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***Assessing Proposals for
Preschool and Kindergarten:
Essential Information for
Parents, Taxpayers and
Policymakers***

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Assessing Proposals for Preschool and Kindergarten: Essential Information for Parents, Taxpayers, and Policymakers

By Darcy Olsen, president and CEO, Goldwater Institute
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Sutherland Institute Introduction

Last year, immediately after the Sutherland Institute released its policy recommendation that a \$500 tax credit ought to be given to parents that would keep their kindergarten-age children home rather than placing them in public school, a maelstrom of criticism reverberated throughout local media and certain segments of the public education community.

A growing push for mandatory, early, formal public schooling throughout the nation is making its way to Utah. Whether in the style of former Governor Olene Walker's early reading emphasis or current Governor Jon Huntsman's goal of focusing on early education, the rationale is the same: start children as young as possible in their education and the benefits will be self-evident.

And who would argue with that? Children are learning from the moment they are born. Of course, the benefit of early learning is self-evident.

What is not so self-evident is how certain forms of early, formal public schooling increase a child's educational progress. Education is not schooling. The growing push for "early education" is actually a push for early, formal public schooling. Advocates of early education are not very interested in little children learning with and from attentive parents (in fact, these advocates thinks parents have failed, by and large) as much as they are interested in mandating that little children be separated from their parents and placed in early, formal public schooling.

The Sutherland Institute argued then, as it does now, that, nearly without exception, little children are better off around their parents on a full-time basis than they would be placed in early, formal public schooling. In proposing the \$500 tax credit, the Institute argued that pre-school/kindergarten is "educationally insignificant" for most little children in Utah - that is, on par, home life for little children in Utah is better than school life.

The Institute also argued that study after study recognizes this reality. All of the preschool studies over the years used to justify the growing push for early, formal public schooling actually prove this point. Each of these studies show that little children from sub-standard or dysfunctional homes do better in early, formal public schooling. And each shows that early, formal public schooling for other little children is "educationally insignificant."

The term "educationally insignificant" was coined by the Sutherland Institute. Its use was criticized on a variety of levels but most especially on that generic, sentimental level. One local talk show host spoke of his fond memories of kindergarten, the teacher, the grape juice, the nap mats, the fun, etc. The term

"educationally insignificant" is not to imply that kindergarten or preschool cannot be fun or memorable. It simply means that for a majority of Utah's little children there is no educational significance by attending early, formal public schooling - that little children will not learn any more than they would at home in those early years.

The research on the value of early, formal public schooling is vastly more available than research on the value of early, informal learning at home. Advocates of the former use entrance exams and extrapolated findings to argue that children are, in growing numbers, not coming to public school prepared to learn (i.e., reading). In other words, parents are failing to teach their young children properly. Hence, the growing push for mandatory, early, formal public schooling.

The problems with this logic should be obvious. First, not all children will attend public schools, so public school expectations and measurements do not apply to them. Second, even for children that will attend public school, a lack of preparation is not proof that parents are failing to teach their children - it is only proof that *those* parents are failing. It says nothing about the value of early, informal learning at home.

And why would anyone be surprised that more and more children are not prepared to learn (i.e., read) when they enter public school? Most mothers work outside the home in Utah. Nearly 70 percent of all mothers with children ages six and under work outside of the home.

Good public policy has two components: addressing *what is* and encouraging *what ought to be*. The Sutherland Institute proposal to offer a \$500 tax credit to parents that keep their kindergarten-age child at home, rather than place her in public kindergarten, adheres to both components. It recognizes that a majority of parents work outside of the home *and* it would encourage more parents who are able to care for their own little children in those vital formative years. On the one hand, the Sutherland proposal would provide modest encouragement for those parents and, on the other hand, it would leave more money in the hands of public schools for early, formal schooling where needed.

Kindergarten is not mandatory in Utah. In fact, kindergarten, where it exists, is part-time. The growing push for mandatory, early, formal public schooling is a new and unprecedented experience in Utah education policy. While it might be helpful for little children coming from sub-standard or dysfunctional homes, without a counterbalance in the policy to encourage attentive parenting, this push would be disastrous for a wide majority of functional Utah families.

Because early, formal public schooling is "educationally insignificant" for most little children in Utah (i.e., those little children coming from otherwise functional homes), this growing push amounts to little more than a vociferous argument for government day care. That argument alone might be sufficient for many Utahns given that most mothers with young children work outside the home. If so, then our public debates should be honest and focus on government-provided day care and not hide behind the façade of early education.

Advocates of early, formal public schooling often ignore the facts. They choose sentimentality over reality and what is over what ought to be. Last year's experience in introducing the \$500 tax credit has raised the Institute's awareness in this debate. We will continue to bring common sense and clarity to the discussion.

We begin anew with a fresh look at the research surrounding "early education." Darcy Olsen, president and CEO of the Goldwater Institute in Arizona, has released a detailed and fascinating look at "early

education." This report, originally released by the Goldwater Institute on February 8, 2005, is titled "Assessing Proposals for Preschool and Kindergarten: Essential Information for Parents, Taxpayers, and Policymakers."

Ms. Olsen naturally sets her research in the context of Arizona's experience with "early education." However, her findings are universal; her conclusions are unavoidable. As she writes,

Fundamentally, the preschool and kindergarten debate is not about the effectiveness or expense of the programs. At heart is the question of in whose hands the responsibility for young children should rest. On that question, plans to entrench the state further into early education cannot be squared with a free society that cherishes the primacy of the family over the state.

The Sutherland Institute is pleased to reprint this report and we commend it to all Utahns.

What Do We Know? Understanding the Research

Policymakers are interested in early education for several reasons. Some proponents see preschool and kindergarten as a politically palatable way to subsidize day care.¹ The primary argument made by Arizona policymakers, including Gov. Janet Napolitano, state superintendent of public instruction Tom Horne, and the State School Readiness Board, is that more early learning will provide the experiences and environment necessary to promote the healthy development of children, leading to subsequent school achievement. For example,

- State superintendent of public instruction Tom Horne writes, "Studies show that a dollar spent on academically oriented all-day kindergarten can equal more than \$7 or \$8 spent in later grades in producing the same academic progress."²
- Gov. Janet Napolitano writes, "Extensive research shows that full-day kindergarten improves students' reading, writing and math skills, and it contributes to lower dropout rates."³
- The State School Readiness Board writes, "Full-day kindergarten can lower grade retention, improve language and math skills, lead to higher achievement test scores in eighth grade, and improve attendance and social skills."⁴

Unfortunately, most of the research informing those statements is limited in its applicability to mainstream students and plagued by methodological shortcomings, including small sample size, high attrition rates, infrequent random selection, and infrequent use of comparison groups. Some of the research has been wholly discredited.

For instance, Superintendent Horne suggests that \$1 invested in full-day kindergarten can save \$7 in later years. Although he does not specify, this figure appears to be based on a flawed cost-benefit analysis from one study of 123 children conducted from 1962-1965, which independent peer reviewers found to be compromised by significant sampling and methodological errors. It also lacks the ability to inform the preschool discussion for mainstream children because it included only children at risk of "retarded intellectual functioning."⁵ Further undermining confidence in the results is the fact that its findings have

never been replicated. These findings are discussed in detail under the section titled “Perry Preschool.”

Taken as a whole, a review of the research shows that some early interventions have had meaningful short-term effects on disadvantaged students’ cognitive ability, grade-level retention, and special education placement. However, most research also indicates that the effects of early interventions disappear after children leave the programs.⁶

This finding helps explain why two researchers can look at the same study and reach different conclusions: the National Center for Education Statistics (NCES) studies, for instance, which have received significant press coverage and are discussed later in detail, show a slight advantage for full-day kindergartners over half-day kindergartners as measured at the end of the kindergarten year. Critically, however, they show no differences in academic achievement between the two groups by the end of third grade. (See “Full-day or Half-day? The Kindergarten Decision.”)

The phenomenon known as “fade out” is important to discussions of preschool and kindergarten because it means that early schooling may not measurably affect a child’s later academic performance. However, if fade out occurs, not because programs are ineffective, but because the schools children later attend are unable to maintain those gains, then it is reasonable to conclude that preschool and kindergarten will not result in lasting gains unless or until elementary and secondary schools are significantly improved. Either conclusion points invariably to the need for reform within the current school system.

