STRENGTHENING HEAD START

What the Evidence Shows

U.S. Department of Health and Human Services

June 2003

TABLE OF CONTENTS

I. Introduction

The period from birth through age 5 is a critical time for children to develop the physical, emotional, social, and cognitive skills they will need to be successful in school and the rest of their lives. Children from poor families, on average, enter school behind children from more privileged families. Targeting preschoolers in low-income families, the Head Start program was created in 1965 to promote school readiness to enable each child to develop to his or her fullest potential. Research shows that acquiring specific pre-reading, language, and social skills strongly predict future success in school.

As our knowledge about the importance of high quality early education has advanced dramatically since 1965, so have data on the outcomes for children and families served by Head Start. The knowledge and skill levels of low-income children are far below national averages upon entering the program. When the school readiness of the nation's poor children is assessed, it becomes clear that Head Start is not eliminating the gap in educational skills and knowledge needed for school. Head Start is not fully achieving its stated purpose of "promot[ing] school readiness by enhancing the social and cognitive development of low-income children."[1] Head Start children show some progress in cognitive skills and social and emotional development. However, these low-income children continue to perform significantly below their more advantaged peers once they enter school in areas essential to school readiness, such as reading and mathematics.

States and the federal government fund a wide variety of programs that are either intended to enhance children's educational development or that could, with some adjustments, do a better job of preparing children for school. Head Start is one of many federal and state programs that together provide approximately $23 billion in funding for child-care and preschool education (see Appendix A). Because these programs have developed independently, they are not easily coordinated to best serve the children and families who need them. In programs other than Head Start, states have the responsibility and the authority through planning, training, and the regulatory process to have a substantial impact on the type and quality of services provided, and are held accountable for the delivery of high quality programs. However, Head Start funding goes directly from the federal level to local organizations, and thus states do not have the authority to integrate or align Head Start programs with other early childhood programs provided by the states.

The single most important goal of the Head Start reauthorization should be to improve Head Start and other preschool programs to ensure children are prepared to succeed in school. This paper describes the limited educational progress for children in Head Start and the problems resulting from a fragmented approach to early childhood programs and services. The paper also presents evidence from early childhood research and documents state efforts that have successfully addressed these problems. Finally, the paper explains the President's proposal for Head Start reauthorization, which builds on the evidence to strengthen the program and, through coordination, improve preschool programs in general to help ensure that children are prepared to succeed in school.

II. Children in Head Start are not getting what they need to succeed in school.

Certain knowledge, skills, and experiences are strong markers of school readiness. For example, we know that children who recognize their letters, who are read to at least three times a week, who recognize basic numbers and shapes, and who demonstrate an understanding of the mathematical concept of relative size as they entered kindergarten have significantly higher reading skills in the spring of first grade than children who do not have this background. In fact, the difference between children who do and do not have this knowledge upon entering kindergarten is approximately one year's worth of reading development at the end of first grade. This is true regardless of family income and race or ethnicity.[2]

Head Start is a comprehensive early childhood development program designed to provide education, health, and social services to low-income children, ages 3 to 5, and their families.[3] Last reauthorized in FY 1998, Head Start is scheduled for reauthorization in FY 2003. Federal grants to operate Head Start programs are awarded directly to the local organizations that implement the program, including public agencies, private non-profit and for-profit organizations, Indian Tribes, and school systems. Since it began in 1965, Head Start has enrolled over 20 million children.

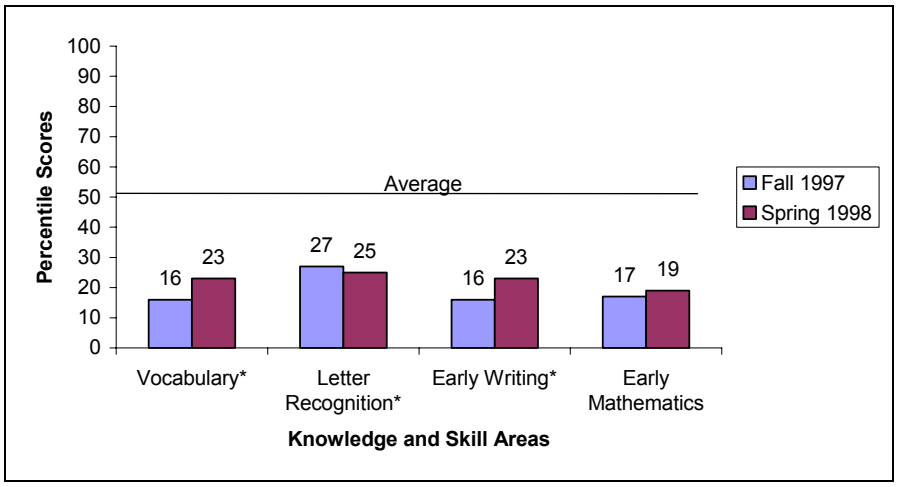
However, while making some progress, Head Start is not doing enough to enhance the language, pre-reading, and pre-mathematics knowledge and skills that we know are important for school readiness. The knowledge and skill levels of young children entering Head Start are far below national averages. Children graduating from Head Start remain far behind the typical U.S. child. We know also that all disadvantaged children who need high quality early educational instruction are not in Head Start. Some are in pre-kindergarten programs, others are in child-care settings, and still others are at home with parents.

A. Most children enter and leave Head Start with below-average skill and knowledge levels.

Currently, the primary source of information on outcomes for children and families served by Head Start comes from the Family and Child Experiences Survey (FACES).[4] Data from FACES are displayed in the figures below. Figure 1 shows the low scores and limited progress of Head Start children in the key areas of language, pre-reading, and pre-mathematics. These data are from the class of children who entered the program in 1997. The percentile scores show how Head Start children perform compared with the average performer. On a percentile scale, an average performer would be at the 50th percentile,

meaning that half of children who take the test score above the average performer and half score below the 50% mark.[5] Head Start children as a group fall far below the 50th percentile in all areas of achievement. Though children are making some progress, clearly few children perform as poorly as children who enter and leave the Head Start program.[6]

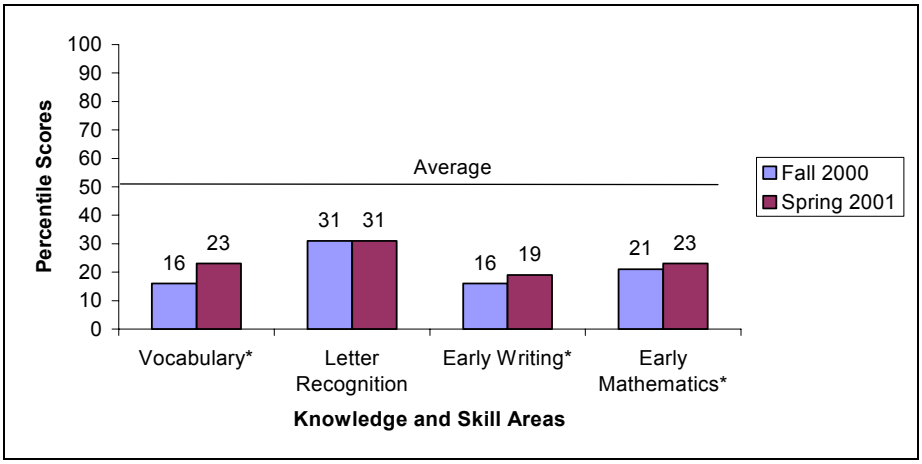
Figure 1. Children Who Entered Head Start in 1997 Performed Far Below Average Upon Both Entering and Leaving Head Start.



*Statistically significant difference between Fall and Spring.

Figure 2 shows a similar picture for children who entered the program in 2000. Though children in Head Start programs performed somewhat better in 2000 than in 1997 in some areas, scores remain far below the average level in all areas of competency.[7]

Figure 2. Children Who Entered Head Start in 2000 Still Perform Far Below Average Both Upon Entering and Leaving Head Start.



*Statistically significant difference between Fall and Spring.

Both higher achieving and lower achieving Head Start children have low scores overall and show limited progress. Children who were in the upper 25% of their Head Start class when they entered Head Start in 1997 showed no gains on any measure of cognitive ability over the course of the Head Start program year, and actually experienced losses on some measures in comparison to national norms. Gains over the Head Start year were limited to children who were in the bottom 25% of their class.[8] However, even these gains fell far short of bringing children to levels of skill necessary for school success. For example, children in the bottom 25% of their Head Start class left Head Start with language skill scores at the 5th percentile, meaning that only 5% of all children who take the test score lower than these Head Start children do. Findings for mathematics showed a similar pattern.

The more recent 2000 FACES data show modest improvement in results for children, but overall progress is still too limited. Children continue to lag behind national norms when they exit Head Start. Data from Head Start FACES 2000 shows that:

- The level of children's achievement in **letter-recognition**[9] for the 2000 Head Start year is far below the majority of U.S. children who know all letters of the alphabet upon entering kindergarten, according to the Early Childhood Longitudinal Study of the Kindergarten class of 1998.[10]

  Spanish-speaking children in Head Start did not gain at all in **letter recognition** skills in 2000.

- Although **writing** scores increased 2 points during the 2000 Head Start year, this was a drop from children who entered Head Start in 1997 who increased 3.8 points in writing during the 1997 Head Start year.

- Children entered Head Start in 2000 with scores at about the 16th percentile in **vocabulary**, or about 34 percentile points below the average. Children entering Head Start scored at about the 31st percentile in **letter recognition** and at about the 21st percentile in early **mathematics**.

- Children who entered Head Start in 2000 made progress in early **mathematics** during the Head Start year that was statistically significant; however the difference was small (from 87.9 to 89.0 on a scale for which 100 is the average). As Figure 1 shows this 1.2-point difference is not a substantial gain toward national averages. Moreover, this amount of progress was no greater than that found for children who attended Head Start from Fall to Spring in 1997.

- Children who entered the program in 2000 with overall lower levels of knowledge and skill showed larger gains during the program year compared to children who

entered with higher levels of knowledge. However, they still lagged far behind national averages.[11]

- Head Start children did not start kindergarten with the same social skill levels as their more socio-economically advantaged peers, and they continued to have more emotional and conduct problems.[12]

- A follow-up study of children enrolled in Head Start in 1997 showed that children who attend Head Start make less progress than the average kindergartener. Thirty-four percent of Head Start children showed proficiency in knowing the ending sounds of words, 53% in knowing the beginning sounds of words, and 83% in letter recognition. Data from a nationally representative sample of all first-time kindergartners shows that fifty-two percent demonstrated proficiency in knowing the ending sounds of words, 72% in knowing the beginning sounds of words, and 94% in letter recognition.[13]

Figures 1 and 2 also show that Head Start children have made some progress in some areas. A more detailed look shows that:

- In 2000, the mean standard score for vocabulary increased 3.8 points, from 85.3 to 89.1 on a scale for which the average is 100. This result is similar to the data for 1997 that showed Head Start children scored about 85 at the beginning of the year and gained about 4 points by the end of the year.

- In 2000, the mean standard score for writing increased by 2 points, from 85.1 to 87.1.

- In 2000, children showed gains in book knowledge and print conventions (that is, they can show an adult the front of a storybook and open it to where the adult should start reading). This progress is statistically greater than for the 1997 Head Start year during which no progress was made in this area.

- In 2000, Spanish-speaking children in Head Start showed significant gains in English vocabulary skills without declines in their Spanish vocabulary.

- In 2000, children showed growth in social skills and reduction in hyperactive behavior during the Head Start year. Even children with the highest levels (scoring in the top quarter) of shy, aggressive, or hyperactive behavior showed significant reductions in these problem behaviors. Teachers rated children's classroom behavior as more cooperative at the end of the Head Start year than when children first entered the program.[14]

- In 2000, children who received higher cooperative behavior ratings and lower problem behavior ratings from Head Start teachers scored better on cognitive assessments at the end of kindergarten, even after controlling for their scores on cognitive tests taken while in Head Start.

