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**Children at risk: The need for preschool intervention programs
for North Carolina's schools**

Horne, Lisa Conrad, Ed.D.

The University of North Carolina at Greensboro, 1988

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CHILDREN AT RISK: THE NEED FOR PRESCHOOL
INTERVENTION PROGRAMS FOR NORTH
CAROLINA'S SCHOOLS

by

Lisa Conrad Horne

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the Faculty of the Graduate School at
The University of North Carolina at Greensboro
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of the Requirements for the Degree
Doctor of Education

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APPROVAL PAGE

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This research examines the need for a public preschool program for children who are at risk of school failure in North Carolina. There are some data available that there exists a growing need in our state for a publicly supported preschool intervention program for high risk preschoolers. High risk being defined as children who enter school with a predisposition for difficulties in the elementary grades and in high school. Based on this assumption, the study investigated: 1) the current extent of the problem of high risk children in our state, 2) what is currently being done to meet the needs of high risk children in the public sector statewide, 3) described and analyzed the results of earlier preschool intervention projects nationwide to determine the effects on the participants, 4) demonstrated that additional preschool intervention programs for high risk children in North Carolina would be cost effective, and 5) suggested future program directions and concerns for North Carolina.

Through a review of the literature and a secondary analysis of some of the available data, it was determined that the needs of North Carolina's high risk children are indeed critical and that current state and local efforts are not currently meeting the needs of a great many of these children. The review of earlier intervention programs indicated that good preschool programs for children at risk of school failure better prepare students for school both

intellectually and socially, help them to achieve and meet with greater success in school, and lead at risk children to a more successful life in adolescence and adulthood beyond school.

The results of the study support the contention that there is a grave need for a publicly supported preschool intervention program for high risk preschoolers in North Carolina and that these intervention programs are an investment of sizable potential return.

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CHAPTER I
INTRODUCTION

Generations of Americans have struggled and worked diligently over the past two centuries to establish free public schools for children, beginning nationally with constitutional provisions, continuing with the establishment of settlement houses to educate and assimilate the children of immigrants, and most recently, the civil rights movement to provide equal educational opportunities to all children. Despite these efforts, it is becoming increasingly apparent that all children do not have equal access to public education.

During the past few decades, both lay persons and professional educators have become increasingly more aware that chronic school failure begins early, and that there are a great number of children to whom school life offers little success almost from its beginning. These are the children whose life experiences, prior to entering school, have not prepared them to meet curricular demands. These experiences may include poverty, prematurity or low birth weight, a teen mother, placement in an unstimulating day care situation, or divorce. Accumulating research evidence suggests that early school failure is not inevitable. In a

continuing effort to provide equity in our schools, we must begin our educational efforts during the preschool years. (Lazar & Darlington, 1982; Consortium for Longitudinal Studies, 1983; Schweinhart & Weikart, 1986).

The plight of these children has reached the crisis level nationwide, but the problem is especially visible in our own state. North Carolina has the highest rate of maternal employment nationwide. Fifty-eight percent of the mothers of children one through six in this state are employed outside the home, often leaving these children in day care situations that are less than adequate for preparation for school (North Carolina Department of Administration, Division of Policy and Planning, 1985).

Economic conditions often place children at risk of school failure. Seventy-nine thousand children under five years of age live in poverty in North Carolina. This number is two percent higher than the national average (North Carolina Department of Administration, Division of Policy and Planning, 1985).

Over 25,000 ten to nineteen-year-old North Carolinians became pregnant in 1981. For a teenager, bearing a child is, in most cases, associated with a lifelong educational loss. Only 2 in 10 of these mothers ever go on to complete high school. Because of this state of affairs, the children of these mothers are also placed at risk of poverty because their mothers often lack the financial and emotional

capacity to raise them (Governor's Advocacy Council on Children and Youth, 1980). High risk of school failure is often associated with the level of education of the mother, poverty, and ethnic origin (Schweinhart & Weikart, 1986a). These and other problems manifest themselves in high retention rates, increased placement in academic remediation programs, and high drop-out rates. The situation for many of the children entering North Carolina schools is indeed critical.

Currently, most of North Carolina's efforts are targeted at remediation attempts with children identified as failing. Our efforts need to be directed instead to active preventive interventions rather than reactive ones.

The Problem

Statement of the Problem

There are some data indicating a critical need for a publicly supported early childhood intervention program in North Carolina for high risk preschoolers.

Since a critical problem exists, this study is directed toward the following questions:

1. What is the current extent of the problem in North Carolina?

2. What is being done to meet the needs of high risk preschool children statewide? What has been done in the past 20 years nationally?

3. What are the differences between current and past practices? What changes must we seek?

Significance of the Problem

Around age five, nearly all of North Carolina's children enter elementary school. These children face, often for the first time, a requirement to satisfy learning goals set by state and local curriculum planners, a group outside the family unit. Achievement testing suggests that a child who has difficulty in satisfying the curricular standards of kindergarten and first grade is less likely to achieve success in later grades. On the other hand, those children who meet the requirements of kindergarten and first grade are likely to achieve success at successively higher grades (Turner, 1978). Children who are at risk of early school failure are often described as exhibiting such educationally related problems as deficits in basic cognitive skills, lack of reading readiness, difficulty with mathematical concepts, inadequate problem solving skills, and related attitudinal, and motivational difficulties (Reissman, 1976).

Research also suggests that children who perform poorly in school are less likely to graduate from high school and

have higher levels of delinquency, teenage pregnancy, dependence on welfare, and unemployment. They are generally less likely to adapt to the social and economic requirements of adulthood (Schweinhart & Weikart, 1986a).

Need for the Study

Across our nation, school boards and state, county, and municipal governments have recently renewed their interest in public investments in early childhood programs prior to kindergarten. At least 21 states have initiated, maintained, or expanded their own investments in early childhood programs in the past two years. These state programs; Alaska, Arkansas California, Florida, Illinois, Louisiana, Maryland, Maine, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New York, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Texas, Washington, and West Virginia have collectively been funded for over a quarter-billion dollars annually. Many of these programs are half-day and do not provide opportunities for all 3- and 4-year olds. At least 10 other states, including North Carolina, are studying the issue. Many large cities, such as Chicago, Philadelphia, New York, and Washington, D.C., are making significant investments in their own early childhood programs. Since school districts and local

agencies that administer state and federal funds often contribute their own funds, county and municipal funding is also widespread (Schweinhart and Weikart, 1986a).

North Carolina's inquiries into public programs for prekindergarteners have focused primarily on the day care needs of three- and four-year-olds (Kahdy, 1985). Although the need for good day care for all of North Carolina's children is critical, the needs of high risk children are graver. High numbers of these high risk children are experiencing difficulties after entering our schools as evidenced by their placement in Exceptional Children programs, retention in grade, low achievement test scores, high rates of teenage pregnancy, suspensions, and high drop out rates. North Carolina currently funds programs designed to meet the needs of these children after their problems become evident.

During the decades of the 1960's and 70's, many early childhood intervention programs were initiated to expose high risk children to the skills, attitudes, and behaviors necessary to achieve success in school. Longitudinal data have recently been made available concerning the effects of these programs that provide information from which recommendations for improvements in and initiation of additional programs for high risk children in North Carolina could be made.

Definitions and Limitations

Definition of Terms

The following terms have been defined in an effort to provide general agreement as to their meaning and usage in this study:

1. Intervention- any program that attempts to intervene in a child's education to improve chances of success in school.

2. High Risk- The North Carolina Department of Human Resources, Division of Health Services (1986) define environmental risk affecting biologically sound children as:

early life experiences including maternal family care, health care, opportunities for expression of adaptive behaviors and patterns of physical and social stimulation are sufficiently limiting to the extent that, without corrective intervention, they impart a high probability for delayed development (p.5).

This delayed development may be manifested in cognitive disabilities that increase the possibility of the child encountering difficulties in the elementary grades, high school, and later adulthood. It is expedient to adopt this definition of high risk, since it is the one used operationally by the state.

Limitations

Not even the best preschool intervention programs can cure the educational problems of all at risk children. Yet not making an educational beginning toward intervention

means to continue to build an ever growing group of young people who do not have the skills necessary to achieve success in a nation rapidly growing more complex.

The national intervention efforts of the 1960's and 1970's were conducted in a period in our nation's history characterized by massive social effort concerned with ridding the nation of poverty. Funding was available for many intervention programs directed at young children in the hopes of inoculating them against school failure and subsequent poverty. The enthusiasm of this era for such programs has diminished as has the funding. Our nation currently finds itself in a different era with different commitments. The programs themselves, however, are generalizable to preschool intervention programs being currently conducted in that they suggest that high quality programs for high risk children prepare them for school both socially and intellectually, help them achieve greater success in school, and can lead them to a more successful life in adolescence and adulthood beyond school.

Data collection problems surfaced in Chapters 2 and 3 due to a lack of data and absence of up-to-date statistics on several issues of importance. Despite the fact that most North Carolina agencies maintain accurate records on the total number of children they serve, few have good reliable estimates of the total number of children eligible for their programs. It was difficult, therefore, to obtain a reliable

estimate of the number of children in need or at risk not currently being served. There is, also, a lack of balance in the provision of services for children living in different geographic areas of the state. Often services that are available in the urban Piedmont area are not offered in the more rural eastern and western regions. Place of birth may determine the quality and type of services available.

The data reported for children at risk may represent a duplicated head count. A duplicated count could occur as a result of each agency or program reporting each child served. A child could, theoretically, be served by more than one agency or program. Conversely, any count might prove to be an underestimation due to the lack of knowledge concerning the number of children eligible for services. In both cases the figures presented would, therefore, be an underestimate of the children actually in need.

The assessed needs and public school intervention projects described in this document are limited to the city and county school administrative units in the public school systems of North Carolina as shown in the Educational Directory for 1986-87.

Organization of the Study

This study is a survey of programs, but it is also a compendium of practices. It is an attempt to examine the educational needs of North Carolina's high risk children and the state programs currently being conducted to meet those needs. A variety of research intervention programs of the 1960's and 1970's will be examined to determine their effects in preparing high risk children for school and life beyond the classroom. What all of these programs have in common is a dual goal: remediation and prevention. They are remedial in that they attempt to fill the gaps, whether social or academic. They are preventative in that by filling these gaps, they attempt to circumvent an initial or continuing failure in school and in later life.

Chapter 2 provides a profile of the at risk children in North Carolina with their identifying characteristics and the current intervention efforts designed to meet their needs.

Chapter 3 surveys national preschool intervention efforts of the past 20 years as well as North Carolina's attempts to provide programs for high risk preschoolers.

Chapter 4 will contrast current and past practices, suggesting benefits to be gained by additional preschool interventions for high risk children.

In Chapter 5, conclusions will be drawn and recommendations made concerning public school programs for high risk preschoolers in North Carolina.

CHAPTER 2
CURRENT EXTENT OF THE PROBLEM
IN NORTH CAROLINA

Policy makers in North Carolina have begun to debate the need for publicly-funded universal preschool programs. This debate has been fueled by educators who have become alarmed by the poor entering skills of high risk students. Leaders in business and industry across the state have voiced concern over the lack of preparedness of young people exiting our schools and entering the workforce. Recent national studies on education, such as a A Nation At Risk (National Commission on Excellence in Education, 1983) and A Nation Prepared (National Commission on Excellence in Education, 1986) have focused the spotlight on schools and the job educators do to prepare children to function in the coming decades. Leadership in business and industry across the nation are beginning to place a higher premium on educational competence as a catalyst to enable the United States to be economically more competitive in the world market. Because of the strong relationship between education, achievement, income, and success in the marketplace, our society is placing an ever increasing amount of importance on the educational competence of its children.

Historically, North Carolinians have depended on the schools to prepare their youth with the skills and abilities necessary to achieve success in the working place. Clever hands, simple manual strength, and skill were highly valued in the industrializing economy of the earlier decades of this century. In recent years, however, our economy has not maintained its need for the talents of the less well-educated. Instead, our state has a growing need for minds trained to think on higher levels, make educated judgments, and use conceptual skills. High-technology industries are already crucially important to the economic growth of North Carolina. It has been estimated that these industries and the service businesses associated with them will provide 900,000 new jobs in this state by the turn of the century (North Carolina Child Advocacy Institute, 1987).

We are at a time when people increasingly need to manage vast categories of knowledge, identify and solve complicated problems, and render more complex judgments. The critical thinking skills and intellectual competence required for our future are not achieved by the vast majority of students in our schools today. This insufficiency of skills and intellectual competence is especially evident in the children we term "high risk."

More and more frequently educators are beginning to realize that their best efforts do not appear to adequately meet the needs of all children. Many children enter

kindergarten lacking the skills and abilities necessary to achieve success in the schools. Their difficulties in achieving success in school tend to accumulate with each passing year and often extend into adulthood. When we ignore the educational needs of these children, we are undermining the quality of preparedness of our future work force and limiting the future of the economic growth of North Carolina.

Who are these children at risk? What characteristics are common to them? What measures have and are currently being implemented in North Carolina to help these children become successful.

High Risk Children and the Environmental Dilemma

The lack of appropriate entering skills observed in high risk children in North Carolina do not happen by chance. It is prudent to examine the environment of this population of children before the years of formal schooling to determine the factors contributing to risk. High risk children are handicapped during the formative years of their lives by poverty, poor health, inadequate nutrition, lack of supportive parents or family, unstimulating early educational experiences, or a teen mother. These children often reach adulthood lacking the ability to adequately support themselves or their own children. They have neither

the skills nor the opportunity to develop to their fullest potential. These disabilities mean losses to the individuals and their families as well as losses of talent and revenue to the state. This chapter attempts to bring some of these conditions and their effects on children into focus and to identify some of the key issues North Carolinians must address in order to make a better future for children at risk.

Poverty

According to the 1980 census, there were 1,774,415 children under the age of 19 in North Carolina, representing approximately 30% of the state population (US Bureau of the Census, 1982). Over 415,000 children live at or near the poverty level; 79,000 of them (22.5%) under five years of age (Commission on the Future of North Carolina, 1983). North Carolina's 18% poverty rate for children is 2% higher than the national average. The poverty rate for black children in North Carolina is 41%, 3.7 times higher than the 11% for white children.

Poverty rates fluctuate across the state of North Carolina, from highs of 41.5% in Warren County, 38.6% in Halifax County, 37% in Northampton County and 36% in Hyde County to lows of 8.06% in Alexander County, 9.75% in Chatham County and 9.78% in Catawba County (NC Department of Administration, Office of Policy and Planning, 1985).

Many children living in poverty grow up in single-parent families whose income is far below that of two-parent families. Income levels for white and black, single- and two-parent families can be noted in Table 1. Income levels for families with children under 6 and with children from 6 to 17 years are also provided. The median income for single-parent families is far below the median income for two-parent families, and is the lowest for black families in all categories. It has been estimated that one-half of the children in North Carolina will be members of single-parent families for part of their childhood. Poverty rates for children living in single-parent families are six times larger than for children living in two-parent families.

Nearly 90% of children living in single-parent households live with their mothers (NC Department of Administration, Office of Policy and Planning, 1985). The number of children living in families headed by women rose to nearly 250,000 in 1980. One-half of female-headed households with children live in poverty, representing an increase from 29.9% to 40.2% in 10 years. Black mothers are more likely than white to be single parents and to live in poverty. Children of white female-headed households below the poverty level numbered 28,636 or about 53.4% in 1982, compared to 61,859 or about 69.5% children from black female-headed households (US Bureau of the Census, 1982).

Table 1

Median incomes of black and white single-parent families

	Families with children	
	under 6	6-17 years
Whites		
male single parent	\$11,211	\$14,513
female single parent	\$6,756	\$10,093
two-parent families	\$17,817	\$22,666
Blacks		
male single parent	\$8,795	\$9,980
female single parent	\$4,754	\$7,145
two-parent families	\$14,839	\$17,223

(North Carolina Child Advocacy Institute, 1985; US Bureau of the Census, 1982)

Working Mothers

Growing numbers of women are finding it necessary to work outside the home. North Carolina has the highest rate of maternal employment nationwide. Fifty-nine percent of North Carolina's mothers of preschool children work (12% higher than the national average), creating a greater need for day care than in many other states. More than 200,000 North Carolina mothers working outside the home have children under six. Over 70% of mothers of children 6-17 work outside the home creating an additional 335,000

children who need supplemental and summer care. The net effect is that half a million children need some form of day care. We can accommodate less than half that number (130,000 children) in licensed and registered day care centers or registered day care homes (NC Department of Administration, Office of Policy and Planning, 1985).

The need for additional quality day care services will become more critical as the number of working mothers increases (Commission on the Future of North Carolina, 1983). Many preschool children will be in day care situations that are less than advantageous to academic and social learning due to the severity of this day care shortage. There will also be many school-age children who will not participate in any type of day care, but will be caring for themselves after school and during times when school is not in session. It has been estimated that there are 283,000 "latchkey" children in North Carolina between the ages of five and eleven, a figure that may be underestimated since it is based on national data rather than on the high percentage of working mothers found in North Carolina (North Carolina Department of Human Resources, Division of Health Services, 1984).

Teen Pregnancy

The birthrate for teenagers in the United States is among the highest in the world (Guttmacher Institute, 1981)

and contributes substantially to the number of children who grow up living in poverty. In the United States, 20% of the births are to women 18 or younger. Over 25,000 ten to nineteen-year-olds became pregnant in North Carolina in 1981. More than 90% of the girls chose to keep their babies. Pregnancies of teenage mothers places both the mother and the child at risk, medically, emotionally, and economically. The pregnancies were unintended in 80% of these cases and the girls were unmarried 60% of the time (NC Department of Human Resources, Division of Health Services, 1983). For a teenager, having a baby is associated with significant lifelong educational loss; only 20% of teenagers who become pregnant before age 17 ever complete high school. Infants born to teenage mothers may face lives of poverty and neglect, because their mothers lack the financial and emotional capacity to raise a child (North Carolina Child Advocacy Institute, 1984). In one study of 24-year-old women, the poverty rates were 54% for mothers who gave birth at 17 or younger, 33% for mothers who gave birth between the ages of 21 and 23, and 15% for women still childless (Guttmacher Institute, 1981). Poverty and neglect often predispose children to a variety of physiological and psychological handicaps which no amount of intervention can fully remediate (Zigler & Finn, 1982).

Medical risks are compounded for mothers at risk and their infants. Teenage mothers are three times more likely

to die during pregnancy than older mothers. Infants born to these mothers are twice as likely to be born prematurely or have low birth rate and are three times more likely to die before they are a year old (Governor's Advocacy Council on Children and Youth, 1980). Prematurity and low birth weight are associated with both developmental disabilities and disabilities later in life (Zigler & Finn, 1982). Although it is commonly believed that these factors are due to the physical immaturity of the mother, a study in Copenhagen suggested that teenage mothers given proper prenatal care had the least complications of all age groups in childbirth (Mednick, Baker, & Sutton-Smith, 1979). This study indicated that the high risk associated with teenage pregnancy may be due to the lack of prenatal care rather than young age. Almost half of North Carolina's teens who gave birth had no prenatal care during the first trimester of pregnancy in 1982 (NC Department of Human Resources, Division of Health Services, 1984).

Acquiring adequate prenatal care is not a problem confined to pregnant teens. In 1982, only 46% of low income women of any age received basic prenatal care at health departments in 89 of our 100 counties, 6 North Carolina counties provide no prenatal services at all. The five remaining counties were providing these services through community-based organizations. The North Carolina State

Health Planning and Development Agency (1982), reported that prenatal care can identify the potential of low birth weight or premature infants and take steps to reduce risk. An expectant mother receiving no prenatal care cannot benefit from early identification and is three times more likely to have a low birth weight or premature infant. In 1980, North Carolina's premature birth rate of 8 out of 100 births exceeded that of 42 other states. Prematurity and low birth weight are major life risk factors. The mortality rate and risk for developmental disabilities are much greater for premature than for full-term babies resulting in medical and educational difficulties that extend well beyond infancy (NC Department of Human Resources, Division of Health Services, 1981).

Divorce

Divorce is another stressful event for children. The negative effect on cognitive functioning and academic performance appears to be greater when the disruption occurs during the child's preschool years (Hodges, Tierney, & Buchsbaum, 1984; Kinard & Reinherz, 1986). Divorce often places children at risk of school failure, initiating problems that are manifested in a number of ways and may extend throughout the child's school career. Beattie and Maniscalco (1985) suggested that significantly more children from divorced than traditional family settings

receive educational services in a special education classroom ($p < .01$). Brown (1980) reported that students from divorced and single-parent families represented 25% of the school population nationally. However, this population of students was suspended twice as frequently in elementary school and comprised 40% of the suspensions in high school. Divorce involved over 25,000 children in North Carolina in 1981, a 58% increase in the divorce rate in just 10 years (Commission on the Future of North Carolina, 1983).

Child Care and Educational Needs

Another reason for intervention for high risk children centers around child care and educational needs. In 1984, only 90,000 of the 215,000 children who attend day care in North Carolina are enrolled in 2,356 registered day care centers. An additional 4,168 registered day care homes serve another 25,000 children. It is estimated that 100,000 more children are cared for in unregistered day care homes, many of which do not meet even minimal state standards (North Carolina Department of Administration, Office of Policy and Planning, 1985). Although some day care centers are merely custodial and do not offer an educationally-oriented curriculum, they usually teach many social skills useful to educational settings. Many do offer child development programs with educationally-oriented curriculums.

