

Invest in Early Childhood Education

“We know what a difference early childhood programs make in the lives of our kids.”

BARACK OBAMA

Manchester, N.H., November 20, 2007

T H E I S S U E

The time has come to put children first by focusing investments where research and effective practice tell us we will have the greatest opportunity for long-term success.

Research shows that early experiences shape whether a child's brain develops strong skills for future learning, behavior, and success. Investing in early learning also makes economic sense. For every dollar invested in high-quality, comprehensive programs supporting children and families from birth, there is a \$7–\$10 return to society in decreased need for special education services, higher graduation and employment rates, less crime, less use of the public welfare system, and better health.

The infant and toddler years are particularly critical, because many children spend significant parts of their day with caretakers other than their parents. In addition to ensuring that child care is accessible and affordable, we must do more to ensure that it is high quality and provides the educational experiences our children need.

THE OBAMA PLAN

Investment in children is not just morally right—these investments raise productivity of society as a whole. The Obama-Biden plan includes proposals for:

- **Zero to Five Plan:** The comprehensive “Zero to Five” plan will provide critical support to young children and their parents. It places key emphasis at early care and education for infants, which is essential for children to be ready to enter kindergarten. Obama and Biden will create Early Learning Challenge Grants to promote state Zero to Five efforts and help states move toward voluntary, universal preschool.
- **Expand Early Head Start and Head Start:** Quadruple Early Head Start, increase Head Start funding, and improve quality for both.
- **Provide Affordable, High-Quality Child Care:** Increase access to affordable and high-quality child care to ease the burden on working families.

P E R S P E C T I V E S

LONG-TERM PAYOFF SEEN FROM
EARLY-CHILDHOOD EDUCATION

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L O N G - T E R M P A Y O F F S E E N F R O M
E A R L Y - C H I L D H O O D E D U C A T I O N

BY LINDA JACOBSON

June 11, 2008

THE LATEST ANALYSIS of a long-running early-childhood-education program for children of low-income families in Chicago suggests economic payoffs from such services that continue well into adulthood.

Researchers looking at data from the study, which is now more than 20 years old, say that for every dollar spent on children who attended the Chicago Child Parent Centers, almost \$10 is returned by age 25 in either benefits to society—such as savings on remediation in school and on the criminal-justice system—or to the participant, in the form of higher earnings.

“The study is significant, given it is the only one of a sustained public school program and one of the very few which go into adulthood,” Arthur J. Reynolds, a child-development professor at the

University of Minnesota-Twin Cities and the lead researcher on the project, said in an e-mail.

He added that the benefits are probably underestimated because he has found some unexpected outcomes, such as participants' being more likely than those in the comparison group to hold private health insurance and less likely to have mental-health problems.

But some experts caution that the children served by the Chicago program and similar efforts were very disadvantaged, and that providing such services to middle-class families in universal preschool programs are unlikely to result in the same return on investment.

"The biggest argument against the Chicago economic data is that it is still largely a 'boutique' program that cost more and provided more services than most current universal and preschool programs," said Lisa Snell, the director of education and child welfare at the Los Angeles-based Reason Foundation, a free-market-oriented think tank. "It is hard to imagine that current programs will have the same kinds of economic payoffs as the Chicago program."

The State of Preschool

More than one million 3- and 4-year-olds now attend public preschool programs in the United States, but 12 states still don't have publicly financed programs, according to the newest yearbook from the National Institute for Early Education Research at Rutgers University in New Brunswick, N.J.

Released annually since 2004, the report tracks state developments in offering early-childhood-education programs. It ranks states on the percentage of eligible children enrolled and on 10 measures of quality, such as having teachers with bachelor's degrees, providing comprehensive services in addition to education activities, and providing nutritious meals.

The report also takes a particularly close look at four states—California, Florida, Ohio, and Texas—which enroll the bulk of children served in those programs, but meet fewer than half the 10 quality benchmarks.

The conclusions were presented late last month at a meeting in San Francisco of the Society for Prevention Research, based in Fairfax, Va.

Parent Involvement

The Chicago Longitudinal Study originally included 1,539 children from low-income African-American and Hispanic families who began in the early-education program run by the Chicago school system at 25 sites in either 1985 or 1986.

The Chicago program began in 1967 at sites in or near elementary schools. Similar to the federal Head Start program, the Child-Parent Centers provide comprehensive education, health, and family-support services to children ages 3 to 9.