As will be discussed later, the few instances in which research has shown the potential of early intervention for improving children’s long term outcomes, the research has been conducted on severely disadvantaged children only in intense settings involving a level of intervention far different from either preschool or kindergarten. For instance, in the widely cited Abecedarian program, children were placed in the program as infants, at the average age of just over four months old.

Importantly, most research has concentrated on children considered to be at risk of school failure, and that research does not inform questions about the majority of mainstream students. The studies that have been conducted on mainstream children generally do not show benefits from early education programs. According to David Weikart, past president of the High/Scope Educational Research Foundation responsible for Perry Preschool: “For middle-class youngsters with a good economic basis, most programs are not able to show much in the way of difference.”⁷

A significant body of research shows that formal early education can be detrimental to mainstream children. David Elkind, professor of child development at Tufts University and author of numerous books on cognitive and social development in children and adolescents, explains,

The image of child competence introduced in the 1960s was intended to remedy some of the social inequalities visited upon low-income children. But the publicity given the arguments of child competence was read and heard by educators and middleclass parents as well...For this reason it was uncritically appropriated for middle-class children by parents and educators. While the image of childhood competence has served a useful function for low-income children and children with special needs, it has become the rationale for the miseducation of middle-class children...⁸

Elkind explains that children who receive academic instruction too early—generally before age six or seven—are often put at risk for no apparent gain. By attempting to teach the wrong things at the wrong time, early instruction can permanently damage a child’s self esteem, reduce a child’s natural eagerness to

learn, and block a child's natural gifts and talents. He concludes,

There is no evidence that such early instruction has lasting benefits, and considerable evidence that it can do lasting harm...If we do not wake up to the potential danger of these harmful practices, we may do serious damage to a large segment of the next generation...⁹

The notable absence of benefits for mainstream children coupled with evidence that early education programs can be detrimental to their development should be of critical concern in light of the fact that policymakers seek preschool and full-day kindergarten for *all* children, not just the small percentage classified as being at risk for school failure.¹⁰

Ready or Not? An Overview of America's Preschoolers

Discussions of preschool are premised partly on the notion that many children are inadequately prepared for entry into kindergarten. For instance, the federal initiative *Goals 2000* established "readiness" as the nation's first education goal, stating, "By the year 2000, all children in America will start school ready to learn."¹¹ Yet there is little agreement in child development literature, among program proponents, or among parents about what children should know and what skills they should possess or by what age, which makes defining "readiness" highly subjective.¹²

Here we address the question of whether children are "ready" for kindergarten by examining: (1) widely used proxy measures for assessing readiness; (2) concrete skills assessment at kindergarten entry; and (3) how kindergartners perform on measures that kindergarten teachers say are the most important for kindergarten preparedness. On these measures, data indicate that most children entering kindergarten are equipped with the knowledge and traits required to enter kindergarten.

In the *Goals 2000* literature and elsewhere, researchers use preschool participation rates and the frequency with which parents read to their children as two important indicators of readiness.¹³ By those measures, a high and increasing percentage of American preschoolers are ready for kindergarten. Data show only five percent of three year-olds attended preschool in 1965; today, 39 percent attend. Sixteen percent of four-year-olds attended preschool in 1965; today, that figure is 66 percent.¹⁴

Data also show families engage their children in literacy activities regularly and with increasing frequency. As measured from 1993 to 1999, the percentage of preschoolers who are read to three or more times per week has increased from 78 percent to 81 percent. The percentage of preschoolers who are taught letters, words, or numbers with equal frequency has increased from 58 percent to 64 percent. The upward trend is also present in the increasing percentage of preschoolers who are taught songs or music, and have done arts and crafts with a family member.¹⁵

Therefore, according to the two common proxy measures of readiness— preschool enrollment rates and early literacy activities—a majority and increasing number of preschoolers are prepared for kindergarten entry. Although there may be room for improvement, the proxy data indicate that the problem of under-preparedness is narrow and diminishing.

We find no studies that have examined specifically the preparation levels of Arizona preschoolers prior to kindergarten entry. The same dearth of information existed on the national level until 1998 when the National Center for Education Statistics (NCES) began conducting the Early Childhood Longitudinal

Study (ECLS-K), which assessed 22,000 children at kindergarten entry and most recently reported on those students through the third grade. The study is the only one of its kind, using a nationally representative sample of children, and conducting a longitudinal and multivariate analysis that is a requirement for assessing the long-term benefits of early education and kindergarten programs.

Researchers Nicholas Zill and Jerry West explain,

Until recently, we have lacked systematic information about what children know and can do at school entry. The data that have been available depended on reports about children's skills from the parents of preschool children, rather than on direct assessments of the children themselves. With the launching of the U.S. Department of Education's Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K) in the fall of 1998, however, measures of the knowledge, skill, health, and behavior of a large and nationally representative sample of American kindergartners are available.¹⁶

The NCES assessment allows researchers to move beyond proxies into specific, verifiable skills. According to the first national assessment of the skills and traits children possess as they enter kindergarten, "America's Kindergartners," U.S. kindergartners have a strong foundation. In terms of concrete literacy development, 82 percent of children entering kindergarten have basic familiarity with print skills such as knowing that print reads left to right.¹⁷ In terms of concrete mathematics knowledge, 94 percent of children entering kindergarten pass mathematics proficiency level one, that is, reading numerals, recognizing shapes, and counting to ten.¹⁸

Finally, we review the factors that public school kindergarten teachers say are "very important" or "essential" to kindergarten readiness—physical health and eagerness to approach new activities.¹⁹ Children's health is reported as very good or excellent, with just three percent of children having "fair or poor general health." At the same time, 92 percent of children are "eager to learn."²⁰ Interestingly, only 10 percent of kindergarten teachers say knowing the letters of the alphabet is very important or essential to being ready for kindergarten, and just 8 percent consider being able to count as very important or essential.²¹

According to the proxy measures of preschool enrollment rates and early literacy activities, concrete skills assessment at kindergarten entry, and measures ranked by kindergarten teachers as important or essential to preparing children for kindergarten, most children entering kindergarten are equipped with the knowledge and traits required to begin the kindergarten year. The high levels of preparedness call into question the notion that there is a widespread need for yet more government involvement in this arena.

Full-day or Half-day? The Kindergarten Decision

In Arizona today, an estimated 56 percent of kindergartners attend half day programs, and 44 percent attend full-time.²² Currently, kindergarten is funded through diverse sources including the state general fund, local taxes, and parent fees. Governor Napolitano has proposed a centralized, statewide full-day kindergarten program with a projected price of \$200 million annually, not including current spending on kindergarten or an additional \$100 million required to build new classrooms.²³

Will full-day kindergarten improve student achievement?

Local advocates point to the Alhambra and Chino school districts and the Reading First program as evidence that full-day kindergarten is worthwhile. Testifying about her views of full-day kindergarten, the governor said, “The Alhambra school district has long been a model for full-day kindergarten success.” The governor continued by citing a performance analysis conducted by the Chino Valley Unified School District, stating, “We know what works, we’re just not doing it.”²⁴ Jim Rice, Alhambra superintendent, believes the preschool programs are working, citing superior test scores for students attending the district’s preschool programs. “This is the type of information to get out to our legislature,” Rice reportedly said. “This is working.”²⁵

We examine summaries of those three programs and find their research designs of poor quality, rendering them of little help in addressing the question of whether full-day kindergarten is beneficial to students.

Campbell and Stanley’s classic 1963 work, *Experimental and Quasi-Experimental Designs for Research*, has served as a basic text for social science researchers for generations, laying out a variety of research designs and what the authors describe as “threats to validity.”²⁶ Focusing on education research, they explain eight internal threats to validity (in which a researcher mistakenly attributes changes in an experimental group to the treatment), and four threats to external validity (whereby the researcher cannot generalize the results of the experiment to broader populations).

Only the highest form of experimental design, involving random assignment and a control group, can hope to remove all twelve threats to validity. Through this technique, students are randomly assigned to experimental and control groups, and if conducted properly, this technique creates two groups that are nearly identical (within a measurable amount of random error)—making the introduction of the treatment the crucial and measurable difference between the two groups. Conversely, on the opposite end of sophistication, is a design known as “Static Group Comparison.” The Alhambra and Chino summaries follow this design. Unfortunately, this design controls for just four threats to validity, making it one of the least valid and informative designs. The Reading First design is stronger, lacking only randomization, as explained below.