There are indicators that it is the high risk child who is often placed in the unregistered day care home. Only 29% of preschool children from families with annual incomes less than \$10,000 are enrolled in licensed preschool settings. The rate for families with annual incomes higher than \$20,000 is 52% (Chorvinsky, 1982).

There is a national trend for parents, who can afford it, to place their preschoolers in child development preschool programs which are educationally-oriented. Enrollment for three and four-year-olds in these programs has nearly doubled in the past 13 years from 21% in 1970 to 38% in 1983 (Schweinhart, 1985). One out of three mothers who are not even in the labor force enroll their children in preschool programs (Chorvinsky, 1982). The effectiveness of educationally-oriented preschool programs for high risk/low-income children has been documented extensively and will be explored in Chapter 4.

The opportunity to attend an educationally-oriented preschool as opposed to a custodial care center or unregistered day care is an equity issue. Equal educational opportunities are available to all of the children in our nation, but preschool is limited to those families who can afford it. Nearly all of the children from low income families that attend preschool do so because local, state, or federal funding pays for them to attend. Head Start and

similar programs are available to fewer than a third in our nation who are eligible for it (Chorvinsky, 1982). More than 48,000 low-income children are eligible for Head Start in North Carolina, but only 10,000 children ages 3 through 5 attend programs operated by 86 of 100 counties (CABLE State Training Facility, 1983). North Carolina's percentage of children served falls well below the national average of approximately 33% (North Carolina Department of Human Resources, Division of Health Services, 1986).

Children may be placed at risk of school failure as a result of living in poverty, being born prematurely or of low birth weight (which may lead to a developmental delay), becoming pregnant (at risk both medically and educationally), placement in an unstimulating day care situation, or divorce. Problems stemming from these factors often accumulate, causing the child to be more and more at risk of school failure with each passing year. These problems may include difficulties in classwork resulting in retention in grade, low achievement test scores, placement in academic remediation programs, summer school placement, failure to pass competency tests, or dropping out and are discussed below.

High Risk Children and the
Public Education Dilemma

Academic competence is expected for all of the students who pass through our schools. In response to demands for competence, local school systems and the North Carolina Department of Public Instruction have begun to develop programs designed to meet the needs of students considered under-educated. In the descriptions of the programs and practices that follow, it will be noted that a wide variety of innovations and adjustments are being undertaken in North Carolina to meet the needs of these high risk students. The talents and energies of school personnel are being directed at this problem. Their efforts often include changes that are desirable, necessary, and even essential, but students still continue to fail to graduate, to drop out, and to be placed in programs that are not in the mainstream of the educational system. Many of the questions involving ideal educational programs for the high risk student still remain unanswered. The translation of these efforts into procedures and programs which are sufficient to meet the needs of high risk children in a rapidly advancing society is one of the critical contemporary problems in the United States.

Programs initiated in North Carolina to identify children at risk and improve their academic competence are

the North Carolina Achievement Test Program, the Basic Education Plan (BEP), and the North Carolina Competency Test Program; and Chapter 1, Exceptional Children, and Dropout Prevention Programs.

North Carolina Annual Testing Program

Each year, North Carolina assesses student performance through the Annual Testing Program. Each spring, North Carolina's first, second, third, sixth, and ninth graders must take the California Achievement Test (CAT) (Note: grade nine discontinued CAT testing in 1986, when eighth grade testing was initiated; first and second grades will no longer take the CAT beginning in 1988). These tests were designed to obtain general measures of performance and to compare the performance of various groups of students. These tests also provide specific information to help parents, teachers, and students to obtain indicators of each student's learning strengths and difficulties (NC Department of Public Instruction, Division of Research, 1986a). In North Carolina, CAT scores are used, among other indicators, for placement in the BEP Summer School, Chapter 1 classes, some Exceptional Children Programs, and as an indicator for retention in grade.

Other components of the Annual Testing Program are the North Carolina Science and Social Studies Tests which

test student cumulative knowledge of science and social studies at grades three, six, and nine.

The main results of the North Carolina Annual Testing Program are positive. The average student, in the spring of 1985, scored equal to or higher than the average student in the national norm group in all subject areas tested by the CAT in grades one, two, three, six, and nine. They scored lower in reading than mathematics and language relative to the norm (North Carolina Department of Public Instruction, Division of Research, 1986a).

Data gathered from the Student Information Questionnaire of the 1985 administration of the CAT includes data on parental level of education, ethnic origin, membership in a Chapter 1 or Exceptional Children program, and the number of grades completed. Data from the Student Information Questionnaire will be presented in Tables 2 through 8 to show the accumulating effect of environmental factors on school achievement, support the need to target children, and provide intervention at the preschool level.

Parental educational level or status has long been identified as a factor for identifying children at risk of school failure (Ramey, Stedman, Borders-Patterson, & Mengel, 1978). In Table 2, the grade equivalent average for the total North Carolina population is presented for grades 1, 3, 6, and 9 for children whose parents fall in a particular educational range. The percent of students with parents in

the four educational classifications is given with the average grade equivalent for that group. Grade equivalent scores are relative measures similar to age-equivalent scales and derived in a similar manner. The mean test score for children at each grade level is calculated for a particular test. Each mean test score is assigned a grade designation (Dejnozka & Kapel, 1982). The percentage of students with parents falling into these categories are noted below. The grade equivalents are presented in parentheses for the average of the children with parents falling in the specific category. When examining the relationship between educational level and achievement on the CAT for North Carolina's students in 1984-1985, one finds that achievement levels rise as the parent's educational level rises. The reader must keep in mind that while such variables as level of parental education may positively correlate with student performance, one cannot infer that such variables cause higher student achievement, although there is no doubt that systematic change is occurring (North Carolina Department of Public Instruction, Division of Research, 1985).

Table 2

Educational Level of Parents and Achievement for 1984-1985 as Shown by California Achievement Test Scores

Grade	Grade Equiv. of Average	Parents' Educational Level			
		<8th gr.	8-11 gr.	High School	High School+
% of students (average grade equivalent)					
1	1.9	4%(1.6)	18%(1.7)	46%(1.9)	30%(2.4)
2	3.2	4%(2.3)	17%(2.6)	46%(3.2)	31%(3.6)
3	4.2	4%(3.2)	17%(3.5)	45%(4.1)	31%(4.9)
6	7.5	4%(5.2)	17%(6.2)	40%(7.3)	34%(8.5)
9	10.5	3%(7.9)	15%(8.6)	39% (10)	35%(12.9)

(North Carolina Department of Public Instruction,
Division of Research, 1985)

Student absenteeism has been identified as a factor in predicting school failure (Lazar & Darlington, 1982). Gray, Ramsey, and Klaus (1982) noted that children who attended preschool programs have a lower rate of absenteeism, during the public school years, than their peers who did not attend a preschool program. As is suggested by the North Carolina achievement test scores presented in Table 3, students who attend school achieve at a higher level than those who do not. As the number of days absent increases beyond 14,

achievement as measured by average grade equivalency on the CAT decreases for the levels reported.

Table 3

Percentage of children absent by days and the CAT grade equivalents for 1984-1985

Grade	Grade Equivalent of Average	Days absent			
		0-7	8-14	15-21	21+
(% of students-grade equivalent)					
1	1.9	73%-2.0	19%-1.9	5%-1.8	2%-1.6
2	3.2	78%-3.3	16%-3.2	3%-3.0	1%-2.6
3	4.2	79%-4.2	15%-4.0	3%-3.8	1%-3.5
6	7.5	75%-7.6	16%-7.3	4%-6.8	2%-6.1
9	10.5	69%-11.0	18%-10.0	6%-9.0	4%-8.4

(North Carolina Department of Public Instruction,
Division of Research, 1985)

Risk of school failure is predictable at birth by many factors including birth order, educational status of the mother, and ethnic origin of the child (Ramey et al., 1978). Data from the 1985 administration of the California Achievement Test in North Carolina (North Carolina Department of Public Instruction, Division of Research, 1985) on ethnic origin suggest that, on the average, white children at grades 2, 3, 6, and 9 score 20 to 30 percentile

points higher than any other ethnic group except "other." Percentiles for both reading and the total battery are shown in Table 4.

Table 4

Average Percentile Scores on the CAT for Reading and Total Battery at Grades 1, 2, 3, 6, and 9 By Ethnic Origin

Reading and Total Battery Percentiles at grades

	<u>1</u>	<u>2</u>	<u>3</u>	<u>6</u>	<u>9</u>
Amer. Indian	44/*	29/36	32/38	28/35	28/33
Black	46/*	36/40	35/39	30/36	28/34
White	56/*	61/70	63/61	61/65	59/62
Other	56/*	68/67	60/70	57/67	55/65

* Total Battery not reported for grade 1
(Reading scores/total battery)

(North Carolina Department of Public Instruction,
Division of Research, 1985)

Placement in special education programs has been well established as a risk factor for school failure (Consortium for Longitudinal Studies, 1983; Gray et al., 1982; Lazar & Darlington, 1982). In North Carolina, children are placed in Exceptional Children Programs because the regular school program is not deemed appropriate to meet their needs.

Exceptional Children classified as being Multiply Handicapped, Mentally Handicapped, and Learning Disabled are

at extreme risk of school failure. This risk is readily apparent from inspection of their CAT scores. Children with these handicaps tend to score in and around the lower quartile and remain there throughout school (North Carolina Department of Instruction, Division of Research, 1985). In Table 5, scores for children in the gifted and non-exceptional range are included for the purposes of comparison.

Table 5

CAT Percentile Scores in Reading, Language, and Mathematics for Exceptional and Non-Exceptional Children at Grades 1, 2, 3, 6, and 9

	Reading, Language, and Math Percentiles For Grades				
	1	2	3	6	9
Not Exc. Child	67/62/76	63/73/70	62/73/66	55/69/62	58/66/59
Mult. Hand.	24/26/26	16/21/23	14/20/18	21/24/25	17/18/12
Educable Mentally Hand.	16/22/13	9/11/10	6/8/8	7/10/9	7/8/8
Learning Disabled	31/32/42	20/27/37	17/26/28	17/25/23	17/19/19
Gifted	95/91/97	94/94/94	93/94/93	93/96/95	95/96/93

(North Carolina Department of Public Instruction, Division of Research, 1985)

Retention in grade has been cited as a major indicator of risk of school failure (Consortium for Longitudinal Studies, 1983; Gray et al., 1982). The CAT scores for students who have been retained one, two, three, or more than three times are provided below in Table 6 for grades 1, 2, 3, 6, and 9 in reading, language, and mathematics. CAT percentile scores decrease for these students as the number of retentions in grade increase, suggesting that being retained in grade is less effective each time that the student is retained. This trend holds true up until the fourth retention at grade nine when percentile scores rise when higher numbers of at risk students are dropping out, possibly leaving the higher functioning repeaters.

Table 6

Reading, Language, and Math Percentile Scores on the CAT for Students Who Have Been Retained in Grade

<u>Number of Grades Repeated</u>	<u>Grades Tested</u>				
	1	2	3	6	9
None	58/56/59	56/64/69	58/61/68	58/65/66	56/62/61
One	40/37/55	25/28/44	23/26/34	25/29/32	24/27/29
Two	30/28/53	16/18/39	15/16/29	19/21/24	17/21/21
Three		7/4/13	8/15/29	21/18/26	12/17/16
> Three					43/50/47

(North Carolina Department of Instruction, Division of Research, 1985)

Statewide non-promotion rates over a nine year period are presented below in Table 7 (North Carolina Department of Public Instruction, Division of Statistical Services, 1986).

Table 7

Non-Promotion Rate (%) by Grade for Grades K, 1, 2, 3, 6, 9 and 12

Year	K	1	2	3	6	9	12	Total
1976-77	1.4	8.6	4.7	3.0	1.8	10.3	3.8	5.3
1977-78	3.0	9.4	5.5	4.2	2.9	12.6	4.3	6.7
1978-79	4.1	10.2	6.6	5.3	3.8	13.2	3.9	7.3
1979-80	4.5	9.8	6.0	4.5	3.4	14.0	4.0	6.9
1980-81	4.7	9.5	5.7	4.2	2.4	12.6	3.8	6.3
1981-82	4.5	9.4	5.1	3.5	2.3	12.3	3.6	6.0
1982-83	4.9	9.2	5.0	3.6	2.6	12.1	3.8	6.0
1983-84	5.5	9.4	5.2	3.7	3.4	14.3	4.1	6.6
1984-85	5.9	9.2	5.0	3.7	3.5	14.7	4.4	6.9

(North Carolina Department of Public Instruction, Division of Statistical Services, 1986).

The first and ninth grades show clear evidence of being the most troublesome to students. The high percent of children retained in first grade may indicate that children at risk begin to experience difficulties early in their school careers and are retained in an effort to provide

needed remediation. Grade 9 may provide difficulty as the students are usually entering high school and are unable to cope with the changing demands made of of them. Of probable importance to this study is the apparent trend of increased retention in kindergarten, assuming at-risk students are most often retained, growing numbers of at-risk children are entering North Carolina schools each year.

Since 1978, the North Carolina Annual Testing Program has provided a vehicle for identifying and diagnosing (although the CAT was not designed to be a diagnostic measure) the needs of high risk children. It has provided teachers, administrators, and other educators, as well as policy-makers with the information to identify and plan for the education of these children.

The Basic Education Plan and the BEP Summer School

A new program with the goal to provide students with the skills necessary to become productive citizens was launched as the Basic Education Plan (BEP) by the North Carolina Board of Education in 1984 and implemented for the first time in the 1985-86 school year. It sets forth detailed objectives for each curriculum area in Kindergarten through 12th grade, and specifies a three-phased testing program at grades 3, 6, and 8 using the California Achievement Test. The Annual Testing program has recently been integrated into the BEP.

Phase 1 of the program requires all students to take the California Achievement Test (CAT). Students who score below the 25th percentile on the CAT, but have not repeated a grade in their grade span (K-3, 4-6, 7-8), and are not classified as Educable Mentally Handicapped, Trainable Mentally Handicapped, or Severely/Profoundly Handicapped are retested in Phase 2. Phase 2 testing is the North Carolina Minimum Skills Diagnostic Test (NCMSDT). Students performing at or below 75% (recently changed) on the NCMSDT receive remedial instruction during a state-funded summer school program. The summer school program is prescribed to the student's individual needs by a plan prepared by previous classroom teacher and sets learning goals for reading, language, and math. At the conclusion of the BEP Summer School program, students are again tested (Phase 3 NCMSDT). This information is used by the local school district for decisions regarding promotion and retention (North Carolina Department of Instruction, Division of Support Services, 1986a).

The BEP Summer School Program was evaluated through surveys of administrators, teachers, and parents and through comparisons of test scores. Ninety-eight percent of the teachers, administrators and parents expressed positive feelings about the BEP Summer School in terms of the benefits of the program for the participants. When matching scores from Phase 2 to Phase 3, a substantial improvement

was shown for third, sixth, and eighth grade students. Gains for students who were below state standard in percent of correct responses were 15.4% for students in grade 3, 11.2% for students in grade 6, and 9% for students in grade 9. The gains found for these students could be due solely to regression effects. Information regarding promotion and retention and the number of students involved was not reported for that year (North Carolina Department of Instruction, Division of Support Services, 1987d).

The demographics of the students who failed to meet state standards show a high degree of similarity with risk factors noted previously in this document. It was found that twice as many more males than females were below standard. A majority of the students falling below standard were not enrolled in Chapter 1 programs. More blacks than whites were enrolled in the program. Handicapped students were predominately classified as learning disabled and ranged from 15 to 30 percent of all the students served. From 7 to 17 percent of the students participating in the summer school had experienced 15 or more days of absenteeism during the school year (North Carolina Department of Instruction, Division of Support Services, 1987d).

Chapter 1 Programs

An intervention program designed specifically to impact on high risk students is the Chapter 1 program, so named

because it was Chapter 1 of the Education Consolidation and Improvement Act of 1981, which was enacted as a part of Subtitle D of Title V of the Omnibus Budget Reconciliation Act of 1981 (Public Law 97). Simply stated, this program provides financial assistance to state and local education agencies to meet the needs of educationally deprived children. An educationally deprived child is defined as one whose educational attainment is below the level that is appropriate for children of their age. This is indicated by a percentile rank of 49 (a percentile rank used for funding) or below on the basic skill section of a standardized test (NC Department of Public Instruction, Division of Support Services, 1987d). Local educational units decide which children below the 49% will be served. The goal of this program is to raise the participant's achievement score ratings. This goal is accomplished by providing basic skills instruction in small groups or individually.

Chapter 1 was allocated a total of 76.1 million dollars for the 141 school districts in North Carolina during the 1985-86 school year. Based on poverty indices, 76% or 1,488 schools in these school districts were eligible to receive Chapter 1 funds. Of the number eligible, 1,378 schools provided these services to their high risk students (NC Department of Public Instruction, Division of Support Services, 1987b).

In the 1985-86 school year, 125,353 students (9% of all the students in the state) received supplemental educational services through Chapter 1. Sixty-nine percent enrolled in the program were in grades 4-8. Of the 125,353 students served by Chapter 1 in 1985-86, 57% were male. Broken down by ethnic groupings, 51% were black, 45.1% were white, 3.1% were American Indian, and .6% were Hispanic or Asian.

Scores on pre-test measures indicate that the students who were selected for the reading program in 1985-86 were badly in need of remediation. Eighty-seven percent of the students in the national norm group scored higher than the average student chosen for North Carolina's Chapter 1 reading and mathematics program (average percentile rank of 13 in both reading and math). Ninety-eight percent of these children receive instruction in reading, sometimes in combination with other language skills as opposed to 36% receiving mathematics remediation. Some received help in both. A few children across the state, 1,047, received Chapter 1 instruction in after school or preschool programs (North Carolina Department of Public Instruction, Division of Support Services, 1987b).

Chapter 1 programs are designed to meet the student's specific needs. These needs are assessed through group needs assessments and individual diagnostic tools. Most programs try to supplement the regular instruction by providing a diagnostic/prescriptive approach. This is done

through "pulling out" students from the regular classroom and individualizing instruction to small groups of students (usually for 3, but not more than 10 students) for 30-55 minute periods daily.

Program success is measured, in part, by standardized achievement tests. Although school districts may choose specific tests that best match their Chapter 1 curriculum, most districts in North Carolina use the California Achievement Test (CAT). These tests are often administered at the beginning of the program and near the end (but may be administered from spring to spring). Program effectiveness is gauged by differences in pre- and post-test Normal Curve Equivalent (NCE) gains. Program evaluators report that any gain is educationally significant as no NCE gain is expected of educationally deprived students not receiving Chapter 1 assistance (North Carolina Department of Public Instruction, Division of Support Services, 1987b). The reverse is also true, any declines would also be educationally significant. Percentile scores reported from the CAT for Chapter 1 students show this disturbing trend. Reading scores for this high risk group decrease from grade one to grade nine while the scores for non-Chapter 1 students remain fairly stable. This suggests that Chapter 1 programs are not enough, by themselves, to raise test scores for this group of students. Average percentile scores in reading,

language, and math are presented for Chapter 1 students receiving remediation in reading, math, reading and language, and reading and math in Table 8. Scores for non-Chapter 1 students are provided for comparison.

Table 8

Percentile Scores for Chapter 1 and Non-Chapter 1 Students at Grades 1, 2, 3, 6, and 9

Chapter 1	Reading/Language/Math Percentiles at Grade				
	1	2	3	6	9
Non-Ch1	65/61/74	64/74/72	64/74/68	63/76/70	61/69/61
Reading	46/42/54	34/43/48	30/43/39	30/42/41	27/36/36
Math	49/50/63	41/48/49	41/50/45	41/48/42	32/37/33
Rd/Lang	37/38/46	24/35/34	25/40/39	28/41/42	25/33/35
Rd/Math	46/38/60	29/33/39	26/36/36	24/35/33	23/29/30

(North Carolina Department of Public Instruction, Division of Research, 1985)

Exceptional Children Programs

Children who are at the highest risk of school failure are served in the Exceptional Children Programs. The Exceptional Children Programs in the state of North Carolina are governed by federal law (P. L. 94-142), state law (Chapter 115-C, Article 9) and by the State Board of Education (North Carolina Department of Public Instruction,

Division of Exceptional Children, 1986). Placement in these programs has been well established as a risk factor for school failure (Consortium for Longitudinal Studies, 1983; Gray et al., 1982; Lazar & Darlington, 1982). In North Carolina, children are placed in Exceptional Children Programs because the regular school program is not deemed appropriate to meet their needs. In 1985-86, 172,767 pupils were counted as having Individual Educational Plans (IEP) and being eligible for federal (Title VI-B) and state funds; 62,000 were in the academically gifted range, the balance were in the handicapped or disabled range. The children are classified into the following categories:

AG- Academically Gifted (Not at risk of school problems)
AU- Autistic
DB- Deaf-Blind
EH- Seriously Emotionally Handicapped
EM- Educable Mentally Handicapped
HI- Hearing Impaired
LD- Specific Learning Disabled
MU- Multihandicapped
OH- Other Health Impaired
PG- Pregnant
PH- Physically/Orthopedically Handicapped
SI- Speech/Language Impaired
SM- Severely/Profoundly Mentally Handicapped
TM- Trainable Mentally Handicapped
VI- Visually Handicapped

Special education classes are organized in a variety of ways. The Regular Indirect setting provides for membership in the regular classroom with support services provided by a consulting teacher. Exceptional children in the Regular Direct setting receive instruction from a support teacher

within the regular classroom setting. In the Resource setting, exceptional children receive instruction from the support teacher for up to 25% of the day. Block Resource provides special instruction to exceptional children for 26 to 50% of the school day. Children in a Self-Contained class receive more than 50% of their instruction from a special education teacher in a special class. Exceptional children served in a Special Day School receive instruction from a special education teacher in a building or school separate from the regular classroom setting. Home/Hospital students receive instruction from a special education teacher at home or in the hospital. Residential students receive instruction and related services in a residential setting (North Carolina Department of Public Instruction, Division of Exceptional Children, 1985). Children who might be eligible for a state supported preschool intervention program would include children who would otherwise receive services in a Regular Direct, Resource, Block Resource, and Self-Contained setting upon entering public school. It is hoped, that providing early intervention would help the child with placement in a less restrictive environment.