Unlike in Head Start, all the teachers in the program have bachelor's degrees and are paid at the same level as K-12 teachers.

In addition, parents are expected to participate in the classroom—a component that distinguishes the Chicago program from

“The nation made progress this year, but when you dig deep into the data, the picture is not so rosy,” W. Steven Barnett, the director of the institute, said in a statement.

Among the children who still don't attend government-financed preschool, he added, most are from middle-class families that cannot afford expensive private preschools.

“States must decide whether education of young children will continue to be a welfare program for the poor or an essential investment in all Americans,” Mr. Barnett said.

Other key findings include the first increase in overall per-pupil spending since the report was initially released. The average amount spent per child, \$3,642, however, is still \$700 less than the level spent in 2001-02 when adjusted for inflation, the report says. The spending trends, according to the report, suggest “that states are struggling to maintain spending levels in light of enrollment increases and inflation.”

By Linda Jacobson March 26, 2008

other early-intervention initiatives—and the children in the study received home visits from a “school-community representative.”

“The parents were expected to get involved, and there were 30 different ways [for parents to participate], so nobody said no,” Mr. Reynolds said.

While the study was not designed as a true randomized trial, a comparison group including children who were matched to the participants on socioeconomic factors and demographic variables, such as family size and parents’ employment status, has been used to track the effectiveness of the intervention. Children in the comparison group took part in other early-childhood programs, such as Head Start, or full-day kindergarten.

Last year, Mr. Reynolds released findings in the *Archives of Pediatrics and Adolescent Medicine*, a monthly journal, based on study of participants at age 24. Those findings showed that the adults had acquired more education and were less likely to commit crimes than those who had not received the same level of service.

A Body of Evidence

Because of its evidence of lasting positive effects, such as lower special education costs and less welfare dependency, Mr. Reynolds’ study on the Chicago program is often used as one of three long-running research projects to argue for public spending on early-childhood education. The other two are the High/Scope Perry Preschool study, which ran in Ypsilanti, Mich., outside Detroit from 1962 to 1967, and the Carolina Abecedarian Project, in Chapel Hill, N.C., which provided services from birth through age 5 to 112 children from low-income families born between 1972 and 1977.

The Chicago study stands out, however, because it is not a demonstration program as are the others. It has been operated by a public school system and thus is likely more “generalizable to other similar and contemporary locations and contexts,” Albert Wat, a state-policy analyst at the Washington-based advocacy group Pre-K Now, wrote last year in the report “Dollars and Sense: A Review of Economic Analyses of Pre-K.”

The Chicago program “demonstrates that public schools can effectively implement high-quality pre-K programs that produce long-term positive gains,” he wrote.

Still, Mr. Reynolds concludes that the newest “evidence strengthens the findings of a high return on investment of public programs, if they follow the key principles of effectiveness.”

Mr. Reynolds’ new analysis, which will be released in a research paper later this year, also provides a comparison of the economic benefits of various types of preschool programs.

It uses an average of all the cost-benefit studies that have been conducted on other popular policies, such as full-day kindergarten, class-size reduction, and the federal Women, Infants, and Children, or wic, nutrition program.

The comparison shows that preschool programs have by far the highest return, \$6.02 for every \$1 spent, compared with \$2.47 for small classes, \$3.07 for wic, and nothing for full-day kindergarten.

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FINE - T U N I N G P R E S C H O O L R A T I N G S Y S T E M S

BY LINDA JACOBSON

October 29, 2008

THE USE OF RATING SCALES as a way to encourage child-care centers and preschools to improve their programs continues to increase in popularity across the states, even as researchers say states need to do more to share what they find and to demonstrate whether rating systems improve children’s learning.

Last month, California Gov. Arnold Schwarzenegger, a Republican, signed a bill creating an advisory committee that will begin the process of designing a scale for the state, which has lagged behind others on indicators of preschool classroom quality.

In Washington state, the department of early learning is set to

begin piloting its new Seeds of Success quality rating and improvement system with 125 providers in five communities.

And in Virginia, Gov. Tim Kaine's new office of early childhood development is in the second year of field testing its new Star Quality system with 350 state-funded pre-K, Head Start, and private child-care classrooms.