Alhambra

The Alhambra summary compares the scores of third-grade and fifth-grade students who attended *both preschool and full-day kindergarten* to the scores of all third-grade and fifth grade students in the district, and reports that scores are higher for children who attended preschool and full-day kindergarten.²⁷ The district concludes, “Students who attend a preschool program and full-day kindergarten are better prepared and have a much greater chance of succeeding in school.”²⁸ However, it is unclear whether preschool and kindergarten attendance are responsible for the difference in test scores.

Alhambra’s critical flaw is that the researchers did not test children before they entered the programs, which means the differences between the two groups may have been present *before the children entered school*. If for any reason—whether systematic or by random chance—those few students began the program with higher scores than average, the study is without scientific value. For instance, if the parents who placed their children in both preschool and all-day kindergarten did so because they value education more highly than the average family, this could lead to mistakenly attributing the higher scores of the treatment group to the program, when in fact the higher scores could be either partially or wholly the result of family background or other student characteristics. Given the body of research showing the primacy of family background and influence as the strongest educational determinant, this oversight is critical.²⁹ Without a pre-test or random assignment, we simply cannot know whether the test score

differences are a result of the programs, family differences, self-selection bias, or other circumstances entirely.

Even if the findings are reflective of the Alhambra district, which cannot be discerned from the data the district provided, the research design the district chose does not address external validity—meaning that we can have no confidence that their results, even if accurate, can be generalized to Arizona. To obtain this information, the researchers would have to measure various characteristics of the student population, which was not done. The combined lack of pre-test information, random assignment, and small sample sizes render the report of little value. Moreover, the Alhambra summary is silent on the question of whether full-day kindergarten is more valuable than half-day kindergarten since its treatment was preschool with full-day kindergarten: it simply did not control or test for this information.

Chino

Chino compares the test scores of kindergarten students in one elementary school who had enrolled in full-day kindergarten to the scores of students who had enrolled in a half-day program. It finds higher test scores for children in the full-day program. It is unclear from the summary how many children were tested each year, but the report states, “In the 2003 school year, out of 102 students in Del Rio’s kindergarten, parents of only twelve students chose a part-time program.”³⁰ We assume the number of participating students was similar in the years tested. The Chino summary suffers from the same flaws in the Alhambra report—no pre-test was conducted to assess the children’s starting points, assignment to the programs was not random, and the sample size was extremely susceptible to threats to validity. Lacking a pre-test, we simply cannot know whether the test score differences existed prior to school entry. Lacking random assignment, we cannot determine whether the test score differences are due to other factors, such as the educational values or background of the families choosing one program over the other. Additionally, with an assumed sample size of one dozen students, we can have no confidence that the results are anything but random. In addition, children were not monitored past kindergarten. The Chino data are uninformative.

Reading First

The Reading First analysis has a stronger design than the Alhambra and Chino summaries, yet it, too, suffers from important shortcomings. The report examines the test scores of children in full-day and half-day kindergarten programs at school entry and at the end of the kindergarten year, and finds that 59.8 percent of the full-day kindergarteners met the “benchmark,” compared to 42.6 percent of the half-day kindergarten group, a reported advantage of 17 percent.³¹ It finds the full-day group made more progress in reading than did the students in half-day classes.³²

Like the Alhambra and Chino summaries, the Reading First analysis is susceptible to selection bias, which means researchers cannot determine with any certainty whether the test score differences are the result of the kindergarten programs or whether the results may be due to other factors such as the educational values of the families choosing one program over the other. Equally problematic is the absence of controls on the background of the students. There is no multivariate analysis, which would measure and control for a number of factors about each group. For example, one might measure the family income of every child and the highest level of educational attainment of each child’s mother, and then run an analysis with each factor included as a separate control variable. If, for example, the all-day kindergarten group had significantly higher family incomes than the half-day group, it could lead to the

impression that the all-day program led to score gains when in fact it was a difference in family background that led to the appearance of an experimental effect. Randomization minimizes these types of differences, and measuring and controlling for them in a multivariate analysis could nearly eliminate them. The Reading First analysis does neither. Moreover, the researchers did not measure whether the differences observed were statistically significant (i.e., not likely to be the result of chance). Therefore it is a heroic assumption to argue that all differences observed are due to the kindergarten programs.

Nonetheless, the size of the difference at the end of the kindergarten year is such that the data might withstand the introduction of the proper controls and could be found to be significant. This would be consistent with research showing that full-day kindergarten gives children a modest short-term academic advantage over children in half-day programs.³³

We note, however, that the differences researchers observed in the Reading First analysis already began to fade by the beginning of first grade. At the end of kindergarten, 17 percent more of the full-day students had attained the benchmark than those in the half-day program (59.8 percent compared to 42.6 percent). As the Reading First analysis reported, just a few months later, at the beginning of first-grade, that advantage dropped almost in half, to 10 percent (58.7 percent compared to 49 percent). Similarly, at the end of kindergarten, 15 percent more of the half-day students were recommended for intensive support (34.7 percent compared to 19.9 percent), but by the beginning of first grade, the difference had dropped to 10 percent (23.6 percent compared to 13.6 percent).

Therefore, the reasonable conclusion to draw from the Reading First analysis is that, while we cannot be confident in the advantages of full-day kindergarten, we can be sure that, if those advantages exist, they also fade quickly. This finding would be consistent with the highest quality research conducted to date on kindergarten programs.

This is why the National Center for Education Statistics Early Childhood Longitudinal (ECLS-K) study is so important. As noted earlier, the researchers assessed 22,000 children at kindergarten entry and most recently reported on those students through the third grade. The data set is the only one of its kind, giving researchers information on dozens of variables that impact student achievement, and, importantly, allowing them to control for the impact of kindergarten programs.

The ECLS-K research shows the same pattern documented by hundreds of early education studies: children in full day kindergarten are afforded a modest academic edge over children in half-day kindergarten when measured at the end of the kindergarten year. However, that initial edge completely disappears by third grade.

At the end of the kindergarten year, the researchers find there is “little meaningful difference” on reading and math test scores between all-day and part-day kindergartners. They write, “In terms of kindergarten program type (i.e., all day or part day), there is little meaningful difference in the level of children’s end-of-year reading and mathematics knowledge.”³⁴ What is the difference? “On a reading scale that ranged from 0 to 72, the average kindergartner in a full-day program gained 10.6 points over the school year. For children in half-day kindergarten programs, the average gain was 9.4 points.”³⁵ Final reading scores were 32.1 and 31.3, respectively. The findings in mathematics are parallel.³⁶

The difference is modest, and all the more modest considering full-day students spend twice as much time in school as their half-day peers.

Importantly, the “little meaningful difference” observed at the end of the kindergarten year no longer

exists by third grade. By the end of third grade, the researchers no longer detect a difference between students who attended part-day or full-day programs. They write, “This report did not detect any substantive differences in children’s third-grade achievement relative to the type of kindergarten program (full-day vs. half-day) they attended.”³⁷ The finding holds across all subject matters tested. “Third-grade reading, mathematics, and science achievement did not differ substantively by children’s sex or kindergarten program type.”³⁸

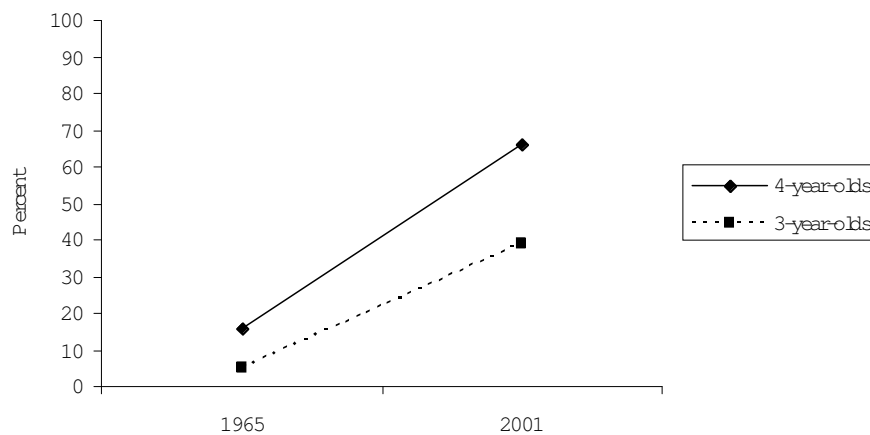
The NCES reports document on a large scale the piecemeal findings on early education that have been trickling in for years: in the short-term, more early education may confer more gains than lesser amounts of early education, but over time, those advantages are not sustained. Unless or until the elementary and secondary school system is improved, it is unlikely that preschool or kindergarten will lead to a measurable improvement in school achievement.