A total of 183,104 children with special needs were provided educational services in the public schools by in 1984-85 (North Carolina Department of Instruction, Division of Exceptional Children, 1985). Of that number, 87.50% were

mainstreamed into the regular classroom, 9.32% were in self-contained classrooms, 1.99% were in special settings, and 1.18% were in Residential settings.

A new Preschool Grant Program has been established, under public law 99-457, to provide services to three-, four-, and five-year-old handicapped children. The funding level for 1987-88 was estimated to be \$6,598,000 for North Carolina. Two state operated programs and 111 Local Administrative Units are eligible to submit programs for funding in the 1987-88 school year. A major thrust of the legislation encourages local school units to form an inter-agency council to identify the needs of preschool handicapped children within the community (North Carolina Department of Human Resources, 1986).

This new preschool program replaced the Incentive Grant Program governed by Public Law 94-142, but neither program provide services to at-risk or developmentally delayed preschoolers. Children eligible for the program must be three- or four-years-old and must be diagnosed as having a handicapping condition. Children must be educable, trainable, or severely/profoundly mentally handicapped; have specific learning disabilities; be emotionally, visually, speech impaired; deaf; or multi-handicapped (North Carolina Department of Human Resources, Division of Health Services, 1986).

One category of Exceptional Children especially receptive to early intervention is the emotionally disturbed child (Kagan, Reznick, Clarke, Snideman, Garcia-Coll, 1984; Reznick et al., 1986). An emotionally disturbed child is defined by the North Carolina Department of Public Instruction, Division of Exceptional Children (1986) as:

One who, after receiving specially designed support services and intervention strategies in the regular educational setting, still exhibits patterns of situationally inappropriate interpersonal or intrapersonal behavior of such frequency, duration, and intensity to disrupt the student's own learning process (p.1).

It is estimated that 250,000 children in North Carolina are emotionally disturbed. Only 30,000 of these children receive treatment because of lack of facilities and poor identification, a problem that will be alleviated somewhat by recent federal legislation (Public Law 99-457). Twenty-three percent of all admissions (16,000 children) to North Carolina's mental health programs in 1982 were children under 18 (Behar, 1984). These children had great difficulties coping with life in general and school specifically. Children with emotional disturbances are often placed in special programs, out of the mainstream of school life or receive resource help. Their achievement test scores usually fall in the lower quartile.

Emotionally disturbed children are at grave risk of both school failure and failure to function in society. It costs \$1,000 per year to provide early intervention for

emotionally disturbed children compared to \$46,000 a year that it could cost to provide institutional care later on for these children. Emotionally disturbed children need to be identified and receive both academic and psychological intervention at the earliest possible age as their difficulties tend to become cumulative (North Carolina Child Advocacy Institute, 1984).

Early intervention is extremely important for children who are mildly handicapped. Mildly handicapped children are often not identified until they reach the public school and experience difficulties with classwork. Begab (1981) estimated that between 75 and 85% of the retarded population was mildly handicapped and represent the product of interactions between poor maternal care and environmental factors. He indicates that effective early intervention should enable a child to move out of the handicapped range, and into the normal range.

Dropout Prevention Programs

High risk and low income students are more likely to drop out of high school than are more advantaged children. The US National Center for Educational Statistics (1984) examined high school dropout rates in 1982 for a nationally representative sample of young people who had been sophomores in 1980. The lowest socioeconomic quartile

posted a 17% drop out rate. This was over three times as high as the 5% rate for the highest socio-economic quartile.

The fewer years of school adults have completed, the more likely they are to live in poverty. A population survey completed by the US Bureau of the Census (1984) found the poverty rate for adults who not completed school to be 39%, while it was only 5% for those who had attended college. The poverty rate decreased fairly steadily with the numbers of grades completed. This trend can be noted in Table 9.

Table 9

Years of School Completed by Persons Age 25 and Over
Living in Poverty in 1983

<u>Years of School Completed</u>	<u>Percent in Poverty</u>
No years completed	39%
Less than 8 years	27%
8 years	17%
9-11 years	21%
12 years	11%
Some college	5%

(US Bureau of the Census, 1984)

Much of the work in North Carolina with high risk students has focused on the students who have the potential

to drop out. Out of every high school class in North Carolina, approximately 26 to 28%, or about 100,000 students drop out of high school. North Carolina currently ranks 37th in the nation in graduating its students from high school. The impact of the decision to drop out has an enormous effect on these individuals and on society (North Carolina Department of Instruction, Division of Support Services, 1986).

The North Carolina Public High School Dropout Study (North Carolina Department of Public Instruction, Division of Support Services, 1985) was conducted to provide estimates of the magnitude and nature of the dropout problem within the state. The study found that approximately 72 to 74% of North Carolina public school ninth graders graduate (receive diplomas or receive certificates of attendance) within five years. Additional findings of the study appear in Table 10. The factors of ethnic origin, level of parental education, and poverty again appear to contribute to placing children at risk of school failure.

North Carolina has made efforts to decrease the number of dropouts by providing a variety of intervention programs for students at risk of dropping out. In one sense, all intervention programs, have dropout prevention as their goal in that their aim is to provide a successful school life for their participants. By the time a student has experienced consistent failure through 9 or 10 grades of school, any

program designed to help him or her is bound to be an emergency measure. Nevertheless, as the employment and poverty statistics for dropouts clearly demonstrate, emergency measures are justified as long as there are young people leaving high school for whom the school has as yet provided no incentives to graduate.

Table 10

Estimated Proportions of Selected Groups Who Fail To Graduate in North Carolina

	Estimated % Who Fail To Graduate
Male	29.9
Female	20.9
American Indian	50.8
Black	26.6
White	24.0
Handicapped	41.1
Parental Education	
8th grade or less	38.1
9th-11th grade	35.8
High School Graduate	23.2
Beyond High School	12.5
Parental Income	
Less than \$5,000	37.6
\$5,000- \$15,000	27.1
over \$15,000	13.8
Curriculum Type	
General	41.7
Vocational	19.1
College Prep	4.9

(North Carolina Department of Public Instruction,
Division of Support Services, 1985)

No single approach to the dropout problem has yet demonstrated its superiority. North Carolina has several dropout programs: preventative, remedial, work-oriented, and school-oriented. These programs operate simultaneously as a means of offering what they hope will be appropriate assistance to the diverse problems represented among the dropouts.

Those programs designed for students who have already dropped out generally have a similar three-part purpose: to contact the dropout and to make this person accessible to some kind of training; to provide the dropout with more academic education; and finally, whether this student does or does not return to formal schooling, to provide sufficient job skills to make him/her employable.

The North Carolina General Assembly appropriated funding for the development and expansion of dropout prevention programs in middle school, junior high, and high schools in 1985. One full-time counselor's position was guaranteed to each local school system by the appropriations bill. The funds that remain are allotted to each school system on the basis of their average daily membership. The amount of the state funding allotment was increased to \$19,419,811 for the 1986-87 school year to allow for a half-time job placement specialist in each high school in the state. Students with risk factors served by the program include low achievers, habitual absentees/truants, those

with low self-concepts, economically disadvantaged students with a family history of dropping out, those with discipline problems, pregnant students, substance abusers, students with multiple suspensions and expulsions, and handicapped students (North Carolina Department of Instruction, Division of Support Services, 1987e).

All North Carolina local education agencies (LEAs) have enacted an increase in the number and range of services to high risk students. Although statistical outcomes are not available, many school systems are projecting a substantial reduction in their dropout rate by the 1987-88 school year (North Carolina Department of Public Instruction, Division of Support Services, 1987e). Actual numbers might, however, increase due to the fact that all drop outs will be seriously counted. While these efforts may well prove successful, they are aimed at students who have repeatedly experienced school failure and are only stop-gap at best. Very little is being done to significantly improve this population in terms of improving them educationally.

The North Carolina Competency Testing Program

The North Carolina Competency Testing Program was adopted to identify and address the life skills of North Carolina's students. Competency tests have been administered in North Carolina since 1978 in reading and mathematics to students in the 11th grade in public schools,

federal schools, some non-public schools, and special schools across the state (North Carolina Department of Public Instruction, Division of Research, 1986b). In 1986, the test was administered to 10th grade students for the first time and was expanded to include 2 writing tests; a writing objective test and an essay test.

The legislation that created the competency tests had several objectives. First, the competency tests were to be administered to North Carolina's students as a requirement for graduation. Second, the students who did not pass the tests were to be provided remediation. Third, students who failed one or more of the tests would be retested. The legislation allocated special funds to provide remediation to students who do not pass or who are at risk of not passing the tests. The function of the Competency Testing Program is to provide diagnostic information for individual students so that appropriate remediation can be offered to them.

The results of the spring 1986 administration of the competency tests yielded a pass rate of 94.5% of the public school sophomores on the reading test and 92.9% on the mathematics test. On the Writing Competency test, 86.9% of the sophomores passed the objective writing test and 87.8% passed the writing essay test.

These results look impressive until one delves into the summary statistics. Minority children did not have as high

a passing rate, although they had shown a steady improvement since the program began in 1978. Passing rates for Black and American Indian students had increased approximately 11 percentage points in reading and 19 percentage points in mathematics since 1978. Percentages still differ to a high degree with 97.2% of whites, 90% of American Indians, and 88% of blacks passing the reading test and 96% of the white, 90% of the American Indian, and 85.1% of the black students passing the mathematics test. These figures may underestimate the severity of the problem. Higher numbers of minority students are lost each year through dropping out. These youths are not included in the passing rates.

Students at risk of school failure are often identified at preschool age by the membership in an ethnic group (Schweinhart & Weikart, 1986). Level of parental education is, likewise, an indicator of risk. The North Carolina Department of Instruction, Division of Research (1986b) also provided a summary of the scores by education level of the parents for 1983. At that time, students with parents having an eighth grade education or less passed the reading test with a 71.9% success rate (the math 68.2%). For the students whose parents attended school from grades 8-11, the passing rate rose to 83.6% for reading and 79.8% for mathematics. For the children of high school graduates and above, the passing rates rose in reading to 93.8% and 98.2%,

respectively. The mathematics test showed a similar trend with scores of 90.3% for high school graduates and 96.5% for those who attended school beyond high school.

Students with handicaps scored lower, on the average, than those students without handicapping conditions.

Students with learning disabilities passed the test in 1986 with only a 66.5% passing rate, compared to a rate of 97.1% for students with no handicaps in reading. On the mathematics assessment, 62.2% of the learning disabled students passed, compared to a 95.6% rate for non-handicapped students. Mentally handicapped students passed at a rate of 20.4% in reading and 17.7% in mathematics. Statistics for the writing assessment were not given. The chances of the severely educationally at-risk student passing the North Carolina Competency Tests are much poorer than for their peers who score nearer the norm.

Students who are not successful in passing the Competency Test are provided remediation and are given the opportunity to take the test again. However, even with remediation, the students retaking the tests as juniors and seniors meet with difficulties in passing the test. As juniors 64.8% and 69.7% passed the reading and mathematics retests. As seniors, only 43% passed the reading retest and 49.7% passed the mathematics retest. Fewer than one out of three black juniors who retook the test during their senior year made passing scores (NC Department of Public

Instruction, Division of Research, 1986b). This figure, again, is an under-estimation of the problem since it does not include students who have exited the school system during that year. Also, a passing score on the test does not necessarily reflect competency in high school skills as the tests only measure skills through the ninth grade.

Conclusion

The forecast for high risk children in North Carolina is bleak. Children who begin their school careers at a disadvantage continue to fall behind each year they are in school until they leave our educational system. All too frequently, the consequence of a poor education is economic deprivation and the accompanying alienation from the mainstream of life in our state. This condition perpetuates itself into the next generation, creating a poor prognosis for the offspring's educational and social future.

North Carolina attempts to identify these children using data from the California Achievement Test, teacher recommendation, and retention in grade. Remediation programs provided for high risk children by the North Carolina public schools include the BEP Summer School, Chapter 1, Exceptional Children, and Dropout Prevention Programs. The North Carolina Competency Test Programs

represents a final effort to identify students not mastering basic skills and provide remediation.

The question remains as to what more can be done to meet the needs of these children. The programs that have been provided in North Carolina's schools to meet the needs of these high risk children do not appear to be effective enough by themselves to alleviate school-related problems. Perhaps our best efforts come too late to make an adequate impact on the lives of these children. The years before kindergarten might be the most advantageous time to intervene.

CHAPTER III
EARLIER INTERVENTION PROJECTS AND THEIR RESULTS

A significant number of children enter North Carolina's public schools each year at risk of school failure. The prognosis for these high risk children entering public school is poor. North Carolina provides a variety of programs designed to improve the educational competence of these children when a need is indicated by declining test scores, retention in grade, or failure to meet competencies. Despite these interventions, high risk children continue to encounter great obstacles in completing their education. Longitudinal research from the Consortium for Longitudinal Studies (CLS) (CLS, 1983; Lazar & Darlington, 1982; Lazar, Darlington, Murray, Royce, & Snipper, 1982), the High/Scope Perry Preschool Project (Schweinhart & Weikart, 1980, 1986), and Head Start programs (Bee, 1981; McKey et al., 1985) conducted during the past 30 years suggests that preschool intervention can help these children succeed in elementary school, high school and later in life. Nationally, our society has had a long history of preschool intervention. It is instructive to survey its impact as well as current efforts in North Carolina.

The concept of using education to solve social problems has existed for centuries in Western culture. Such

educators as Rousseau, Pestalozzi, Montessori, and Owen used infant or nursery schools to help poor children get a solid head start in school.

Early childhood education has been present in this nation for well over a century. Late in the last century, settlement houses were established in immigrant neighborhoods and supported by local charities. Although child care was provided for immigrant children, it was not viewed as having a specific academic purpose other than acclimating the young to their new environment (Condry, 1983).

Large numbers of nursery schools were organized in the 1920's as a result of the importance that Freud (1922) and Gesell (1929) placed on the early years of childhood. These nursery schools differed in purpose from the earlier day nurseries in that they were established to offer educational advantages to middle class children and emphasized educational guidance of parents and children in contrast to custodial care. Few of these nurseries were established within the public schools, but were supported through churches and other private sources.

The 1920's and 1930's also witnessed the creation of training nursery schools or laboratory schools established by state or local colleges or universities for child study, and teacher training. Two of the first were at the Merrill

Palmer Institute of Motherhood and Home Training in Detroit and at Teachers College, Columbia University in New York City. Numerous child study centers were developed or expanded at various universities as a result of grants funded by the Laura Spelman Rockefeller Memorial beginning in 1923 (Davis, 1932). These centers stimulated interest in the development of child development research. Many of the intervention programs of the 1960's and early 1970's developed at these laboratory programs. Programs of the 1960's and 1970's were usually based in economically depressed areas and emphasized cognitive development for black preschoolers who were considered at risk.

These intervention programs enjoyed broad popular acceptance and were advocated by a large segment of the population. An understanding of American developmental psychology of the first half of the 20th century and the socio-political mood of the 1950's and 1960's provides insight to the force with which these programs were advocated and accepted.

The 1960's saw a renaissance of interest in early childhood education as a means of addressing the problems of high risk children. The move to develop early childhood intervention programs emerged from theories and research in several disciplines, including psychology, education, and sociology. The idea that early educational experiences could help high risk children enter school on an equal

footing with more advantaged children was not a new concept. However, the theoretical underpinnings for this idea had never been so strong. Research findings for the 30 years preceding this time suggested that intervention, especially preschool intervention, could have significant effects on the later behavioral and cognitive development of children.

The works of Hebb (1947), Piaget (1926), Hunt (1961), and Bloom (1964) provide the theoretical foundation underlying programs for high risk children. The neuropsychological theory developed by Hebb (1947) suggested that a child's ability to learn later in life depended on the quantity and quality of early experience and learning. He felt that early learning was primarily perceptual and was learned in slow steps. Later learning was mainly conceptual in nature (Condry, 1983).

A second theory, espoused by Jean Piaget (1926) played a more important role in the early intervention programs of the 1960's. Despite the fact that Piaget has been an acknowledged leader in the study of intellectual development since the early 1920's, his theories did not gain wide acceptance in the United States until the 1950's primarily because of the lack of adequate translations into English due to the technical complexity of his writings (Ginsberg & Opper, 1978). Piaget did not feel that a specific amount of intelligence was inherited, but instead formulated a theory

of development based upon the cognitive organization and development of the individual. Piaget presented the viewpoint that children respond to their environment in an attempt to fit the new knowledge they acquire into their intellect. This integration is facilitated by assimilation and accommodation, by which the child either incorporates the new information into existing cognitive structures or modifies those structures in some way to be consistent with the new stimuli. The child, then, strives to create a balance between the processes of assimilation and accommodation, referred to as equilibrium. Central to Piaget's theory is a description of a continuous and invariant sequence of stages each individual goes through in life. These stages characterize an individual's thinking while progressing through stages of increasing cognitive maturity (Ginsberg & Opper, 1978; Piaget & Inhelder, 1969).

Piaget's and Hebb's theories both viewed intelligence as hierarchical. Piaget proposed that intelligence develops through an unvarying series of stages; Hebb argued that more advanced learning builds on earlier learning, rather than replacing it. Similarly, neither theorist viewed intelligence as a fixed capacity. These two factors, growth in intelligence and the importance of early learning became the foundation for the belief that an enriched preschool environment would encourage intellectual development.

Hunt (1961) integrated these theories into a forceful and convincing theoretical position. He felt that intelligence was not determined solely by heredity and that both intellectual and physical growth were not predetermined. Hunt argued that both environmental deprivation and enrichment had been shown to have dramatic effects on the course of human development. According to Hunt, intelligence was pliable. The environment was the critical factor in a child's development (Condry, 1983). Hunt's belief in the importance of the environment in intellectual development strengthened the positions of Hebb and Piaget, further encouraging enriched preschool environments to engender intellectual development.

Bloom (1964) built on the theories of Hebb, Piaget, and Hunt concerning the stability and change in intellectual and physical development, theorizing that intellectual development was as predictable as height and other human characteristics. He proposed that intelligence could be predicted graphically as a curve of development. Basing his theory on these curves, he proposed that children achieve half of their adult intelligence by age four and half of their adult height by two and a half years. Bloom proposed that the effect of the environment is most critical during the period of most rapid development and least critical during periods of least rapid development. He acknowledged that there was little evidence concerning the effects of

changing the environment and intelligence, but argued that steps should be taken early in an individual's development to neutralize the effects of environmental deprivation. Bloom's proposition gave the final push to the growing interest in the cognitive and social environment in which children developed and encouraged the early childhood education movement of the 1960's and early 1970's.

The theories of Hebb, Piaget, Hunt, and Bloom assumed that the environment played an important role in the cognitive and socio-emotional development of the child and that intervention efforts could have significant, positive, long term effects on the child's development. Early childhood educators, psychologists, and social workers also found encouragement for the implementation of programs due to the social, political, and psychological mood of the times. The decades of the 1950's and 1960's brought the realization that one fourth of the children entering public school were academically delayed by one to four years (Leeper, Witherspoon, & Day, 1984). The demands of a growing technological society that was becoming increasingly more affluent made it apparent that individuals who lacked an adequate education were at a great disadvantage. Ausubel (1964) proposed that lower-class children began school at a less advanced level than middle-class children and that the gap between their achievement level widened over time. During the early 1960's, the United States Office of

Education investigated the educational achievement of various ethnic and racial groups on a national level (Coleman et al., 1966). The Coleman Study found that wide differences existed in achievement between white and other racial and ethnic groups, geographic areas of the nation and among income levels. Early education became a national priority for the first time in the history of the United States. The movement for support of a program that would alleviate poverty and its effects on children received attention within the Kennedy administration. President Kennedy proposed the Human Resources Development Act, but was unable to get the act passed by Congress. After Kennedy's death, President Lyndon Johnson assumed responsibility for the act. Johnson declared a "war on poverty" and is credited for the passage of the Economic Opportunity Act in August 1964. The Office of Equal Opportunity was established to administer funds and establish programs, one of which was Project Head Start (Zigler & Valentine, 1979).

