

## **NIEER Working Paper**

### **Effects of Preschool on Educational Achievement**

by Luis M. Laosa

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#### **Summary**

The current educational policy debate in the United States is centered largely on the educational achievement gap that persists between low-income and minority students, on the one hand, and higher-income and non-minority students, on the other. Present school reform efforts that seek to address this problem assume that establishing high curriculum standards, test-based accountability, and higher-quality teaching in K-12 education can close this gap. Many researchers and experienced educators question that such reforms alone can close or significantly narrow the achievement gap.

The achievement gap has deep roots that begin before school entry. Studies show that the foundation for literacy and other academic learning is laid down before age 5. Other studies demonstrate that high-quality preschool education can improve the school readiness and school performance of children, especially low-income children. Growing evidence shows that preschool education benefits children who are not poor, although the effects may not be as pronounced as they are for economically disadvantaged children. Accordingly, more and more states are establishing universal, state-funded pre-kindergarten educational programs for 3- and 4-year olds.

Emerging research evidence suggests that such universal programs have the potential for improving the school readiness of low-income and minority children as well as of those from higher income and non-minority families. An important element in the success of such state initiatives appears to be high teacher education requirements, which other research has found to be a strong predictor of high-quality environments for children, and equitable teacher salaries, which help pre-kindergarten programs recruit and retain talented teachers. Not all state pre-K initiatives, however, yet have strong teacher education requirements or provide equitable pay.

Universal pre-K appears to be a promising policy tool to help schools close the educational achievement gap. As states design and implement universal pre-K programs, care must be taken to ensure that such programs do not replicate the inequalities that presently exist in the quality of K-12 education between schools that predominantly enroll low-income and minority students and those that predominantly enroll students from higher-income and non-minority families. There is also a need for attention to how well preschool education programs articulate with K-12 reform efforts; the long-term

benefits of preschool education programs will likely depend in part on that articulation. By expanding the definition of schooling to include high-quality, comprehensive early childhood programs, educational policies are more likely to make significant progress toward closing the achievement gap than if they focus exclusively on K-12 improvement.

### The Achievement Gap

Historically in the United States, universal access to elementary and secondary schooling eventually became a reality. Universality of access has not, however, resulted in equal educational achievement, and schools still differ from one another in the quality of the education they provide. The current policy debate in the field of education focuses largely on what is referred to as "the achievement gap." The reference is to the well-documented, persistent association of educational achievement to socioeconomic status (SES) and race/ethnicity. As a group, that is to say, on average, students of higher SES fare better on indices of educational achievement than do those from lower SES families. African American, Hispanic, and other non-White groups who are over-represented in the lower socioeconomic strata tend, as a group, to lag behind their White counterparts in school achievement. Equal educational achievement has been a goal of local communities, the states, and the federal government for decades, as expressed in such efforts as the Elementary and Secondary Education Act of 1965 and, more recently, the No Child Left Behind Act. Nevertheless, equal achievement remains far from a reality.

Data from the National Assessment of Educational Progress (NAEP), shown in Table 1, demonstrate the relationship between reading achievement level in the fourth grade and eligibility for subsidized lunch, which is a commonly used measure of SES. Reading achievement scores increase sharply as a function of household income. For example, 58% of the students who are eligible for free lunch and 44% of those who are eligible for reduced-price lunch scored below the basic level. In contrast, a much smaller percentage (i.e., 24%) of those not eligible for subsidized lunch scored below the basic level.

Table 1. Percentage of fourth-grade students at or above each reading (English) achievement level (with standard errors in parentheses) in 2003, by eligibility for National School Lunch Program

	N	Average scale score	Below basic	At or above basic	At or above proficient	At advanced
Not eligible	96289	229 (0.3)	24% (0.3)	76% (0.3)	42% (0.5)	11% (0.2)
Reduced-price lunch	15675	211 (0.5)	44% (0.8)	56% (0.8)	22% (0.7)	4% (0.3)
Free lunch	63453	199 (0.4)	58% (0.4)	42% (0.4)	14% (0.3)	2% (0.1)
Info not available	2462	215 (3.2)	39% (3.4)	61% (3.4)	28% (3.4)	6% (1.1)
School refused info	256	212 (4.4)*	45% (4.9)*	55% (4.9)*	21% (4.8)*	6% (2.6)*
Not participating	5439	236 (0.9)	18% (1.0)	82% (1.0)	50% (1.2)	15% (0.8)

\*The nature of the sample does not allow accurate determination of the variability of the statistic.