What Impact Do Preschool and Kindergarten Have on Achievement? A Historical Overview

The NCES findings may be less surprising in historical context. From 1965 to the present day, the United States has undergone a sea change in formal early education. Preschool, then uncommon, is now the mode.

As Figure 1 shows, only five percent of three-year-olds attended preschool in 1965; today, 39 percent attend. Sixteen percent of four-year-olds attended preschool in 1965; today, that figure is 66 percent. For five-year-olds, kindergarten has become almost universal.³⁹

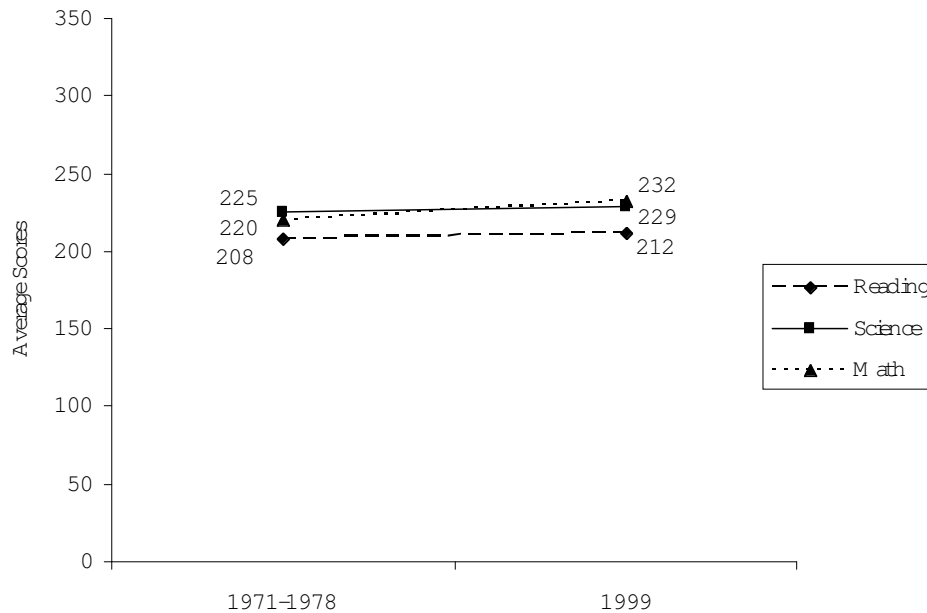
Figure 1: Percentage of Three- and Four-year-olds Enrolled in Preprimary Programs, 1965-2001



Source: National Center for Education Statistics, Digest of Education Statistics, 2003, Table 43, available at nces.ed.gov/programs/digest/d03/tables/dt043.asp.

Despite the widespread use of formal early education programs, student achievement has shown little to no improvement. For instance, Figure 2 shows fourth-grade reading, science, and math scores on the National Assessment of Educational Progress (NAEP) have been little better than stagnant since 1971, 1977, and 1978, respectively.

Figure 2: Fourth Grade Reading, Science and Math Scores on the NAEP, 1971-1999



Source: 1971, 1977, and 1978 are the initial test years shown respectively in reading, science, and math. See U.S. Department of Education, National Center for Education Statistics, “Results Over Time: NAEP 1999 Long-Term Trend Summary Data Tables,” August 2000, available at nces.ed.gov/nationsreportcard/tables/Ltt1999.

As noted author and education researcher Andrew Coulson reports, “Student achievement has stagnated or fallen in most subjects since 1970... That is the verdict of the five most reliable sources of evidence: the National Assessment of Educational Progress (NAEP), the International Evaluation of Education Achievement (IEA), the Young Adult Literacy Survey (YALS), the National Adult Literacy Survey (NALS), and the International Adult Literacy Survey (IALS).”⁴⁰

Although the relationship between inputs and outcomes is more complicated than this linear analysis suggests, if the proponents’ arguments were correct, we should expect to see at least some relationship between the increased enrollment in early education programs and student achievement. This is particularly true when the states have, over the same period of time, more than tripled spending on education, increased teacher salaries, and reduced class sizes.⁴¹

Certainly many factors contribute to student learning, but the lack of any apparent relationship between increased enrollment in early education programs and later student achievement suggests more formal early education is unlikely to improve student achievement.

How Do U.S. Children Perform? An International Examination

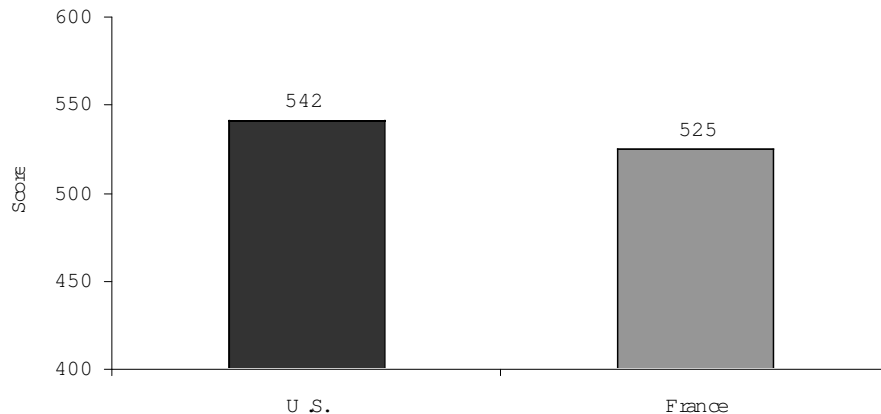
Advocates often point to France’s *écoles maternelles* as the ideal model for early childhood education. According to Sandra Feldman, president emeritus of the American Federation of Teachers, the United States “can’t afford not to” adopt a pre-primary program sculpted after the coveted French system.⁴² Nearly all three- and four-year-olds in France are enrolled in center-based institutions.⁴³

Does the European model produce superior results?

If early education programs were essential building blocks for later school success, we would expect European students to have a stronger showing than U.S. students on international tests, particularly in the early elementary years. However, test scores reveal that U.S. students routinely outperform their international counterparts in reading, math, and science in fourth-grade—the earliest year for which comparative test scores are available.

Figure 3 shows that U.S. fourth graders demonstrate significantly better reading literacy skills than their French peers.⁴⁴

Figure 3: U.S. Fourth Grade Reading Literacy Scores Exceed French Scores, 2001



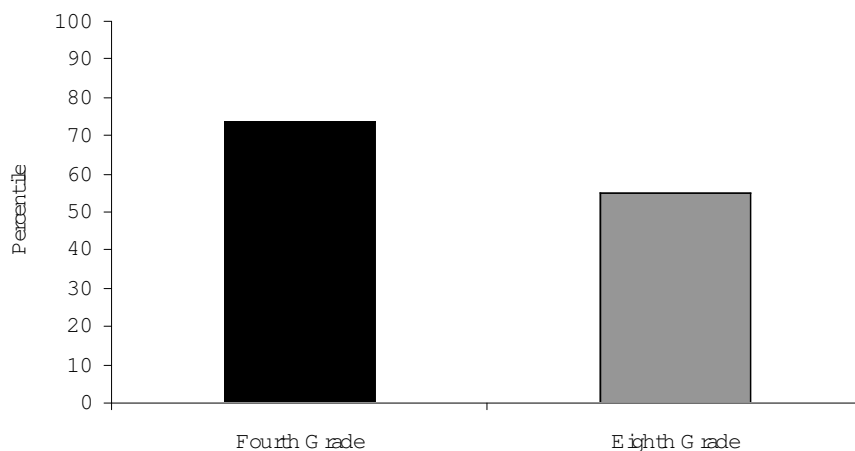
Source: U.S. Department of Education, National Center for Education Statistics, “International Comparisons in Fourth Grade Reading Literacy: Findings from the Progress in International Reading Literacy Study (PIRLS) of 2001,” NCES 2003-073, April 2003, 5.