Project Head Start was only one of the preschool intervention programs initiated during the 1960's. Many high quality preschool intervention research programs were initiated through schools of education in colleges and universities. Project type and program expectations were not settled issues. They differed from program to program and featured numerous views of learning and development to

support a great variety in curricula. The ready availability of financial support from government and private sources as well as the newness of the field encouraged innovations. Consequently, these programs differed from each other in many respects, including the ages of the children served (usually infancy to age five), learning groupings (child, parent and child, or groups of children), length of the intervention program (several months to several years), and curriculum type (from highly structured/academic to child-centered and oriented around free play). Implicit in nearly all of the programs was the goal of improved school performance.

One subset of preschool intervention programs is of particular concern for the purpose of this study; the programs which were developed as research projects. Using research methods to evaluate effectiveness, the projects followed the children longitudinally for some years after completion. As might be expected, many of the programs have addressed the effects of early childhood intervention, while only a handful have been able to examine their effectiveness 10 years or more after program completion. The Consortium for Longitudinal Studies (1979, 1983; Lazar et al., 1982) was a collaborative study which assessed the longitudinal effects of early childhood education on high risk/low-income children. The 12 members of the consortium had each designed and implemented infant or preschool programs in the

1960's. They pooled their data in 1976 and conducted a comprehensive follow-up of subjects who then ranged in age from 9 to 19. The pooled analysis consisted of four waves of data. Wave 1 included pre-program data collected independently by the projects from the original samples at ages 3 months to 5 years. Wave 2 included follow-up samples (5-10 years of age) based on independently collected post-program data prior to 1976. Wave 3 collected follow-up samples (10-19 years of age) based on the 1976 collaborative Consortium data. Wave 4 follow-up samples (14-21 years of age) are based on the 1980 collaborative Consortium data. Results from the meta-analysis indicated that early childhood intervention programs for high risk/low-income children had long lasting effects in the areas of school competence, developed abilities, participants' attitudes and values, and the impact of the intervention on the families.

Five of these projects were selected for review in this chapter. They were selected because the programs featured preschool education as opposed to infant development, were center-based as opposed to home-outreach, used a child development curriculum model, and would be readily adaptable to the North Carolina public schools. Several also had a parent education component. The projects include Gray's Early Training Project, Weikart's Perry Preschool Project, Deutschs' Institute for Developmental Studies, Beller's Philadelphia Project, and Palmer's Harlem Study. The

Consortium Programs served as models for Head Start, which began in 1965 (CLS, 1983; Lazar et al., 1982).

The Early Training Project

Dr. Susan Gray

Gray and her co-director, Klauss, were specifically concerned with low-income children's progressive achievement delay in school. The program was designed to enhance perceptual/cognitive and language development and to instill school-specific attitudes, such as achievement orientation and the ability to delay gratification, based on the assumption that these characteristics would lead to better school performance and greater achievement.

A goal of the program was to tailor experiences to the children's particular needs and level of achievement. The program was center-based with a home visitor component. Traditional nursery school materials were used in more structured ways in that activities were sequenced to become increasingly more complex and were carefully chosen to focus on the goals of the program. The program met for 4 hours daily, 5 days a week for 10 weeks. Class size was limited to 20 children to 1 teacher and 4 assistant teachers. Most activities were in small groups of five children to one adult.

During the nine month break between summer programs, home visitors worked with each family on a weekly basis for one hour in an effort to prevent erosion of the gains made over the summer months (Gray, Ramsey, & Klaus, 1983).

The research was conducted in the Nashville, Tennessee area. Many of the problems which plagued the Nashville area existed at that time also in many cities and towns throughout our country; poverty, slums, and massive academic failure of the poor, particularly the blacks. The families in the Gray and Klaus study were all black, living in crowded housing, where parents held skilled or semi-skilled jobs. The families existed on an extremely low income and the parents educational level averaged eighth grade. The public school children in the area have, historically, been at risk of poor achievement.

A total of 65 children was randomly assigned to one of three groups in this experimental preschool intervention program; two treatment and two control groups. The first treatment group participated in three center-based summer programs, beginning at age four. Home visits were made during the nine month intervals between summer programs. The second treatment group participated in a program identical to the first, except that they entered the program in the second summer at age five (Gray et al., 1982). A control group was chosen from the original population. A second control group, recruited from a nearby town with

similar demographic characteristics, allowed the researchers to control for horizontal diffusion of the treatment effects to children who were not participating in the program but living in the same small community.

The intervention phase began in May 1962 and extended through the summer of 1965. Only follow-up testing and interviewing were done subsequently. The first follow-up phase extended from 1966 to 1968; the second from 1975 when most of the children were completing public school to 1980 when a few were in their third or fourth year of college (Gray et al., 1982). The original number of children in the Early Training Project was 88, excluding 1 child who died and another who became permanently disabled. The first report, based on the 1964 analysis, included all 90 children. Of this number, 80 were included in the 1966 analysis, 79 in the 1968 analysis. In 1974, 90% of the children who were involved in the study were located, tested, and interviewed. By the 1979 data gathering period, data had been obtained on 86 of the original 88.

The goal of Early Training Project was to design an intervention program that provided the elements of early experience related to improved educability and not available or adequate in the child's home experiences. The elements fell into two broad groupings that included: the child's skill-related competencies and understandings, attitudes

of the child and of the parents toward school expectancies. An intervention package was designed to meet these criteria which contained two broad and overlapping components called "aptitudes relating to achievement" and "attitudes relating to achievement." The aptitudes relating to achievement included language, perceptual discrimination, and concept development. Attitudes relating to achievement were divided into roughly five categories; motivation to achieve in school-type activities, delay of gratification, persistence, identification with appropriate achieving role models, and interest in school-type activities (Gray, 1974).

Aptitude data were collected using a variety of standardized intelligence and achievement instruments, and tests of receptive language. Adequate measures of the affective domain (attitude) were developed or adapted from existing instruments by the researchers due to a lack of availability for the age group. Findings relating to intellectual development and achievement, differences in the affective domain, meeting of school requirements, and interviews with parents and participants are summarized in the paragraphs below.

Effects on intellectual development were disappointing. Some effect of program was discerned through grade four on individual intelligence measures. Achievement test batteries showed significant differences through the second grade, but were not observable through the fourth grade.

No significant differences were found for intelligence or achievement measures by the eleventh grade. The gradual waning of differences between experimental and control groups on standardized testing was not surprising according to Gray et al., (1982) who calculated that by age six, the children in the study would have spent two percent of their waking hours in the intervention program, by age 16 that percentage had dropped to two-thirds of one percent. A case of too little, too soon terminated.

One of the two major classes of variables was attitudes relating to achievement. At no time were significant differences found on tests of the affective domain, with one exception, the Matching Familiar Figures Test (MFFT) (Kagan, Roseman, Kay, Albert, & Phillips, 1964). However, high school counselor's ratings of personal and social adjustment consistently and significantly favored the females vs. males in the experimental group. Another striking example of motivational differences in this group was the return to school after childbirth among adolescent females. Although there was no difference in the number of girls who became pregnant, all but one of the local control females who became pregnant in high school dropped out, all but one of the experimental females who became pregnant graduated from high school ($p \leq .006$, $n=30$, Gray et al., 1982). Gray et al. (1983) suggested that early preschool

experience might have helped the girls to make the transition between home and school easier, both in terms of behavior and interest in the activities provided and encourage them to work harder and to accomplish more.

Positive attitudes toward school may have helped the the treatment group better meet school requirements by decreasing the likelihood that the children would be placed in a special education program. Only 2 children in the original experimental group of 41 were placed in an EMR class, while 7 out of 21 in the control group were placed in the special class ($p < .004$).

The educational and occupational aspirations of the participants were surveyed by interview in the spring of 1976 and did not prove useful for treatment comparisons. One consistency was revealed from the youth interviews. Females in the experimental group appeared more realistic and decisive concerning personal aspirations and expectations.

The area of meeting school requirements was revealed by the researchers as having the longest lasting effects on the experimental participants. Although intelligence tests showed no group differences after the 11th grade, effects on school performance were noted through school completion. Most of the effects, with the exception of special education placement, were observed in the females. Regression analysis did not show a sex by treatment interaction, but

the comparison within sex and according to treatment group of school records, counselors' ratings, and educational and occupational orientation suggested a superiority of the female control group.

Gray et al. (1982) found this discrepancy surprising as they had made an effort during the intervention program to make the program meaningful to both young boys and girls. They provided male role models, presented materials of special interest to boys, and provided time for vigorous free play. Several explanations for the occurrence of differential effects were offered. In providing an equal opportunity and void of sexual discrimination for boys, a possible transition problem was created when the boys entered a first grade perceived by the researchers to be more responsive to females. Equal opportunity and the absence of sexual discrimination might have enabled the girls, who were possibly more mature and responsive to school experiences, to use these skills once they had entered public school (Gray, 1974).

Most of the enduring effects of the program for the sample were in the area of meeting school requirements. In grade 11, intelligence tests showed no difference in groups, but effects on school performance appear to have endured through the end of schooling. The number of students placed in special education was significantly smaller in the

experimental group. The females in the experimental group tended to maintain higher GPAs. Only one of the control females who became pregnant in high school returned to graduate. All except one experimental female who became pregnant in high school graduated. Long term effects include 60% of the participants, but only 48% of the controls graduating from high school at all. The Early Training Project represents one of the earliest research-oriented efforts to educate high risk children.

Ypsilanti Perry Preschool Project

David Weikart

The Ypsilanti Perry Preschool Project was an experiment to assess the longitudinal effects of a two year preschool program designed to compensate for functional mental retardation found in some children from high risk or educationally/economically disadvantaged families. Criterion for selection included low socio-economic level, as computed by a sum of scores of parental education level, employment level, and half of the rooms per person in the household. The children's IQs were in the range of 70 to 85. The program consisted of a daily cognitively-oriented preschool program and home visits each week to involve mothers in the educational process. The study was initiated in the summer of 1962 and designed to test the hypothesis

that early intervention has a positive effect on how children do in school (Schweinhart & Weikart, 1983).

Ypsilanti is a community of about 50,000 on the outskirts of metropolitan Detroit encompassing a wide spectrum of socio-economic levels. The Perry Preschool Project was established after several years of preparation and planning. The Ypsilanti Public Schools conducted a series of internal studies under the leadership of David Weikart, director of the Special Services Department. The studies presented two important findings: at least 50% of the children attending the Ypsilanti Public Schools were over-age in grade from one to five years by grade nine, and the achievement rate was considerably below average on national norms. Children in schools in lower class neighborhoods within the school system had much lower achievement test scores and much higher retention rates than did children from schools in middle-class neighborhoods. For example, 50% of the children in one school had been retained at least once by the fourth grade. The standardized achievement rate of the school, averaged over a seven year period, was below the fifth percentile across all of the classrooms (Weikart, Deloria, & Lawsor, 1974).

The sample of children for the intervention project was drawn from the population of black, "economically disadvantaged," three and four-year-old subjects who tested in the educable mentally retarded (EMH) range (IQ score of

50-85), and lived in the Perry School attendance district of Ypsilanti. A weighted formula was used to measure the economic deprivation of the children utilizing parents' level of education, parents' occupational level and the rooms per person ratio. The sample consisted of 123 children, 58 of whom were randomly selected for the preschool treatment group. The remaining 65 children were assigned to the control group which received annual testing, but no treatment. Weikart replicated the treatment five times (Schweinhart & Weikart, 1983).

The first group of subjects was designated as a pilot wave and received only one year of preschool. The following four sets or waves received a two year preschool program consisting of half-day sessions, five days a week, from mid-October through May. Teachers visited the families of the participants during the school year conducting 90 minute teaching sessions each week (Schweinhart & Weikart, 1983).

The Cognitively Oriented Curriculum (Hohman, Banet, & Weikart, 1979) used for the experimental group was based on the theories of Piaget and designed to help the child construct mental representations of himself and his environment that lead to the development of logical modes of thought. The activities and materials were similar to those used in most nursery schools, but featured teacher defined goals and selected activities appropriate to the child. The

curriculum was based on a three-part theoretical framework: four content categories (classification, seriation, spatial relations, and temporal relations); three levels of representation (index, symbol, and sign); and two levels of operation (motoric and verbal). The curriculum model stressed inclusion of the child in the planning process and focused on learning directly from concrete experience and expression in language.

Data were collected from or about members of the sample between ages 3 and 19, with major focus on data from youth and parent interviews collected at ages 15 and 19, and from an IQ test and school achievement tests given when the subjects were 14. Parents completed an interview initially and another 11 years later. Intelligence tests were given to subjects annually from ages 3 to 10 and again at age 14. School achievement tests were given annually from ages 7 to 11 and at age 14. Teachers at kindergarten, first, second, and third grades completed two child-rating scales. School records were examined from kindergarten through grade 12. Youths were interviewed extensively at ages 15 and 19 (Schweinhart & Weikart, 1980).

The subjects were evaluated using the Stanford-Binet Intelligence Scale, the Leiter International Performance Scale, the Peabody Picture Vocabulary Test, the Illinois Test of Psycholinguistic Abilities, the California

Achievement Test Battery, various parental attitude instruments, and ratings provided by the teachers.

The Perry Preschool program had a significant and lasting positive impact on the scholastic performance, experience, and commitment of the children served. The longitudinal findings of the program follow in the paragraphs below.

The children who participated in the Perry Preschool Project obtained significantly higher scores on measures of cognitive ability than did controls, exceeding the control group by 12 IQ points after one and again after two years of preschool, 6 points at the end of kindergarten, and 5 points at the end of first grade. The effect disappeared by third grade. Part of the initial rise in IQ (an estimated 5 points) was attributed to regression toward the mean (Schweinhart & Weikart, 1983).

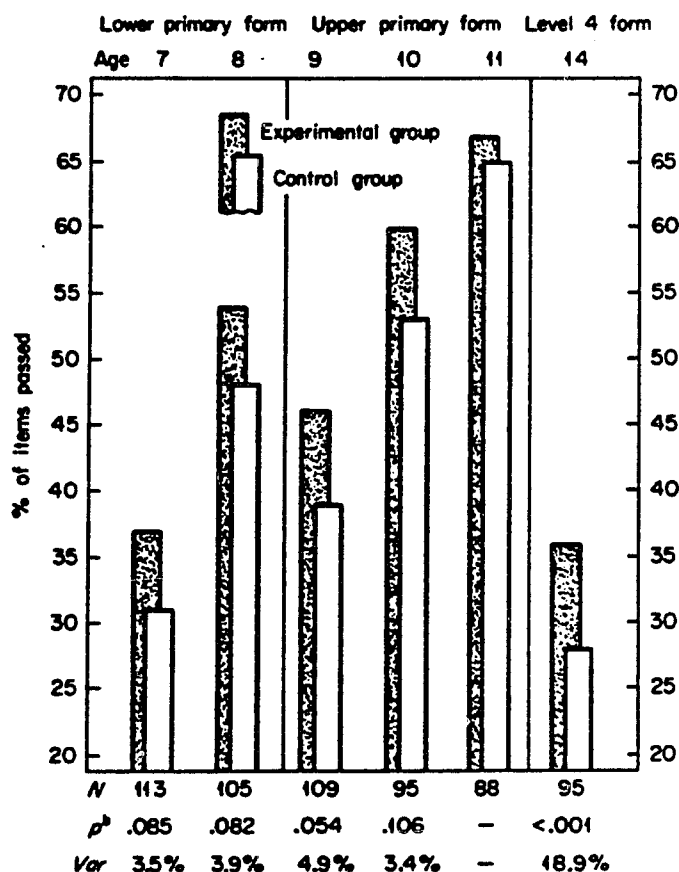
Preschool intervention contributed to increased school achievement during the elementary and middle school years. The experimental group obtained higher scores on the California Achievement Test in the elementary grades than did controls with a positive difference continuing throughout the follow-up years as illustrated in Figure 1.

Schweinhart and Weikart (1983) examined the complete school records of all members of the sample from kindergarten through grade 12, finding 39% of the control group receiving special education services for a year or

more by the end of high school. Nineteen percent of the experimental group had received special education services.

Figure 1

Total Group Achievement By Group Over Time



Schweinhart and Weikart, 1983, p.87

Children receiving preschool treatment showed an increase in motivation during elementary school as ascertained from self-report and youth interview at age 15. The children placed a higher value on education, had higher aspirations for college, showed a greater willingness to

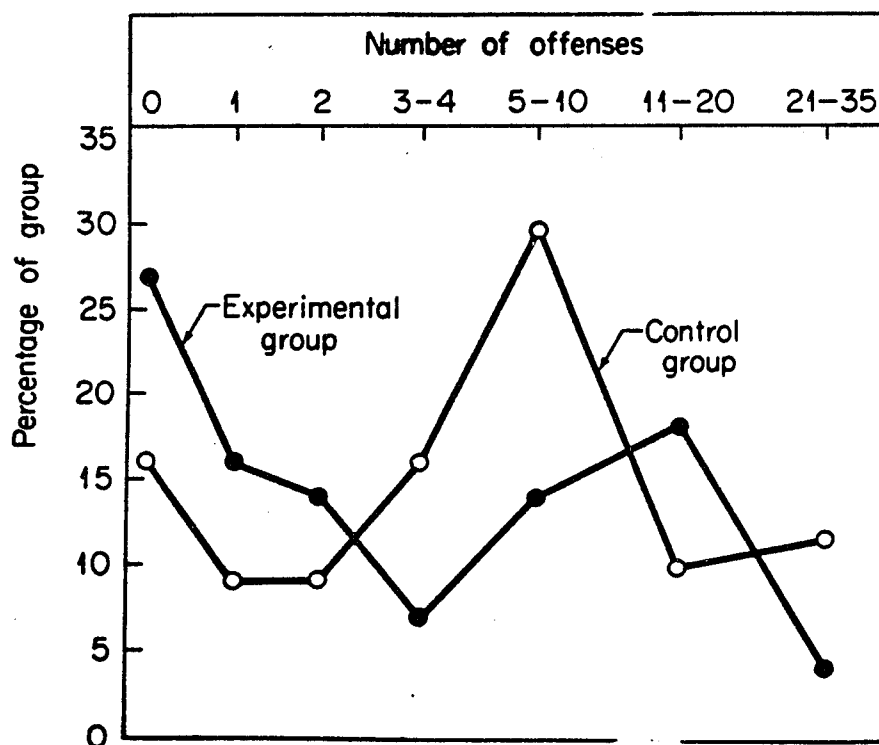
discuss school with their parents, spent more time on homework, and had a higher self-rating of their school abilities than did the control group. During kindergarten, first, second, and third grades the experimental group was rated higher in school motivation by classroom teachers (Schweinhart & Weikart, 1980).

Preschool also made a difference in terms of parental aspirations and satisfactions. Fifty-one percent of the experimental parents expressed satisfaction with the educational performance of their children at age 15, only 28% of the control parents expressed this satisfaction optimism ($p=.014$; Schweinhart & Weikart, 1983).

Preschool education led to a decrease in teenage delinquent behavior. Schweinhart and Weikart (1980) suggested that it did so by strengthening their bond to schooling. Figure 2 provides a distribution of total self-reported delinquent behavior in both the experimental and control groups. Wolfgang, Figlio, and Sellin's (1982) study of delinquency divided youths into the following groupings: non-offenders, one-time offenders, multiple offenders, and chronic offenders (five or more offenses). In terms of the groupings, 43% of the experimental group and 25% of the control group fell into category of non-offenders. Data for multiple offenders were not presented.

Figure 2

Self-Reported Delinquent Behavior By Group



Schweinhart & Weikart, 1983, p. 92

Follow-up studies conducted in 1981 found that preschool intervention can lead to reduced rates of teenage pregnancy, increased rates of employment at age 19, and a decreased rate of welfare dependency at age 19 (Schweinhart & Weikart, 1985).

An economic analysis of the costs and benefits of the Perry Preschool Program was conducted by Weber, Foster, and Weikart (1978) using a marginal cost analysis, which determines the differences in expense between the

experimental and control groups. Findings were calculated separately for Wave 0 (1 year of preschool) and Waves 1 through 4 (2 years of preschool). The findings for 2 years of preschool, based on a larger sample (98 children with 48 attending preschool) than the findings for 1 year (28 children with 13 attending preschool), are more reliable and will be emphasized. Costs are presented in 1979 constant dollars.

Webber et al. (1978) found that the benefits of preschool education far outweigh the costs. The undiscounted benefits of 2 years of preschool education in 1979 dollars were \$14,819 per child, while the cost of a 2-year program was \$5,984 per child (\$2,992 per year), representing a 248% return on the original investment.