*NOTE: The NAEP Reading scale ranges from 0 to 500. Observed differences are not necessarily statistically significant. National/Reading Composite/Grade 4/2003. Student eligibility for National School Lunch Program based on school records.*

*SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Reading Assessments <<http://nces.ed.gov/nationsreportcard/naepdata/getdata.asp>>.*

Given the correlation that still exists in this country between SES and race/ethnicity, it is not surprising to find also a relationship between race/ethnicity and educational achievement. NAEP data consistently show that the average minority student lags far behind the average White student in academic achievement. Minority students are found all up and down the achievement scale, of course, and many of them score higher than do many White students; however, a disproportionate number of minority students score lower than the national average, as Table 2 shows.

Table 2. Percentage of fourth-grade students at or above each reading (English) achievement level (with standard errors in parentheses) in 2003, by student's race/ethnicity

	N	Average scale score	Below basic	At or above basic	At or above proficient	At advanced
White	92913	230 (0.3)	24% (0.3)	76% (0.3)	42% (0.4)	11% (0.2)
Black	26492	199 (0.4)	59% (0.6)	41% (0.6)	13% (0.4)	2% (0.1)
Hispanic	44926	206 (0.4)	50% (0.5)	50% (0.5)	20% (0.4)	4% (0.2)
Asian/Pacif Islander	7607	224 (1.0)	31% (1.2)	69% (1.2)	37% (1.3)	11% (1.1)
Amer Ind/Alaska Natv	6377	209 (1.0)	46% (1.5)	54% (1.5)	21% (1.0)	4% (0.5)
More Than One	9169	225 (0.6)	29% (0.7)	71% (0.7)	36% (0.8)	9% (0.6)
Unclassified	82	206 (4.9)	46% (14.2)	54% (14.2)	15% (5.9)	2% (0.9)

*NOTE: The NAEP Reading scale ranges from 0 to 500. Observed differences are not necessarily statistically significant. National/Reading Composite/Grade 4/2003. Student race/ethnicity based on student responses to two background questions, with instructions to fill in one or more (student-reported).*

*SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2003 Reading Assessments <<http://nces.ed.gov/nationsreportcard/naepdata/getdata.asp>>.*

### **Education Reform Efforts: The No Child Left Behind Act**

The No Child Left Behind (NCLB) Act of 2001, the current reincarnation of the Elementary and Secondary Education Act, is the principal federal law in pre-collegiate

education. It has a broader scope and is more ambitious than any previous federal school reform legislation. One of the major changes is its emphasis on accountability based on student test results. The NCLB Act has expanded the federal role in education and become a focal point of educational policy. At a time of wide public concern regarding the state of education, the legislation's requirements reach into virtually every public school in the country. It takes particular aim at improving education for disadvantaged students and thus at closing the achievement gap.

The NCLB approach to educational reform assumes that K-12 educators can successfully address the factors that have contributed to low levels of achievement and that the way to make this happen is through a combination of high standards, powerful incentives, and technical assistance. Many observers point out, however, that the achievement gap has deep roots that need to be addressed before children enter school and, therefore, NCLB is not likely to be an effective strategy for improvement. Although K-12 school reform is important and necessary, it may not be enough to close the achievement gap.

Central to the NCLB Act are requirements designed to drive gains in student achievement and to hold states and schools more accountable for student progress. They are significant changes in educational policy, including particularly the following.

Annual testing. Beginning in 2005-06, states must test students in grades 3-8 annually in reading and mathematics. By 2007-08, they must test students in science. The tests must be aligned to high curriculum standards that each state must develop.

Academic progress. States must bring all students up to the "proficient" level on state tests by the 2013-14 school year. Individual schools must meet state "adequate yearly progress" (AYP) targets (based on a formula stated in the law) toward this goal both for their student populations as a whole and for certain demographic subgroups. For example, reports of test results must disaggregate data by income level and race/ethnicity. If a school or district fails to make AYP for two consecutive years, it must be identified for improvement. Schools that fail to reach these targets must be given technical assistance, and its students must be offered a choice of other public schools to attend. If a school continues to fail, it becomes subject to outside corrective action, including possible governance changes.

