No, we do not have detailed data on the family relatives required to answer this question.

How do we pay for these investments, especially if we expand to birth to five? Have you done work on the best revenue sources?

A: The high rate of economic and social return of investing in ECE programs justifies the investment. The upfront costs become more manageable and effective when we invest in disadvantaged children and families. The question of revenue sources is left to policymakers who should take action based on the scientific and economic evidence, as well as the will of the people.

What should we be doing at the state level to amend extant laws?

A: We are not experts in state laws and policies. We provide our research to help advocates and policymakers amend and improve their laws and human capital investments as they see best.

What cities are doing the best job in implementing ECE programs that can serve as a model for other cities?

A: We have not researched the work of other cities. Based upon our Perry, Abecedarian and other research, we encourage cities to invest in highly developmental, child-centric early childhood development for disadvantaged children from birth to age five.

Are there any "Best practices models" that have attempted to shift the focus to ECE at birth or beyond birth that confirm Perry study findings?

A: Yes, the Abecedarian program in North Carolina applied the Perry principles to birth to five, with developmental follow-up through grade three.

What should the balance be between investing in universal services for all children and investing in targeted services?

A: We currently have not researched the effectiveness of universally subsidized services or their return on investment. The often-quoted 13 percent return on investment comes from investing in high-quality, comprehensive ECE for disadvantaged children from birth to age five. It does not apply to investments in more advantaged children. Since more affluent parents are more likely to have resources to invest in their children, it makes greater economic sense to invest in those families that lack access to quality. Every child needs high-quality ECE, but not every family needs to be subsidized with funding. The latter should be prioritized for those with the most need.

What do researchers understand about why the Abecedarian/CARE project increased IQ? And what do they know about the long-term impact of those increases on the individual and family?

A: Starting at birth could have contributed to the observed treatment effects on IQ. A survey is underway to study the families and children of the Abecedarian participants around age 45.

Would this be appropriate for the public policy instrument of "mainstreaming" (the requirement that all policy development must consider the impact on this)? It was effective for women when

initiated by the UN, leading to national policy shifts. Are presentations and lobbying planned at the UN?

A: Our research is meant to inform public policy and those lobbying for evidence-based programs and improvements. Professor Heckman is not an advocate or a lobbyist. Professor Heckman has a wide body of domestic and international research and frequently speaks at international conferences and before international economic audiences. You can find his [international work here](#).

What assessment does Heckman use and is it available to use in the classroom?

A: This research did not use curriculum or classroom assessments; it studies the overall effects of the program on its participants and their children.

Can you please provide the examples you just mentioned of things that are happening at scale?

A: We have not studied the effectiveness of these programs, but others have. Examples of programs brought to scale are Boston Public Schools, North Carolina Smart Start and NC Pre-K, New Jersey's Abbot preschool program—and states such as Georgia, Alabama, Washington and others are committed to scaling programs.

Can you explain a bit more about why moms can get back into the workforce faster?

A: Access to ECE is dictated by availability, affordability and the comfort of the parent in their child being well-served in their absence. Parents who lack availability and can't afford ECE must stay at home with the child, with the burden usually falling to the mother. This prevents the mother from either entering into the workforce or going back into the workforce soon after the child is born. Similarly, if a mother feels that she cannot find quality care and education outside the home, she will stay at home with the child, forgoing career and economic advancement. Providing economically disadvantaged parents with access to high-quality, affordable ECE provides a stable resource for them to economically able and emotionally confident to enter and re-enter the workforce, which allows them to acquire more skills and likely more income through career development.

Is there a specific birth to three program that can be used as a model?

A: The [Abecedarian program](#).

Have there been examples of cities/counties taking Perry models "to scale" and reaching many or all children?

A: Most scaled programs have targeted disadvantaged children. Boston Public Schools is currently scaling high-quality ECE with the goal of reaching all children.

Given the challenges regarding funding all components of a comprehensive program (health, family support, parent-infant/child interaction, high-quality, center-based preschool), can the research provide any guidance about which interventions to prioritize if necessary?

A: No. We look at the total effects of program elements and have no data to assign any given outcome to one program element. All of the elements are necessary to get the return on investment, which is high enough to warrant the investment of policymakers.

Do you have any examples of how policymakers and corporate foundations were convinced to make investments on ECE, that usually takes long-term results vs. investing in programs that provide results in the short- or mid-term?

A: We hope that our research has helped policymakers and civic leaders change their thinking and investment strategies in human capital development. There are short-term benefits, but the greatest benefits come in the long-term.