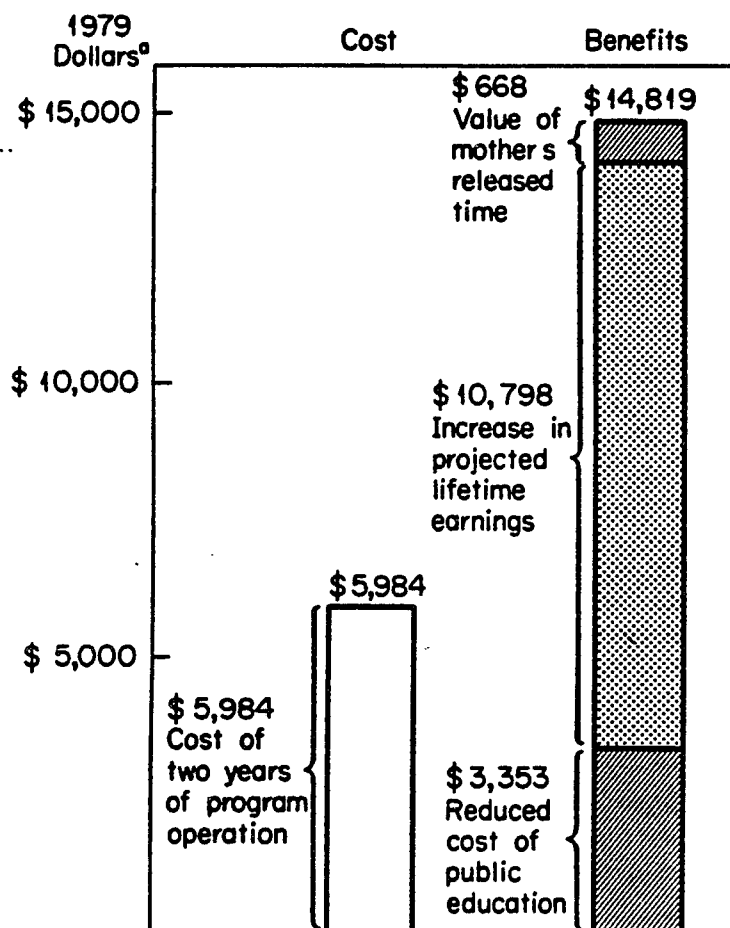
The cost estimate used was the total resource costs, the total public cost of the program plus the total private cost. Approximately 75% of program costs were teachers' salaries, amounting to \$52,670 per year for four teachers in 1979 dollars. Additional costs were costs of supplies, building maintenance, and support staff. There were no transportation costs. Figure 3 shows the costs and benefits of 2 years of preschool education according to category.

The benefit estimate used \$668 per child for the mother's release time while the child attended preschool and was an immediate benefit. The \$3,353 dollars saved by the

public schools because the children who had attended needed fewer years in special education or repeating grades was a mid-term benefit. The long-term benefit of \$10,798 per child in increased lifetime earnings was projected on the basis of projected educational level using the 1970 Census of Population.

Figure 3

Economic Costs and Benefits Per Child of Two Years of the Perry Preschool Program



The effect on grade retention and placement in special education were significant. Essentially, grade retention doubles the cost of completing a particular grade. Weber et al. (1978) estimated that self-contained special education increased the costs of schooling by 143% during the school year and part-time or integrated special education placement by 169% per school year. The school district's contribution to institutionalized care increased costs by 187% per school year. The cost included portions of salaries for personnel, special support staff, administration, attendance and health services, maintenance, and capital outlay.

Weber et al. (1978) projected educational placements for elementary and secondary school. After correcting for the drop out rate, overall projections for the number of student years in school came to 75.1 years for the experimental group and 167.6 for the control group (based on 1973 findings for educational placements). Examination of actual records in 1979 indicated that the experimental group spent only 55.7 years in special education, while the control group spent 153.3 years. Thus, the actual rate was 81% of the projected rate for the control group and 74% of the projected rate for the experimental group, improving the cost benefit ratio (Schweinhart & Weikart, 1983).

Additional cost-benefit analyses were conducted with data from the Perry Preschool Study by Berrueta-Clement, Schweinhart, Barnett, Epstein, and Weikart in 1984 and

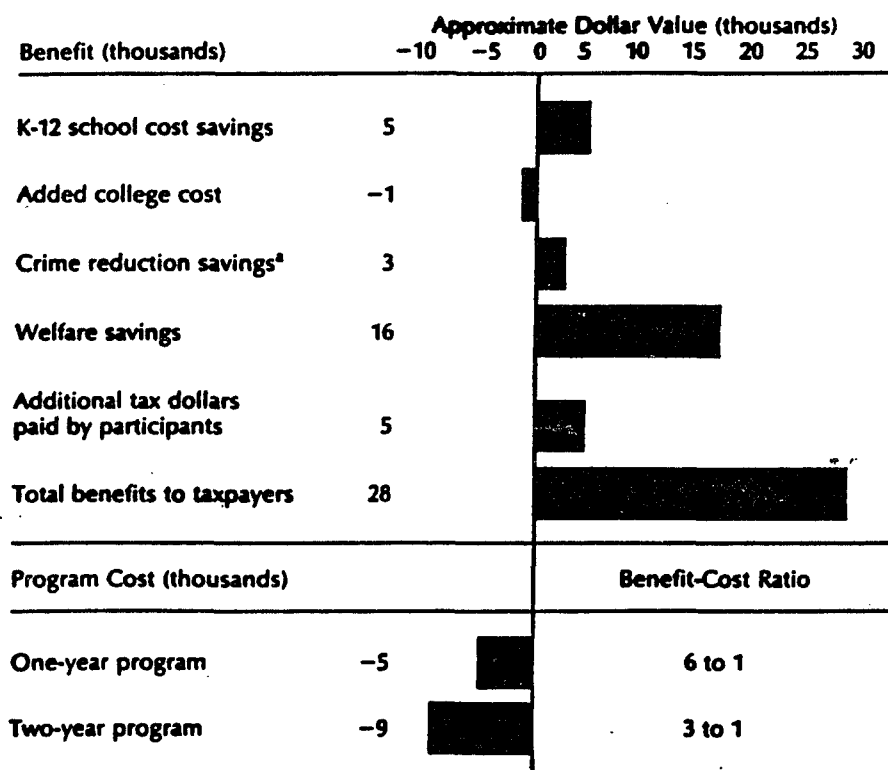
Barnett in 1985. The results were consistent with earlier findings. The analysis indicates that preschool intervention programs can be an excellent investment for taxpayers. Additionally, putting a child who went to preschool through elementary and secondary school cost the district, on the average, \$34,813, (in constant 1981 dollars); as opposed to \$41,895 for one who did not attend. The difference is \$7,082 per child. Since preschool attendance also increased average educational attainment, this cost difference understates the total increase in educational efficiency (Berrueta-Clement et al., 1984).

Berrueta-Clement et al. (1984) represented the program's investment potential as internal rate of return, equivalent to the real interest rate that the investment earns. For the two year program, this rate was 8% and over 11% for the one year program. The two year program had the same effects as the one year program, but the costs for operation were about twice as much (data, however, are presented for the two-year program).

The returns to taxpayers of the Perry Preschool Program were also depicted as per child profits in constant dollars over a standard of investment profitability. Figure 4 presents the value of the program in 1981 dollars discounted 3% annually (equal to the long term growth rate of the United States economy).

Figure 4

Perry Preschool Program Per-Child Costs and Benefits to Taxpayers



Note: Table entries are constant 1981 dollars, discounted at 3 percent annually.

Berreta-Clement et al., 1984, p. 91.

The \$5,000 per participant per program year was the major cost of the program. However, the major benefits to taxpayers through reduced costs of special education placements (\$5,000 per participant), crime (\$3,000 per participant), and welfare assistance (\$16,000 per participant) more than compensated for the initial investment. Although additional post-secondary education of the preschool participants added about \$1,000 to costs,

participants were expected to pay \$5,000 more in taxes due to increased lifetime earnings due to improved educational levels. Total benefits to taxpayers amounted to about \$28,000 per participant, nearly six times the initial investment in the one-year program and three times the initial cost of the two-year program, representing a significant gain from an investment point of view, not to mention the change in lifestyle for the participants (Berrueta-Clement et al., 1984; Barnett, 1985).

Institute for Developmental Studies (IDS)

Cynthia and Martin Deutsch

The Institute for Developmental Studies (IDS), established in 1958, studied the effects of the environment on psychological development and developed a stimulating school curriculum for socially disadvantaged children. The program focused on four general areas; language development, concept formation, perceptual and overall cognitive development, and self-concept. By 1970, this school-based program had evolved into a comprehensive five-year enrichment curriculum encompassing prekindergarten, kindergarten, first, second, and third grades. The program served 8 waves or cohorts of over 1,300 children. This summary will include the first four waves of groups one and

two (N=504) of the program (Deutsch, Deutsch, Jordan, & Grallo, 1983).

The IDS program operated within the regular public schools in several low-income areas of New York City's East and Central Harlem. The families of the children lived in neighborhoods characterized by crowded, unsafe housing, high incidences of drug addiction, high crime rates, low employment rates, and inadequate health facilities.

Teaching methods, materials, and equipment developed by the IDS staff were designed with the purpose of helping these children master basic academic skills and work toward becoming independent, confident learners. Special games, such as the Language Master, the Language Lotto series and the Letter Form Board were devised to build cognitive and language skills and be used individually. The staff worked one-on-one and in small groups. The IDS staff organized an active parent group to help meet parent needs within the community by establishing a parent center which served to bridge the gap between school, community, and parents (Deutsch, Taleporous, & Victor, 1974).

The IDS program served black boys and girls ranging in age from four to nine years. The experimental group was given enriched schooling from prekindergarten through third grade in special classrooms in neighborhood schools in full day/year programs. The experimental and comparison groups were from an essentially homogeneous population. The IDS

staff actively recruited children for the program through a variety of sources including school, churches, and neighbors. From the original volunteers, children were randomly assigned to an experimental group (experimental group 1) and a control group (group 2). Both groups were eligible to begin public kindergarten the following year. This randomization process was used for the first 4 waves of children designated as controls; Group 3 started school at kindergarten, Group 4 started school at first grade, and group 9 were controls in a Head Start program at Public School 123. There were later waves of experimental children (group 1) and control groups (3 and 5), but there were no later children in group 2 (Deutsch et al., 1983). Normally, each group of the IDS prekindergartners began with 17 children. There were seven waves of the experimental treatment prekindergartners, totaling 483. In all, there were 1,293 children in experimental and control groups.

The academic progress of IDS and control children was monitored over the five year experimental period by a variety of means including standardized tests (IQ and achievement), IDS developed measures, and observational procedures. Longitudinal data was collected on the Stanford-Binet Intelligence Scale, the Peabody Picture Vocabulary Test (PPVT), the Illinois Test of Psycholinguistic Abilities, the Lorge-Thorndike Intelligence

Test, and the Metropolitan Achievement Test (Deutsch et al., 1974). Additional informal evaluations included anecdotal records and responses from parents, teachers, principals, and siblings.

The means and standard deviations obtained on the Stanford-Binet and the PPVT for each wave are presented in Tables 11 and 12 for both the experimental and comparison participants prior to entry into the program and at the end of prekindergarten, kindergarten, and 3rd grade. These tables suggest that the groups were similar prior to entry into the program, but diverged after each of the subsequent school years. Standard deviations are not reported for the first grade control group (C1). Examination of the experimental and control means indicate a positive effect in favor of the experimental group.

Table 11

Mean Stanford-Binet Scores at Each Administration

<i>Prekindergarten</i>												
<i>Wave</i>	<i>E</i>			<i>Css</i>								
	<i>N</i>	\bar{X}	<i>SD</i>	<i>N</i>	\bar{X}	<i>SD</i>						
1	31	96.19	11.62	15	96.53	14.89						
2	70	93.07	11.27	34	92.94	12.57						
3	88	91.63	11.53	48	90.31	14.54						
4	86	91.28	12.63	32	89.25	12.73						
Total	275	92.40	11.86	129	91.46	13.68						
<i>Post-Prekindergarten</i>												
<i>Wave</i>	<i>E</i>			<i>Css</i>			<i>Ck</i>					
	<i>N</i>	\bar{X}	<i>SD</i>	<i>N</i>	\bar{X}	<i>SD</i>	<i>N</i>	\bar{X}	<i>SD</i>			
1	62	100.19	12.33	40	91.90	14.50						
2	62	98.89	9.69	45	91.29	12.52	58	88.19	12.44			
3	67	100.76	10.75	34	92.76	11.41	66	92.91	10.73			
4	69	96.96	12.06	23	92.70	9.71	56	90.00	14.71			
Total	260	99.17	11.30	142	92.04	12.36	180	90.48	12.71			
<i>Post-Kindergarten</i>												
<i>Wave</i>	<i>E</i>			<i>Css</i>			<i>Ck</i>			<i>C₁</i>		
	<i>N</i>	\bar{X}	<i>SD</i>	<i>N</i>	\bar{X}	<i>SD</i>	<i>N</i>	\bar{X}	<i>SD</i>	<i>N</i>	\bar{X}	
1	43	103.58	14.02	29	92.07	14.65	26	92.23	13.55	30	85.53	
2	39	94.72	12.75	26	94.54	13.77	37	90.73	13.40	74	80.82	
3	55	101.91	12.39	23	90.52	19.72	61	94.84	13.45	47	87.64	
4	52	99.85	13.94	20	95.20	11.65	53	91.19	12.19	32	84.69	
Total	189	100.24	13.54	98	93.00	15.13	177	92.50	13.09	183	84.02	
<i>Third Grade</i>												
<i>Wave</i>	<i>E</i>			<i>Css</i>			<i>Ck</i>			<i>C₁</i>		
	<i>N</i>	\bar{X}	<i>SD</i>	<i>N</i>	\bar{X}	<i>SD</i>	<i>N</i>	\bar{X}	<i>SD</i>	<i>N</i>	\bar{X}	
1	32	97.63	12.78	12	93.92	11.62	13	94.00	11.90	17	94.29	
2	21	91.76	14.92	13	91.23	13.26	19	86.32	10.87	26	84.81	
3	29	99.28	12.31	12	93.58	16.22	30	93.43	15.33	20	90.65	
Total	82	96.71	13.38	37	92.86	13.98	62	91.37	13.64	63	89.22	

Key: E = Experimental, Css = Comparison (Self-Selected); Ck = Comparison (First school year is kindergarten); C₁ = Comparison (First school year is first grade)

(Deutsch et al., 1983, p.396)

Table 12

Mean PPVT IQ Scores At Each Administration

<i>Prekindergarten</i>												
<i>Wave</i>	<i>E</i>			<i>Css</i>								
	<i>N</i>	\bar{X}	<i>SD</i>	<i>N</i>	\bar{X}	<i>SD</i>						
1	32	75.16	16.08	16	70.44	18.13						
2	69	68.73	16.24	32	67.72	17.95						
3	87	66.87	14.02	50	62.64	13.73						
4	84	66.81	13.86	30	64.93	13.56						
Total	272	68.29	14.92	128	65.42	15.48						
<i>Post-Prekindergarten</i>												
<i>Wave</i>	<i>E</i>			<i>Css</i>			<i>Ck</i>					
	<i>N</i>	\bar{X}	<i>SD</i>	<i>N</i>	\bar{X}	<i>SD</i>	<i>N</i>	\bar{X}	<i>SD</i>			
1	62	85.85	17.95	40	75.25	17.95	39	76.08	17.			
2	63	81.46	18.91	47	71.77	20.57	57	69.09	20.			
3	69	81.41	17.55	36	68.51	16.69	70	75.06	17.			
4	71	78.45	20.22	23	74.52	16.74	56	71.55	19.			
Total	265	81.67	18.80	146	72.38	18.38	222	72.82	19.			
<i>Post-Kindergarten</i>												
<i>Wave</i>	<i>E</i>			<i>Css</i>			<i>Ck</i>			<i>C₁</i>		
	<i>N</i>	\bar{X}	<i>SD</i>	<i>N</i>	\bar{X}	<i>SD</i>	<i>N</i>	\bar{X}	<i>SD</i>	<i>N</i>	\bar{X}	
1	43	90.36	15.67	33	83.36	18.16	34	87.38	14.75	30	77.77	
2	38	88.66	17.05	26	84.15	17.56	38	78.82	20.49	73	73.37	
3	55	87.25	13.83	25	74.84	22.34	62	82.89	17.27	47	76.62	
4	52	87.19	16.85	20	80.50	14.26	53	76.47	17.08	31	68.06	
Total	188	88.22	15.72	104	80.96	18.55	187	81.06	17.80	181	74.03	
<i>Third Grade</i>												
<i>Wave</i>	<i>E</i>			<i>Css</i>			<i>Ck</i>			<i>C₁</i>		
	<i>N</i>	\bar{X}	<i>SD</i>	<i>N</i>	\bar{X}	<i>SD</i>	<i>N</i>	\bar{X}	<i>SD</i>	<i>N</i>	\bar{X}	
1	31	90.39	12.88	12	86.25	17.71	13	86.15	10.55	17	84.71	
2	21	90.95	12.68	13	84.15	14.55	21	89.19	14.37	25	83.28	
3	30	96.40	14.40	13	84.92	9.39	30	94.07	17.72	22	87.91	
Total	82	92.73	13.56	38	85.08	13.83	64	90.86	15.55	64	85.25	

Key: E = Experimental, C_{ss} = Comparison (Self-Selected); C_k = Comparison (First School year is kindergarten); C₁ = Comparison (First school year is first grade).

Analysis of variance (ANOVA) procedures applied to these data (Table 13) show that significance differences in favor of the experimental group emerged between the groups after participation in the IDS preschool program.

Table 13

Summary of Analyses of Variance

<i>Stanford-Binet</i>	
<i>Testing Period</i>	<i>F Ratio for Treatment</i>
Pre-Prekindergarten	non-significant
Post-Prekindergarten	31.82 (p = .0001)
Post-Kindergarten	31.52 (p = .0001)
Post Third Grade	non-significant

<i>Peabody Picture Vocabulary Test</i>	
<i>Testing Period</i>	<i>F Ratio for Treatment</i>
Pre-Prekindergarten	non-significant
Post-Prekindergarten	14.83 (p = .0001)
Post-Kindergarten	16.33 (p = .0001)
Post Third Grade	3.36 (p = .02)

Deutsch et al., 1983, p.398)

Evidence of program effect on the PPVT scores emerged after the third year. Program effect was absent on the Stanford-Binet. However, both the experimental and control children performed significantly better on the Stanford-Binet than their age peers in the same urban areas. The authors (Deutsch et al., 1983) suggested that the effect

might reflect the spread of IDS program techniques into control classrooms.

Follow-up investigations were done in 1976 and annually from 1978 through 1981 both to determine if initial gains had been maintained and to identify any possible "sleeper effects." Findings reported from investigations in 1976 through 1979 were derived from case studies of program participants. Common themes emerging from the studies included positive attitudes concerning support structures for parents and participant provided by the IDS program. Students who successfully pursued educational goals were reported to have been supported by a significant IDS teacher who provided a supportive foundation. Program parents expressed increased confidence in parenting. Participants who became teen parents expressed increased caring and concern for their children than did controls. Sex differences have emerged in achievement and personality variables in the 1980-81 follow-up. Scores on a set of self-concept measures remains significant for experimental young adult males ($p=.048$).

The Philadelphia Project

E. Kuno Beller

Beller was interested in the effect length of schooling prior to first grade had on the child's later development. In addition to studying the impact of early

educational intervention on the later development of the disadvantaged child, he investigated the interplay of motivation and socio-emotional interaction between the child and his educators.

The subjects of Beller's comparison came from low income families who entered school at 1 of 3 points: age 4 (preschool), age 5 (kindergarten), and age 6 (first grade) and lived in four public school attendance zones in an urban slum area of northern Philadelphia. The population targeted for study was 71% black, with parents mostly working in skilled or semi-skilled jobs and clerical positions. There was also a core group (% not reported) of unemployed black residents with a low level of employability.

The preschool program was designed and directed by the faculty of Temple University's Early Education Department. Each of the four elementary schools involved in the project opened a preschool program for 15 four-year-old children (N=60). A pool of applicants was generated by sending letters to parents in the attendance zones of these schools. The preschool group was randomly selected from the parents responding to the letter. The kindergarten group consisted of the 53 five-year-olds who entered kindergarten at the same time as the preschool group and who had no preschool experience. The first-grade-only group was selected from children in the same classrooms as children in the first two

groups, but without preschool or kindergarten experience (N=52). The children in the kindergarten and first grade groups were selected to be comparable to the experimental group with similar ages, sex distribution, and ethnic backgrounds. The original sample totaled 163.

The preschool program followed a child development model stressing the social, emotional, and cognitive growth of the child. Instruction and activities were determined by the individual child's needs and preferences. Each preschool classroom had one teacher and one assistant. The children attended preschool for four hours, four days per week. On the fifth day, the teachers made home visits or received in-service training. The relationship between the school and the families was encouraged and strengthened by four home-school coordinators and a social worker. The kindergarten and first grade programs were conventional programs with a ratio of 1 teacher to 30 children. Length of intervention was the main independent variable of this study. All analyses involved a three-point continuum of two years of intervention, one year of intervention and no intervention.

Beller found no significant differences on any of the variables when investigating the comparability of the three groups on entrance IQ and on ten demographic variables. Tests administered at program entrance included the

Stanford-Binet, the Peabody Picture Vocabulary Test (PPVT), and the Goodenough Draw-a-Man Tests (Beller, 1974).