Report cards. States must issue annual report cards showing student achievement data broken down by subgroup and information on the performance of individual school districts. Districts must provide similar report cards showing school-by-school data.

Teacher qualifications. By the end of 2005-06, every teacher in core content areas in a public school must be "highly qualified" in each subject he or she teaches. Under the law, "highly qualified" generally means that a teacher is certified and demonstrably proficient in his or her subject matter (Education Week, 2005b). In

addition, school paraprofessionals must have completed at least two years of college, obtained an associate's degree, or passed an evaluation to demonstrate knowledge and teaching ability.

The NCLB Act is the source of considerable controversy, particularly as the law's effect begin to be felt. The number of schools likely to face sanctions in upcoming years is significant. There were at least 23,812 schools nationwide that did not make AYP in 2002-03 and at least 5,200 schools were identified as in need of improvement (Education Week, 2005a). Many analysts expect the numbers to increase as the percentage of students required to be proficient rises each year until 2014 when all students are expected to be proficient. With 11,008 schools identified as needing improvement in 2004-2005 (Education Week, 2005b), many educators and policy makers are questioning the Act's feasibility and fairness, although not its intent.

Many of them also question the law's assumptions. Will high curriculum standards, test-based accountability, and higher-quality teaching in K-12 boost the achievement of low-scoring children enough to eliminate the achievement gap? Not likely, say many experienced educators, although these actions are likely to narrow the gap. They argue that although there is an appealing logic to the idea behind the NCLB reform strategy, it is not likely to address the root causes of the problem.

The educational achievement gap has deep roots; it is evident very early in children's lives, even before they enter school. Socioeconomic differences--such as health and nutrition status, home environments that provide access to academically related experiences, mobility rates, and financial assets--can certainly influence educational achievement. As Richard Rothstein (2004) and other researchers have concluded, therefore, in order to make significant progress in narrowing the achievement gap, policies must pursue three tracks simultaneously: school improvement; expanding the definition of schooling to include comprehensive early childhood, after-school, and summer programs; and instituting social and economic policies that enable children to attend school more ready to learn.

### **The Achievement Gap Exists Before School Entry**

While the National Assessment of Educational Progress assesses the reading skills of fourth and eighth graders, the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K) follows the academic progress of children from kindergarten through the elementary grades. National data from the ECLS-K study show that the gaps in children's reading skills and knowledge seen in the fourth grade and later, described above, are already present as children begin school. For example, in kindergarten, children from poor families tend to obtain, on average, lower reading assessment scores than those from non-poor families. Similarly, White kindergarteners on average outperform Black and Hispanic kindergarteners in these reading assessments (Table 3). Analyses of the ECLS-K data further show that the early literacy skills that children

possess when they enter kindergarten predict their reading proficiency in the later grades (Denton, West, & Walston, 2003; Rathbun, West, & Hausken, 2004).

Table 3. Mean reading (English) scale scores for fall 1998 first-time kindergartners, by time of assessment and selected child and family characteristics: Fall 1998, spring 1999, spring 2000, and spring 2002 (standard errors in parentheses)

Child and family characteristics	Mean reading scale score				Fall kindergarten to 3rd grade reading score gain
	Fall 1998 kinder-garten	Spring 1999 kinder-garten	Spring 2000 1st grade	Spring 2002 3rd grade	
Total	27 (0.3)	39 (0.5)	69 (0.8)	108 (0.7)	81 (0.4)
<i>Child's race/ethnicity</i>					
White, non-Hispanic	28 (0.4)	40 (0.5)	71 (0.8)	112 (0.7)	84 (0.3)
Black, non-Hispanic	25 (0.5)	34 (0.8)	61 (1.0)	98 (1.0)	73 (0.7)
Hispanic	24 (0.5)	36 (0.8)	65 (1.1)	105 (1.3)	81 (0.9)
Asian/Pacific Islander	30 (0.9)	43 (1.4)	75 (1.9)	111 (1.7)	81 (1.1)
Other, non-Hispanic	25 (1.2)	36 (1.6)	63 (2.8)	101 (3.5)	76 (2.4)
<i>Number of family risk factors<sup>1</sup></i>					
No risks	29 (0.4)	41 (0.5)	73 (0.8)	113 (0.7)	84 (0.3)
One risk	25 (0.3)	36 (0.5)	65 (1.0)	105 (0.9)	79 (0.6)
Two or more risks	22 (0.3)	32 (0.7)	58 (0.9)	95 (1.2)	73 (1.0)

<sup>1</sup>Family risk factors included living below the federal poverty level, primary home language was non-English, mother's highest education was less than a high school diploma/GED, and living in a single-parent household.