But a recent study by researchers at the Santa Monica, Calif.-based RAND Corp. suggests that officials haven't done a great job of sharing what they've learned from operating these programs.

Gail L. Zellman and Michal Perlman gathered representatives from five states that were among the first to implement what are known as quality rating and improvement systems: Colorado, North Carolina, Ohio, Oklahoma, and Pennsylvania.

The researchers wrote that despite the widespread appeal and growth of such systems, "there is a dearth of practical knowledge

Preschool Effects

Preschool can benefit children's learning and development, but the quality of existing preschool initiatives across the country varies tremendously, says a report from the Education and the Public Interest Center at the University of Colorado at Boulder and the Education Policy Research Unit at Arizona State University in Tempe.

High-quality preschool programs can raise achievement scores, reduce grade retention, and reduce the likelihood that students will be referred to special education, author W. Steven Barnett, the director of the National Institute for Early Education Research at Rutgers University in New Brunswick, N.J., writes in the September 10 policy brief.

But because of the uneven quality of programs, he recommends that policymakers avoid handing out more child-care subsidies for preschool and instead focus on expanding effective preschools with high standards.

By Linda Jacobson September 17, 2008

and empirical data to draw on in crafting qris legislation, designing qris and implementing qris components.”

They found that the five states included the education and training levels of a center’s teachers and measured classroom quality in some way. But states differed on other components of their rating systems, such as whether to include a measure of parent involvement or whether a center is nationally accredited.

Several recommendations emerged from the interviews, such as securing funding for programs before the process begins, conducting public-awareness campaigns, and having the experts who rate a center be different from the ones who provide technical assistance.

Market-Driven Approach

Like health department grades for eating establishments, rating scales are viewed as a market-driven way to encourage centers to increase the level of quality they provide and to better inform parents about the centers they are choosing for their children.

The National Child Care Information and Technical Assistance Center, part of the federal government’s Child Care Bureau, says 16 states had statewide rating systems as of January, and more than 25 states were exploring or designing them.

In most states, participation is voluntary, but in North Carolina and Tennessee, quality ratings are integrated into the state child-care licensing system. Ratings typically focus on elements such as the teachers’ level of education, staff-to-child ratios, and measures of classroom quality.

Most states also attach a continuous-improvement process, which can include funding to improve facilities, purchase learning materials, or work with master teachers. Providers with higher ratings can also receive more than the base amount of money from the state for children who are eligible for child-care subsidies.

Outcomes Studied

Evaluations in individual states have shown that rating scales can improve early-childhood-education environments for children.

A 2006 study of Pennsylvania's Keystone STARS Quality Rating System showed that on average, centers participating in the program score higher on measures of quality than those not participating. The researchers, from the University of Pittsburgh Office of Child Development and the Pennsylvania State University Prevention Research Center in University Park, credited the program with reversing a decline in child-care quality in the late 1990s.

But it will take more research to determine if such rating systems contribute to improving children's school-readiness skills.

A separate study that Ms. Zellman and Ms. Perlman conducted on Colorado's Qualistar Early Learning, a nonprofit organization that rates centers, found almost no relationship between the quality rating system and child outcomes such as school readiness, cognitive skills, and social skills.

"While it makes sense and holds general appeal that improved quality will translate into improved child outcomes, the many factors that shape children over time may swamp the association, at least in the short term," they wrote in the study, released earlier this year.

In their interviews, Ms. Zellman and Ms. Perlman found that because many states did not pilot their rating scales before rolling them out across the state, substantial revisions needed to be made.

"What we're hoping to learn from this process is that the system is viable," said Juliet Torres, an assistant director of the Department of Early Learning in Washington state. "We're also looking to see how parents view this information that they receive."

Sandra Giarde, the executive director of the California Association for the Education of Young Children, said her group "is looking forward to having an opportunity to be a participant in the process."

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TEACHER - P U P I L L I N K C R U C I A L
T O P R E - K S U C C E S S

BY LINDA JACOBSON

May 21, 2008

THE QUALITY OF THE RELATIONSHIP between preschool teachers and their pupils might be more important to children's learning than such factors as class size and teacher credentials, a new study suggests. That finding could raise questions about traditional measures of preschool quality favored by early-childhood experts and state policymakers.

Using a sample of more than 2,400 4-year-olds in 671 pre-K classrooms in 11 states, researchers at the University of Virginia found that minimum standards for classrooms—including teachers' field of study, their level of education, and the teacher-to-child ratio—were not associated with children's academic, language, and social development.