The 12 year follow-up study examined whether length of intervention affected the intellectual and socio-emotional development of the children originally in the study. The length of time the child attended intervention (preschool and kindergarten) and intervention versus no intervention related to different aspects of intellectual development (achievement, aptitude, attitude, and motivation) and of socio-emotional development (attitudes, ego development and functioning, moral judgement, and motivation). Short and long-term, immediate and delayed effects were found in both areas of development (Beller, 1983).

Beller annually assessed scholastic aptitudes using the Stanford-Binet, Peabody Picture Vocabulary Test, and the Goodenough Draw-A-Man Test beginning at time of entry until the fourth grade. Preschool effects on scholastic aptitude were greater the earlier the child entered preschool, as measured by the Stanford-Binet and the PPVT. The effects were immediate in that they occurred by the first year of school and were sustained at least until the fourth year, when measurement ceased. The effects of the length of preschool were visible by the third grade and increased in the fourth grade when measured on the Goodenough IQ Test (Beller, 1983).

The assessment of intellectual achievement was obtained from the child's day-to-day functioning in the classroom as well as measures that were more suitable for assessing long range achievement. Day-to-day achievement was assessed by student grades and teacher comments on report cards from the first through the twelfth grades. Long range achievement measures were retention in grade, completion of high school, and attendance in college; the first two being assessed through school records, the third by interview. For all of the measures, length of preschool yielded significant effects. Effects on length of preschool on higher classroom grades over grades one through four were more consistent in girls, were more apparent in grades two and three, had begun to level off by grade four, and had disappeared by grade five. Positive effects on teacher comments on the student's progress in school from grade one to grade eleven were significant for children who had attended two years of preschool (chi squared = 5.61, $p < .10$) and for boys with two years of preschool (chi squared = 8.13, $p < .05$). The relationship between preschool and less retention in grade approached significance in families where the father was present and reached significance among children whose parents were employed.

Positive effects on intellectual attitudes and motivation to achieve intellectually were measured during

the first three grades through teacher report which revealed that positive effect was not due to preschool participation, but to the length of preschool (one year or two, Beller, 1974).

An important and unique aspect of Beller's study was the effort made to obtain a comprehensive assessment on the effects of preschool on social, motivational, and emotional development. Attitudes were assessed with regard to self, self and society, sex and family roles, and work and occupation. Attitudes toward self were assessed using the Piers-Harris Self-Concept Scales in grades 4 and 10. Attitudes toward occupation and work were assessed through the Career Maturity Inventory Scale, administered in grade 11. Moral judgment, motivation, ego development, and ego function were assessed in the 4th and 10th grade using the Matching Familiar Figures Test (Kagan et al., 1964). The relationship at the 4th grade level was one of preschool versus no preschool, but at 10th grade length of preschool was stronger on both self-concept and maturity of moral judgement. The child's sex proved to be an important indicator of the impact of early educational intervention. The timing of the intervention had a more consistent and uniform effect on girls than boys in the areas of academic achievement and self-concept. Dependency on teachers had a positive effect on academic achievement for girls. Beller (1983) interpreted the greater program effect for girls as

relating to the more dominant role of women in disadvantaged black families of the era. Preschool had a positive effect for boys on teacher comments on report cards with regard to academic achievement and maturity of moral judgments (Beller, 1983).

Beller's findings regarding intellectual aptitudes and academic achievement support those reported by Gray, Weikart, and Deutsch. Beller, in accordance with Gray's study, found stronger effect of preschool on girls than on boys from economically disadvantaged black families.

Harlem Research Center

Dr. Francis Palmer

Palmer's program was grounded in theoretical assumptions emphasizing the importance of early experience, including the primary importance of basic concepts, the symbolic function, the ability to organize information, and the ability to sustain any growth attained intellectually. Palmer designed a program of minimal intervention for two to three-year-olds tailored to each child's level of development in order to meet these competencies (Palmer & Seigal, 1977). Minimal intervention was defined as two hours weekly for eight months. Additionally, Palmer's study was designed to determine if intervention at a age two was more effective than

intervention at age three and whether effects were more apparent among middle-class than lower-class children. The program was center-based, but did not incorporate any type of parent education component.

The Harlem Study was based on the hypothesis that children learn best when they work with an instructor on a one-to-one basis and that a situation offering a minimal intervention of two hours a week for eight months would make a difference in the education of the children involved in the study.

The Harlem Study began in the fall of 1966. The samples selected were a high risk population. That year, roughly 50% of the Central Harlem school population had been retained in grade one year or more by age 13. The Harlem area of New York City had the largest urban black population in the United States. Harlem had children of varied economic backgrounds (middle to low), children of similar ethnic backgrounds (black), and a population dense enough to provide the appropriate numbers of children necessary for the research design.

Two modes of intervention were tested, concept training and discovery. The concept training curriculum was designed to teach basic concepts that all children must learn before using more complex concepts. These concepts, which include big and little, up and down, tall and short, were taught under structured conditions in a one-to-one teaching

situation. The children in the discovery program were given the same toys to play with as were used to teach the concepts, but the instructors neither initiated the conversation nor actively taught the child. The instructors, all of whom were white and half of whom were male were chosen for heterogeneity of educational background and ranged from high school graduates to doctoral candidates in psychology. The child's instructor was changed every six weeks to accustom the child to interaction styles of a variety of adults.

The subjects, all black males, were selected from 1500 birth records of children born in Harlem and Sydenham Hospitals between August and December of 1964. The sample was limited to males because the developmental differences between males and females were judged to be a difference that would require more staff, more resources, facilities, and twice the sample size. Blacks were chosen because of research design needs requiring children from a broad range of social class who live in a manageable geographic area.

Children born in August, September, or October of 1964 were randomly assigned to a particular treatment group, either concept or discovery. Children born in November or December of 1964 were recruited as controls. Depending on birthdate and program curriculum, the resulting subsamples were termed Alpha (to receive treatment at age 2), Gamma (to

receive treatment at age 3), and Beta (non-participating controls). Of those parents who participated in initial interviews and agreed to schedule their children in the program, 123 Alphas, 124 Gammas, and 68 Betas began assessment. Of those parents who were interviewed, 58% of Alpha, 64% of Gamma, and 52% of Beta ultimately participated in the assessment. The groups were 54% lower class and 46% middle class participants. No significant differences existed among the groups with respect to background variables such as social class, education, and occupation or age of the parents (Palmer, 1983).

The Harlem Study, therefore, is characterized by three groupings. Initially the three groups were considered as one experimental and two control groups. In the concept training group, a curriculum was organized to teach concepts using specific procedures. In the discovery group, participating controls would attend the center with identical schedules, procedures and staff, but would not be exposed to the concept training curriculum. A non-participating control group was selected from the same population pool as the children in the concept and discovery groups and tested each year. The non-participating controls accumulated an average of 20 hours of testing before attending elementary school.

The instructors were not aware that the discovery group was a control for the concept training so that program

commitment would be equal. Both the concept and discovery groups were superior to the non-participating controls after the first program assessment (Palmer, 1983).

Evaluation of the experimental and control groups was conducted at ages two years and eight months, three years and eight months, four years and eight months and at grades three through seven. At age 10, school records were obtained for grades three and four, and annually thereafter. The Wechsler Intelligence Scale for Children (WISC) was obtained for 90 control and experimental subjects at age 10, and the WISC-R administered to an additional 88 between ages 10 and 12. Interviews with the mother and the child were conducted at the time the child was administered the Wechsler (Palmer & Siegal, 1977).

Concept and discovery training groups and controls were assessed immediately after training was completed at two years and eight months. The concept and discovery training groups significantly outperformed controls on a number of individual measures including the Peabody Picture Vocabulary Test and the Concept Familiarity Index. Middle-class children were, on the average, higher than lower-class children on each measure in the battery, but the difference was not statistically significant.

At age four years and eight months, it had been two years since the children trained at age two had completed

their participation, and one year since those trained at age three had completed their participation. Examination of the groups found that children trained at age two were superior to the controls on an across-measures analysis of 10 measures including the Stanford-Binet, PPVT, and various homemade instruments. No differences existed at this age between the discovery and concept groups. The effects of training were still discernible across all measures administered, but were no longer strong enough to be significant on individual measures of performance. Differences no longer existed between the discovery and concept training group or those trained at age two or at age three.

None of the children in the Harlem Study were tested between the ages of 4 years, 10 months and 10 years due to funding loss. Funds were allocated and used to locate and assess 90 of the Harlem subjects in the summer of 1974, when the children were ten years of age and had completed the fourth grade. The researchers found that the average experimental child was three months ahead of controls on reading achievement (Metropolitan Achievement Test). Additional funding was obtained to locate and evaluate the entire sample due to these promising preliminary results (Palmer, 1983). Data are available for the 90 ten-year-olds on the Wechsler Intelligence Scale for Children and for the 88 assessed at ages 11 and 12 on the WISC-R. Mean scores on

the WISC are higher than for the WISC-R, confounding analysis. For this reason, the sample size of the experimental and control groups taking the WISC-R varied. Among those who took the WISC, 75 were experimental and 24 were controls. Number of experimental and controls was not noted for administration of the WISC-R. WISC-R scores were corrected by IQ level and compare with the WISC scores for the purpose of analysis. The experimental scores, which were higher, lost more in the correction than control scores. The experimental subjects averaged six points higher on the IQ tests than the control subjects ($t=2.63$, $df=176$, $p < .005$), despite these difficulties. The Verbal difference in IQ points was three points; the performance difference was nine. It appears that intervention influenced school-age IQ, but that most of that difference existed in the behaviors reflected by the performance scale. No significance appeared when concept training and discovery training were compared.

Reading achievement tests (Metropolitan Achievement Test) in the third and fourth grade show the concept group reading four months ahead of the controls and the discovery reading three months ahead of the controls. These differences were not statistically significant. In fifth and sixth grades, differences approached significance as the experimental groups were reading six months ahead of

controls. The differences between the combined experimental groups were significant ($t=2.31$, $df=149$, $p < .05$) and averaged 9.9 months ahead of the control group at grade seven.

The retained in grade measure is a revealing measure of the relationship between the children who participated in experimental groups and the control group as experimental children were only half as likely to be retained in grade as control children by grade seven. In 1977, 25% of the experimental subjects and 50% of the control subjects had been retained. This difference is significant at the .01 level (chi square = 10.17, $df=1$, $p < .01$, Palmer, 1983).

Strong and persistent differences were found by social class on IQ, reading, and math achievement. Consistent differences existed between lower and middle class on IQ test scores in every cell of the design. Middle class children scored higher in math achievement on the MAT at grade five when compared to lower class children. Significant differences were observable by social class on reading achievement starting at grade three and persisting through all grades tested. ANOVA main effects were highly significant for program and control children at the eighth grade level [F , (1,179)= 12.15, $p < .001$].

The Harlem Study shows that two methods of training at ages two and three produced significant effects on the reading, math, IQ scores and number of children retained in

grade (Palmer & Siegal, 1977). Palmer's analysis has been confirmed by cross-study analysis of the Consortium for Longitudinal Studies (1979, 1983). Both sources support that minimal preschool intervention does produce durable effects.

Pooled Analyses: Findings Across Projects
Consortium For Longitudinal Studies

The Consortium for Longitudinal Studies (CLS) was established in 1975 to investigate the long-term effects of early educational intervention programs for children of low-income families. It included researchers who developed and evaluated early educational programs in the 1960's, including all of the programs summarized above.

The original studies were similar in many respects. Each had a specific curriculum, focused efforts on the children of low income families, was completed prior to 1969, and had an original sample in excess of 100 subjects. The projects were highly organized, with attention paid to planning, staffing, and monitoring. Children were tested to determine baseline abilities, and comparison groups were used to aid in the evaluation of program effectiveness. The goal of all of the programs was to enhance the children's cognitive abilities. The programs also differed in many respects, including the age at program entry, duration of

the program, amount of parental involvement, specific curriculum implemented, and program delivery.

All but one of the researchers whose studies met the criteria agreed to join the consortium. Thus, the consortium was not a sampling of preschool programs, but essentially the entire population of large-scale preschool intervention studies conducted in the United States during the 1960's. The goal of the Consortium was to provide a generalized assessment of the long-term effects of early childhood education across different programs. The findings of the resulting pooled analyses were generalizable in the same way as a thorough literature review, summarizing the best available information on the early intervention programs (CLS, 1979, 1983, Lazar & Darlington, 1982).

The original samples included children who were black (94%), were members of low-income families, whose mothers had completed 10.3 years of education, and whose head of household was an unskilled or semi-skilled worker. At the time of program initiation, 62% of the children lived in two-parent families (CLS, 1979).

The statistical methods used in the pooled analysis involved techniques from primary, secondary, and meta-analysis. Findings from the pooled analyses of the Consortium for Longitudinal Studies reveal that consortium programs produced an increase in the participants' Stanford-

Binet IQ scores that lasted for several years after program completion. The size of this effect appeared to decrease from a median IQ difference of 7.42 points at program posttest to a median difference of 3 points when the participants were tested 3 or 4 years later. Program participants started first grade with a significant advantage of 5.80 IQ points over their peers, although this advantage was not sustained.

The program/control differences on the WISC scores were not significant in most Consortium projects when the participants were 10 to 19 years old. In the analysis of achievement test scores, however, Consortium participants were found to perform superior to the controls, especially in Mathematics, in grades three through six (Royce, Darlington, & Murray, 1983).

Early educational experiences were associated with positive attitudes toward school achievement in the 1976 Consortium follow-up, particularly for females 15 to 19 years old. There were no differences between program and control participants on educational or occupational aspirations in adolescence, but older program graduates, ages 15 to 19 years, rated themselves higher on school performance than controls. Mothers of participants in middle childhood and adolescence had consistently higher occupational aspirations for their children than the children had for themselves. Control mothers and their

children did not show this difference (Lazar & Darlington, 1982).

Systematic analyses of school competence demonstrated substantial and significant program effects on special education placement and retention and a combination of the two. Increasing differences between controls and participants were found through grade seven, with progressively higher percentages of control children failing to meet school requirements at each grade level. Program and control differences reach educational significance at grade six for placement in special education ($p=.059$, $p\leq.001$) and at grade five for retentions ($p=.025$) and for the combined category of retention and placement in special educational programs ($p=.043$). The effect of program remained significant and robust for special education placements and the combined category, but leveled off for grade retention when measured at grade 12 ($p=.009$, Royce et al., 1983).

Results of the pooled analysis at grade 7 and 12 were consistent with the conclusion of the initial studies; early educational programs benefit high risk children in preparing them to meet the school's basic requirements for adequate performance, as measured by reduced incidences of special education or grade failure. The finding was not due to any initial program differences such as differences in

sex, ability, race, or early family background (Lazar, 1983).

Program participants were significantly more likely to earn a high school diploma than were controls. The differential between those who did graduate and those who did not averaged 15%; a figure which is both substantial and educationally meaningful. Participants who attended preschool were significantly more likely to have higher occupational expectations than did controls after high school. Preschool graduates wanted to work in white-collar rather than blue-collar positions and expected to attain their aspirations (Lazar, 1983).

Independently and collectively, the major studies of early intervention with low-income/high risk children demonstrate the positive effects of preschool programs throughout the childhood and adolescent years and on into early adulthood.

Head Start

Results of early intervention programs for high risk/low-income children cannot be explored without surveying the Head Start movement of the 1960's. As indicated earlier, during the 1950's and 1960's, psychologists and educators began to study the effects of early experiences on human development. That research

suggested that preschool education might be an important step for disrupting the cycle of poverty experienced by large numbers of Americans (Bloom, 1964; Bronfenbrenner, 1975; Clark & Clark, 1976; Deutsch et al., 1974; Gray, 1974; Lazar, Hubbell, Rosche, & Royce, 1977, Ryan, 1974).

Combined with powerful social and political factors, this notion led to the authorization of Project Head Start in 1965. The launching of Head Start was an experiment designed to provide child development services to low-income families. It was initially a six-week summer program, but was expanded to full-year term programming. Head Start has served over 8.5 million children since its inception over 20 years ago.

Among its comprehensive objectives are the following:

- 1) Improving the child's health and physical abilities;
- 2) Fostering the emotional and social development of the child by encouraging self-confidence, spontaneity, curiosity, and self-discipline;
- 3) Promoting the child's mental processes and skills with particular attention to conceptual and verbal skills;
- 4) Establishing patterns and expectations of success for the child in order to create a climate of confidence for his future learning efforts;
- 5) Increasing the child's ability to relate positively to family members and others, while at the same time strengthening the families ability to relate positively to the child;
- 6) Developing in the child and in the family a responsible attitude toward society and fostering

constructive opportunities for society to work together with the poor in solving their problems;

- 7) Increasing the sense of dignity and self-worth within the child and his family (Stanley, 1972, p. 64).

These objectives have continued to guide Head Start, but the program has evolved considerably since its inception. Most early Head Start centers were hastily assembled copies of middle-class nursery schools. Well-tested and generally accepted curricula for providing enriched experiences to poor children were not generally available in 1965. That information is now available.

Hundreds of studies, funded both publicly and privately, have focused on the success of Head Start in meeting these objectives. The studies vary widely in sample size, subject, design, topics addressed, and findings. Some of the studies measure changes in the participants from pre- to post-program, while others compare children who had attended Head Start to children who had no preschool experience.

Research has tended to concentrate on changes in children's cognitive performance, with many fewer studies examining Head Start's effects on socio-emotional or physical development. A limited number of studies has followed Head Start children and their controls longitudinally to determine the stability of program effects over time. Findings of Head Start studies vary widely, with

some studies showing significant impact of program, negative impact, or no impact at all. Many of the programs showing a positive impact were programs of longer duration with well formulated objectives focusing on what was to be evaluated, and where the children's initial level of performance was lower than the norm (Stanley, 1971).

One of the most widely known early evaluations of Head Start was the Westinghouse Report (Westinghouse Learning Corporation, 1969). It was one of the first evaluations funded by the Office of Educational Opportunity (OEO). The report was designed to provide a quick assessment of the average long-term effects of Head Start by comparing Head Start with non-Head Start children on standardized tests one, two, and three years after entering public school (Seitz, Apfel, Rosenbaum, & Zigler, 1983).

A sample of 225 Head Start centers were selected for analysis, 104 agreed to be included, 10% providing summer only programs. The experimental program was comprised of first, second, and third graders who attended centers between September 1966 and August 1967. Children from the same grade and schools were chosen for a comparison group and were matched for age and sex. The children were administered a series of cognitive and affective tests. The parents and Head Start Directors were interviewed and the elementary school teachers rated the children on a variety

of school-specific data. The study used a post test only design (McKey et al., (1985).

Children who had attended the summer-only program showed no measurable advantage over the control children in any academic area evaluated. Full year Head Start children scored higher on two measures of cognitive ability than did the control children. These were the Metropolitan Achievement Test (MAT) (MAT was administered in grade one) and on two subtests of the Illinois Test of Psycholinguistic Abilities (ITPA). The Westinghouse Learning Corporation (1969) evaluators concluded on the basis of a few main effects that "although this study indicates that full year Head Start appears to be a more effective compensatory educational program than summer Head Start, its benefits cannot be described as satisfactory" (p. 11).

The Westinghouse Report was controversial from the onset. Objections were expressed concerning the lack of randomization, the research design, and the lack of documentation concerning the quality and type of programs included in the study. Despite the criticisms, the report was influential in altering public opinion concerning compensatory educational programs and reducing the funding of such programs.

One of the more recent evaluations of Head Start was a government sponsored report, The Impact of Head Start on Children, Families, and Communities. It is the final report

of the Head Start Evaluation, Synthesis, and Utilization Project (McKey et al., 1985). The Synthesis project centered on a meta-analysis of all available studies of Head Start's impact on children's cognitive, socio-emotional, and health status and the impact the Head Start program had on families and communities. The Executive Summary of this report summarizes the findings of the meta-analysis as follows:

Children enrolled in Head Start enjoy significant immediate gains in cognitive test scores, socio-emotional test scores and health status. In the long run, cognitive and socio-emotional test scores of former Head Start students do not remain superior to those of disadvantaged children who did not attend Head Start. However, a small subset of studies finds that the former Head Starters are more likely to be promoted to the next grade and are less likely to be assigned to special education classes. Head Start has also aided families by providing health, social and educational services and by linking families with services available in the community. Finally, educational, economic, health care, social service and other institutions have been influenced by Head Start staff and families to provide benefits to both Head Start and non-Head Start families in their respective communities (McKey et al., 1985, p.1).

The meta-analysis into Head Start's effects on cognitive development used data provided by 72 studies. The vast majority of studies found that Head Start has immediate positive effects on children's cognitive ability, but that these effects are not lasting. McKey et al. (1985) did find that Head Start affects the long-term school success of its participants. Children who attended Head

Start programs are less likely to be retained in grade or to be placed in special education than children who did not attend.

The Synthesis study also drew a variety of conclusions concerning effects of various Head Start program characteristics and child and family characteristics. The Synthesis Project has a more comprehensive definition of effects of Head Start programs than many earlier studies in that it looks beyond cognitive effects.