*NOTE: Detail may not sum to totals because of rounding. Estimates reflect the sample of children assessed in English in all assessment years. The ECLS-K assessment was not administered in 2001, when most of the children were in second grade. Although most of the children in the sample were in third grade in the spring of 2002, 10% were in second grade, and about 1% were enrolled in other grades.*

*SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Longitudinal Kindergarten-First Grade Public-Use Data File and Third Grade Restricted-Use Data File, fall 1998, spring 1999, spring 2000, and spring 2002.*

Table adapted from Rathbun et al., 2004.

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Like the ECLS-K study does, numerous studies show that children's cognitive knowledge and skills at school entry are highly predictive of their later learning and success in school (Barnett, in press). Emergent literacy skills are viewed as particularly important because of the association with later reading skills and the importance of reading for school success (Barnett, in press). As early as school entry, emergent literacy skills are, on average, lower among children from low-income families than among those from middle-class families. The educational achievement gap is present even before children enter school.

In the current policy debate, an important question centers on how to narrow (or close) the achievement gap. Research consistently shows that high-quality preschool programs can contribute significantly to narrowing or closing this gap, particularly in the early grades.

### **Effects of Preschool**

Research shows that preschool education significantly influences children's abilities at school entry. As Barnett (in press) pointed out in his recent review of research, hundreds of studies have examined the effects of early childhood programs, including various types of child care settings, preschool, and nursery school classrooms. These studies show that these programs have immediate effects, and that these effects can last at least through the early grades. These effects vary with the type and intensity of the programs.

In the past 25 years, a series of well-designed and well-implemented model preschool programs have shown significant effects on young children's cognitive growth. Such effects have been reported for small demonstration programs such as the Perry Preschool Project (Schweinhart, Barnes, Weikart, Barnett, & Epstein, 1993; Schweinhart, 2004) and for carefully controlled early interventions such as the Abecedarian program (Campbell, Ramey, Pungello, Sparlin, & Miller-Johnson, 2002) and the Infant Health and Development Project (McCarton, Brooks-Gunn, Wallace, & Bauer, 1997). These effects

have been shown to last through the elementary grades and beyond. These include not only effects on reading achievement and literacy scores but also on reduced rates of grade retention and of special education placement and higher rates of high school graduation. Although there is some debate about how to interpret the results of Head Start evaluations, carefully designed studies of Head Start have shown positive effects on children's early learning. In a review of the long-term academic impacts of both model and large-scale public preschool programs, including Head Start, Barnett (1995, 1998) found that public programs often had weaker effects than generally higher-quality and better-implemented model programs. Nevertheless, even public preschool programs showed significant positive effects during the elementary grades (Barnett, in press). Taken together, the research evidence indicates that preschool education is one avenue to reducing the achievement gap.

In sum, achieving the goal of No Child Left Behind--to ensure that all children succeed in school--requires radical reforms in educational and social policies, including the provision of high-quality early education programs to all children, especially children of color and children in poverty. Research has consistently shown that high-quality preschool programs can significantly narrow the educational achievement gap in the early grades and beyond. As the next sections of this brief indicate, emerging evidence shows that state-funded universal preschool is a feasible and sound societal investment.

### **State Programs**

The number of states that administer publicly funded pre-K programs has soared in the past two decades: from 10 in 1980 to 38 in 2002-03 (Barnett, Hustedt, Robin, & Schulman, 2004; Gormley, Gayer, Phillips, and Dawson, n.d.). The aim of these programs is to promote children's acquisition of skills, knowledge, and behaviors that are associated with success in elementary school. In 2002-03, the number of children enrolled in these programs was about 738,000; this is only 9.3% of all 3 and 4 year olds in this country--a small proportion. Specifically, the proportion of 4-year olds in the U.S. enrolled in state pre-K programs was 16.1% in 2002-03; the proportion of 3-year olds was 2.5% (Barnett, Hustedt, et al., 2004). If one adds to the children served in state pre-K programs those served in Head Start or IDEA preschool grants programs, which are federal programs, then the data show that 23.9% of all 3- and 4-year olds in the U.S. were served in pre-K programs in 2002-03, or 34.0% of 4-year olds and 13.8% of 3-year olds (Barnett, Hustedt, et al., 2004).