With a score of 542, U.S. fourth graders also perform significantly better than the international average of 500, and outperform their counterparts in twenty-six of the thirty-five countries participating in the literacy exam, including Germany and Italy, which have enrollment rates similar to France.⁴⁵ The top performance of U.S. readers was documented in an earlier version of the 2001 exam. On the 1991 version, U.S. fourth graders surpassed students in France, East Germany, West Germany, and Italy with significant margins.⁴⁶

Test data from the Third International Mathematics and Science Study show U.S. fourth graders also have above-average math scores, and their science performance is third only to South Korea and Japan.⁴⁷ U.S. fourth graders earned a score of 545 in mathematics, performing significantly better than the international average of 529, and surpassing their counterparts in 14 out of 26 participating countries.⁴⁸ In science, U.S. fourth graders scored 565, far above the international average of 524.

While U.S. fourth graders are “A” students on the international curve, that advantage does not last. By eighth grade, U.S. student performance is slipping, and test performance is mediocre. As David Hoff reported for *Education Week*, “In 1995, the nation’s fourth graders aced international mathematics and science tests. By the time they reached the 8th grade in 1999, though, they had become little better than C students on a global curve...”⁴⁹ A similar decline occurs in reading. Figure 4 shows U.S. fourth graders score higher than 70 percent of their international peers while U.S. eighth graders perform little better than the international average.

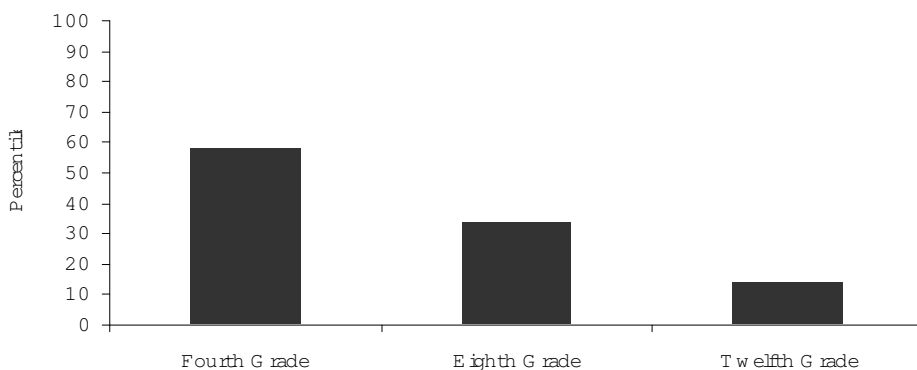
Figure 4: Decline in U.S. Reading Literacy Performance by Grade Level



Source: Mullis et al., “PIRLS 2001 International Report: IEA’s Study of Reading Literacy Achievement in Primary Schools,” Boston College, 2003, Chapter 1, available at timss.bc.edu/pirls2001i/pdf/P1_IR_Ch01.pdf; and U.S. Department of Education, National Center for Education Statistics, “Outcomes of Learning: Results from the 2000 Program for International Student Assessment of 15-year-olds in Reading, Mathematics and Science Literacy,” December 2001, Chapter 2, available at nces.ed.gov/pubs2002/2002115.pdf.

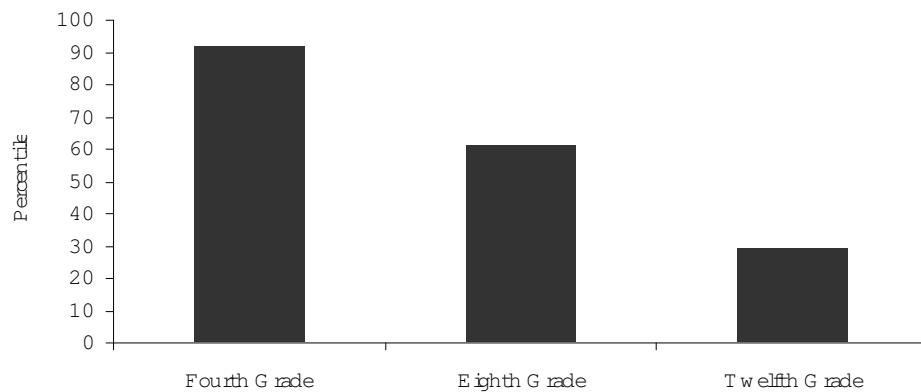
Student performance continues declining, and by twelfth grade U.S. seniors are “D” students on the international scale.⁵⁰ Out of twenty-one countries tested in math and science literacy, U.S. twelfth graders performed better than students in only three countries—Lithuania, Cyprus, and South Africa.⁵¹ As the U.S. Department of Education describes it, “U.S. students performed relatively well at the fourth-grade level, about average at the eighth-grade level, and below average at the twelfth-grade level.”⁵² Figures 5 and 6 illustrate the decline.

Figure 5: Decline in U.S. Math Performance by Grade Level



Sources: Fourth grade: “TIMSS highlights from the Primary Grades,” Boston College, June 1997: 2, Table 2, based on 1994-1995 TIMMS data, available at isc.bc.edu/timss1995i/TIMSSPDF/PIHiLite.pdf. Eighth grade: “TIMSS Highlights from the Middle School Years,” Boston College, November 1996: 2, Table 1, based on 1994-1995 TIMMS data, available at isc.bc.edu/timss1995i/HiLightB.html. Twelfth grade: “TIMSS Highlights from the Final School Years,” Boston College, February 1998: 2, Table 2, based on 1995-1996 TIMMS, available at isc.bc.edu/timss1995i/TIMSSPDF/C_Hilite.pdf.

Figure 6: Decline in U.S. Science Performance by Grade Level



Sources: Fourth grade: “TIMSS highlights from the Primary Grades,” Boston College, June 1997: 2, Table 2, based on 1994-1995 TIMSS data, available at isc.bc.edu/timss1995i/TIMSSPDF/P1HiLite.pdf. Eighth grade: “TIMSS Highlights from the Middle School Years,” Boston College, November 1996: 2, Table 1, based on 1994-1995 TIMSS data, available at isc.bc.edu/timss1995i/HiLightB.html. Twelfth grade: “TIMSS Highlights from the Final School Years,” Boston College, February 1998: 2, Table 2, based on 1995-1996 TIMSS, available at isc.bc.edu/timss1995i/TIMSSPDF/C_Hilite.pdf.

Figure 5 shows U.S. student score higher than 58 percent of their international peers in the fourth grade, but score higher than just 14 percent by twelfth grade. Figure 6 shows a similar decline in science performance with U.S. students surpassing 92 percent of their international peers in fourth grade, but performing better than only 29 percent by twelfth grade.

What test scores reveal, then, is that U.S. students are strong competitors in the early elementary years, excelling in reading and science and performing above average in math. Over time, U.S. student performance declines and international students take the lead. Whatever the cause of that decline, however, it appears to have little or nothing to do with a lack of preparation in the early years. To the degree that international test data are informative, America’s decentralized and flexible early education system is outperforming the European model and excels in equipping students for superior achievement in the elementary years.

Perry Preschool: Can \$1 Today Yield \$7 Tomorrow?

The Perry Preschool Project was a longitudinal experiment designed to study the effects of early intervention on severely disadvantaged children. It was the early intervention program most frequently cited in research reviews between 1983 and 1997, and is heavily cited in the literature and legislation in support of universal preschool.⁵³

Investigators at the High/Scope Educational Research Foundation in Ypsilante, Michigan, conducted the experiment from 1962 to 1965. The investigators reported their most recent findings in “Lifetime Effects: The High/Scope Perry Preschool Study through Age 40.”⁵⁴ The project was an intervention program for three- and four-year-olds deemed to be at risk for “retarded intellectual functioning and eventual school failure.”⁵⁵ It involved either one or two years of half-day preschool for seven months each year and periodic home visits. One hundred twenty-three children participated, 58 children in the experimental group and 65 in the control group. All of the children were of low socioeconomic status and had IQs in the range of 70 to 85.⁵⁶ The study is frequently cited because it is the longest running study of any preschool intervention program.