A meta-analysis of the results of 17 studies provided information about Head Start's immediate and long-range effects on self-esteem, social behavior, and motivation to achieve. Head Start has immediate positive effects on children's self-esteem, social behavior and achievement motivation. Participants scored higher in all areas than comparison groups of non-Head Start children. Two years after program completion, Head Start children continued to score higher than comparisons on measures of social behavior. The scores dropped to the level of the comparison children after the third year.

Many researchers (cf. Crawly, 1966; Bee, 1981) suggested that children who attend intervention programs may develop the desired social competencies to adapt more readily to their school environment and achieve more "real life" academic successes than children who do not

participate in such programs. The children appear, from the samplings of studies in this area, to progress on schedule in school and are more able to satisfy requirements for remaining in the regular classroom, resulting in significant economic and social cost savings (Weber et al., 1978).

Head Start has a profound effect on the health of the children enrolled. Information derived from 34 studies indicated that Head Start programs provided a range of services including medical and dental examinations; speech and language assessments, developmental assessments; and vision and hearing screenings (McKey et al., 1985).

Participation in Head Start programs appeared to improve the general physical health of the participants. Children participating in the program have less pediatric problems and have a level of health more comparable to children who are more advantaged (Abt, 1978, 1984).

Parents of Head Start participants not only are pleased with the benefits their children have received (McKey et al., 1985), but in addition, those who have directly participated appear to have a higher level of psychological well-being, have improved both their economic and social status, and have children who have made greater gains in developmental achievement. Attempts to change parental opinion regarding the value of education, however, generally have been unsuccessful. Parent education programs have,

likewise, been generally unsuccessful (Abt, 1978; McKey et al., 1985).

The Synthesis Project (McKey et al., 1985) is not without criticism. Schweinhart and Weikart (1986) made the observation that although 210 programs were included in the sample, those programs are not representative of ones that have operated through the last 20 years, nor of the programs currently run by 1,800 agencies, and are therefore not generalizable to all Head Start programs. Further, Bridgeman (1985) and Schweinhart and Weikart (1986) questioned the inclusion of low quality of design studies in its data base.

What, then, do we know about Head Start? Adequately funded intervention projects that have a competent teaching staff can achieve the kind of quality program that will lead to long term benefits. Schweinhart and Weikart (1986) presented an interesting thesis, suggesting that evaluations, as represented in the Synthesis Project, did not provide the only rationales for programs such as Head Start. As long as more middle-class children than than their low-income peers attend preschool programs, Head Start or any other programs can be justified for low income children on the grounds that they provide equal educational opportunity.

High Risk Preschool Intervention in North Carolina

What is being done for high risk preschool children in North Carolina? Some programs do exist for high risk children. Interest in intervening in the education and development of high risk children and their families is building statewide.

State Superintendent Craig Phillips appointed an 11 member study commission to examine the potential for developmental programs for prekindergarten children in September of 1984. The commission recommended that the State Superintendent of Public Instruction provide leadership in:

involving the public schools in reducing the latch-key children problem, exploring funding for three- and four-year old pilot programs, and expanding the dialogue between and among the public schools and other sectors, agencies, institutions, and parents interested in the present and future welfare of prekindergarten children in North Carolina (Kahdy, 1985, p.13)

The report received mixed reactions. Private day care owners voiced the heaviest objections, fearing that schools would take over and replace them (Kahdy, 1985). The North Carolina Day Care Association is an effective lobbying power in the State Legislature.

In November of 1986 a two day conference was held on public preschool programs for low-income families. It was seen "as a beginning step in reaching broad agreement on what a quality preschool program for our state should

include" (North Carolina Association for the Education of Young Children News, p.1). Conference participants concluded that a need for a new public preschool program existed for all the state's children and their families, not just for low-income families. A document of the conference proceedings was prepared and ratified in January 1987. It outlined major areas of consensus and recommendations, including that a citizen/government task force be appointed to conduct a long-term study of preschool related issues in North Carolina.

North Carolina public schools currently operate a number of preschool programs for high risk children including preschool programs for exceptional children, Head Start, and preschool programs utilizing Chapter 1 funding. These efforts are reviewed below.

A new Preschool Grant Program has been established as a part of the Exceptional Children Program statewide to provide services to three-, four-, and five-year-old handicapped children under public law 99-457. It replaces the Incentive Grant Program governed by Public Law 94-142, but does not provide services to at-risk or developmentally delayed preschoolers. Children eligible for the program must be three or four-years-old and be diagnosed as having a handicapping condition. Children must be educable, trainable, or severely/profoundly mentally handicapped; have specific learning disabilities; be emotionally, visually,

speech impaired; deaf; or multi-handicapped (North Carolina Department of Human Resources, 1986). The state funding level appropriated for 1987-88 is estimated to be \$6,598,000. Two state operated programs and 111 Local Administrative Units are eligible to submit programs for funding in the 1987-88 school year. A major thrust of the legislation encourages local school units to form an inner-agency council to identify the needs of preschool handicapped children within the community.

The State Preschool Planning Committee organized a Needs Assessment Task Force to determine service needs for North Carolina's handicapped and high risk preschoolers in 1986. The group concluded that most preschool age handicapped children do not have equal access to education and related habilitative services. They recommend a prevalence rate of preschool handicapped and high risk children needing services as defined by their target population and based on 1985 North Carolina State Health Center for Health Statistics data. A prevalence rate of 4.9% was suggested for the birth to two year age, and for the three- to five-year-olds. Using the prevalence rate of 4.9% for both age groups, it was determined that 12,467 children in the birth to two and 11,910 three- to five-year-olds are in need of intervention services. The need projections include handicapped children and high risk

children. It is possible that some of the same children are included in both estimates. This could occur if a child received services from more than one agency. Not all eligible handicapped children are receiving currently services. The new legislation, (PL 99-457) should provide the means to extend services to all preschool handicapped children by 1990-91.

Head Start is available in North Carolina for economically disadvantaged three- and four-year-olds. There are 476 classrooms in the 232 centers that exist in 91 of the 100 counties in North Carolina. Congressional mandate requires that at least 10% of the enrollment include handicapped children. The North Carolina State Preschool Planning Committee reports that for every child served by Head Start, there are four children who are not served. Thus, it is estimated that 80% of the children statewide who are eligible for Head Start are not being served (North Carolina Department of Human Resources, 1986). Head Start is totally funded by the federal government.

Chapter 1 funding has been utilized since the Fall of 1977 to implement pre-kindergarten programs within three Local School Administrative Units (LSAUs) serving four-year-olds in full day/school year programs. Seven additional pre-kindergarten programs were implemented in the fall of 1987, bringing the total to 10. The objective is to reduce the need for remedial instruction later in the school career

of high risk children. Program administrators hope that students will be provided the opportunities to diminish educational inequities before beginning the kindergarten program. The cost of the program per participant ranges from \$2,000 to \$3,300 each program year. The pre-kindergarten classroom is an integral part of the total school program in each LSAU with pre-kindergarten classes participating in assembly programs, media, and physical education instruction. Both formal and informal evaluation procedures are used and a recommendation has been made to follow the program participants longitudinally to determine if program gains are sustained over time.

Statistics on current North Carolina pre-kindergarten programs are provided in Table 13. Mecklenberg County, the largest program, served 576 preschoolers in the fall of 1987. All of the other school systems fund one to two classrooms as a pilot program. Durham City has provided an intervention program to high risk preschoolers since the fall of 1977 and currently funds four programs.

Chapter 1 intervention programs stress language, motor, cognitive development, development of good self-esteem, and social skills. A variety of tests are used for diagnosis and program evaluation. All Chapter 1 programs must submit statistical information concerning program effectiveness annually and achievement data every three

Table 14

Chapter 1 Prekindergarten Classrooms in North Carolina

LSAU	Maximum Class Size	Total Classes	Students Served	Number of Teachers/ Assistants
Asheboro City	20	1	20	1/1
Durham Co.	18	4	72	4/4
Granville Co.	18	1	18	1/1
Hertford Co.	17	1	17	1/1
High Point City	18	2	36	2/2
Lexington City	15	2	30	3/3*
Mecklenberg Co.	16	36	576	36/52*
Northampton Co.	20	2	40	2/2*
Vance Co.	20	1	20	1/1
Warren Co.	20	1	20	1/1

* includes one locally-funded position

** includes 16 part-time clerk-aides

(North Carolina Department of Instruction, Division of Support Services, 1987)

years. Unlike some Head Start and preschool intervention programs, these children will be followed to ascertain if program gains are sustained. Chapter 1 guidelines require that achievement data be gathered over a minimum of three points in time. The amount of time between the first and

third points must exceed one year (North Carolina Department of Public Instruction, Division of Support Services, 1987). Chapter 1 coordinators hope that school systems will encourage program directors to continue these evaluations after preschool participants enter public school to determine if gains are sustained beyond the elementary grades. Informal observational assessments are conducted to evaluate social and emotional growth. In addition to formal testing, program evaluation is conducted by parent surveys and interviews as well as surveys of teachers and administrators.

Interest is being expressed across North Carolina concerning public programs for preschool children, especially high risk preschoolers. Many LSAU's are taking the initiative to meet the diverse needs of the high risk population by providing public preschool intervention using Chapter 1 funding. The needs of North Carolina's high risk preschoolers are critical and their numbers are great. The State Preschool Planning Committee (North Carolina Department of Human Resources, 1986) reported that the preschool years are the most critical time in a child's growth and development. The earlier a developmental delay of any type is identified and treated, the better the prognosis for the child's development. Chapter 2 has shown that there are children in North Carolina who, for a variety of reasons, are at risk of school failure. Chapter 3

provided a wealth of data on the effectiveness of preschool intervention in preparing high risk children to successfully meet the demands of public schools and presented the cost benefits of the programs. Chapter 4 will analyze North Carolina's intervention efforts and demonstrate the feasibility and need for further intervention.

CHAPTER 4

ANALYSIS OF INTERVENTION NEEDS IN NORTH CAROLINA

North Carolina's children are a most precious resource, for it is the children who will determine the future for the state and its residents. With the future so uncertain, it is no longer fiscally responsible to allow great numbers of children to leave the educational system ill-equipped to function in an ever changing, ever more complex marketplace.

Chapter 2 documented both the extent of the problem nationally and specifically in North Carolina for high risk children, and current state efforts of North Carolina public schools to meet the needs of this population.

Chapter 3 surveyed high quality preschool programs for high risk children nationally and statewide, and documented their program and cost effectiveness. The type of curriculum presented, age of program participants, and treatment varied greatly among the projects, but the intervention itself proved to be the greatest indicator of success.

The goal of this chapter is to analyze current efforts for high risk children in North Carolina, demonstrate the feasibility and need for further intervention, and present an argument that a preschool intervention program for North

Carolina's high risk children could effectively meet this need.

North Carolina has many children who, for various reasons, enter the public schools at risk of school failure. Many environmental characteristics were identified that may contribute this including poverty, single parenthood and its resulting problems of poverty and inadequate childcare, unstimulating day care situations, teenage pregnancy and resulting difficulties for both mother and child, and the trauma of divorce.

The strategies and programs currently being implemented in the North Carolina Public Schools to meet the educational needs of this high risk population were surveyed. Current statewide efforts by public schools to intervene in the lives of high risk children include identification through the Annual Testing Program and remediation through the Basic Education Plan's Summer School, Chapter 1 Programs, Exceptional Children Programs, Dropout Prevention Programs, and the Competency Test Program.

The numbers of children served in each of these programs, the funding allotment, and per/pupil/year cost is provided in Table 15. Also provided is the per pupil cost to the state for retention in grade and loss in funding to the North Carolina schools for dropping out. North Carolina is currently serving approximately 429,252 students in

intervention programs at a cost to taxpayers of \$492,480,913 a year.

Table 15

Number of Students Served in State and Federal Programs and Total Funding Allotments for 1985-86

Programs	Students Served	Funding Allotment	Per/Child Cost
Ch 1 Programs*	125,353	\$76,875,436	\$ 613
Except. Child*	114,685	\$140,369,779	\$1,224
Dropout Prev.	56,499	\$13,091,249	\$ 232
Summer School	34,989	\$10,500,000	\$ 300
Retention	73,927	\$190,362,024	\$2,575+
Dropout Loss	23,799	\$61,282,425	\$2,575+
Totals	429,252	\$492,480,913	

* Federal Funding

** High Risk only, does not include academically gifted

+ Average per pupil expenditure in NC for 1 year of schooling

(North Carolina Department of Public Instruction, Division of Statistical Services, 1986)

While these efforts are entirely necessary and in many cases very effective in terms of better educating North Carolina's young people (North Carolina Department of Public

Instruction, Division of Support Services, 1986) findings from longitudinal research (Consortium for Longitudinal Studies, 1983; Lazar et al., 1982; Schweinhart & Weikart, 1986, 1987) suggest that our efforts at intervention would prove more effective if initiated earlier, before the onset of public school kindergarten. Chapter 3 presented research from the Consortium for Longitudinal Studies (1979, 1983; Lazar & Darlington, 1982) using meta-analysis gathered from high quality preschool intervention projects. These researchers suggested that effective preschool intervention programs help high risk children do better in school and avoid later problems that have their roots in school failure, such as, decreasing retention rates, placements in special programs, and number of students dropping out. Additional findings from the Perry Preschool Project, a member of the Consortium for Longitudinal Studies, indicate that a quality preschool program can lead to an improvement in achievement throughout a child's years in school, reduced rates of juvenile delinquency and arrest, lower incidences of teenage pregnancy, an increased rate of employment at age 19, and a decrease in the rate of welfare dependency at age 19 (Schweinhart, 1985).

The results of the analyses indicate that preschool intervention programs affected high risk children in ways that were both educationally and statistically significant. This significance is impressive considering the relatively

small input of time these programs represented in the children's total lives. The duration of most of the programs represented by the Consortium operated for only a few hours a day over a year or two. Parent participation was only stressed in a small portion of the studies and few attempts were made in the programs to retrain parents or change the child's home environment. Few programs provided follow-up initiated to support or maintain any gains the participants might have achieved. Despite these deficits, the programs had long term effects.

More must be done in North Carolina to help the high risk child. This is important not only because our children are such a precious resource, but because investing in the future of our children is fiscally responsible if we consider the current costs for remedial and compensatory programs, the talent and revenue these children will bring to the state in the decades to come, and a better quality of life for state residents as a whole. Data from the cost-benefit analysis conducted by the High/Scope Foundation for the Perry Preschool Project (Berrueta-Clement et al., 1984; Barnett, 1985) indicated that preschool intervention can be an excellent financial investment for taxpayers. An initial investment of \$5,000 per participant per program year (1985 dollars) yielded benefits to taxpayers of approximately \$28,000 per participant or nearly six times the initial cost

of the one year program. North Carolina is currently spending more than \$492,480,913 annually on more than 429,252 children in high risk programs (North Carolina Department of Public Instruction, 1987). Since early childhood intervention programs are very effective at preparing high risk children for public school, increasing their achievement and attitudes toward school, reducing retention, placement in special programs, and dropout rates (CLS, 1983; Schweinhart & Weikart, 1986) it is likely that less money would be needed to fund remedial and compensatory programs at the elementary, middle, and high school levels. It is also likely that young adults who are better prepared academically will be more prepared to succeed in the workplace. Public expenditures accrued due to chronic unemployment, welfare, crime, alcoholism, and other substance abuse would be reduced. Cost savings for increased long-term employability could be enormous. Monetary considerations aside, the quality of living for all North Carolina's people could be improved as a result of a higher literacy rate and more educated citizenry.

Information is available concerning the effects of preschool intervention programs on high risk children, but a discrepancy exists between what is known to be effective and the programs currently being funded in North Carolina. Federal and state funding are supporting only a handful of preschool programs for high risk children.

Pilot efforts at preschool intervention utilizing Chapter 1 funding are in the infant stages with only 8 North Carolina school systems serving 860 children. These school systems are diverting funds previously used for Chapter 1 programs at higher grade level, thus cutting programs for at risk children already in school. Head Start currently serves 10,462 children, only 18% of the children eligible (Rivest, 1987). This leaves 46,800 children who are eligible for Head Start services who are not being served by Head Start or Chapter 1 preschool funds. Head Start currently costs \$2,075 per child/year in North Carolina. Using the Head Start per child/year rate of \$2,075, North Carolina could fund the 10,462 children who are currently eligible for Head Start, but not being served by a program for \$21,708,650 a year. Data from the Perry Preschool Project's cost/benefit analyses suggested that the \$492,480,913 currently being spent for high risk intervention by North Carolina public schools could be significantly reduced over time with less than a 22 million dollar investment.

Table 16 presents data from the Early Learning Project and the Perry Preschool Project of the percentage of difference between experimental and control group children on special education placements, retention in grade, and high school dropouts. The "students not needing services"

category was arrived at by multiplying the percentages of children not needing services by the "Students Served" category in Table 15. Data were not available on Chapter 1 programs or Summer School placements. The reader is also reminded that, although they represent high risk children, the students served by the Early Learning Project and the Perry Preschool Project did not live in North Carolina, nor were they educated in the North Carolina Public Schools. The data from these studies are used only to provide a raw estimate of possible program savings.

Table 16

Projected Range of North Carolina Students Not Needing Special Educational Placement, Being Retained in Grade, or Dropping Out of High School Due to Public School Interventions Findings

	Perry Presch. Project Finding	Early Tr. Project Finding	NC Students Not Needing Services
Sp Ed Plmts	12%	26%	13,762-29,818
Ret in Grade	5%	16%	3,696-11,828
Hi Sch Dropouts.	18%	21%	4,284-4,998

(Berrueta-Clement et al., 1984; Gray et al., 1982; North Carolina Department of Public Instruction, Division of Statistical Services, 1986)

Table 17 uses data contained in Table 16 for students not needing special educational placement, being retained in grade, and dropping out of high school due to intervention to arrive at a cost per program savings to the state of North Carolina. The amount of savings is more than the cost of one year of preschool intervention using Head Start per pupil funding levels. The program savings on combined categories of special education placement, retention in grade, and dropping out is 1.7 times higher using the Perry Preschool data and 3.7 times higher using the Early Learning data than the cost of one year of preschool education.

Table 17

Savings on Special Educational Placement, Retention in Grade, and Dropping out of High School Versus One Year of Preschool Intervention.

	Savings Using Data From:		
	Early Training	Perry Preschool	Cost of 1 Year of Preschool
Spec. Ed Placements	\$16,844,688	\$36,497,232	
Retention in Grade	\$9,517,200	\$30,457,100	
High School Dropouts	\$11,031,300	\$12,869,850	
TOTAL	\$37,393,188	\$79,824,182	\$21,708,650

(Berrueta-Clement et al., 1984; Gray et al., 1982; North Carolina Department of Public Instruction, Division of Statistical Services, 1987)

The cost benefit analyses conducted by the High/Scope Foundation for the Perry Preschool Project provided cost savings for crime reduction, welfare savings, and additional tax dollars paid by participants. While the present analysis made no attempt to determine these savings, such an analysis would provide an even more dramatic cost savings for North Carolina.

Providing early childhood intervention programs for high risk children is not a panacea. These programs may not solve all the educational and social problems high risk children face. But we now know that providing at risk children early in their lives with high quality preschool programs can improve their chances for academic and lifelong success. We know that these programs can provide a benefit to society as well.

Current efforts by North Carolina for high risk children have been analyzed. The need for further intervention is critical. Preschool intervention studies have suggested that providing early education to high risk children is effective in terms of program and cost. North Carolina must take the initiative and move to invest in children's programs generally and preschool intervention specifically. It has been shown that the state could, in fact, eventually reduce the cost of special programs for at risk students.

The time has come when, as a matter of pure economics, society cannot afford to loose a single child from the classroom. Early childhood intervention programs are one way of circumventing school failure for many children at risk. These and other programs supporting high risk children throughout their school careers are important. They are important not only because our children are such a precious resource, but because an investment in our children is fiscally responsible. The future of the quality of life in North Carolina for all of its residents depends upon the children of today.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Conclusions reached, based on the analysis are that the situation for children at risk of school failure in North Carolina is critical. Children are placed at risk as a result of a variety of factors. Two percent more children grow up living in poverty in North Carolina than is the national norm. Growing numbers of mothers find it necessary to work outside of the home, often placing children in day care situations that are less than adequate for providing the stimulation necessary for academic and social development. North Carolina has 12% more mothers working than is the norm nationwide, creating a greater need for child care than in most other states. Another factor contributing to children at risk is North Carolina's high rate of teen pregnancy. Twenty-five thousand 10 to 19 year-olds became pregnant in 1981, placing themselves and their children at risk of educational loss, poverty, and medical problems. Divorce contributes to placing growing numbers of children at risk of increased rates of special placement and school suspension, a risk that increases when family disruption occurs during the child's preschool years. Children at risk are more likely to perform poorly upon entering the public schools because they have not developed,

to the same degree as children more academically and socially prepared, the skills, habits, and attitudes expected of children in kindergarten and first grade. This lack of development is manifested in low test scores on intelligence and achievement tests, and poor school performance. Lack of readiness for school can lead to preventable low scholastic achievement, retention in grade, placement in academic remediation programs, or eventually dropping out of high school.