- Children who entered Head Start in 1997 showed significant gains in their social skills, such as following directions, joining in activities, and waiting turns in games, and gains in cooperative behaviors, according to ratings by teachers and parents. The quality of children's social relationships, including relating to peers and social problem solving, also improved.

Head Start program and teacher characteristics show some positive relationships to educational and social outcomes for children. Examples include:

- Teachers' educational credentials are linked to greater gains in early writing skills. Children taught by Head Start teachers with bachelors' degrees or associates' degrees showed gains toward national averages in an assessment of early writing skills, whereas children taught by teachers with lesser credentials merely held their own against national norms.

- Provision of preschool services for a longer period each day is linked to greater cognitive gains. Children in full-day classes in Head Start showed larger fall to spring gains in letter recognition and early writing skills than did children in part-day classes.

Head Start has other positive qualities:

- In 1997, the program received very high ratings of satisfaction from parents, and for the roughly 16% of children in Head Start with a suspected or diagnosed disability, 80% of parents reported that Head Start had helped them obtain special needs resources for the child.

- A follow up study of children who attended Head Start in 1997 showed that children were capable of making some progress during their kindergarten year in vocabulary, writing, and early mathematics, though performance remained significantly below national norms.

How do eligible children fare when they do not receive Head Start services? The FACES study is not designed to answer this question; there is no control group. Eligible children who do not receive services could be falling further behind or could be making gains similar to or greater than those for children in the program. The national Head Start Impact Study was launched in 2002 and is using a randomized design to answer this

question. Additional experimental studies are being conducted to assess the effectiveness of specific quality improvement strategies.[15]

A national study of Early Head Start, which is part of the Head Start program serving low-income pregnant women and children from birth through three, was recently conducted using a randomized experimental design. Results show that children receiving Early Head Start have scores that are statistically higher than their peers who did not receive Early Head Start on measures of cognitive, language, and social and emotional competency. Fewer Early Head Start children scored in the "at-risk" range of functioning in both language and cognitive functioning. However, Early Head Start children continue to perform below the national average.

In summary, there is more work to do. Despite the positive qualities of Head Start programs, children in Head Start are making only very modest progress in only some areas of knowledge and skill, and children in Head Start are leaving the program far behind their peers. More progress must be made and can be made to put Head Start children on par with others by the time they enter kindergarten.

B. Disadvantaged children lag behind throughout the school years.

Effective early childhood intervention is important because disadvantaged children are at great risk for poor educational outcomes throughout the school years. Data from the National Center for Education Statistics' (NCES) Early Childhood Longitudinal Study – Kindergarten Cohort (ECLS-K) and National Assessment of Educational Progress (NAEP) are reviewed below.[16]

► Children with multiple risks suffer the greatest educational disadvantage.

Achievement differences in school are greatest for children who suffer the greatest disadvantage, in particular for children whose families have **multiple risk factors** or **receive welfare**. While many of the children we are trying to reach in early childhood are in Head Start and federal and state pre-kindergarten programs, others are in child-care and home-settings.

A key set of **risk factors** has been repeatedly associated with educational outcomes, such as low achievement test scores, grade repetition, suspension or expulsion, and dropping out of high school. These risk factors include: (a) having parents who have not completed high school, (b) coming from a low-income or welfare-dependent family, (c) living in a single-parent family, and (d) having parents who speak a language other than English in the home. Children who have one or more of these characteristics are more likely to be educationally disadvantaged or have difficulty in school.

These same risk factors are linked to achievement disparities in reading and mathematics skills at the point of kindergarten entry.[17] Research emphasizes that achievement difficulties children experience in school "cannot be attributed solely to bad schools; many children are already behind when they open the classroom door."[18]

- Children with **two or more risk factors** are about three times as likely as those with no risk factors to score in the bottom 25% in reading.

- Children from families with **3 or more risk factors** typically do not know their letters and cannot count to 20. Fifty-six percent could not identify letters of the alphabet compared with 25% in the no risk group. They are about one-third as likely to be able to associate letters with sounds at the end of words.

- Children with even **one risk factor** are twice as likely to have reading scores that fall into the lowest 25% of children studied compared to children with no risk factors. They are half as likely to be able to associate letters with sounds at the ends of words. Some children with one risk factor have good reading scores, but far too few. They are half as likely to score in the top quartile as children with no risk factors (16% vs. 33%).

- In mathematics, 38% of the multiple risk group could count beyond 10 or make judgments of relative length compared with 68% in the no risk group. They were one-third as likely to be able to recognize 2-digit numerals or identify the ordinal position of an object in a series.

- Forty-four percent of children with multiple risk factors rarely paid attention, compared to 28% of children with no risk factors.

Children are at risk for poor educational outcomes when their families receive **welfare** (defined as receiving welfare or having received welfare in the past). These children were significantly less competent in reading, mathematics, and social skills compared to children who had never received welfare.[19]

- In reading, children of welfare recipients are less likely to show pre-reading competencies that include letter recognition, recognition of beginning and ending sounds, and print familiarity. Forty-nine percent of these children scored in the lowest quartile, compared to 22% of children whose families were not welfare recipients.

- In mathematics, half of children whose families received welfare scored in the lowest quartile for mathematics, compared to 22% of children whose families had never received welfare. Twenty-three percent of children of welfare recipients

scored in the top half for reading, compared to 53% of children whose families had never received welfare.

- Children from welfare families also are under-represented in the higher performing category: Fifty-three percent of children who had never received welfare scored in the top half for reading, compared to only 24% of children whose families were welfare recipients.

- Children of welfare recipients are also at risk for poor social skills. Kindergarten teachers rated these children as having more difficulty with forming friendships and interacting with peers compared to children whose families were not welfare recipients.

► The achievement gap for disadvantaged children widens during kindergarten.

Children who start behind are likely to stay behind and get further behind. Research shows that the achievement gap between advantaged and disadvantaged groups of children widens from Fall to Spring.[20] Global reading and mathematics scores show gains for all children in reading and mathematics scores during the kindergarten year. But a closer look shows that achievement disparities between disadvantaged and more advantaged children depend on the particular knowledge and skills assessed.

By Spring, children from homes with at least one risk factor begin to close gaps in basic skills, such as recognizing letters, counting beyond 10, or comparing the size of objects. But because their more advantaged classmates move on to acquire more complex skills, these children are even further behind by Spring in reading and mathematics skills, such as reading words or solving simple addition and subtraction problems. Moreover, despite improvements in basic reading and mathematics skills during the kindergarten year, the disparity between advantaged and disadvantaged children was not eliminated.

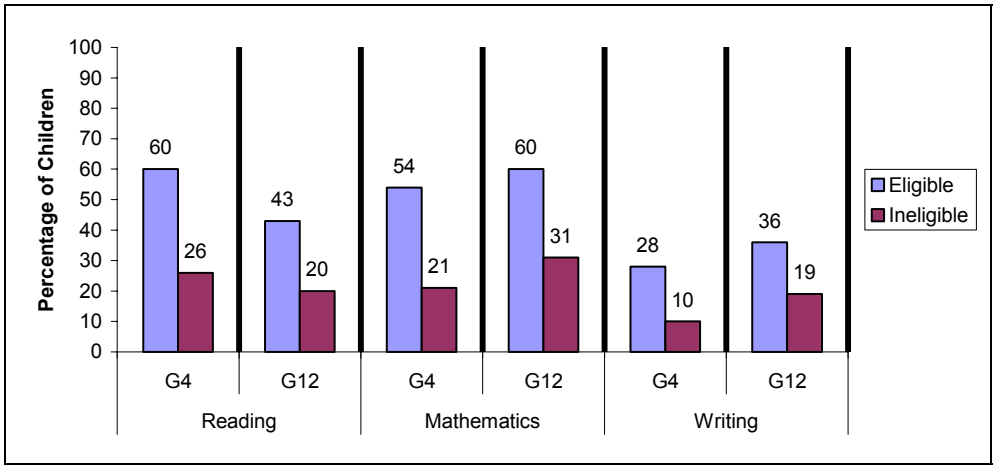
► The achievement gap persists into elementary and high school.

Poor children eligible for the National School Lunch Program do not perform as well as more advantaged children who are ineligible for the program. Average scores for reading, mathematics and writing achievement are statistically lower for children who are eligible for the school lunch program compared to ineligible children.[21] This achievement gap continues throughout the school years.

Figures 3 and 4 below show specific competency levels in reading, mathematics, and writing for children in Grades 4 and 12.[22] Achievement disparities exist at each grade level and for each area of competency. Figure 3 shows that poorer children are not achieving at even a "basic" level (defined as partial mastery of material for that grade

level). The percentage of children who scored below a "basic" level of achievement was statistically higher for children who were eligible for the school lunch program compared to ineligible children.

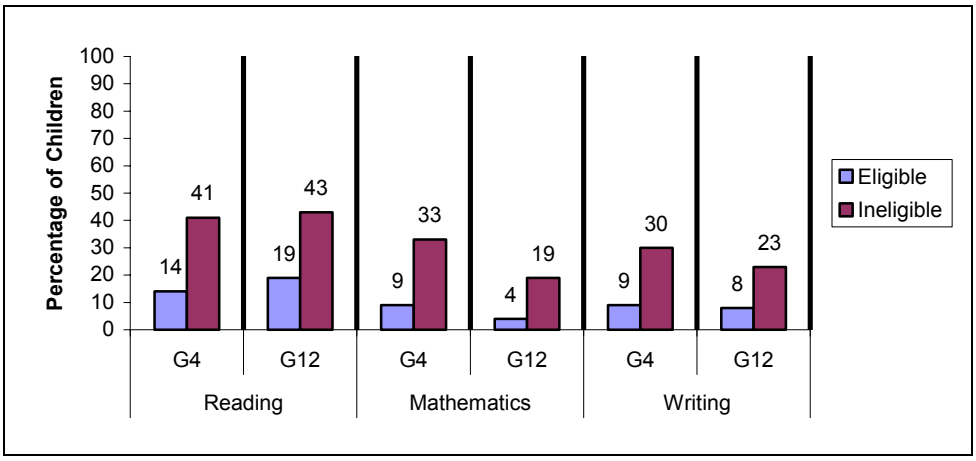
Figure 3. Percentage of Children Scoring Below Basic Achievement Levels as a Function of Eligibility for the National School Lunch Program



Note. Within each skill area, all within-grade differences are statistically significant.

Equally important, poorer children are not well represented among the higher performing students. Figure 4 shows that, compared to children who were ineligible for the school lunch program, many fewer eligible children scored at or above the "proficient" level (combines children who scored at either the proficient or advanced level). Attaining achievement at the "proficient" level (defined as solid academic performance and competency over challenging material) is the target for instruction agreed upon by the National Assessment Governing Board.

Figure 4. Percentage of Children Scoring At or Above Proficient Level as a Function of Eligibility for the National School Lunch Program



Note. Within each skill area, all within-grade differences are statistically significant.

In sum, the achievement gaps between advantaged and disadvantaged children that are evident in kindergarten and throughout the school years begin long before children enter preschool and kindergarten.[23] There is a tremendous amount of work for early childhood programs to do, and we must ensure that those programs work for all children. Head Start is doing a good job, but more progress must be made. Now is the time to strive for excellence and to utilize all our knowledge about how best to promote children's competencies. Ensuring that Head Start and other early childhood programs serving disadvantaged children are state-of-the-art is the challenge at both federal and state levels.

III. Fragmented service delivery hinders improvements in Head Start.

Coordinating early care and education at the state level is vitally important. Historically, the system of early care and education in the United States has been fragmented. Child-care programs and early education programs have existed separately and have separate goals. This incoherent approach to service delivery has created challenges for states trying to build comprehensive early childhood systems for young children that include a challenging educational focus. Greater collaboration and coordination is needed among state and federal programs serving children ages 0-5 to ensure that all children entering kindergarten are ready to learn.