The number of children served by state pre-K programs ranges widely from state to state. In 2002-03, Delaware, Hawaii, Nevada, and New Mexico each served fewer than 1,000 children, while Texas served more than 150,000 children. Twelve states funded no pre-K programs at all. Ten states accounted for more than three quarters of the children participating in state pre-K programs in 2002-03 (Barnett, Hustedt, et al., 2004).

Most states target their programs to low-income children and children with other characteristics that put them at risk for starting school behind their peers. Nine states, however, did not set eligibility criteria for their pre-K initiatives in 2002-03. Having no eligibility criteria does not mean, however, that all children are actually able to participate. Georgia and Oklahoma are the only two states that made pre-K universally available to 4-year olds whose families wanted them to participate in 2002-03. In the other states, access was limited by the availability of state funds to support pre-K and districts' willingness to offer it (Barnett, Hustedt, et al., 2004).

It is difficult to place state pre-K programs along the spectrum of quality that ranges from the high quality of model early intervention programs to the highly variable quality of community-based child care. Emerging evidence indicates that pre-K programs, like child care, are characterized by extensive variation. For example, in 2002-03, state-funded pre-K programs ranged from 2 hours per day to 10 hours per day. Some states required that all pre-K teachers have a college degree and a certification in early childhood education, while others required only a Child Development Associate (CDA) certificate. State spending per child enrolled in state pre-K programs ranged from less than \$1,000 in Maryland to more than \$8,700 in New Jersey. In all but one state, state funding per child in pre-K was below that for federal Head Start, and it was far below that for model programs (Barnett, Hustedt, et al., 2004).

This variability makes it difficult to relate findings that are emerging from evaluations of pre-K programs to prior evidence from either model interventions or more typical early childhood and child care programs. This variability also makes it difficult to generalize findings from evaluations of programs in any one state to programs in other states.

Although a number of attempts have been made to evaluate the impact of state pre-K programs, most of these evaluations suffer from serious methodological limitations or flaws, making it difficult or impossible to draw unambiguous conclusions. A recent evaluation of the Oklahoma pre-K initiative, described below, represents an effort to overcome many of these methodological problems.

### **The Oklahoma Initiative**

A recent study by Gormley, Gayer, Phillips, and Dawson (n.d.) evaluated the school readiness of children who attended the universal pre-K program in Tulsa, Oklahoma, during the 2002-03 school year. In Oklahoma, all 4-year olds are eligible to participate in pre-K if their public school district offers it. The participating districts receive state funding for each 4-year old served, just as they would for any K-12 student. This state's pre-K initiative has expanded rapidly since 1998 when it was opened to all 4-year olds. The program was available in more than 90% of school districts in 2002-03. These districts served 59% of all 4-year olds in the state—a higher percentage served than by any other state (Barnett, Hustedt, et al., 2004). The initiative does not serve 3-

year olds. The program requires all teachers to have a bachelor's degree with certification in early childhood education and pays them salaries equivalent to those of other public school teachers. The program, however, lacks statewide requirements for health screenings and referrals (Barnett, Hustedt, et al., 2004).

The Gormley et al. (n.d) study examined the effects of pre-K on children of varied racial, ethnic, and income groups, and on children in full-day and half-day programs. To reduce sample selection biases that often result when control group children likely differ in background and other factors from those in the treatment group, this study of Oklahoma's universal pre-K program compared "young" kindergarten children who had just completed pre-K to "old" pre-K children just beginning pre-K. The sample thus consisted of over 3,000 children, approximately equally divided between those who had just completed the pre-K program and those just beginning pre-K. To assess the impact of the program, the children were administered the following three subtests of the Woodcock-Johnson Achievement Test, which is a standardized, nationally normed achievement test. The Letter-Word Identification subtest measures pre-reading and reading skills. The Spelling subtest measures pre-writing and spelling skills. The Applied Problem Solving subtest measures early mathematical reasoning and problem-solving skills. The data analyses showed statistically significant impacts of the pre-K program for each subtest. These impacts were found for both full day and half-day programs, for each of four racial/ethnic groups (Hispanic, Black, Native American, and White children), and for both subsidized-lunch eligible and non-eligible children. On the basis of these findings, it can be concluded that Oklahoma's universal pre-K program succeeded in enhancing the school readiness of a diverse group of children.