Analyses show that students who participated in the preschool program fared better over the long term on a variety of educational and social measures than did children in the control group. Lawrence J. Schweinhart, now president of the High/Scope Foundation, wrote, “Program participation had positive effects on adult crime, earnings, wealth, welfare dependence, and commitment to marriage.”⁵⁷ On the basis of those findings, Schweinhart concluded, “The program provided taxpayers a return on investment of \$7.16 on the dollar.”⁵⁸ Advocates rely heavily on that figure to make their case that preschool is an investment that more than pays for itself in the long term.

The High/Scope researchers’ interpretation of the long-term findings is that the preschool program prepared children for kindergarten, which resulted in a more positive reaction by kindergarten teachers that, in turn, caused the children to have a stronger commitment to school. That is sometimes called the snowball hypothesis. Three researchers from Yale University explain,

The snowball hypothesis presumes that children who attend quality intervention programs are better prepared socially and academically when they begin school. This enables them to interact positively with their teachers, who in turn relate positively to them, and this tone of adult child relationships continues in progressive years of school.⁵⁹

Others posit that the home visitation component was largely responsible for the results. They hypothesize that people became more effective parents as a result of their involvement in the program. Experiences such as building relationships with teachers may help parents establish a more supportive home environment and effective “homeschool linkages.”⁶⁰ At any rate, there is no consensus on which components of the program were responsible for the children’s gains. The critical question remains: how could a one- or two-year half-day preschool program produce such outstanding results?

The High/Scope researchers have been subject to heavy criticism for using nonstandard significance levels. If standard significance levels are used, many of the most “significant” differences between the experimental and control groups disappear.⁶¹ Psychology professor Charles Locurto of the College of the Holy Cross in Massachusetts has argued that the Perry results are less remarkable when all findings—not just those that favor Perry—are considered. Locurto writes,

We might marry the large number of nonsignificant and unfavorable findings into a different picture of the Perry Project’s outcomes. We might argue that preschool training resulted in no differences in school motivation or school potential at the time of school entry, no lasting changes in IQ or achievement test performance... There were no differences in their average grades as compared to formercontrol-group children, in their personal satisfaction with their school performance or in their self-esteem. Their parents were no more likely to talk with teachers about school work or to attend school activities and functions than control-group parents. Preschool children were more likely to have been placed in remedial education. By age 19, they were unemployed at a rate equal to that of their control-group counterparts.⁶²

More important, questions have been raised concerning the Perry sample and methodology. According to Head Start co-founder and current Sterling Professor Emeritus of Psychology at Yale University, Ed Zigler,

[The Perry sample] was not only non representative of children in general; there is some doubt that it was representative of even the bulk of economically disadvantaged children...The Perry Project poses a number of methodological difficulties...Children had to have a parent at home during the day, resulting in a significant difference between control and intervention groups on the variable of maternal employment...[and] assignment to

experimental and control groups was not wholly random.⁶³

Even if one believes the Perry findings are valid for disadvantaged children, they form a slippery basis for universal preschool, and caution is in order. First, in more than 40 years, no other program or study has produced results as dramatic as those found for Perry.⁶⁴ That suggests that there may have been unique conditions at the Perry Preschool that simply cannot be duplicated. As a general principle, science requires an experiment to be replicable before it is considered valid. Certainly caution is in order when it comes to applying findings to millions of children.

Second, benefits were obtained only for severely disadvantaged children at risk of “retarded intellectual functioning.” It is simply inappropriate to generalize the effects of Perry to mainstream children. This is particularly important given the research that shows early education programs do not always benefit, and may even be harmful to, mainstream children.

Third, Perry children may have outperformed children in the control group, but they still fared poorly compared with mainstream children. For example, nearly one-third of children participating in the intensive program dropped out of high school; nearly one-third of the children were arrested; and three of five participating children received welfare assistance as adults.⁶⁵ That has led many researchers to be more level-headed about the likely effects of early intervention:

Policymakers should not assume that the widespread enrollment of low-income children and families in early childhood programs will enable children living in poverty to perform later in school and life at the levels reached by more advantaged children.”⁶⁶

Finally, Perry differed significantly from regular preschool programs or what we could expect to see in a universal preschool program. The fact that no other preschool program has ever produced results akin to Perry may be testament to that.

The Carolina Abecedarian Project

Although it is neither a preschool nor kindergarten program, advocates often mention the Abecedarian project because of its unique long-term findings. The Abecedarian Project was launched in 1972 by researchers at the Frank Porter Graham Child Development Center in Chapel Hill, North Carolina, and involved 111 children deemed at risk on the basis of their parents’ income, education, and other factors. The mean age at entry into the program was 4.4 months. The infants were placed in an eight-hour-a-day, five-day-per-week, year-round educational day care center. They received free medical care, dietary supplements, and social service support for their families. From ages five through eight, half of the children from both the experimental and the control groups were given extra help in school and at home by specially trained teachers.⁶⁷

At every age from one-and-a-half to four-and-a-half years, children treated in preschool significantly outscored the control group on measures of intellectual development. At age eight, test data showed significant positive effects of preschool treatment on intellectual test scores. A follow-up test at age twelve showed that the effects of preschool treatment on children’s performance on intellectual tests and on reading and mathematics tests had been maintained into early adolescence. As the Abecedarian Project researchers note, “This represented a longer maintenance of preschool intervention gains than has typically been reported from previous projects concerned with similar children and families.”⁶⁸ Most recently, researchers examined the children’s intellectual and academic performance at age twenty-one

and found that students who had received the treatment “attained higher scores on both cognitive and academic tests, with moderate to large treatment effect sizes.”⁶⁹

As with the Perry project, there is no consensus on which components of the program were responsible for the children’s gains, although it has been suggested that the early cognitive gains were associated with greater mastery of academics, which led, in turn, to better performance thereafter.⁷⁰ The findings also provide support for the intensity or duration hypothesis, which predicts that longer, more intense programs result in the most advantages for children.⁷¹

The Abecedarian Project has received some criticism, most notably from Herman H. Spitz, former director of the Research Department at the E. R. Johnstone Training and Research Center in Bordentown, New Jersey.⁷² Spitz expressed concern that the project personnel presented certain results in ways that bias the findings in favor of Abecedarian. For example, by combining the IQ findings of the four cohorts studied, the researchers concluded that the intervention raised IQ. However, they neglected to report that scores improved only for two of the four groups. In fact, for the third and fourth cohorts, the experimental group actually lost 3.68 IQ points more than did the control group, providing no support for the efficacy of the intervention on this measure.⁷³

Spitz also points out that differences favoring the intervention group first emerged at six months of age, when those children’s advantage was six points. He writes, “This is a rather surprising finding when one considers that the mean age of entry into the daycare center was 4.4 months.”⁷⁴ The intervention groups’ IQ advantage at five years of age was essentially the same as it had been at six months of age. Spitz asks, “What happened during the initial 1.6 months to produce essentially the same advantage for the intervention group that later was found at five and twelve years of age?”⁷⁵ He continues,

We need to understand why an additional 4.5 years of intensive intervention had so little effect that, at six years of age (and older), the difference between the intervention and control groups was not appreciably different than it had been at six months of age.⁷⁶

Spitz also argues that because of the ways the tests were conducted, some of the reported test results may be biased in favor of the Abecedarian Project.⁷⁷

Whether or not one takes the Abecedarian findings as wholly valid, there are several facts that should prevent legislators from basing policy recommendations for universal early education on the study. First, the Abecedarian project did not include mainstream students, and benefits were obtained only for a small group of “economically disadvantaged African-American children.” The findings do not inform questions regarding mainstream children.

Second, Abecedarian was not a one-, two- or even three-year preschool or kindergarten intervention. It was an intensive intervention that created a home-away-from-home for infants and continued at an intensive level for more than five years. It was not akin to preschool or kindergarten programs. It was a full-time intervention from birth through age five that arguably few parents would find comfortable.

Finally, the Abecedarian Project was the first of its kind and has not been repeated. As the authors report, “The persistence into adulthood of the Abecedarian treatment effects on cognitive development is in contrast to the erosion of treatment/control test score differences in the Early Training Project and the High/Scope Perry Preschool Project, the only other randomized trials of early childhood intervention to have reported post-high school findings.”⁷⁸ Because the Abecedarian Project was the first of its kind to demonstrate sustained results, it is important that it be replicated, and the factors leading to such anomalous findings are understood, before drawing further conclusions.