A. Coordination is critical.

The creation of an integrated, well-coordinated early care and education system has broad support from members of the early childhood field, the business community, and policymakers across the political spectrum. The National Governors' Association (NGA), for example, has strongly supported developing partnerships and increasing coordination of services as a means of creating a seamless system of care and increasing parents' access to such a system. According to NGA's policy position paper, "The Governors believe it is important for all involved parties to promote the coordination of programs serving children through links at all levels of the child care, health care, and education systems."[24] Lack of coordination of early childhood programs at the state level can result in:

- overlapping programs and duplication of services at the state and local level;
- under-enrollment in Head Start programs and gaps in services;
- ineffective use of state resources through lack of communication and information-sharing among programs providing services to children;
- missed opportunities for states to engage in statewide planning to develop complementary early childhood programs and systems and maximize the use of state and federal resources, including administration, staff development, and service costs;
- fewer full-day, full-year slots to serve the needs of working families;

- missed opportunities to raise the overall quality of childhood experiences and promote long-term positive academic and behavioral outcomes through quality enhancement of early childhood education services;

- greater difficulty for states in addressing school readiness issues as early as possible and bringing pre-kindergarten education into alignment with the stronger guidelines of the No Child Left Behind Act;

- lack of awareness on the part of families of the early childhood resources and range of options available in their communities.

B. Fragmentation causes problems.

Despite the agreement among many major stakeholders about the value of a coordinated system, the reality is much different in most states. While many states have demonstrated significant interest in, and commitment to, building strong early childhood systems in recent years, no state has a comprehensive system of early care and education that makes high quality services available to all families of young children who want help. *Education Week* [25] notes that the overlapping and often confusing mix of funding sources forces programs to respond to multiple and sometimes conflicting requirements.

In one study, the U.S. General Accounting Office (GAO)[26] found sixty-nine federal programs, administered by nine different federal agencies and departments, provided or supported education and care for children under age 5 in 1999. GAO noted that when multiple agencies manage multiple early childhood education and care programs, mission fragmentation and program overlap can occur. This in turn creates the potential for duplication and service gaps. Although GAO pointed out that duplication can sometimes be necessary, fragmentation and overlap can also create an environment in which programs do not serve participants as efficiently and effectively as possible.

In order to fully understand the problems that can result from a lack of coordination, it can help to illustrate the perspective of a parent, a provider, and a state administrator:

- *From a Parent's Perspective:* A poorly coordinated system makes it difficult and confusing for parents to find good quality care for their children. Parents must try to determine which programs best suit their needs, and go through the application and eligibility determination process at each program separately. Some programs, including Head Start, may only be offered in the parent's neighborhood for part-day or part-year, but the parent may require full-day or full-year services for their children to cover the hours of the work day. If the local Head Start program does not collaborate with local child care programs, parents are forced to patch together various arrangements.

- *From a Provider's Perspective:* The lack of coordination presents a problem for child care and early education providers by forcing them to juggle different eligibility requirements for children and families, different methods of receiving subsidies or other state or federal funds, and different requirements and standards for the programs they deliver. The various early childhood programs may require different credentials from teachers and providers, and offer a range of salaries and benefits, making it difficult for providers in a single community to view themselves as part of a single system. In fact, differences in salaries and benefits may have the unintended effect of drawing the most qualified providers to some programs rather than others, for example, toward teaching in pre-kindergarten programs rather than Head Start or infant and toddler care. Lack of coordination also impacts health and social service providers, who must struggle to serve patients and clients who do not have a single entry point into the system, and have a variety of needs that must be met.

- *From the State's/Administrator's Perspective:* States must juggle funding, enrollment, eligibility, and other concerns for multiple different programs administered by different federal agencies. States are held responsible by the public for the care and education of young children, but lack of power and control to create a seamless system and provide access to all eligible families. Lack of coordination significantly complicates state efforts to engage in strategic and fiscal planning. Key stakeholders may have competing priorities and objectives and have difficulty agreeing on how best to meet the needs of the community. Instead of collaboration, there may be competition at the state level for scarce resources. Finally, states are aware that they will be held responsible for student performance in elementary school through the No Child Left Behind Act, and want to make sure that all the children in the state enter kindergarten ready to learn. However, a fragmented system of early care and education makes it difficult, if not impossible, for a state to provide the needed services to all the low-income children who will begin kindergarten in the public schools.

C. There are many barriers to coordination.

Several specific obstacles exacerbate lack of coordination of early childhood programs at the state level. For example:

- Current law and regulations do not provide any specific legal authority or mechanism for states to coordinate with Head Start grantees at the statewide level, resulting in many states having no involvement or leverage to ensure coordination between Head Start and other early care and education programs. When Head Start was created in 1965, early childhood programs like public pre-kindergarten

and child care did not exist in most states. However, as state-level programs in early childhood have exploded in the past decade, laws and regulations have not kept pace with the need for coordinating Head Start with state programs. The Head Start statute does provide for state collaboration grants, although they are used differently in each state. Some of these grants have been more successful than others in improving coordination and collaboration at the state level. In addition, these collaboration grants are voluntary arrangements, and do not create a specific mechanism or legal authority for collaboration.

- State child care and education administrators interviewed by GAO[27] reported that factors impeding collaboration at the state level include differing eligibility requirements; "turf" issues, such as concerns about losing program authority; lack of information on different programs; and the lack of funding to support collaborative activities. State officials expressed concern that their power or authority would be reduced by collaboration, and that they would be unwilling to share program funds. These issues often reflected the division between child care programs, which are generally administered through human services agencies, and early childhood/preschool education programs, which are generally administered through the education departments and public schools. One state official in GAO's survey said that with their separate funding, regulations, and goals, the child care and education offices traditionally have not understood the importance of each other's role in a child's development.

- Child care resource and referral agency staff and state administrators surveyed by GAO also frequently cited a lack of information on the various programs that fund child care and education as a barrier to collaboration. For example, one respondent commented that a lack of understanding of the different agencies' and organizations' policies and service delivery mechanisms hindered collaboration.

- Other respondents to the GAO survey reported that insufficient funds hindered their ability to collaborate. Lack of funding to support collaborative initiatives was widely cited as a barrier, with respondents specifically citing a lack of staff, training, and transportation as hampering collaboration with other organizations.

- A review has looked in depth at the experiences of three states – Georgia, Massachusetts, and Ohio – in developing a major early education initiative.[28] The review found several challenges for states to overcome in building a coordinated early childhood education system addressing both school readiness for children and work supports for families. They include: (1) developing a comprehensive vision that encompasses both the need for early education for children and for work support for families; (2) addressing regulatory differences among programs and funding streams; (3) implementing early education initiatives across different structures and constituencies; and (4) tracking progress and measuring results.

The review also noted the importance of finding adequate fiscal resources to support state-level coordinated systems, and pointed out that the three state efforts highlighted had been developed in an era of expanding fiscal resources.

IV. Research evidence shows we can do better in helping children achieve.

A. Research has identified what children need to succeed in school.

Before children can read, write or calculate, research shows that children must acquire foundational knowledge, skills, and behaviors that are stepping stones toward mastery of more advanced and complex skills.

► Children are better off if they enter kindergarten with cognitive resources.

Children who bring certain knowledge and skills with them to kindergarten are likely to be at an advantage in classroom learning compared to their peers who do not possess these resources. A Department of Education report described the predictive power of having specific cognitive and health "resources" on children's reading and mathematics achievement.[29] These resources included:

- possessing specific basic literacy knowledge and skills;
- being read to at least three times a week at kindergarten entry;
- being proficient in recognizing numbers and shapes at kindergarten entry;
- showing productive approaches to learning, such as an eagerness to learn, task persistence and ability to pay attention; and
- possessing good to excellent health.

Each of these was a key predictor of children's reading and mathematics achievement in the Spring of kindergarten and in first grade, even after controlling for children's race, ethnicity and poverty status. These data confirm that we must ensure that *all* children, regardless of background, are physically healthy *and* have the same basic literacy, mathematics, and cognitive experiences and skills needed to succeed in school.

► Child development research shows which areas of competency to target.

Research experts and practitioners in fields relating to early childhood recommend that children make progress in each of the following areas to help ensure they are developing school readiness knowledge and skills.[30]

- In the area of **pre-reading**, children should develop: phonological processing skills (hearing and playing with sounds in words, for example, through rhyming games), letter knowledge (knowing the names and sounds of letters), print awareness (knowing how to hold a book, that we read in English from left to right

and usages of print), writing, and interest in and appreciation of books, reading, and writing.[31]

- In the area of **language**, children should develop receptive and expressive vocabulary skills (ability to name things and use words to describe things and actions); narrative understanding (ability to understand and produce simple and complex stories, descriptions of events, and instructions); phonology (ability to distinguish and produce the different sounds of language); syntactic or grammatical knowledge (knowing how to put words together in order to communicate with meaning); and oral communication and conversational skills (knowing how to use words in appropriate contexts for a variety of purposes, such as knowing when and how to ask a teacher for more information, or understanding how to take turns in a conversation). [32]

- Children should develop **pre-mathematics** knowledge and skills that include number concepts (recognizing written numerals, counting with an understanding of quantity, knowing quantitative relationships such as "more" and "less"), number operations (such as adding and subtracting); geometry concepts (such as recognizing shapes); space, patterns, and measurement concepts and skills (such as measuring length using their hands or measuring using conventional units such as inches) [33]

- Children should develop **cognitive skills** that include the ability to plan and problem-solve, the ability to pay attention and persist on challenging tasks, intellectual curiosity and task engagement, and achievement motivation and mastery.

- Children need **social and emotional competencies** important for school success and a constructive learning environment. These include the ability to relate to teachers and peers in positive ways, the ability to manage feelings of anger, frustration and distress in age-appropriate ways, and the ability to inhibit negative behaviors with teachers and peers, for example, aggression, impulsiveness, noncompliance, and constant attention-seeking.[34]

B. The right programs and training can improve children's school readiness.

Research, though limited, clearly demonstrates the value of providing comprehensive interventions with strong language and pre-academic components that develop the knowledge and skills necessary for kindergarten and the early grades and for closing the achievement gap. Though more research is needed, a few approaches that have been evaluated using rigorous designs show that comprehensive and language and literacy-rich

early childhood programs can reduce achievement gaps for disadvantaged children. Here are highlights of major studies.[35]

► The Chicago Child-Parent Center (CPC) Program

This program for low-income minority children in high-poverty neighborhoods in inner-city Chicago, funded in part by the Department of Education, includes half-day preschool for one or two years, full or part-day kindergarten, continuing support services in linked elementary schools, and a parent education program. The Chicago CPC program provides educational and health and nutrition services, such as hearing screening, speech therapy and nursing services, to children ages 3 to 9 years. The intervention emphasizes the acquisition of basic knowledge and skills in language arts and mathematics through relatively structured but diverse learning experiences. An intensive parent program includes volunteering in the classroom, attending school events and field trips, and completing high school. Teachers are required to have bachelor's degrees, are paid at the level of teachers in public school, and participate in regular staff development activities. Child-to-staff ratios are low (17:2).

A longitudinal study funded by the National Institutes of Health and other funders compared participant children to a non-experimental comparison group of children with similar demographics. Findings include:

READING AND MATHEMATICS ACHIEVEMENT. At the end of the program in third grade, CPC graduates surpassed their comparison group counterparts by 4 to 6 points in reading and mathematics achievement, as measured by the Iowa Test of Basic Skills.[36]

Preschool participation. One or two years of CPC preschool participation was associated with statistically significant advantages of 5.5 and 4.2 points in standard scores for reading achievements for ages 14 and 15. This corresponds to about a 4- to 5-month change. Likewise, preschool participation was significantly associated with a 4.4-point increase in standard scores in math achievement at age 14 and a 3.3-point advantage at age 15, above and beyond gender, environmental risk factors, and participation in follow-on interventions. This translates into a 3- to 4-month performance advantage over the comparison group. These effect sizes are considered moderate; however the effects persist up to 10 years after children leave the program, which is unique among early interventions and almost all social programs.[37]

Follow-on participation. Because the early childhood program is linked to the kindergarten and elementary schools, children may participate in the program from 1 to 6 years. Each year of participation was associated with an increase of 1.3 to 1.6 points in the standard score for reading. Years in the follow-on intervention were significantly associated with reading achievement at ages 14 and 15 and went beyond that attributable to preschool participation. The most dramatic effect occurring after 4 years of

intervention: Five or six years of participation resulted in the best performance, with children performing at or above the Chicago averages in reading and mathematics. (Even 6 years of participation, however, did not elevate the performance of the maximum intervention group to the national average.) A similar pattern occurred for mathematics achievement, though the size of the effect was smaller.[38] The findings showed that the relationship between years of participation and school achievement is not strictly linear—greater advantages accrue as the length of the intervention increases.