Instead, academic and language skills were stronger when children received greater instructional support, such as feedback on their ideas and encouragement to think in more complex ways. And children's social skills were more advanced when teachers showed more positive emotions and were sensitive to children's needs.

The study focused on 10 preschool benchmarks measured in an annual report by the National Institute for Early Education Research, a research organization based at Rutgers University in New Brunswick, N.J., that tracks states' efforts to meet preschool-quality indicators.

Those benchmarks include whether states require lead teachers in state-financed preschool programs to have a bachelor's degree, provide at least one meal a day to students, and mandate ongoing training for teachers.

Elements of Quality

“If one were to rest the whole system on those structural indicators that people tend to talk about, you could vastly overestimate the

level of quality that is in the system,” said Robert C. Pianta, the dean of education at the University of Virginia, in Charlottesville, and one of the authors of the study. It was released last week in the May/June issue of the journal *Child Development*.

Mr. Pianta stressed, however, that the study does not imply that those “elements of program infrastructure” are not important. Instead, both such elements and the supportive qualities identified are needed, he said.

W. Steven Barnett, the director of NIEER, which partially financed the research, said that the study “provides no basis for concluding that the program characteristics associated with the benchmarks are not important for creating programs that are highly effective for all children and meet the broad needs of all of the children they serve.”

To conduct the study, the researchers tested children’s skills at the beginning and the end of a certain time frame in the program, typically over the course of a school year.

They collected information about whether programs met nine minimum standards of quality recommended by professional organizations, such as the National Association for the Education of Young Children, in Washington.

They also rated the quality of the classroom environment and the interactions between teachers and children, using an instrument devised by Mr. Pianta called CLASS, which stands for Classroom Assessment Scoring System. That assessment tool measures 10 aspects of teaching, divided into three broad categories: instructional support, emotional climate, and classroom organization.

The CLASS instrument has been used as part of the long-running, federally funded Study of Early Child Care and Youth Development. In a 2005 study, Mr. Pianta showed that teachers who give both instructional and emotional support can raise achievement among 1st graders who are considered at risk for school failure because of such factors as poverty and low maternal education levels.

Similar findings were shown for children displaying behavioral and social difficulties: When teachers were warm, sensitive, and

positive, the children performed at levels almost identical to those of children without a history of behavior problems.

Mr. Pianta's research also has shown that even within schools or preschool centers, classroom quality varies tremendously, however. Similarly, Mr. Pianta said, even if states or local programs meet minimum benchmarks, the actual environment can be inconsistent across classrooms.

"Once you have those things in place, you still have a long way to go," he said.

CLASS is also being used across the country to train preschool teachers with varying levels of education on how to be more effective in the classroom.

Caution Raised

Mr. Barnett, of NIEER, said its 10 benchmarks are only meant to "set minimums or floors on what programs must do and the human resources they have to do it with."

"None of these [benchmarks] are expected to have direct effects on a child's learning and development," he said.

The requirement for certain health screenings, for example, is intended for children who would not otherwise have the chance to see a doctor.

"Although it is very important for those few children, no one would expect to find an effect on test scores in a study like this one," Mr. Barnett said.

He added that some of the NIEER benchmarks were described differently in the University of Virginia study from the way NIEER explains them, and that two that could have the most influence on teaching practices—state monitoring and professional development—were left out.

Mr. Pianta agreed that state monitoring and professional development are important, but said that they are also "the toughest to get right." Simply requiring a certain number of hours of in-service training might not be very helpful if the training is not focused on interactions with students, he said.

Changes in State Policy

In recent years, state policymakers have responded to the message from preschool experts that high-quality programs are necessary to see lasting benefits for children throughout their school years and beyond.

The 2007 NIEER State Preschool Yearbook noted recent efforts by states to meet more of those benchmarks. The number of states meeting fewer than five indicators fell to eight last year, from nineteen in 2003, and among those eight, Arizona, Kansas, and Maine have changes in the works.

North Carolina's More at Four program and Alabama's preschool program met all ten of the benchmarks. Another eight states have state-funded programs that meet nine of the ten.

But Mr. Pianta added that the use of classroom observation and attention to "what teachers do with kids" is also increasing.