Whatever their merits, neither Perry Preschool nor Abecedarian speaks to mainstream children nor to the type of preschool or kindergarten programs proposed by today's policymakers. Additionally, both were model projects that treated a small group of children in specific conditions. Could those effects be expected of widespread public programs? On this point, information on Head Start is informative. Head Start is the government's longest running preschool program for disadvantaged children and it has failed to produce long-term academic advantages for participants.

Head Start

Research on Head Start is valuable because it is a large program operating under real-world conditions and constraints, and research has been conducted over a forty-year period. Head Start has more than 1,300 preschool projects serving about 457,000 disadvantaged children. The information about the effects of Head Start can serve as a close approximation of what one might expect from a universal preschool education for disadvantaged children.

Like many of today's early education advocates, former president Lyndon B. Johnson sold his program to the public by promising that early intervention could prevent delinquency, poverty, and welfare use.⁷⁹ The reality of Head Start has been much different. Head Start programs have had mixed short-term results. Consistent with broad findings on early education, however, Head Start students have not demonstrated lasting achievement gains.

In 1997, the General Accounting Office (GAO) conducted a thorough analysis of Head Start's impact.⁸⁰ After speaking with early childhood researchers and practitioners and searching through electronic databases to locate published and unpublished manuscripts, the GAO found nearly 600 citations and documents. Of those, only twenty-two studies fit their criteria for review, and even those "had some methodological problems."⁸¹ No study used a nationally representative sample so that findings could be generalized to the national program. The GAO concluded, "The body of research on current Head Start is insufficient to draw conclusions about the impact of the national program."⁸²

The Department of Health and Human Services (HHS) has maintained that research proves Head Start's effectiveness. In a letter to the GAO, June Gibbs Brown, then inspector general of HHS, wrote, "There is clear evidence of the positive impacts of Head Start services."⁸³ For supporting evidence, HHS cited findings from a comprehensive synthesis of Head Start impact studies conducted under HHS auspices in 1985.⁸⁴ The study showed that Head Start could have an immediate positive impact on cognitive measures, social behavior, and child health. However, HHS neglected to mention the rest of the findings—namely that the short-term impact of Head Start diminished once the children entered school.

The synthesis concludes,

In the long run, cognitive and socioemotional test scores of former Head Start students do not remain superior to those of disadvantaged children who did not attend Head Start.⁸⁵

On the three cognitive measures tested (IQ scores, school readiness, and achievement test scores), the report found,

Once the children enter school there is little difference between the scores of Head Start and control children...Findings for the individual cognitive measures—intelligence, readiness and achievement—reflect the same trends as the global measure...By the end of the second year there are no educationally meaningful differences on any of the measures.⁸⁶

Findings on children's social behavior, achievement motivation, and self-esteem were similar:

On social behavior, former Head Start enrollees...drop to the level of comparison children by the end of the third year. On achievement motivation and self-esteem, Head Start children drop below non- Head Starters a year after Head Start, then score about the same as comparison children for the next two years.⁸⁷

In 2003, researchers released a new study on Head Start with a nationally representative sample of 2,800 children in forty-three different Head Start programs called "Head Start FACES 2000." The report seems to confirm earlier findings. The researchers report, "Despite the gains they make, Head Start children enter kindergarten still substantially below national averages on such assessments."⁸⁸ Longer-term assessments have not yet been conducted, but are currently under way by Westat.

Experience in Georgia: \$1.15 Billion on Universal Preschool Bears No Fruit

In 1993, the Georgia State Legislature established a no-fee pre kindergarten program now serving an estimated 63,000 four-year-old preschoolers. Using the Georgia Kindergarten Assessment Program (GKAP), in 1999 researchers at Georgia State University tested children who had participated in the preschool program and compared their scores to all students in the state during the kindergarten year. Both groups scored well, but their scores were indistinguishable. The researchers concluded,

Eighty-eight percent of the study sample scored a five on the capability item, compared to 85 percent of all students across the state scoring similarly. Statistical tests indicate that overall these differences are not significant. In other words, the study sample does not differ from the entire kindergarten population in GKAP capability scores.⁸⁹

Reports also show that GKAP scores are essentially the same as they were before Georgia adopted the universal preschool program. Linda Schrenko, then Georgia state school superintendent, expressed the state's disappointment, saying, "The only message you can get from it is that our kindergarten non-ready rate [7 percent of students] is the same, regardless of what we do."⁹⁰

In 2003, Georgia State University researchers released the latest findings from the fifth and final year of the longitudinal study of the prekindergarten program. In the final report, they write,

Previous research has shown that cognitive gains as measured by standardized test scores are associated with preschool experiences but are not sustained in later years...It should not be surprising to find that the test scores of children, all of whom participated in a pre-k program four years before are not systematically different.⁹¹

The researchers show the test scores of children who remained on grade level and who were not exempted from state testing by virtue of their individualized education plans, and report their average percentile test scores in math, language arts, science and social studies: all fall below the national average and are not systematically different from Georgia's average student performance.⁹²

Other findings on grade level retention and curriculum are also informative. The researchers report, about 15 percent of the children were retained at least once by their fourth year of primary school."⁹³ Within the preschool control group, researchers were also able to assess the impact of varying types of preschool

curriculum and found, “Students’ economic backgrounds have more influence on their educational success after pre-k than curriculum choice and teacher credentials.”⁹⁴ Lead researcher Gary Henry writes,

Program characteristics made only small differences in retention and test scores. These differences are much less dramatic than some of the differences based on parental education or socio-economic status...There is no magic bullet here. No one thing is waiting in the wings to increase scores for all students...⁹⁵

After ten years, the Georgia preschool program has served over 300,000 children at a cost of \$1.15 billion and children’s test scores are unchanged.⁹⁶

Recommendations

1. Increase Transparency

We recommend the Arizona Legislature bring transparency to current spending by identifying, documenting, and tracking the amount of federal and state spending on child care, preschool, and kindergarten programs in Arizona. In conducting this analysis, we reach the same conclusions on the quality of financial data reached by Arizona State University (ASU) researchers who compiled “The Condition of Early Childhood Education and Care in Arizona: 2004.” They concluded, “The data on early childhood education and care (ECEC) in Arizona are poor,” and recommended that the School Readiness Board be given “the authority and funding to identify and track annually the amount of federal and state dollars invested in ECEC.”⁹⁷ We recommend consideration of this function by the Auditor General’s office or another independent body to reduce any potential conflict of interest that might undermine the objectivity required in such an analysis.

2. Assess Impact

As a matter of good public policy, we recommend the legislature require an impact assessment of early education expenditures. This is particularly important in light of empirical evidence demonstrating the inability of early education programs to improve academic performance. We concur with ASU findings that,

The variety of agencies and groups involved and the lack of a systematic and coordinated statewide data plan make it difficult to evaluate the validity, integrity, and consistency of the ECEC available data...Pre-school and kindergarten enrollment data are not systematically collected or organized...⁹⁸

There is almost no information available on the impact of the more than \$410 million spent annually on these programs on student learning.⁹⁹

3. Transform Current Spending into Grants

To the degree that the state continues to be involved in early education, we recommend funding be modified into direct education grants to families. The arguments for a flexible funding system of per-child grants have been made extensively elsewhere.¹⁰⁰ We discuss just a few important considerations here.

The best available estimates show that Arizona currently spends more than \$410 million annually on early education programs.¹⁰¹ Of that, an estimated \$134 million is spent on kindergarten, a conservative

figure that does not include the multiple funding streams being used by school districts to provide kindergarten or parent fees.¹⁰² Nonetheless, the amount is sufficient to give a kindergarten grant worth \$1,950 to every kindergartner in Arizona.¹⁰³ If grants were targeted to kindergartners whose family incomes were equal to or less than 185 percent of the federal poverty line (an estimated 42 percent of kindergartners), grants could be an estimated \$4,650 per child.¹⁰⁴

The best estimates also show Arizona spends \$265 million annually on non-kindergarten early education programs, an amount sufficient to give every four-year-old in Arizona a grant of \$3,460.¹⁰⁵ If grants were restricted to children whose family incomes were equal to or less than 185 percent of the federal poverty level, current spending could transform into grants in the estimated amount of \$8,240 per child.¹⁰⁶

These figures are not intended to be prescriptive or definitive, but rather to illustrate the amount of money currently spent on these early education programs and the possibility of using those funds more efficiently through per child grants.