OTHER OUTCOMES. Preschool participation was associated with lower rates of grade retention (23% vs. 38.4%) and special education placement (14.4% vs. 24.6%). Preschoolers who participated in the intervention spent an average of 0.7 years in special education compared with 1.4 years for non-participants.[39] Children who participated in the preschool intervention for 1 or 2 years had a higher rate of high school completion (49.7% vs. 38.5%), more years of completed education (10.6 vs. 10.2), and lower rates of juvenile arrests (16.9% vs. 25.1%).[40] Boys benefited from preschool participation more than girls, especially in reducing the school dropout rate.[41]

COST-BENEFIT ANALYSES. With an average cost per child of $6,692 for 1.5 years of participation, the preschool program generates a total return to society at large of $47,759 per participant. These benefits are the result of participants' increased earnings capacity due to educational attainment, criminal justice system savings, reduced school remedial services, and averted tangible costs to crime victims. Benefits realized in each of these areas exceed the cost of just one year of the preschool program, which is $4,400. Overall, every dollar invested in the preschool program returns $7.14 in individual, educational, social welfare and socioeconomic benefits.[42]

► The Abecedarian Project

The Abecedarian Project was a carefully controlled study in which 57 infants from low-income families living in a small North Carolina town were randomly assigned to receive early intervention in a high quality child care setting and 54 were in a non-treated control group. The treated children received full-time educational intervention in a high quality child care setting from infancy through age five, which included cognitive development activities with a particular emphasis on language, and activities focusing on social and emotional development. Teachers were required to have bachelor's degrees and were paid at the level of teachers in public school.

Starting at age 18 months, and through follow-ups at ages 12 and 15, the treatment children had significantly higher scores on cognitive assessments. Treated children scored significantly higher on tests of reading and math from the primary grades through age 21 (though scores did not reach national averages).

At age 21, those in the treatment group were significantly more likely to still be in school and more likely to have attended a four-year college. Employment rates were higher for the treatment group than for the control group, although the trend was not statistically significant.[43]

► The Perry Preschool Study

This pioneering study begun in the 1960s was one of the first to identify lasting effects of high quality preschool programs on children's outcomes.[44] One hundred twenty-three poor African American 3- and 4-year-olds were randomly assigned either to attend a high quality preschool program or to no preschool. The two groups began the study with equivalent IQ scores and socioeconomic status. Children attended 2 ½ hour classes and teachers conducted weekly 1.5-hour home-visits.

Results showed positive impacts on several intellectual and language tests prior to school entry and up to age 7, showing that the program enhanced children's school readiness. At age 14, participants outperformed non-participants on a school achievement test in reading, language, and mathematics. At age 19, participants' general literacy skills were better than non-participants. At age 27, participants had higher earnings and economic status, higher education and achievement levels in adolescence and young adulthood, as well as fewer arrests.

Benefit-cost analyses show that by the time participants were 27 years old, the program showed a sound economic investment, with significant savings from settlement costs for victims of crimes never committed, reduced justice system costs, increased taxes paid due to higher earnings, reduced need for special education services, and reduced welfare costs.[45]

► Professional Development Models

To some extent, the early childhood field has had difficulty moving forward with training in cognitive and pre-academic knowledge and skills because of a lack of understanding of how to teach this content without compromising social and emotional development. Professional development models that emphasize language and literacy development using an integrative approach to develop all areas essential to school success are effective in improving children's school readiness.

- A recent 2-year large-scale evaluation was conducted on the effectiveness of a professional development model for prekindergarten educators implemented in 20 Head Start programs across Texas.[46] The sites had applied to and received funding from the Texas Educational Agency for this state-initiated demonstration project.

The design was necessarily quasi-experimental since the selection criteria allowed site directors to choose whether the site would participate as an experimental or a control site. The intervention uses an intensive mentor-coach approach to provide training and on-going support to teachers, and focuses on activities intended to target literacy and language knowledge and skills, while also promoting social and emotional development. Programs were based in school districts as well as community-sponsored daycare or freestanding Head Start agencies.

Most mentors had a college degree, but a few had two or three years of college plus several years of experience in Head Start. Teachers received either one or two years of training. Mathematics training was offered for one year. The impact of professional development training on child outcomes differed across Head Start grantees.

FINDINGS FOR LANGUAGE, LITERACY, AND MATHEMATICS. After one year of training, 43% of grantees produced impacts on children's letter knowledge, most of these being moderate to large in size. Forty percent of grantees showed impacts on phonological awareness with most of these being moderate to large in size. Children's ability to understand complex language was greater for 32% of the grantees and 26% produced gains in children's usage of complex language. Fifty-five percent of grantees showed gains in receptive vocabulary and 40% showed gains in expressive vocabulary.

After two years of training even more grantees produced impacts on children's knowledge and skills. Eighty-four percent of grantees produced impacts on children's understanding of complex language and 68% showed impacts on children's usage of complex language. Seventy-five percent showed gains in receptive vocabulary and 35% produced impacts on children's expressive language skills. Fifty-five percent showed success in promoting children's mathematics skills, 50% promoted phonological awareness and 35% influenced letter knowledge.

FINDINGS FOR SOCIAL AND EMOTIONAL GROWTH. Eighty-five percent or more of teachers perceived increases in 10 of the 12 competencies that included cooperating with peers and teachers, showing independence, and engaging in conversations with friends. (No impacts were found for behavioral self-control and caring about the other person's feelings.)

TEACHER QUALIFICATIONS. Though significant increases in children's knowledge and skills were obtained for teachers with two years of college education or less, stronger gains were obtained in classrooms where teachers had at least a four-year degree. Whether teacher education made a difference depended on whether teachers had one or two years of training and the outcome measured. Children

whose teachers had at least a bachelor's degree showed greater gains in mathematics, phonological awareness, and other complex pre-academic tasks regardless of whether teachers had one or two years of training. Children whose teachers had at least a bachelor's degree showed greater gains in vocabulary comprehension, but only if they had at least one year of training.

- The language and literacy components of the professional development program described above were also found to be effective in a small-scale study of two Title-I pre-kindergarten classrooms[47] in Texas. All teachers were credentialed with bachelor's degrees and working in the Houston Independent School District. The study, which consisted of a pre-post design with a control group showed significant and educationally meaningful gains in multiple literacy and language skills. Similar to the large-scale study described above, two years of professional training led to better outcomes for children, especially in the area of language development.[48]

Lessons learned from basic and intervention research are the building blocks for both federal and state programs, as we attempt to build stronger and more seamless early childhood systems across the nation. Very few rigorous research studies exist on the effectiveness of specific curricula and approaches to instruction. Therefore, as described in the President's early childhood initiative, *Good Start, Grow Smart,* two large-scale federal efforts are underway to improve the data available on the effectiveness of early childhood curricula, early childhood interventions and programs in preparing children for school -- the U.S. Department of Education's *Preschool Curriculum Evaluation Research Program (PCER)* and the *Interagency Early Childhood Research Initiative,* a joint venture among the National Institute of Child Health and Human Development and the Administration for Children and Families (ACF) within the U.S. Department of Health and Human Services (DHHS), the U.S. Department of Education's Office of Special Education Programs (OSEP) under the Office of Special Education and Rehabilitative Services (OSERS), and the Office of the Assistant Secretary for Planning and Evaluation (ASPE) also within the DHHS. Additional experimental studies are being conducted by the Head Start Quality Research Consortium.

C. Efficiency can be improved through coordination.

Some states have already experimented with providing coordinated early childhood programs, or with new approaches to enhancing school readiness. Over the past 20 years more than 40 states and the District of Columbia have begun to offer preschool programs for children under age 5.[49] States are also working to use new knowledge about children's learning and development in the early years to improve programs and build better early childhood systems. Following are some examples of state-level innovations in working across the early childhood system to improve outcomes for children.

► Colorado

In early 2003, Colorado initiated a new school readiness program for children in neighborhoods with low-performing schools. The program allows counties, in partnership with the state's Community Consolidated Child Care Pilot program, to apply for a 3-year supplemental subsidy for child care centers that feed into low-performing public schools. The program, which will serve 5,600 children in 468 classrooms, will fund equipment, supplies, curriculum, teacher training, and teacher bonuses for improved performance. Providers must demonstrate improvements within 18 months to remain in the program.[50]

► Connecticut

The Connecticut School Readiness Initiative (CSRI), a partnership between the state departments of education and social services, seeks to increase the availability of high quality full-day, full-year child care programs for low-income families and to help bridge the school readiness gap between urban students (primarily minority) and their more affluent suburban peers. The program primarily targets low-income preschoolers ages 3 to 5 and provides funding for up to two years of services. Local school readiness councils are responsible for allocating funding to individual programs. CSRI includes an evaluation of classroom quality, and baseline assessment data were used to target quality improvement funds. Between 1997 and 2000, CSRI showed significant improvement in classroom quality, with the number of classrooms rated excellent tripling and the percentage of classrooms rated inadequate to minimal dropping from 50% to 8%.[51]

► Delaware

In the mid-1990s, Delaware began to provide comprehensive early childhood programming for all children aged four who were living in poverty. The Early Childhood Assistance Programs (ECAP) are modeled after the federal Head Start program and use the Head Start Performance Standards as their program standards. The state also supplements federal Head Start funds with its own dollars. Delaware formed an interdepartmental committee called the Interagency Resource Management Committee to oversee the state's early intervention programs, including the ECAPs, the Birth to Three Early Intervention System for very young children with disabilities and their families, and the Preschool Children with Disabilities programs for three-and-four-year-olds. Delaware funded a longitudinal study of its early childhood program, which found that 69% of former Head Start students in the state are meeting the standards on state achievements tests in third grade. Only 48.7% in a comparison group of poor children who did not attend Head Start are meeting those standards.[52]

► Georgia

The Georgia Pre-kindergarten (Pre-K) Program was established in 1993 to provide Georgia's four-year-olds with high quality preschool experiences needed to be ready for kindergarten and the elementary school years. The program is funded by a state lottery that was created in 1989 to support only education initiatives, including a voluntary preschool program for four-year-old children. This approach is creating a system that includes Head Start, pre-kindergarten and center-based childcare programs.

Georgia Pre-K is administered at the state level by the Office of School Readiness (OSR), which reports directly to the Governor. Enabling legislation authorizes OSR to administer the operation and management of voluntary pre-kindergarten, and certain other preschool and child development programs, and any federal funds relevant to these functions. OSR also is authorized to provide assistance to local units of administration to ensure proliferation of services. OSR oversees Pre-K, licensing of Pre-K providers, the federal funded Child and Adult Care Food Program and Summer Food Service Program, and a set of other initiatives. The agency works directly with local providers to implement state policies and federal funding streams.

There are two types of competitive processes to establish child care learning centers, depending on whether the center plans to offer primarily pre-kindergarten services or both pre-kindergarten and comprehensive family supports and engage in extensive coordination with Medicaid, TANF, Food Stamps, SSI and, in some instances, children who receive free and reduced price meals under the USDA school lunch program. To become a Georgia Pre-K service provider, a program must be approved by OSR staff. Applicants must describe the content that will provided to children during the 6.5 hours of instructional time, expectations for children at the end of the 180 day program, and which of the seven approved curricula will be used (or the applicant may submit a locally developed one for approval instead).

To offer additional services, applicants must demonstrate the quality of the service delivery plan, linkages to other collaborative initiatives in the community, the education and experience of the resource coordinator, the proposed plan to collect data and evaluate outcomes, and a budget proposal which should address the number of children served compared to expenditures. Children who receive assistance beyond the pre-kindergarten services are referred to as Category One children. In the 1999-2000 school year, 970 Georgia Pre-K child-care learning centers enrolled 62,500 children, including 30,000 Category One children.