Although the research design and scientific rigor of the Gormley et al. (n.d.) study represents an improvement over previous studies of state pre-K programs, it is not without limitations. There are important questions that the Gormley et al. (n.d.) study did not address. Significantly, the study did not test for the impact of no program or of other types of programs. That is, it did not compare the children who attended the state pre-K program to either those whose parents chose not to send their children to any pre-K program or those who attended a private pre-K, a day care, or a Head Start program. The study answered only this question: Did the children who attended the Tulsa, OK, program obtain higher test scores just after attending the program than just before attending the program? The study did not test for the impact of making the Tulsa pre-K program available to every age-eligible child in the state. Nevertheless, the results of the Gormley et al. (n.d.) study support the proposition that a universal pre-K program financed by state government and implemented by the public schools can improve pre-reading, pre-writing, and pre-numeracy skills for a diverse cross-section of young children.

### **Teacher Qualifications and Compensation**

Can the successes of the Oklahoma pre-K program be replicated in other states? Although it is difficult to generalize, it should be noted that Oklahoma has high teacher

education requirements, which other research has found to be a strong predictor of high-quality environments for children. Studies support the conclusion that young children's learning and development depends on the educational qualifications of their teachers (Barnett, 2003). For example, the NICHD child care study (cited in Barnett, 2003) found that teacher's educational attainment predicted teacher behaviors that in turn predicted children's achievement and social development. These results held true after the analyses controlled for the effects of mother's education, parenting behavior, and family economic circumstances. Another NICHD study (cited in Barnett, 2003) found that teacher education influences children's achievement at age 4 controlling for prior achievement, type of child care, and a wide range of child and family characteristics. Confidence in this conclusion derives from the simple logic that better educated teachers have more knowledge and skills, which makes them more effective teachers for many reasons. For example, they have larger vocabularies to which children are exposed; they are better at constructing and individualizing lesson plans; they are better problem solvers when they encounter challenges in the classroom. Moreover, teachers who have been taught what young children need to learn and how to teach them will spend more time conducting learning activities that meet each child's needs and less time in unproductive activities. Research shows that good teaching depends on the teacher's knowledge and skills and not on formal education (Barnett, 2003). Although formal education and training are one way to acquire this knowledge and these skills, similar ones may be acquired through informal education, including on-the-job learning. There is evidence, however, that experience per se is not an effective method of teacher preparation (Barnett, 2003). Research also shows that economically disadvantaged children have less access to high-quality teachers than do their more advantaged peers, even though disadvantaged children may benefit the most from teacher quality (Barnett, 2003).

When they enter kindergarten, children are taught by professionals with at least a four-year college degree. Prior to kindergarten, their teachers are far less prepared. Nationwide, fewer than half of preschool teachers hold a bachelor's degree, and many never attend college (Barnett, 2003).

Oklahoma's pre-K teacher education requirements are higher than those of pre-K programs in many other states (Barnett, Hustedt, et al., 2004). It also should be noted that the teachers in Oklahoma's pre-K program are compensated at the same level as elementary and secondary school teachers in the public schools. This policy helps the pre-K program to recruit and retain talented teachers (Gormley et al., n.d.). Without such high teacher education requirements and pay levels as those in Oklahoma, other states that opt for universal pre-K might experience weaker results.

As Gormley et al. (n.d.) further noted, other departures from the Oklahoma model could also lead to different outcomes. For example, the Oklahoma program appears to place a relatively strong emphasis on academic instruction, albeit through widely differing instructional strategies. Differences in children's characteristics could also lead to different outcomes.