At current spending levels, the grant amounts could be sufficient to assist parents' choice among a range of private providers. A recent Goldwater Institute survey of Arizona private schools finds the average tuition for private elementary schools is an estimated \$3,700.¹⁰⁷ This figure is aligned with national figures from the U.S. Department of Education that report the average private elementary school tuition is \$3,267.¹⁰⁸

Absent a grant program that uses the private sector, the further provision of state-run early education is likely to inflate costs. The Arizona School Readiness Task Force says quality preschool costs at least \$7,000 to \$10,000 per child.¹⁰⁹ Similarly, the National Institute for Early Education Research estimates the per-child cost at \$8,700.¹¹⁰ As with the provision of K-12 education, publicly run preschool and kindergarten will likely cost significantly more than privately provided options.

Making use of private providers will also help reduce construction costs, which are projected at \$100 million for Governor Napolitano's kindergarten plan.¹¹¹ The practical approach of making use of the private sector was a key factor in Florida's recent decision to implement preschool through a grant system.¹¹² On January 2, 2005, Florida governor Jeb Bush signed a bill allowing Florida four-year-olds to attend the preschool programs of their parents' choice—including private centers. The per child cost is expected to be between \$2,000 and \$3,000.¹¹³

Alex Penelas, the democratic mayor of Miami-Dade County who championed the initiative, said he was working all the time under the assumption that parents would be able to choose either a public or private school for their children, saying, "That's more a practicality of having 90,000 children arrive on the doorstep."¹¹⁴ Author of the Florida senate bill creating the program, senator Lisa Carlton (RSarasota), concurred, saying, "Because we don't have enough spaces in the public schools, it's necessary for Florida to partner with the private sector."¹¹⁵

Akin to Florida's flexible system, we recommend parents be allowed to spend their grants in any public or private preschool or kindergarten program of their choice. Policymakers should ensure the continued independence of private providers. This will allow families to choose from a diversity of curricula, hours, and standards that suit individual student learning needs.

New state-run programs may also threaten the private and parochial provision of services, and with them, the diversity that is critical to meeting student needs. England's experience is instructive in this regard. The Department for Education and Employment worked vigorously to provide free preschool places for all four year-olds and most three-year-olds by 2002. The BBC news reported, "The developments have

proved disastrous for the private and voluntary sector.”¹¹⁶ More than 2,000 groups have closed since 1997 and 1,500 avoided closure only because of emergency funding from the government.¹¹⁷

Arizona policymakers have the opportunity to transform current expenditures into a flexible system that can provide for a more cost-effective use of funds, greater choice for parents, and a wider range of opportunity for students.

Conclusion

Gov. Janet Napolitano has argued that “Today in America, we are trying to prepare students for a high tech world of constant change, but we are doing so by putting them through a school system designed in the early twentieth century that has not seen substantial change in thirty years.”¹¹⁸ We agree, and elsewhere have argued for fundamentally changing the school system through the powerful mechanism of school choice.¹¹⁹ Yet, the governor has proposed an expansion of the status quo.

To the degree that the state remains involved in early education, we recommend adopting a flexible system of per-child grants. Current state spending on kindergarten is sufficient to give a kindergarten grant worth \$1,950 to every kindergartner in Arizona. We note this is a conservative estimate that does not include multiple sources of revenue currently generated by school districts or parent fees, which could also be used to augment the amount. If grants were targeted to children in families of modest means, kindergarten grants could be an estimated \$4,650 per student.

Empirical evidence suggests more early education will do little to improve children’s long-term education outcomes. We summarize some key findings here:

- The National Center for Education Statistics’ longitudinal study of 22,000 children finds no lasting reading, math, or science achievement differences between children who attend half-day and full-day kindergarten. “This report did not detect any substantive differences in children’s third-grade achievement relative to the type of kindergarten program (full-day vs. half-day) they attended.”¹²⁰
- After ten years, the Georgia preschool program has served over 300,000 children at a cost of \$1.15 billion and children’s test scores are unchanged. “The study sample does not differ from the entire kindergarten population in GKAP capability scores.”¹²¹
- Head Start, the nation’s largest preschool program for disadvantaged children, has not measurably improved educational outcomes. “Once the children enter school there is little difference between the scores of Head Start and control children...Findings for the individual cognitive measures—intelligence, readiness and achievement—reflect the same trends as the global measure...By the end of the second year there are no educationally meaningful differences on any of the measures.”¹²²
- Historic trends are not encouraging. The preschool enrollment rate of four-year-olds has climbed from 16 percent to 66 percent since 1965. Despite the change from home education to formal early education, student achievement has stagnated since 1970. If early education programs were essential building blocks for success, we would expect to see at least some relationship between that increased enrollment and student achievement.

- The French model of early education is not encouraging. French students have significantly lower literacy rates than U.S. students as measured in fourth grade, the earliest year for which comparative data are available.
- America’s flexible approach to early education gives children a strong foundation, according to widely used proxy measures of preparedness, concrete skills assessments, and reports by kindergarten teachers. We find further evidence of the strength of our early education system in international comparisons, which show U.S. fourth graders are “A” students on the international curve, excelling in reading and science and performing above average in math.
- By twelfth grade, U.S. students are “D” students on the international scale, a decline occurring after fourth grade. Whatever the cause of that decline, it appears to have little or nothing to do with a lack of preparation in the early years.

For these reasons, among others, we strongly recommend against “ensconcing early care and education as a lockstep component of public schooling,” and recommend alternative measures for improving Arizona’s education system—including transparency, impact assessment, and individual student funding.

ENDNOTES

- ¹ This paper does not examine the day care debate. For analysis on the availability, affordability, and quality of child-care arrangements, see Darcy Olsen, "The Advancing Nanny State: Why the Government Should Stay Out of Child Care," Cato Institute Policy Analysis no. 285, October 23, 1997; Robert Rector, "Facts about American Families and Day Care," Heritage Foundation FYI no. 170, January 21, 1998; Linda Giannarelli, Sarah Adelman, and Stefanie Schmidt, "Getting Help With Child Care Expenses," Urban Institute, Occasional Paper no. 62, February 2003; and Arizona Department of Economic Security, "Child Care Market Rate Survey 2000," August 2000.
- ² Horne, "Our Views on All-Day Kindergarten."
- ³ Napolitano, "Message of the Week."
- ⁴ State School Readiness Board, "Summary of Priority Recommendations," November 18, 2003: 5.
- ⁵ Edward Zigler, Cara Taussig, and Kathryn Black, "Early Childhood Intervention: A Promising Preventative for Juvenile Delinquency," *American Psychologist* 47, no. 8 (August 1992): 1000.
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- ¹⁵ Kathryn Chandler, "Home Literacy Activities and Signs of Children's Emerging Literacy, 1993 and 1999," National Center for Education Statistics, *Statistics in Brief*, NCES 2000-026, November 1999.

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- ¹⁸ *Ibid.*, 17.
- ¹⁹ Ninety-six percent rank physical health as very important or essential, followed by 84 percent ranking communicating needs as very important or essential, followed by 76 percent ranking enthusiasm in approaching new activities as very important or essential. We do not examine the second factor, communication, because there is no corresponding measure for this factor in the NCES data. U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics 1996*, Table 48, available at nces.ed.gov/programs/digest/d96/D96T048.asp (accessed January 18, 2005).
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Intervention Project Prevent Sociocultural Mental Retardation?" *Intelligence* 16 (1992): 225-237; and Herman H. Spitz, "Commentary on Locurto's 'Beyond IQ in Preschool Programs?'" *Intelligence* 15(1991): 327-333.

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- ¹⁰² Ibid., 2.12.
- ¹⁰³ To derive this estimate, we divided the estimated \$134 million spent by the state on kindergarten by the number of kindergartners in public and charter school kindergartens 68,748. See *Ibid.*, 2.10, 2.12.
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