OSR has developed detailed guidelines to assist participating providers in implementing key policies and procedures. The guidelines define eligibility criteria and specify educational experiences which must be provided for at least 5 hours per day in the areas

of language/literacy development, mathematics, science, music, art, and physical development and. OSR has developed a set of "Learning Goals" to describe the meaning of these categories and a "Best Practices Portfolio" with specific classroom activities. The guidelines also specify criteria regarding class size, teacher qualifications and training, curriculum, licensing, parent fees, parent participation, transportation, health services and resource coordination services.

Pre-K services are provided by public/private elementary and secondary schools, postsecondary vocational technical institutes, private and state colleges, private non-profit and for-profit child care learning centers, Division of Family and Children Services offices, Head Start sites, hospitals, military bases, and YMCA/YWCAs. OSR does not require programs to provide services to extend the duration of the program, but many providers put together funding from the Department of Human Resources and/or Head Start to extend the time they can provide services to low-income parents.

Lead teachers must have either certification in early childhood or elementary education; a four-year college degree in early childhood, education, or other approved fields, a technical institute diploma; a two-year associate degree or Montessori diploma; or a Child Development Associate (CDA) or Child Care Professional Credential (CCP). The state is phasing out the CDA and CCP options by requiring teachers with these qualifications to participate in degree programs.[53]

► North Carolina

North Carolina has implemented a variety of strategies to build an effective early care and education system for children from birth to the start of kindergarten. "Smart Start" is a comprehensive community-based early childhood initiative that strives for collaboration at both the state and local level. An evaluation of Smart Start by researchers at the Frank Porter Graham Child Development Institute indicates that the quality of center-based child care has significantly improved because of Smart Start, and that children who attended child care centers that were involved in Smart Start quality improvement activities entered school with significantly better skills than those who did not.

The "More at Four" pre-kindergarten program complements Smart Start by targeting at-risk four-year-olds and providing a high quality program of standards-driven, research-based educational pre-kindergarten. Each of North Carolina's early childhood programs, including Head Start, child care, Smart Start, and More at Four, strives to link its funding, delivery systems and programming with the others, which has resulted in significant improvements in cooperation and better service to children.[54]

► Ohio

Ohio seeks to coordinate its Head Start, public preschool, and child care programs, with the goal of providing a high quality preschool experience to low-income children. This state-federal Head Start partnership reaches 57,000 children, a number that encompasses nearly all eligible three- and four-year-olds in the state. Child care centers receiving federal child care subsidies can also receive Head Start aid for children whose families are at or below 100 percent of the federal poverty level. The child care centers can then use Head Start resources to provide higher salaries and more training for staff members, both key aspects of high-quality child care programs. The centers, in turn, have to meet Head Start requirements for providing such services as health screenings and ensuring that parents are involved in the program. In addition, Ohio employs a system of standards, curricula and assessments that align preschool and Head Start standards with the state's K-12 system.[55]

► Texas

In recent years, Texas has been the site of several innovative efforts to improve the language, literacy, and cognitive skills of preschoolers, with the overarching goal of ensuring that children are prepared to succeed in kindergarten.

The **Margaret H. Cone Head Start Center** was established in 1990 as a partnership between the Texas Instruments Foundation and Head Start of Greater Dallas.[56] The goal of this partnership was to develop a model, research-based comprehensive early childhood services program for children and families who were mostly black and Hispanic and lived in a near-by, extremely impoverished South Dallas neighborhood. The approach has become a widely known example of a comprehensive, early childhood services program that has established a language and literacy-rich curriculum.

- Prior to implementing the language and literacy- focused curriculum, initial evaluations of the Cone Head Start Center showed that although children were receiving health, nutritional and social services, they continued to enter kindergarten performing well below average and far behind their more advantaged classmates in cognitive and language ability. At the end of kindergarten, they consistently scored in the 20th to 30th percentile range on the Iowa Test of Basic Skills.

- The Texas Instruments Foundation requested in 1993 that two early childhood educators at Southern Methodist University develop a curriculum to improve children's language and cognitive skills. This request led to the development of LEAP (Language Enrichment Activities Program), a language and literacy-rich curriculum that is now the central focus of the Cone Center. The primary goal of

the curriculum is to help Cone Center teachers strengthen their own language skills, apply new teaching methods, and help parents promote their children's language and literacy development.

- An independent evaluation of the program's impact is not available, but the curriculum developers have assessed language outcomes for five cohorts of children using a non-experimental design. Results show that kindergarten language scores improved, especially for later cohorts of children coming through the program.[57]

The **Texas Early Start Initiative** is a new state-wide effort to coordinate early childhood programs and enhance young children's language and pre-reading knowledge and skills. The goal of the state initiative is to improve learning by providing Head Start, public and private childcare facilities, faith-based groups, and pre-kindergarten classes with teachers trained to use curriculum materials that prepare children for school, promote skills such as language and pre-reading that are essential to school readiness, and align with the state's existing pre-kindergarten standards. Texas voluntary standards for the pre-kindergarten curricula cover language and literacy, mathematics, science, social studies, fine arts, health and safety, and physical development. The guidelines were developed in consultation with early childhood educators and administrators, as well as child development and early education researchers.

The Center for Improving Readiness of Children for Learning and Education (CIRCLE) at the University of Texas Health Science Center at Houston is the designated center for designing and implementing the Early Start initiative. CIRCLE is working to develop training for early childhood educators throughout Texas, identify curriculum materials that meet voluntary state standards and promote language and pre-reading skills, and coordinate early childhood funding streams and programs. The CIRCLE approach to educator training has produced substantial increases in language and literacy skills for children at Head Start centers and preschool programs.[58]

In addition to the state efforts covered above, several cities have also made great strides in improving coordination of early childhood programs at the local level. These examples include:

► Denver, Colorado

Denver has integrated Head Start services with other local services for young children and their families to build a comprehensive, integrated network of high quality early childhood programs and services. The Denver public school system is a delegate of the Denver Great Kids program. Denver's public school system also operates an Early Childhood Program with a literature-based curriculum that provides services for

approximately 3,700 four-year-olds in 88 elementary schools and 16 community centers.[59]

► Bibb County, Georgia

The Bibb County, Georgia, Division of Family and Children Services (DFCS) has developed an initiative to serve poor families in the region through "collaboratives," a series of projects created by combinations of local agencies that provide support services to families. These collaboratives, which include a child care and child care training center, a residential drug abuse treatment facility for pregnant and parenting women, a pediatric clinic, health programs at the local medical center, and neighborhood outreach programs, have created a high level of service integration in the county and provided greater access to services for poor families. As part of this county initiative, the Bibb County Training/Child Care Center provides skilled training for welfare recipients as child care providers, parenting skills training for welfare recipients, quality child care slots for children of welfare mothers returning to work, parenting skills for non-resident fathers, and training for child care providers, including in-home providers.[60]

► Independence, Missouri

The local Head Start has collaborated with child care centers to provide high quality full-day care for children, while the local school district operates Child and Family Learning Centers, which provide full-day, high quality child care on a sliding fee scale for three-to-five year-olds at every elementary school.[61]

► Charlotte-Mecklenburg County, North Carolina

The Charlotte-Mecklenburg school district, located in the southern Piedmont region of North Carolina, is one of the largest in the nation. The districts' pre-kindergarten program, *Bright Beginnings*, is a full-day, literacy-based initiative for four-year-olds identified as having educational needs. A primary motivation for the program was the need to eliminate the achievement gap for poor and minority students in the county. Funding comes primarily from Title 1, with significant support from community and corporate partners. Children are eligible for the program if results of formal screening show an educational need, as specified in the Title I policy guidance.

Bright Beginnings currently serves approximately 3,000 students. Sites are located in centers and elementary schools in the Charlotte-Mecklenburg school system. A few hundred students participate in Smart Start-funded community-based sites, such as child care centers, part-day preschools, and Head Start facilities. Additional classes are funded by North Carolina's More at Four initiative (see state description). The required

components of the program are a child-centered curriculum with a strong focus on language development and pre-reading; professional development; ongoing research and evaluation; strong parent/family participation and involvement; and community partnerships, participation, and collaboration. While the program emphasizes language and literacy development, a guiding principle of Bright Beginnings is that cognitive, social, emotional and physical development are interrelated in young children, and all developmental areas must be addressed. Thus, in addition to language and literacy, the curriculum provides key foundational experiences in mathematics, science, social studies, creative arts, social development, physical development, and exposure to technology using computers and age-appropriate software.

The program is linked to the district's academic goals for kindergarten through third grade. Teachers are required to have a North Carolina birth-through-kindergarten certification to teach in the program or to have provisional certification. Title I funds support the graduate school education necessary to qualify for certification.

Using a non-experimental design, the county has compared the literacy and mathematics performance of 1,382 students in the 1997-98 *Bright Beginnings* class to 184 eligible students who did not participate, as well as to all kindergarteners and first-graders in the school district. Children who participated had higher scores than non-participants in both kindergarten and first grade (though their scores did not reach the district average).[62] An independent, rigorous evaluation of the program has not been conducted; however, impact studies using randomized designs are currently underway with funding from the U.S. Department of Education, and the National Institute of Child Health and Human Development and other collaborating DHHS agencies.

D. States are working to produce better programs for children.

Many states report positive outcomes in terms of increased child care and services as a result of coordination and collaboration.[63]

- Ohio reported that the collaboration between state and federal Head Start and Ohio preschool and child care programs has enabled the state to increase not only the amount of care available to low-income children but also their access to Head Start services.

- In Colorado, where the state legislature created the Community Consolidated Child Care Pilot Program to encourage communities to design consolidated programs of comprehensive early childhood care and education services for children in low-income families, state officials reported a larger increase in the number of children served in pilot counties than elsewhere in the state.

- State officials in Oregon identified positive outcomes that have resulted from its collaborative efforts, including increased numbers of preschool programs, licensed providers, and home-based care for infants and toddlers, and the initiation of a career development program for providers.

There is some evidence suggesting that high quality state preschool and pre-kindergarten programs can enhance the school readiness of children and lead to improved performance in school. This evidence includes the following:

- A meta-analysis of all evaluations of state-funded preschools from 1977 to 1998 found positive impacts in improving children's developmental competence in a variety of domains, in improving later school attendance and performance, and in reducing subsequent grade retention. These results were similar to the gains made by children in Head Start.[64]

- A non-experimental evaluation of Michigan's School Readiness Program, a state-funded preschool program for four-year-olds at risk of school failure, found that at kindergarten, those children who had participated in the program scored higher than non-participants in many areas of child development -- language and literacy, initiative, social relations, creative representation, and music and movement -- but not mathematics. In the fourth-grade state assessments, the participant group scored higher than the non-participant group in reading and math. Participants also had a significantly lower rate of grade repetition than the comparison group. Also, teachers rated participants significantly higher in mathematics, literacy, thinking skills, and problem solving. Additionally, the program was found to have positive effects on parents' involvement in school activities and communication with teachers in the first three years of school. Researchers estimate that the program annually prevents 1,700 Michigan children from having to repeat a grade, saving the state an estimated $11 million each year. [65]

- An on-going longitudinal study of Georgia's universal pre-kindergarten program found that a majority of teachers believed that students who attended pre-K were better prepared for kindergarten in specific skill areas, such as pre-reading, pre-math, motor skills development, and interactions with adults and children. However, because the evaluation design does not include a comparable comparison group of children who did not attend the pre-K program, researchers are unable to make reliable causal interpretations of the data.[66] In second grade, children's teachers rated their readiness above average, with 79% of the former pre-K participants rated as average or better in readiness. Similar results were found for their readiness for third grade.[67]

- Many state preschool programs meet or exceed Head Start standards for classroom characteristics, including staff-to-child ratios, teacher qualifications and training requirements, maximum number of children allowed per classroom, and curriculum guidelines. These characteristics have been linked to quality.[68]

- Six states have been widely recognized for providing exemplary preschool education to low-income children -- Georgia, Iowa, Kentucky, Ohio, Oregon, and Washington. These programs are characterized by most of the following markers of quality: universality, classroom quality, at least two years of service (i.e., accommodating three- and four-year olds), comprehensive services, and extended hours. [69]

- Delaware, Georgia, and Oregon require their state subsidized pre-kindergarten programs to follow federal Head Start standards. Six states -- California, Connecticut, Georgia, Maryland, Michigan, and Washington -- require preschool programs to adhere to educational standards. In addition to these six states, nine states and the District of Columbia have specific educational standards for pre-kindergarten. Five more states are working on such standards.[70]

V. Conclusions

Research shows that children in Head Start are falling behind and too often are not ready for school. In particular, those children who are the poorest and have the most risk factors do not enter kindergarten with the intellectual resources they need to succeed. Some of these children are being served by Head Start, but others are in state pre-kindergarten, childcare, and home-settings. From basic science on learning and development and from intervention studies we know a great deal about how to narrow the achievement gap for Head Start and other disadvantaged children before they enter kindergarten. Research tells us the knowledge and skills children need in language, pre-reading, and pre-mathematics, and the social and emotional competencies they must have to succeed in school. The President believes that the Head Start program must be strengthened and provide more emphasis on pre-reading, language, pre-mathematics and other cognitive skills, while continuing to promote children's health and social and emotional competence as part of school readiness. Research tells us that early childhood education implemented with qualified and well-trained teachers can make a significant and meaningful impact on the development of children's knowledge and skills, their achievement in school, and success in life.