In a press release, Andrew J. Mashburn, the lead author of the study and a senior research scientist at the University of Virginia's Center for Advanced Study of Teaching and Learning, said the results "provide compelling evidence that young children's learning in pre-K occurs in large part through high-quality emotional and instructional interactions with teachers."

Researchers from the University of California, Los Angeles, and the University of North Carolina at Chapel Hill also worked on the study.

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★ UNIVERSAL PRE - K : ★
WHAT ABOUT THE BABIES ?

COMMENTARY BY SAMUEL J. MEISELS

January 25, 2006

TWENTY-FIVE YEARS AGO, I picked up a new book by Jerome Bruner, one of the 20th century's leading developmental psychologists. In the first volume of the Oxford Preschool Project, he wrote something that has stayed with me ever since. He said, "Where emotional and mental growth are concerned, well begun is indeed half done."

Those words have real resonance for me, as an early-childhood educator. I am drawn to their clear recognition that fulfillment in human development is linked to the quality of one's early experiences. But I also see another meaning in Bruner's Aristotelian observation about beginnings and endings. Good beginnings are not enough. Good beginnings, like good intentions, only count when they are sustained, reinforced, and carried through to completion.

The persuasive arguments we've heard about the importance of the early years, from national organizations such as Zero to Three and others, have inspired several generations to improve the care and education of the very young, particularly those at risk. And that work, well begun, has led to dramatic growth in public support for educational and intervention programs prior to kindergarten.

Previously, the largest public investment in pre-K programs was Head Start, which opened as an eight-week summer program in 1965 and today serves more than 900,000 children, many year-round, at a cost in excess of \$7 billion. Over the past decade, state-funded pre-K programs have almost surpassed Head Start in the number of children they serve. Pre-K programs are now offered by more than 40 states and the District of Columbia. According to the National Institute for Early Education Research, more than 10 states either have or are considering the option of providing universal

pre-K services, though only Georgia and Oklahoma are presently serving all of the 4-year-olds in their states.

This is good news, and everyone who worked to encourage widespread availability of quality pre-K programs for 4-year-olds deserves our thanks and praise. But what about children younger than 4 years of age? If we know that even in infancy—if not in utero—children are establishing critical pathways to later learning and development, what about the babies? One of the most startling statistics about pre-K programs is that 25 states devote no funding whatsoever to those younger than age 4. Their funds are committed solely to the year prior to kindergarten.

Given what we know, is it wise policy to focus on providing care for just 20 percent of the preschool population? Do the pre-K advocates who are working so hard on behalf of the nation's 4-year-olds not care about babies?

Of course they do. The issue is not whether babies are lovable and engaging, or even whether the first years of life are extremely important. Indeed, some advocates within the pre-K movement explain their focus on 4-year-olds by pointing out that their efforts on behalf of pre-K will provide a lever for eventually expanding services to younger children. Nearly all those who are professionally associated with the pre-K movement are also advocates for 3-year-olds and for those between birth and age 3. As one of the leading exponents of prekindergarten wrote to me last summer, “I don’t know anyone in the pre-K movement who would not acknowledge the importance of the first three years of life.” She went on to note that we must take care not to pit one age group against another, an admonition I take to heart.

But if we allow public policy to turn age 4 into the magical year on which later school success is built, what will we do if nationwide universal pre-K for 4-year-olds fails to deliver on its ambitious promise?

The choice before us is not between supporting pre-K for 4-year-olds or supporting comprehensive services for all children from birth to age 5. I believe that the real task is to clarify—for policy-

makers and for the public they answer to—the place that the first three or four years of life hold. We know from a National Academy of Sciences report, “From Neurons to Neighborhoods,” that the early years matter not because they establish an irreversible pattern of development, but because they furnish us with either a secure or a vulnerable stage on which subsequent development is built. Human development isn’t over at age 3. But all the same, it makes sense to start early.

The early years matter not because they establish an irreversible pattern of development, but because they furnish us with either a secure or a vulnerable stage on which subsequent development is built.

The National Scientific Council on the Developing Child points out that the “window of opportunity for development remains open for many years, but the costs of remediation grow with increasing age.” Research shows us that starting early has more impact than starting late. As brain circuits are built up and stabilize over time, they become increasingly more difficult to alter. Early intervention makes sense economically and has greater potential for closing the persistent and pernicious achievement gaps that pre-K policy is largely about.