### The Universal vs. Targeted Debate

A key policy debate pits the idea of voluntary *universal* pre-kindergarten programs against *targeted* services, reserved for those at greatest risk of poor achievement, based on economic disadvantage, disabilities, or other special needs (Barnett, Brown, & Shore, 2004). A universal program means that the program is universally available but that parents are free to enroll their children or not as they see fit. Most public support for preschool programs today is for targeted programs (Barnett, Brown, & Shore, 2004; Barnett, Hustedt, et al., 2004), but calls for universal programs have increased and a few states provide universal preschool, as noted above. The American public has long supported the idea of a free public education. The question is, When should that right begin? Several reasons can be advanced in favor of universal pre-K, as Barnett, Brown, and Shore (2004) have noted.

First, the problems of low school readiness and low achievement are not limited to the poor. Many children who are not in targeted groups can benefit from a high-quality pre-K education. Moreover, targeted programs do not reach many of the children they seek to serve.

Second, universal programs are likely to be of higher quality than targeted programs. Most targeted programs have not delivered the intensity or quality of educational services shown to be highly effective for children in poverty. It can be argued that universal programs will tend to be of higher quality because they are not perceived as charity. In addition, universal programs may be more effective because they can serve disadvantaged children in more highly heterogeneous classes and all children benefit later when all of their schoolmates are better prepared for school.

Third, public support may be greater for universal than for targeted programs. Despite higher costs (preschool for all will require a larger budget than targeted programs), universal programs may receive stronger public support because of the larger, more influential population benefiting from the program. In addition, a universal program will be perceived as more fair and more in keeping with American's views that government has a responsibility to support education for all children.

Fourth, for a growing number of families the issue is one of practicality. Preschool education has become a necessity for middle-income families and many preschoolers have no parent at home during the day.

A recent cost-benefits study of universal preschool in California (Karoly & Bigelow, 2005) concluded that there can be substantial returns for California society from investing in a high-quality universal preschool program. The authors concluded that investing public money to make preschool available to every 4-year-old in California would generate an estimated \$2 to \$4 in benefits for every dollar spent. Such benefits

include a reduction in the number of children in special education, less grade repetition, less youth crime, and a more productive workforce.

It must be recognized, however, that American public education is characterized by vast inequalities. A large proportion of poor and minority children attend public schools in which they are the majority of the student body. Such schools often provide educational services of lower quality than those provided by public schools wherein more affluent and White children predominate. In establishing universal pre-K programs, care must be taken to ensure that existing disparities in the quality of K-12 education are not replicated at the pre-K level. To the extent that universal pre-K replicates these disparities, it will likely widen rather than minimize the achievement gap. Universal programs should have high quality standards for all children. At the same time, one must recognize that "one size fits all" is poor educational policy. Supplemental or tailored services will need to be offered to children with greater or particular needs--targeting within universal.

Attention also needs to be given to how pre-K programs articulate with K-12 education. The long-term benefits of pre-K programs will likely depend in part on how well such programs articulate with K-12 reforms.

### **Policy Conclusions and Recommendations**

- Current school reform strategies aimed at closing the educational achievement gap, including particularly NCLB, generally assume that high curriculum standards, test-based accountability, and high-quality teaching in K-12 can close this gap. Because the achievement gap has deep roots that begin before children enter school, these policies alone are not likely to close the gap.

- Many studies show that high-quality preschool education programs can significantly influence cognitive development and hence can help to narrow the achievement gap, particularly in the early grades. Accordingly, more and more states are establishing state-funded pre-K education programs for three- and four-year olds.

- Recent research demonstrates that state-funded universal pre-K can succeed in enhancing the school readiness of children of diverse socioeconomic and racial/ethnic backgrounds. Emerging evidence shows that universal pre-K education is a feasible and sound societal investment.

- The long-term benefits of preschool education programs will likely depend in part on how well such programs are articulated with K-12 education. Research is needed to examine how preschool education initiatives are being articulated with K-12 reform efforts.

- As states design and implement universal pre-K programs, care must be taken to ensure that such programs do not replicate the inequalities that presently exist in the quality of K-12 education between schools that predominantly enroll low-income and minority students and those that predominantly enroll students from higher-income and non-minority families.

- By expanding the definition of schooling to include high-quality, comprehensive early childhood programs, educational policies are more likely to make significant progress toward closing the achievement gap than if they focus exclusively on K-12 improvement.

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