Everyone agrees that fragmentation is a problem and that uncoordinated approaches to offering early childhood education and care are preventing children from accessing the educational instruction and services they need to be school ready. We know that states are beginning to offer state pre-kindergarten programs that hold promise for producing positive results for children, successfully coordinating early childhood programs, and creating seamless systems that align early childhood programs with the public schools. There is a dire need to apply the evidence available to us and build on the good progress states are making in reducing fragmentation, coordinating funding streams and services, and aligning early childhood programs with the public schools.

VI. The President's plan will strengthen Head Start and enable coordination of early childhood systems.

The President proposes a plan that builds on the evidence to strengthen Head Start, to improve educational opportunities and access to services for all low-income and other disadvantaged children, and to support further coordination and integration of early education and care. The President proposes that states willing to meet specific programmatic and financial requirements, in consultation with state and local officials, be allowed to include Head Start in their overall preschool plans. Under the President's proposal, states may coordinate state-administered preschool programs and other early childhood programs with Head Start programs in exchange for meeting certain accountability, maintenance of effort and programmatic requirements. For federally managed programs, the President's plan will strengthen educational standards and outcomes, while maintaining comprehensive services. It will also better target quality improvement and training and technical assistance funds. Finally, the President proposes improving collaboration between federally managed Head Start programs and other early childhood programs, with the governor's office and chief state school officers playing a more central role. All the evidence available to us indicates that the President's proposal will give states the tools they need to do a better job of giving disadvantaged children the head start they deserve.

Appendix A

Overview of Major Federal and State Spending for Preschool and Child Care Programs (Funding, in billions)

	FY 2003	FY 2004
[1]**Department of Education**	1.7	1.8
[2]**Department of Health and Human Services**		
[3]CCDF/TANF/SSBG (Federal)	8.6	8.6
[4]CCDF/TANF (State MOE & Match)	3.0	3.0
HHS Child Care Subtotal	11.6	11.6
Head Start (Federal)	6.7	6.8
[5]**Estimated State Pre-Kindergarten**	2.7	2.7
[5]**State Supplements to Head Start**	0.2	0.2
[6]**Total Federal and State Spending on Pre-Kindergarten and Child Care**	22.9	23.1

Notes:

1 Based on estimated proportion of pre-kindergarten services provided by each program.

2 DHHS expenditures are for children of all ages.

3 Includes Child Care Development Fund (CCDF) mandatory and discretionary spending; Temporary Assistance to Needy Families (TANF) transfer to CCDF; TANF direct spending; Social Security Block Grant (SSBG).

4 Includes CCDF State Maintenance of Effort (MOE) & Match; TANF MOE in excess of CCDF MOE.

5 Based on estimates provided by states to the Head Start Bureau.

State preK estimates are generally for 2002; assumed constant for 2003 and 2004.

6 Total does not include tax expenditures ($3.5 billion estimate in 2003) or the Child and Adult Care Food Program ($1.9 billion estimate for child portion in 2003).

Endnotes

[1] Head Start Act, 1998 reauthorization.

[2] Denton, K. & West, J., *Children's Reading and Mathematics Achievement in Kindergarten and First Grade*, National Center for Education Statistics, U.S. Department of Education, March 2002.

[3] The 1994 reauthorization of the Head Start Act established a new Early Head Start program for low-income families with infants and toddlers ages 0-3.

[4] *Head Start FACES: Longitudinal Findings on Program Performance – Third Progress Report* (January 2001). Administration for Children and Families, U.S. Department of Health and Human Services. (http://www.acf.hhs.gov/programs/core/ongoing_research/faces/faces_pubs_reports.html)

Head Start FACES 2000: A Whole-Child Perspective on Program Performance (May 2003). Administration for Children and Families, U.S. Department of Health and Human Services. (http://www.acf.hhs.gov/programs/core/ongoing_research/faces/srcd2003/2003_srcd_faces_intro.pdf)

The primary source of information about the national performance of Head Start is the Head Start Family and Child Experiences Survey (FACES), a nonexperimental study conducted by the Administration for Children and Families' Office of Planning, Research, and Evaluation in the U.S. Department of Health and Human Services. Data on the outcomes for children and families served by Head Start are collected. Direct assessments of children's performance are obtained at the beginning and end of the Head Start year and at the end of kindergarten. In 1997, the FACES design included a nationally representative sample of 3,200 children and their families in 40 programs across the nation. The FACES 2000 sample includes 2,800 children and their families in 43 programs.

FACES data can be used to track the performance of successive cohorts of Head Start children, document changes in children's performance across time, and determine how well Head Start children are progressing relative to national norms. It is important to realize that FACES cannot give conclusive evidence about Head Start effectiveness because the study design does not include a comparison group of children who did not attend Head Start.

[5]Technical note on norms, standard scores, and percentiles: With the exception of the social skills measures in the FACES battery, the measures referred to in this report have been normed. Normed means that the average level of performance has been obtained through testing large and diverse numbers of children for whom the test was developed. Two types of scores are obtained: standard scores and percentile scores. One use of standard scores is to put scores from different assessments on the same scale in order to compare children's performance from fall to spring or across different studies. Typically, the average for standard scores is set at 100. In other words, the average child would have a score of 100. Percentile scores are derived from standard scores in order to compare children's performance to other children using a scale from 0 to 100, with 50 being the average. Percentile scores show how children are faring relative to the large and diverse group of children that were tested in order to establish norms for the assessment.

[6] Head Start sites that have implemented carefully designed programs that focus on school readiness have shown significant gains for children.

[7] Note that the data in Figures 1 and 2 do not include those children who weren't proficient in English on entry into Head Start. The inclusion of those children, who represent a substantial proportion of children attending HS, would significantly lower the mean percentile scores because they score substantially lower than English proficient children.

[8] This finding should be interpreted with caution because it may not show actual change for children with lower levels of knowledge. A statistical artifact known as "regression to the mean" may account for the result: Extreme scores obtained on one or two testings tend to become less extreme with repeated testing. There are patterns in the data that argue against this alternative explanation; however, it has not been ruled out. Regression to the mean may also account for the tendency for children in the top quartile of their class to show losses on some measures.

[9] Currently there are no national norms on the number of letters of the alphabet the typical 4-year-old can name.

[10] Zill, N. & West, J., *Entering Kindergarten: Findings from the Condition of Education, 2000*. National Center for Education Statistics, U.S. Department of Education, March 2001.

[11] This finding should be interpreted with caution because it may not show actual change for children with lower levels of knowledge. A statistical artifact known as "regression to the mean" may account for the result: Extreme scores obtained on one or two testings tend to become less extreme with repeated testing. There are patterns in the data that argue against this alternative explanation; however, it has not been ruled out. Regression to the mean may also account for the tendency for children in the top quartile of their class to show losses on some measures.

[12] Measures used to assess children's social skills in both the 1997 and 2000 FACES studies have not been normed using a different, more diverse population. Therefore, the performance of Head Start children on these measures cannot be compared to the average performer, as can be done with the language, pre-reading, and pre-mathematics measures presented in Figures 1 and 2.

[13] West, J., Denton, K. & Reaney, L.M., *The Kindergarten Year: Findings from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-1999.* National Center for Education Statistics, U.S. Department of Education, December 2000. These data are directly comparable because children who attended Head Start in the 1997-1998 year were assessed using measures from the Early Childhood Longitudinal Study.

[14] Teacher rating measures can be influenced by factors other than children's actual behavior.

[15] The Head Start Quality Research Consortium, the Interagency Early Childhood Research Initiative, and other research groups are conducting this work.

[16] The Early Childhood Longitudinal Study-Kindergarten Cohort follows a nationally representative sample of children from kindergarten entry through fifth grade. These data include only those children who completed assessments in English. Approximately 19% of Asian children and 30% of Hispanic children attending kindergarten for the first time were not assessed in English. The sample includes children with disabilities if they could hear the questions, see the testing materials and respond orally or by pointing.

[17] Zill, N. & West, J., *Entering Kindergarten: Findings from the Condition of Education, 2000*. National Center for Education Statistics, U.S. Department of Education, March 2001.

The reading assessment consisted of the following (ordered from more basic to more advanced knowledge and skills): (1) identifying uppercase and lowercase letters of the alphabet, (2) associating letters with sounds at the beginning of words, (3) associating letters with sounds at the end of words, (4) recognizing common words by sight, and (5) reading words in context.

The mathematics assessment consisted of the following (ordered from more basic to more advanced knowledge and skills): (1) identifying some one-digit numerals, recognizing geometric shapes, and one-to-one counting of up to 10 objects, (2) reading all single-digit numerals, counting beyond 10, recognizing a sequence of patterns, and using nonstandard units of length to compare objects, (3) reading 2 digit numerals, recognizing the next number in a sequence, identifying the ordinal position of an object, and solving a simple word problem, (4) solving simple addition and subtraction problems, and (5) solving simple multiplication and division problems and recognizing more complex number patterns.

[18] Zill, N. & West, J., *Entering Kindergarten: Findings from the Condition of Education, 2000*. National Center for Education Statistics, U.S. Department of Education, March 2001.

[19] West, J., Denton, K., & Germino-Hausken, E., *America's Kindergartners*, National Center for Education Statistics, February 2000.

[20] West, J., Denton, K. & Reaney, L.M., *The Kindergarten Year: Findings from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-1999.* National Center for Education Statistics, U.S. Department of Education, December 2000.

[21] *National Assessment of Educational Progress* (NAEP), National Center for Education Statistics, U.S. Department of Education. see also http://nces.ed.gov/nationsreportcard/

The Nation's Report Card: Mathematics 2000. National Assessment of Educational Progress (NAEP), National Center for Education Statistics, U.S. Department of Education, August 2001.

The Nation's Report Card: Reading 2000. National Assessment of Educational Progress (NAEP), National Center for Education Statistics, U.S. Department of Education, April 2001.

[22] Reading scores for 4th graders and mathematics scores for 4th and 12th graders are based on 2000 data. Reading scores for 12th graders and writing scores for 4th and 12th graders are based on 1998 data, the last year for which data are available. The only appropriate comparisons for the data presented involve comparisons within grade and within a single area of competency. It is not appropriate to compare scores across grades because the children in different grades differed in unknown ways that were not controlled in the analyses. It is not appropriate to compare performance within a grade across different areas of competency because the scores are derived from different scales of measurement. Percentages do not add to 100 because information about eligibility for the school lunch program was not available for a portion of students. The achievement levels of "basic," "proficient," and "advanced" are authorized by the NAEP legislation and adopted by the National Assessment Governing Board.