James J. Heckman, the Nobel Prize-winning economist from the University of Chicago, made this point not long ago. He said, “Learning starts in infancy, long before formal education begins, and continues throughout life. . . . Early learning begets later learning and early success breeds later success. . . . Success or failure at this stage lays the foundation for success or failure in school.”

Heckman’s point is that the cost of future learning can be reduced by the provision of quality early-childhood experiences. In his words, “The most economically efficient way to remediate the disadvantage caused by adverse family environments is to invest in children when they are young.”

I long ago learned that, in policy work, some of a good thing is better than none of that good thing, and I am confident that some

pre-K is better than no pre-K. But if all children grow up in a society where programs for 4-year-olds are part of their birthright, as has largely happened with kindergarten, I fear that we may be deluding ourselves. Instead of addressing the underlying problems that too many American children confront early in life, we may have simply transferred those problems to an earlier point in time.

Providing universal access to 4-year-old programs is thought to be the early-education equivalent of creating a level playing field for all children in the year before they enter kindergarten. But this strategy will not result in equity. It won't close the gaps among children of different genetic inheritance, dissimilar financial and familial resources, and disparate early opportunities. Rather, it may have the paradoxical effect of widening the gaps between those with and without advantages in the early years.

Instead of creating similar, across-the-board opportunities in the year before kindergarten, we need to explore how to provide targeted interventions for those who need them most. As has been shown by the state of Illinois, in order to narrow the gap that exists before children arrive at their pre-K programs, we must begin to invest public funds in efforts that start early, provide continuous care, and are comprehensive in terms of services. And to accomplish these goals, we need virtually a Marshall Plan to transform and improve the skills of those working with children from birth to 3 years old.

The start we've made at providing universally available pre-K in this country should not be misrepresented as an example of finished work. We're only partway there.

I am not suggesting that one age group should have pride of place. I, like Professor Bruner, am merely stating the obvious: Well begun is half done. Life doesn't begin at age 4, and solid beginnings are the foundation of later success. The start we've made at providing universally available pre-K in this country should not be misrepresented as an example of finished work. We're only partway there.

We still need to work toward a system of pre-K that takes into account where children begin their journeys through life. To reap the rewards of pre-K, some children will require different kinds of interventions, and some of those interventions will need to be more intense, to be broader in scope, and to begin earlier than is the case for other, more advantaged children.

I concur with the slogan “Pre-K Now.” But I’d like to add, “beginning at birth for those who need it most.”

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CREATING THE BEST
PREKINDERGARTENS



*Five Ingredients for Long-Term Effects
and Returns on Investment*

COMMENTARY BY LAWRENCE J. SCHWEINHART

March 19, 2008

STATE-FUNDED PREKINDERGARTEN for 4-year-olds has grown by leaps and bounds in recent years, with the number of such programs up by 40 percent over the last five years alone. One factor contributing to the growth is strong evidence that early-childhood experience influences the development of the brain’s architecture. Another is the record of producing beneficial long-term effects and solid returns on investment established by high-quality prekindergarten for children living in low-income families.

The findings come from three major studies of the effects of such programs: the High/Scope Perry Preschool Study, begun by David P. Weikart in 1962; the Carolina Abecedarian Project, begun by Craig T. Ramey in 1972; and the Chicago Child-Parent Centers study, conducted by Arthur J. Reynolds since 1985. These longitudinal studies find strong evidence of the positive effects on participants’ intellectual performance in childhood, school achievement in adolescence, placements in regular classes (rather than special

education placement or grade retention), high school graduation rate, and adult earnings. They also show fewer teenage births and fewer crimes among participants. Moreover, the economic returns for these programs are from 4 to 16 times as great as the original investments. This extraordinary economic performance is why leading economists, such as the University of Chicago Nobel laureate James J. Heckman, Federal Reserve Chairman Ben S. Bernanke, and others, have publicly embraced these programs.

It is time we explored the differences that make some prekindergartens highly effective, producing a lasting impact on participants' lives, while others are not.