[23] See also the conclusions of Lee and Burkam, 2002, concerning the achievement gap in reading and mathematics for poor students at kindergarten entry based on their independent analysis of the data from the Early Childhood Longitudinal Study.

[24] National Governors Association Policy Position HR-21. Child Care and Early Education Policy. http://www.nga.org/nga/legislativeUpdate/policyPositionDetailPrint/1,1390,540,00.html

[25] *Quality Counts 2002*. Education Week, No. 17, January 10, 2002.

[26] U.S. General Accounting Office, *Early Education and Care: Overlap Indicates Need to Assess Cross-Cutting Programs*, 2000.

[27] U.S. General Accounting Office, *Education and Care: Early Childhood Programs and Services for Low-Income Families*, 2000.

[28] The Center for Law and Social Policy (CLASP), *State Initiatives to Promote Early Learning: Next Steps in Coordinating Subsidized Child Care, Head Start, and State Pre-kindergarten*, Policy brief, April 2001.

[29] Denton, K. & West, J., C*hildren's Reading and Mathematics Achievement in Kindergarten and First Grade,* National Center for Education Statistics, U.S. Department of Education, March 2002.

[30] *Early Childhood Education and School Readiness: Conceptual Models, Constructs, and Measures, Workshop Summary.* See also http://www.nichd.nih.gov/crmc/cdb/p_learning.htm. Workshop sponsored by the National Institute of Child Health and Human Development, Administration for Children, Youth and Families, and the Office of the Assistant Secretary for Planning and Evaluation of the U.S. Department of Health and Human Services, July 17-18, 2002.

[31] Storch & Whitehurst, 2002.

Whitehurst & Lonigan, 2001.

Whitehurst & Lonigan, 1998.

[32] Roth, Speece, & Cooper, 2002.

Gianvecchio & French, 2002.

Olofsson & Niedersoe, 1999.

Storch & Whitehurst, 2002.

Blankman, Teglasi, & Lawser, 2002.

Snow, Cancino, Gonzalez, & Schriberg, 1989.

Sulzby, 1985.

Olofsson & Niedersoe, 1999.

Bohannon, Warren-Leubecker, & Hepler, 1984.

Elster. 1994.

Nation & Snowling, 2000.

Rubin, Patterson & Kantor, 1991.

Worthy, 1996.

Bender & Golden, 1988.

Biemiller, Shany, Inglish, & Meichernbaum, 1998.

[33] Clements and Conference Working Group, in press. This book is based on the Conference on Early Math Standards, which was supported in part by the National Science Foundation. See also http://www.gse.buffalo.edu/org/conference/.

[34] Huffman, Mehlinger & Kerivan, 2000. For a review of this research, see the Children's Mental Health Foundations and Agencies Network (FAN) report, *A Good Beginning: Sending America's Children to School with the Social and Emotional Competence to Succeed,* http://www.nimh.nih.gov/childhp/monograph.pdf.

[35] Data on the effects of Head Start on child outcomes is limited in amount and quality and direct comparisons of Head Start and other early childhood interventions and programs have not been made. The data that are available suggest the comprehensive, high quality, smaller scale, early childhood programs have had greater and more sustained effects on children's outcomes. For Head Start reviews, see McKey, Condelli, Ganson, Barrett, McConkey, & Plantz, 1985 and Currie & Thomas, 1995. See Barnett & Boocock (1998) for another review of data on Head Start and other early childhood programs.

[36] Reynolds, 2000.

[37] Reynolds, 2000.

[38] Reynolds, 2000.

[39] Reynolds, Temple, Robertson & Mann, 2001.

[40] Reynolds, Temple, Robertson & Mann, 2001.

[41] Reynolds, Temple, Robertson & Mann, 2001.

[42] Reynolds, Temple, Roberstson & Mann, 2002.

[43] Ramey, C. T., Campbell, F. A., Burchinal, M., Skinner, M. L., Gardner, D. M., & Ramey, S. L. (2000). Persistent effects of early intervention on high-risk children and their mothers. *Applied Developmental Science, 4*, 2-14. In addition to presenting results of child testing, this article presents findings demonstrating the benefits of the availability of high-quality, consistent child care for the mothers of children in the Abecedarian study.

Campbell, F. A., Ramey, C. T., Pungello, E. P., Sparling, J., & Miller-Johnson, S. (in press). Early Childhood Education: Young Adult Outcomes from the Abecedarian Project. *Applied Developmental Science*.

Frank Porter Graham website, http://www.fpg.unc.edu; Ramey, Campbell, Burchinal, Skinner, Gardner, & Ramey, 2000; Campbell, F. A., Pungello, E. P., Miller-Johnson, S., Burchinal, M., & Ramey, C. T. (in press). The Development of Cognitive and Academic Abilities: Growth Curves from an Early Childhood Educational Experiment. *Developmental Psychology*. This article is the first that provides detailed findings concerning the age-21 follow-up of the sample by examining the longitudinal trajectories of the participants' cognitive and academic development through age 21. This research was funded by the National Institute of Child Health and Human Development and the Administration for Children and Families in the U.S. Department of Health and Human Services, the U.S. Department of Education, and private funders.

[44] Schweinhart, Barnes, & Weikart, 1993.

[45] Barnett, 1996

[46] Landry, S.H., Swank, P.R., Smith, K.E., & Gunnewig, S.B., paper submitted for publication. *Enhancing cognitive readiness for preschool children: Bringing a professional development model to scale.* University of Texas-Houston Medical School, Department of Pediatrics.

[47] The title I program provides funds to America's most needy public schools, and is authorized under the Elementary and Secondary Education Act. Title I preschool programs help prepare children for school in high poverty communities.

[48] Assel, M.A., Landry, S.H., Kerschen, L., Swank, P.R., Hebert, H.M., Gunnewig, S., paper submitted for publication. *An evaluation of a model pre-kindergarten program addressing language and literacy: The effects of quality professional development.* The University of Texas-Houston Health Science Center, Division of Developmental Pediatrics.

[49] *Quality Counts 2002*. Education Week, No. 17, January 10, 2002

[50] State of Colorado General Assembly, HB02-1297, School readiness child care pilots, signed into law June 7, 2002.

[51] Gilliam 2000, 2001.

[52] Fuetsch, M., *State officials criticize Bush proposal for Head Start*, from www.delawareonline.com a service of *The NewsJournal*, 22 April 2003.

Investing in Better Outcomes: The Delaware Early Childhood Longitudinal Study, University of Delaware Center for Disability Studies, April 2002.

[53] The Center for Law and Social Policy (CLASP), State *Initiatives to Promote Early Learning: Next Steps in Coordinating Subsidized Child Care, Head Start, and State Pre-kindergarten*, Policy brief, April 2001.

[54] North Carolina's Early Care and Education System: Report to the North Carolina General Assembly, January 2003.

[55] *Quality Counts 2002*. Education Week, No. 17, January 10, 2002, and Ohio state website http://www.state.oh.us/.

[56] Texas Instruments Learning by Leaps and Bounds. http://www.texasinstruments.com/corp/docs/company/citizen/foundation/leapsbounds/overview.shtml (Accessed 2 June 2003)

[57] *Learning by Leaps and Bounds: Technical Report* presented at Head Start 3rd National Research Conference, 1996. These are results of a self-study: an independent evaluation has not been conducted.

[58] Landry, S. H., Swank, P. R., Smith, K. E., & Gunnewig, S. B. (paper submitted for publication). *Enhancing cognitive readiness for preschool children: Bringing a professional development model to scale.* University of Texas-Houston Medical School, Department of Pediatrics.

[59] *ECE (Early Childhood Education)*, Early Education Department, Denver Public Schools. http://earlyeducation.dpsk12.org/stories/storyReader$7 (Accessed 13 May 2003).

Goals and Mission, Early Education Department, Denver Public Schools. See also http://earlyeducation.dpsk12.org/stories/storyReader$12 (Accessed 13 May 2003)

Denver Head Start "Great Kids" Web Site http://www.denvergov.org/dephome.asp?depid=1220 (Accessed 13 May 2003).

[60] Office of the Assistant Secretary for Planning and Evaluation, "Enhancing the Well-Being of Young Children and Families in the Context of Welfare Reform: Lessons from Early Childhood, TANF, and Family Support programs." June 1999

[61] *Early Education and Child Care*. Independence, MO, School District Web site. http://www.indep.k12.mo.us/District/DistrictProgramsServices.asp (Accessed 13 May 2003)

Schools Home. Independence, MO, School District Web site. http://www.indep.k12.mo.us/Schools/SchoolsIndex.asp (Accessed 13 May 2003)

[62] Charlotte-Mecklenburg Schools. http://www.cms.k12.nc.us/programs/brightbeginnings/brightbeginnings.asp (Accessed 29 May 2003)

Bucci, A. F. Using Title I and local funds to build quality preschool programs in Charlotte-Mecklenburg: A "Bright Beginning." Presentation to the conference of the *Ensuring Student Success Through Collaboration Network*, Louisville, KY, September, 1999. http://www.ccsso.org/initiatives.html (Accessed 29 May 2003)

[63] U.S. General Accounting Office, *Education and Care: Early Childhood Programs and Services for Low-Income Families*, 2002.

[64] Gilliam and Zigler, 2001.

[65] Xiange & Schweinhart, 2002.

[66] Henderson, L.W., Basile, K.C., & Henry, G.T. *Pre-kindergarten longitudinal study 1997-1998 school year: Annual Report*. Prepared by the Applied Research Center, Andrew Young School of Policy Studies, Georgia State University for the Georgia Office of School Readiness, 1999.

[67] Henry, G.T., Gordon, C.S., Mashburn, A., & Ponder, B.D., *Pre-K Longitudinal Study: Findings from the 1999-2000 School Year*. Prepared by the Applied Research Center, Andrew Young School of Policy Studies, Georgia State University for the Georgia Office of School Readiness, 2001.

[68] Ripple, Gilliam, Chanana, and Zigler, 1999.

[69] Ripple, Gilliam, Chanana, and Zigler, 1999.

[70] *Quality Counts 2002*, Education Week, No. 17, January 10, 2002.

References

Assel, M. A., Landry, S. H., Kerschen, L., Swank, P. R., Hebert, H. M., Gunnewig, S. (paper submitted for publication). *An evaluation of a model pre-kindergarten program addressing language and literacy: The effects of quality professional development.* The University of Texas-Houston Health Science Center, Division of Developmental Pediatrics.

Barnett, W. S. (1996). Lives in the balance: Benefit-cost analysis of the Perry Preschool Program through age 27. *Monographs of the High/Scope Educational Research Foundation.* Ypsilianti MI: High/Scope Press.

Barnett, W.S., & Boocock, S.S. (Eds.). (1998). *Early care and education for children in poverty: Promises, programs, and long-term results.* Albany, NY: SUNY Press.

Bender, W. N., & Golden, L. B. (1988). Adaptive behavior of learning disabled and non-learning disabled children. *Learning Disability Quarterly, 11*, 55-61.

Biemiller, A, Shany, M, Inglish, A., & Meichernbaum, D. (1998). Factors influencing children's acquisition and demonstration of self-regulation on academic tasks. In D. H. Schunk & B. J. Zimmerman (Eds.), *Self-regulation learning: From teaching to self-reflective practice*, pp. 203-224.

Blankman, C., Teglasi, H., & Lawser, M. (2002). Thematic apperception, narrative schemas, and literacy. *Journal of Psychoeducational Assessment*, 20(3), 268-289.

Bohannon, J. N., Warren-Leubecker, A., & Hepler, N. (1984). Word order awareness and early reading. *Child Development, 55*, 1541-1548.

Bucci, A. F. Using Title I and local funds to build quality preschool programs in Charlotte-Mecklenburg: A "Bright Beginning." Presentation to the conference of the *Ensuring Student Success Through Collaboration Network*, Louisville, KY, September, 1999. http://www.ccsso.org/initiatives.html (Accessed 29 May 2003)

Campbell, F. A., Ramey, C. T., Pungello, E. P., Sparling, J., & Miller-Johnson, S. (in press). Early Childhood Education: Young Adult Outcomes from the Abecedarian Project. *Applied Developmental Science*.

Campbell, F. A., Pungello, E. P., Miller-Johnson, S., Burchinal, M., & Ramey, C. T. (in press). The Development of Cognitive and Academic Abilities: Growth Curves from an Early Childhood Educational Experiment. *Developmental Psychology*.

Center for Law and Social Policy (CLASP). *State Initiatives to Promote Early Learning: Next Steps in Coordinating Subsidized Child Care, Head Start, and State Pre-kindergarten.* Policy brief, April 2001.

Charlotte-Mecklenburg Schools.
http://www.cms.k12.nc.us/programs/brightbeginnings/brightbeginnings.asp (Accessed 29 May 2003)

Child Inc., Austin, Texas, http://www.childinc.org/ (Accessed 14 May 2003)

Clements, D. H., & Conference Working Group. (in press). Part one: Major themes and recommendations. In D. H. Clements, J. Sarama & A.-M. DiBiase (Eds.), *Engaging young children in mathematics: Findings of the 2000 national conference on standards for preschool and kindergarten mathematics education*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Currie, J., & Thomas, D. (1995). Does Head Start make a difference?" *American Economic Review, 85(3)*, 341-364.

Denver Head Start "Great Kids" Web Site. http://www.denvergov.org/dephome.asp?depid=1220 (Accessed 13 May 2003)

Early Childhood Education and School Readiness: Conceptual Models, Constructs, and Measures, Workshop Summary. (http://www.nichd.nih.gov/crmc/cdb/p_learning.htm). Workshop sponsored by the National Institute of Child Health and Human Development, Administration for Children Youth and Families, and Office of the Assistant Secretary for Planning and Evaluation of the U.S. Department of Health and Human Services, June 17-18, 2002.

"Early Education and Child Care." Independence (MO) School District Web site. http://www.indep.k12.mo.us/District/DistrictProgramsServices.asp (Accessed 13 May 2003)

"ECE (Early Childhood Education.)" Early Education Department, Denver Public Schools. http://earlyeducation.dpsk12.org/stories/storyReader$7 (Accessed 13 May 2003)

Elster, C. (1994). Patterns within preschoolers' emergent readings. *Reading Research Quarterly, 29(4)*, 402-417.

Fuetsch, M. "State officials criticize Bush proposal for Head Start," from www.delawareonline.com, a service of *The NewsJournal*, 22 April 2003

Gianvecchio, L. & French, L. (2002) Sustained attention, inattention, receptive language, and story interruptions in preschool Head Start story time. *Journal of Applied Developmental Psychology, 23(4)*, 393-407.

Gilliam, W. S. (2000). *The school readiness initiative in South-Central Connecticut: Classroom quality, teacher training and service provision.* Final report of findings for the fiscal year 1999.

Gilliam, W. S. (2001). T*he school readiness initiative in South-Central Connecticut: Classroom quality, teacher training, and service provision, FY 2000 update.*

Gilliam, W. S., & Ripple, C. H. (in press). What can be learned from state-funded pre-kindergarten initiatives? A data-based approach to the Head Start devolution debate. In E. Zigler & S. J. Styfco (Eds.), *The Head Start debates (friendly and otherwise)*. New Haven, CT: Yale University Press.

Gilliam, W. & Zigler, E. (2001). A critical meta-analysis of all evaluations of state-funded preschool from 1977 to 1998: Implications for policy, service delivery and program evaluation. *Early Childhood Research Quarterly, 15*, 441-473

"Goals and Mission." Early Education Department, Denver Public Schools. http://earlyeducation.dpsk12.org/stories/storyReader$12 (Accessed 13 May 2003)

Head Start Act, 1998 reauthorization

Head Start FACES: Longitudinal Findings on Program Performance -- Third Progress Report (January 2001). Administration for Children and Families, U.S. Department of Health and Human Servces (http://www.acf.hhs.gov/programs/core/ongoing_research/faces/faces_pubs_reports.html)

Head Start FACES 2000: A Whole-Child Perspective on Program Performance (May, 2003). Administration for Children and Families, U.S. Department of Health and Human Services. (http://www.acf.hhs.gov/programs/core/ongoing_research/faces/srcd2003/2003_srcd_faces_intro.pdf)

Henderson, L. W., Basile, K. C., & Henry, G.T. (1999). *Pre-kindergarten longitudinal study 1997-1998 school year: Annual Report*. Prepared by the Applied Research Center, Andrew Young School of Policy Studies, Georgia State University for the Georgia Office of School Readiness.

Henry, G. T., Gordon, C. S., Mashburn, A., & Ponder, B. D. (2001). *Pre-K Longitudinal Study: Findings from the 1999-2000 school year*. Report prepared by the Applied Research Center, Andrew Young School of Policy Studies, Georgia State University for the Georgia Office of School Readiness.

Huffman, L. C., Mehlinger, S. L., & Kerivan, A. S. (2000). *Risk factors for academic and behavioral problems at the beginning of school.* http://www.nimh.nih.gov/childhp/huffman.pdf Report commissioned by the Children's Mental Health Foundations and Agencies Network.

Investing in Better Outcomes: The Delaware Early Childhood Longitudinal Study, University of Delaware Center for Disability Studies, April 2002

Landry, S. H., Swank, P. R., Smith, K. E., & Gunnewig, S. B. (paper submitted for publication). *Enhancing cognitive readiness for pre-school children: Bringing a professional development model to scale.* University of Texas-Houston Medical School, Department of Pediatrics.

Learning by Leaps and Bounds. Technical Report presented at Head Start 3rd National Research Conference, June 1996.

Lee, V. E., and Burkam, D. T. (2002). *Inequality at the starting gate: Social background differences in achievement as children begin school.* Washington, DC: Economic Policy Institute.

McKey, T. H., Condelli, L., Ganson, H., Barrett, B. J., McConkey, C., & Plantz, M. C. (1985). The impact of Head Start on children, families and communities (Final report of the Head Start Evaluation, Synthesis, and Utilization project). Washington, DC: CSR.

Nation, K. & Snowling, M. J. (2000). Factors influencing syntactic awareness skills in normal readers and poor comprehenders. *Applied Psycholinguistics, 21(2)*, 229-241.

National Assessment of Educational Progress (NAEP), National Center for Education Statistics. http://nces.ed.gov/nationsreportcard/

National Center for Education Statistics, U.S. Department of Education. *America's Kindergartners,* February, 2000.

National Center for Education Statistics, U.S. Department of Education. *Children's Reading and Mathematics Achievement in Kindergarten and First Grade, March 2002.*

National Center for Education Statistics, U.S. Department of Education. *Entering Kindergarten: Findings from the Condition of Education 2000,* March, 2001.

National Center for Education Statistics, U.S. Department of Education. *The Kindergarten Year: Findings from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-1999,* December, 2000.

National Governors Association Policy Position, *HR-21, Child Care and Early Education Policy*. Effective Winter Meeting 2002-Winter Meeting 2004. http://www.nga.org/nga/legislativeUpdate/policyPositionDetailPrint/1,1390,540,00.html

The Nation's Report Card: Mathematics 2000. (August, 2001). National Assessment of Educational Progress (NAEP), National Center for Education Statistics, U.S. Department of Education.

The Nation's Report Card: Reading 2000. (April, 2001). National Assessment of Educational Progress (NAEP), National Center for Education Statistics, U.S. Department of Education.

North Carolina's Early Care and Education System: Report to the North Carolina General Assembly, January 2003.

Office of the Assistant Secretary for Planning and Evaluation, "Enhancing the Well-Being of Young Children and Families in the Context of Welfare Reform: Lessons from Early Childhood, TANF, and Family Support programs." June 1999

Ohio state website, http://www.state.oh.us/.

Olofsson, A. & Niedersoe, J. (1999). Early langauge development and kindergarten phonological awareness as predictors of reading problems: From 3 to 11 years of age. *Journal of Learning Disabilities, 32(5)*, 464-472.

Quality Counts 2002. Education Week, No. 17, January 10, 2002.

Ramey, C. T., Campbell, F. A., Burchinal, M., Skinner, M. L., Gardner, D. M., & Ramey, S. L. (2000). Persistent effects of early intervention on high-risk children and their mothers. *Applied Developmental Science, 4*, 2-14.

Reynolds. A. J. (2000). *Success in early intervention: The Chicago Child-Parent Centers*. Lincoln, Nebraska: University of Nebraska Press.

Reynolds, A. J., Temple, J. A., Robertson, D.L., & Mann, E. A. (2002). Age 21 cost-benefit analysis of the Title I Chicago Child-Parent Centers. *Educational Evaluation and Policy Analysis, 24*, 267-303.

Reynolds, A. J., Temple, J. A., Robertson, D. L., & Mann, E. A. (2001). Long-term effects of an early childhood intervention on educational achievement and juvenile arrest: A 15-year follow-up of low-income children in public schools. *Journal of the American Medical Association, 285*, 2339-2346.

Ripple, C. H., Gilliam, W. S., Chanana, N., & Zigler, E. (1999). Will fifty cooks spoil the broth? The debate over entrusting Head Start to the states. *American Psychologist, 54*, 327-343.

Roth, R. P., Speece, D. L., & Cooper, D. H. (2002). A longitudinal analysis of the connection between oral language and early reading. *Journal of Educational Research, 95(5)*, 259-272.

Rubin, H., Patterson, P. A., & Kantor, M. (1991). Morphological development and writing ability in children and adults. *Language, Speech, & Hearing Services in Schools, 22(4)*, 228-235.

"Schools Home." Independence (MO) School District Web site. http://www.indep.k12.mo.us/Schools/SchoolsIndex.asp (Accessed 13 May 2003)

Schweinhart, L. J., Barnes, H. V., & Weikart, D. P. (1993). Significant benefits: The High/Scope Perry Preschool study through age 27. *Monographs of the High/Scope Educational Research Foundation, 10*. Ypsilanti, MI: High/Scope Press.

Snow, C. E., Cancino, H., Gonzalez, P., & Schriberg, E. (1989). Giving formal definitions: An oral language correlate of school literacy. In D. Bloome (Ed.), *Classrooms and Literacy* (pp.

233-249). Norwood, NJ: Ablex.

State of Colorado General Assembly, HB02-1297, School readiness child care pilots, signed into law June 7, 2002.

Storch, S.A., & Whitehurst, G.J. (2002). Oral language and code-related precursors to reading: Evidence from a longitudinal structural model. *Developmental Psychology*, 38 (6), 934-947.

Sulzby, E. (1985). Children's emergent readings of favorite storybooks: A developmental study. *Reading Research Quarterly, 20*, 458-481.

Texas Instruments Learning by Leaps and Bounds. http://www.texasinstruments.com/corp/docs/company/citizen/foundation/leapsbounds/overview.shtml (Accessed 2 June 2003)

United States General Accounting Office. *Education and Care: Early Childhood Programs and Services for Low-Income Families,* 2000.

United States General Accounting Office. *Early Education and Care: Overlap Indicates Need to Assess Cross-Cutting Programs,* 2000.

Whitehurst, G.J., Lonigan, C.J. (1998). Child development and emergent literacy. *Child Development, 68*, 848-872.

Whitehurst, G. J., & Lonigan, C. J. (2001). Emergent literacy: Development from pre-readers to readers. In S. Neuman & D. Dickinson (Eds.) *Handbook of Early Literacy Research*, pp. 11-29. New York: Guilford Press.

Worthy, J. (1996). Morphological, phonological, and orthographic differences between the spelling of normally achieving children and basic literacy adults. *Reading and Writing, 8(2)*, 139-159.

Xiange, Z, & Schweinhart, L. J. (2002). *Effects five years later: The Michican School Readiness Program evaluation through age 10.* Report prepared for the Michigan State Board of Education.

This report prepared by the Office of the Assistant Secretary for Planning and Evaluation of the U.S. Department of Health and Human Services.

Electronic copies of this report may be obtained at http://aspe.hhs.gov/hsp/StrengthenHeadStart03/index.htm.