Yet, most recent studies of the federal Head Start program and state-funded prekindergartens have found only modest, short-term effects on children's literacy and social skills and parents' behavior, putting into question whether these programs too can have long-term effects or worthwhile returns on investment. It is time we explored the differences that make some prekindergartens highly effective, producing a lasting impact on participants' lives, while others are not. Five ingredients of the highly effective stand out as definitive, and can serve as rules for how to design such programs:

1. Include children living in low-income families or otherwise at risk of school failure. Long-term effects have seldom been looked for and have yet to be found for children not in these circumstances, although there are arguments for serving them as well. For example, a recent study by William T. Gormley Jr. of Oklahoma's state prekindergartens, which are open to all children, found short-term effects on participants' school achievement that were large enough to promise long-term effects. Prekindergartens open to all children also enjoy a wider political base than a targeted program, and still include the children who are most in need.

2. Have enough qualified teachers and provide them with on-going support. Qualified teachers are critical to the success of any educational program, a principle now embedded in the federal No

Child Left Behind Act. In early-childhood settings, being qualified is taken to mean having a teaching certificate based on a bachelor's degree in education, child development, or a related field. Because research is constantly informing us about how young children learn and can best be taught, it is also important that early-childhood teachers receive curriculum-based supervision and continuing professional development. Systematic in-service training, in which teachers learn research-based, practical classroom strategies, also helps ensure that young children are having the educational experiences that contribute most to their development.

So that pupils receive sufficient individual attention, highly effective prekindergarten classes have two qualified adults—a teacher and an assistant teacher—for every 16 to 20 4-year-olds. Although having qualified teachers, a low child-to-teacher ratio, and ongoing professional development may cost more, cutting back on these components would threaten program effectiveness as well as the return on investment.

3. Use a validated, interactive child-development curriculum. Such a curriculum enables children as well as teachers to have a hand in designing their own learning activities. It focuses not just on reading and mathematics, but on all aspects of children's development—cognitive, language, social, emotional, motivational, artistic, and physical. And it has evidence of its effectiveness. Implementing such a curriculum requires serious interactive training, study, and practice, particularly for teachers who have little experience with this type of education.

4. Have teachers spend substantial amounts of time with parents, educating them about their children's development and how they can extend classroom learning experiences into their homes. All the programs in the long-term studies worked with parents. In fact, in the High/Scope Perry Preschool program, teachers spent half their work time engaged in such activities. As child care beyond part-day prekindergarten has become more widespread, parent-outreach efforts also need to include other caregivers, in centers and homes, who spend time daily with enrolled children.

5. Confirm results through continuous assessment of program quality and children's development of school readiness. Good curriculum and good assessment go hand in hand. Prekindergartens striving to be highly effective need to replicate the policies and practices of a program found to be highly effective, including the five ingredients listed here. The proof that this is being done lies in program-implementation assessment, a system for measuring how well a program carries out administrative and teaching standards. A program assessor uses standard protocols to observe classrooms and the school, and to interview teachers and others about the various aspects of program quality. The results can then be used for program improvement.

Systematic observation and testing measure prekindergarten children's development of school readiness. With an interactive child-development curriculum, systematic observation fits better than testing, because it records children's usual behavior rather than requiring them to respond on cue in a particular time and place. Program administrators and teachers who know how children are doing on such assessments will be able to use this information to monitor the children's progress and attune their teaching to it.

For the concept of school readiness to contribute to developing highly effective prekindergartens, it must serve as the mediator between prekindergarten and its long-term effects.

Nearly two decades ago, the National Education Goals Panel defined "school readiness" as encompassing not only reading and mathematics, but also other aspects of general knowledge and cognition, physical well-being and motor development, social and emotional development, approaches to learning, and language development. This broad definition also appears in the Head Start Child Outcomes Framework and Canada's Early Development Instrument, an effort in that country and others to assess children's school readiness by having kindergarten teachers rate them on 120 items.

For the concept of school readiness to contribute to developing highly effective prekindergartens, it must serve as the mediator between prekindergarten and its long-term effects. The validity of a school-readiness measure depends on its sensitivity to the effects of prekindergarten and its ability to predict later effects on school achievement and other important life outcomes. In the High/Scope Perry Preschool Study, the program was found to have improved children's intellectual performance and their commitment to schooling, which in turn led to improvements in school achievement, educational attainment, and adult earnings, and to reduced criminal offenses. So in this study, school readiness linking prekindergarten experience and later effects involved motivation as well as intellectual performance.

School readiness so defined could serve as a useful benchmark of the success of today's prekindergartens, guiding them toward both positive long-term effects and good returns on investment.