Achievement score data reveal that many children who enter the North Carolina schools at a disadvantage continue to regress each year until they exit the educational system. These individuals, as a consequence of their poor education, suffer economic deprivation and alienation from the mainstream of society, a condition which perpetuates into the next generation, creating a bleak future for their offspring.

In an attempt to circumvent the school failure experienced by at risk students, North Carolina has legislated extensive programs to identify and offer remediation to high risk children including the Annual Testing Program, the Basic Education Plan, and the Competency Testing Program. Qualifying students are offered additional support through Chapter 1, Exceptional Children and Dropout Prevention Programs. Eight North Carolina school systems have taken the initiative to pilot preschool

intervention programs for high risk children by diverting Chapter 1 funds serving approximately 860 children in the 1987-88 school year. Although North Carolina is providing programs targeted at children at risk, more extensive support is needed.

The available evidence suggests that one way to prevent early scholastic failure by at risk children is to provide the young child with preschool intervention programs. Educational interventions have been proposed by a variety of theorists and reformers, but systematic research on the effects of preschool intervention did not occur until recent times. The 1960's, an era of social and political awareness of the problems of the poor, ushered in a number of preschool intervention programs that included well-designed evaluation components offering hope to children at risk of school failure. These preschool intervention studies found that early programs improve children's intellectual performance as school begins, although this advantage appears to be only temporary. Further, they reduce the need for children to be placed in special education programs or repeat grade levels because of an inability to complete the tasks expected of them. Participation in these programs also leads to a lower high school dropout rate. Additionally, good preschool intervention programs can lead to consistent improvement in at risk children's achievement throughout schooling, reduced rates of juvenile delinquency

and arrest, reduces rates of teenage pregnancy, increased rates of employment at age 19, and a decreased rate of welfare dependency at age 19 (Schweinhart, & Weikart, 1985, 1986b).

Although only one cost-benefit analysis of a preschool intervention program has been conducted, the findings obtained from it are worth noting. The cost benefit analyses of the Perry Preschool program (Berrueta-Clement et al., 1984; Barnett, 1985) indicated that preschool intervention programs can be an excellent investment for taxpayers. The program cost of \$5,000 per participant/year (in constant 1981 dollars, discounted at 3% annually) netted benefits to taxpayers for reduced costs per participant of about \$5,000 for special education programs, \$3,000 for crime, and \$16,000 for public welfare assistance. Additional costs by participants for post-secondary education added about \$1,000, but participants were predicted to pay \$5,000 more in taxes because of increased lifetime earnings due to their improved educational attainment. Total benefits to taxpayers, therefore amounted to about \$28,000 per participant, or almost six times the initial cost of the one-year program or three times the initial cost of the two-year program. The return on the initial investment is large enough so that even a two-year program only half as effective as the Perry study would still yield a positive return on the investment.

Bronfenbrenner (1975) offered a construct that is helpful in understanding how the experience of an early intervention program might affect a child throughout life. He suggested that we look at life ecologically, as a series of interactions between people and settings, with performance and experiences in one setting affecting the child's access to the next setting, and so on. A child who performs successfully in the kindergarten is promoted to the first grade, while failure to succeed leads to kindergarten retention. Success in school occurs from minute to minute and from day to day instead of from year to year. Good early childhood experiences can help children get the right beginning. They are a formal cultural system with clear norms of what is right and wrong; experiences that can help a child build an interest in learning and a willingness to try new things, to trust those who will teach them, and to become independent learners. Good early childhood experiences also help the child to understand what behaviors are not acceptable, such as misconduct, rejection of school and adults, and the inability to respond properly to the requests adults make of them.

The scenario may be much different for the child at risk. For this child, school may be a confusing place of unfamiliar symbols, requests, and adults. The child who experiences difficulties in meeting these unfamiliar demands of public school may begin to feel frustrated and unsure of

self and ability to succeed. Inability to achieve competencies may lead to retention in grade, reinforcing feelings of worthlessness. This inability to meet demands becomes cumulative, causing the child to fall farther behind academically than his or her peer group. The child at risk may face multiple retentions or special placement, furthering frustration and negative feelings about school and self. Lack of success might lead to dropping out of school, which lowers earning power and ability to adequately provide for a family, thus, perpetuating the cycle.

Schweinhart and Weikart (1980) and Berrueta-Clement et al. (1984) proposed and tested a causal model of preschool intervention effects over time in an effort to understand the long-term effects of programs for children at risk. Their model builds on a framework that links short-, mid-, and long-term preschool effects. First, they propose that high risk children who participate in a good child development program are more prepared for school, both intellectually and socially. Second, when high risk children have a better start in school, they achieve greater school success as demonstrated through fewer placements in special education and retention in grade. Third, meeting with greater success in school leads to greater success in adolescence and adulthood, as demonstrated by lower rates of delinquency, teenage pregnancy, welfare assistance and unemployment.

The final report of the Head Start Synthesis Project (McKey et al., 1985) is a good example of short-term effects. The Consortium for Longitudinal Studies (1983) provide evidence relating to mid-term effects. The only long-term effects available come from the High/Scope Perry Preschool Studies (Schweinhart & Weikart, 1980, 1986b) whose children, now in their 20's, continue to be followed.

High quality early childhood intervention programs offer hope to children at risk of school failure, which is at the root of many of our nation's social problems. Preventing this unnecessary failure can benefit our society as well as the children involved. Research and experience from the 1960's to the present has provided the knowledge necessary to make these programs successful. We now have the knowledge to enable society to break the ecological barrier and avoid the school failure that may otherwise plague high risk children both socially and economically throughout their lives.

North Carolina is attempting to meet the needs of this high risk population through a variety of intervention programs currently serving approximately 429,252 students in kindergarten through grade 12 at a cost to taxpayers of \$492,480,913 per year. Since preschool intervention programs have proven their effectiveness at preparing high risk children for public school, it is likely that the number of students currently being served and the dollars to

fund their programs could be significantly reduced. North Carolina currently serves 860 preschool children using Chapter 1 funding. Head Start currently serves 10,462 children, only 18% those eligible. This leaves 46,800 children who are eligible for Head Start, but not being served by Chapter 1 or Head Start. Using the Head Start per/child rate of \$2,075 per year, North Carolina could provide programs for eligible, but unserved high risk preschoolers for \$21,708,650 a year. The program savings on combined categories of special education placement, retention in grade and dropping out are \$37,393,188 (1.7 times higher) using the Perry Preschool Program data and \$79,824,182 (3.7 times higher) using the Early Learning Project data than the cost of \$21,708,650 for one year of preschool.

North Carolina has a critical need for early intervention programs for high risk children. One might ask why such programs have not already been launched, given the research, cost-benefits of early intervention, and the possible savings to North Carolina taxpayers of a preschool intervention program. A variety of reasons exist.

North Carolina has many problems to address in considering how best to intervene on behalf of high risk children. The first centers around funding issues. North Carolina's record on spending in the educational arena is not impressive. North Carolina spent \$2,575 per pupil in

1985-86, ranking 45th nationally (North Carolina Department of Public Instruction, Department of Research, 1986). The total North Carolina budget for children's programs (not including education) in 1986-87 was over one billion dollars (Rivest, 1987). The biggest investor was not our own state government, but the federal government. Sixty cents of every dollar spent on children's programs in North Carolina comes from federal funds. We must further ask what we are willing to pay for poverty programs for disadvantaged children. North Carolina only funds 13% of the total dollars spent for these programs, the rest comes from the federal government. More than half of these funds are designated for three major areas; health care, food, and family support (Rivest, 1987). The concentration of funding, still inadequate, fails to meet many of the basic needs for the 335,000 or one out of four children in this state who currently live in poverty (North Carolina Child Advocacy Institute, 1987).

North Carolina's reliance on federal funding for children's programs creates an uncertain foundation for the future of her children. Funding considerations aside, poverty programs are subject to and shaped by federally defined objectives and eligibility criteria. Federal programs, especially those which help low-income children and families, have been subject to drastic cutbacks in funding since 1981 due to the Omnibus Reconciliation Act of

1981 and further reduced by the Gramm-Rudman Act of 1985. The growing federal deficit may further erode funding for programs supporting children's services.

Federally funded Head Start survived the last attack on its funding base due to Congressional action on its behalf, but is not free from losses in revenue. It has been effected peripherally through cutbacks in employment and training, the child food care programs, social services, and Medicaid. Since 1981, the Child Nutrition Act has been cut by 50%. Head Start, a cost effective program, is very inadequate, serving only 10,462 children per year or 18% of those eligible (Rivest, 1987).

North Carolina must begin to assume a greater share of the funding for children's programs and decrease reliance on federal funding, if the quality of these programs is to improve. If North Carolina does not take the initiative and begin to assume greater responsibility for the lion's share of funding these children's programs, the number of high risk children will increase as program number and effectiveness decrease.

A second reason why North Carolina has not initiated preschool intervention programs is due to the lobbying power of the North Carolina Day Care Association. This association has added fuel to the debate of whether the state needs to be involved in educating children before age five. Concerns have been expressed that state intervention

with high risk children would put the government in the child care business, and this group out of business by destroying the need for private day care centers in North Carolina. Large scale governmentally sponsored preschool programs for all children are unlikely at this time.

Preschool intervention programs for high risk children would not greatly affect private daycare operators as most the children typically attending high risk intervention are not from families who are usually able to afford quality day care. Social Services does pay tuition for a small number of disadvantaged children through federal Title XX Social Services Block Grants. However, since 1981, these funds have been cut by 21% (Rivest, 1987). North Carolina does not currently have enough day care centers to serve all children in the state who are in need of the service. Only 25% of North Carolina's children requiring child care services can be accommodated through licensed center-based care and registered family care homes (Rivest, 1987).

A third problem that must be addressed is who will control administration of intervention programs. The North Carolina Department of Instruction (NCDPI) and the North Carolina Department of Human Resources (NCDHR) each feel that they are uniquely qualified to administer preschool intervention programs for high risk children. This "turf war" has resulted in the delay of progress via the creation of a bill [SB 312 (substitute)] forming a study commission

within the North Carolina legislature charged with studying:

state early education programs, preschool services available to children and parents, the actual number of family care providers, the types of preschool experiences available for three and four-year-old children, and types of programs in other states {North Carolina Association for the Education of Young Children (NCAEYC, 1987)}.

The study commission would not be making a report until the 1989 session of the General Assembly, further delaying the move to intervene.

The debate over administration of preschool programs is a critical one for it will affect programs focus, placement, staffing, and cost. The current focus of the NCDPI is achievement-oriented and competency-based. Great importance is placed on raising achievement test scores through excellence in teaching. Public school administrators are under both internal and external pressure to monitor teachers closely to assure that the correlates of good teaching are present in each classroom. Because of this pressure, opponents of public school control of preschool programs have voiced fears of the current kindergarten and first grade curriculum moving down into the preschool. The opponents feel that the NCDHR would not be under these constraints and that their programs could be more child-oriented and less product-oriented. Some of the pressure could possibly be alleviated by creating a Division of Child

Development within the North Carolina Department of Public Instruction to administer the programs.

Decisions concerning placement of high risk intervention programs would be somewhat dependent on rectification of the control issue. Placement of the preschool in the public schools could be advantageous. There is available classroom space in many schools around the state due to declining enrollment. A public school placement would be more cost effective in terms of administrative personnel, support personnel, and an intact food services program. Equipment, media, materials, and educational programs (ie, physical education, speech, psychological services, and counseling) already available in public schools could be utilized by the preschool program. A preschool intervention program administered by the NCDHR could take advantage of these facilities by contracting with the public school to utilize classroom space, media, and educational programs.

As an aside, administration and placement of the preschool intervention programs outside the public school could result in unanticipated difficulties with other federal programs for at risk children. Federal funding is provided through Public Law 94-142 for the education of handicapped children. This law has been extended through PL 99-457 to include preschool intervention for handicapped children. The program is administered through the NC

Department of Public Instruction and is often housed in or near public schools. Placement of preschool programs away from the public schools would be further complicated legally by the inability to mainstream handicapped children with more normal children in the intervention programs. Preschool children with handicapping conditions, consequentially, would not be mainstreamed until age five. Children in the intervention programs administered by the Department of Human Resources might also be segregated from higher functioning children found in the public school who serve as role models.

Once a decision has been made to implement preschool intervention programs, many critical components of effective programming remain to be addressed. There are many critical components to high risk intervention programs that research has suggested will increase programs effectiveness, including opportunities for parent education and involvement, and curricular concerns. The implementation of these components also will be dependant on whether preschool programs are administered by the North Carolina Department of Public Instruction or Department of Human Resources.

A component of Head Start research which has had positive implications for the child and the family in both cognitive and non-cognitive areas is parental involvement. Parents can and should be involved in the intervention

effort in any of a number of ways, including: employment in the program, home visits by the staff, educational programs for the parents, and participation in decision making about the program. High levels of involvement have, in the past, increased the educational aspirations of the parents for the children and for themselves. Head Start's practice of hiring parents to aid in the education of their children has resulted in many parents earning high school equivalencies and the Child Development Associate (CDA) certification. Parent involvement has improved the quality of life for children and parents by providing the ability to better educate and provide for their children through employment in child related fields (child care and assisting in public school classrooms) and business and industry. Parental involvement has also provided support and knowledge about acquiring existing community services to high risk families including food, shelter, medical, and educational services. The home visit component has assisted parents of high risk children in developing the skills necessary to be better parents to siblings.

The North Carolina Department of Public Instruction already has a parental involvement component by implementation of the Community Schools Act. Expansion to include the preschool programs would not prove difficult. The programs could be further expanded to include a parent education and support component. Parents from all socio-

economic levels are currently participating in the Quality Assurance Teams organized at each building level in the state's schools. The North Carolina Department of Human Resources would have to implement a parent component should they assume administrative control.

The results of the pooled analysis of the Consortium for Longitudinal Studies (CLS, 1983; Lazar et al., 1982) indicate that there were no differences in program by curriculum and that variety of child development curriculum designs are effective intervention tools. A child development curriculum enhances social, physical, and intellectual development and is based on the principle that children learn from their environment. Roopnarine and Johnson (1986) recently compiled a book on curriculum models for preschool programs offering eight variations of the child development approach. The High/Scope Foundation (Yspilanti Perry Preschool Program) has developed a child development curriculum model based on Piagetian principles (Hohman et al., 1979). Curricular choice aside, effective programs were supported by good supervision, daily planning, and effective program evaluation. Regular inservice training should be provided to aid the teaching staff in developing a sense of ownership in the curriculum.

The issues of staffing, inter-agency coordination, budgeting, and program length are critical factors and will

need to be considered as a statewide intervention effort is launched. These factors are all contingent on administrative control as programs administered by each would have the likelihood of being very different.

The two issues of staff salaries and staff certification, licensure, or credentialing have a high likelihood of delaying progress toward a statewide goal of providing early intervention for high risk children. Historically, preschool educators have received lower salaries than have public school teachers with the same educational preparation. A preschool intervention program administered by the public schools would be more likely to attract and retain qualified personnel due to a higher salary scale. A Bachelor's degree is required of all public school teachers in North Carolina. Preschool education requirements vary among programs, depending on whether the administering agency is the public school, Head Start, a private preschool program, or a public child care program. Placing the intervention effort in the public schools might possibly ensure certified teachers and equitable pay, but concerns of certification and program cost would surface. Controversy would ensue concerning whether the preschool teaching staff should hold a child development certification (preschool) or an early childhood certification (kindergarten through fourth grade). A preschool teaching staff with a child development certification might help

ensure that the curriculum would be appropriate for preschool children, quieting concerns voiced by some early childhood advocates that kindergarten and first grade expectations will be applied to three- and four-year-olds if preschool intervention funds are administered by the NCDPI.

Program cost would become a concern if certified personnel were utilized. Eighty percent of the cost of a preschool program can be attributed to personnel salaries (Lazar, 1988). Clearly, the more a preschool program costs in terms of administrative and personnel costs, the fewer number of children can be served. Consortium projects differed in personnel, from parents and uncertified teachers to graduate students. There were no program effects related to years of training. They did, however, find that the one background characteristic of teachers that related to effectiveness and quality of program was the presence of early childhood training, rather than the years of schooling or degrees. A preschool program utilizing two-year certified preschool personnel with four-year certified teacher supervisors could cut program cost and satisfy program quality controls at a cost substantially lower than utilizing several teachers with advanced degrees. Quality staff development should also be provided on a regular basis as this was found in Consortium studies to be a factor contributing to success (Lazar, 1988).

Length of school day and year will be important factors to consider in planning an early intervention program for the state's high risk children. The 6 to 7 hour day, 10 month operating schedule currently found in North Carolina's public schools is not convenient for working parents. A preschool program administered by the NCDPI could, with proper planning, utilize a longer operating schedule than the regular school day and year. This could be achieved by using the same facilities and paying staff interested in working more hours per week using a creative co-mingling of funds and resources from other sources to resolve some of the child care problems for eligible families. A NCDHR administered program would be operating under different constraints and could possibly run full day programs, operating year-round, if funding permitted.

It will be important to the overall effectiveness of North Carolina's early intervention effort to have developmentally appropriate services which meet the needs of the total child. The Head Start model, which focuses on health, mental health, nutrition, social services in addition to its focus on the cognitive domains can provide guidance in planning. All social agencies dealing with children should have input in the planning and coordination process. Input can be achieved by the establishing of an inner-agency council. Councils such as these have the potential for bringing relevant departments together in

state and local government. It could be the responsibility of the council to work out any turf issues and insure that comprehensive, age appropriate services are provided with state funds. State-level inner-agency councils could be the forum for debating many issues, including salaries, credentialing, programs standards, and program evaluation. The inner-agency council could be comprised of social service, medical, mental health, educational, and parent representatives.

There are many options concerning how best to deliver early intervention services to high risk children and their families. One way to achieve this goal is to budget additional state funds for pre-existing programs by allocating extra funding to Federal Head Start programs or Chapter 1 programs to school systems around the state who have preschool intervention programs in place. A second approach is to begin with pilot programs in a few sites. Pilot efforts should be carefully evaluated to determine if the intended long-term effects can be reasonably expected, based on effects found in the early years of school. Program coverage could be expanded if these pilot efforts appear to be effective. Third, funding could be allocated to provide services contracted to a combination of day care homes, centers, schools, expanded Department of Human Resources programs and Head Start. Administration of a pluralistic system involving several entities such as these

might prove difficult administratively, but could offer more variety to parents.

Preschool intervention in North Carolina could take many forms and could be administered in many different ways. Care should be taken, however, to determine program effectiveness. Historically, programs to help North Carolina's high risk children have evolved from a perceived need to help. Little care has been taken to determine, if indeed, these programs are effectively meeting the needs of high risk children. Program planners must remember that the appropriateness of a practice or the success of a program cannot be adequately judged from the enthusiasm with which it is accepted or the speed with which the practice spreads. Educational innovation, unfortunately, has a long history of approaching evaluation on an inadequate basis. At the very least, evaluation of North Carolina's proposed educational intervention projects would require a precise description of the newly introduced educational practices, of the conditions under which they are initiated, and the populations to whom they are applied, the careful identification of a target population and of the appropriate control groups for who the specified criterion measures are established and the collection of and analysis of data appropriate to the measures identified. The Consortium and Head Start Synthesis analyses have shown preschool evaluators that they must look beyond easily measured

changes in intelligence and achievement. It will be important to evaluate differences in school competence, self-esteem, motivation, expectations, and attitudes toward achievement.

Placement of preschool intervention programs in the public schools could prove advantageous for longitudinal research on program effectiveness. Public schools have the resources to more easily follow program participants throughout their school careers. A public school administered program also could provide educational continuity throughout the child's educational life from preschool through high school graduation.

Despite the acceptance of the compensatory educational commitment nationwide, few instances of evaluative effort are found in relation to the number of projects initiated. Where evaluations have been conducted, the reports have often shown ambiguous outcomes, affecting hazy variables. This circumstance is likely to encourage premature and possibly contradictory educational planning and decision-making. Apparent, but small gains by students in pilot projects may cause undue optimism, encouraging long-term commitment to intervention programs whose validity has yet been established. More importantly, lack of clear evidence that certain programs or practices are improving pupil's development to any significant degree may strengthen

tendencies toward their abandonment, and even toward discontinuation of funding for the entire preschool intervention effort in North Carolina. Both of these reactions are preventable. It is clear that special problems exist in relation to the education of many high risk children and that some of these children are helped immensely by the special efforts of our schools. It is not yet clear exactly what helps which children under what conditions, why certain practices that seem logical do not work, or which aspects of some of our more elaborate programs actually account for the reported changes. There remain unanswered, critical questions related to motivation and to the reversibility of learning disabilities which arise from deprivations in experience (Ramey & Campbell, 1979a, 1979b). Some of these questions may be approached theoretically; others must be examined empirically.

North Carolina now needs the political motivation to invest the necessary resources to serve all of the children in this state who are at risk of school failure. There must also be the commitment monetarily to do the programs well, with proper staffing, teachers committed to a well-implemented curriculum, who give sufficient attention to the needs of the family as well as the child.

Clearly, North Carolinians must work for children. The time has come, when as a matter of pure economics, society can no longer afford to loose a single child from the

classroom. Early childhood intervention programs are one way of circumventing school failure for many children at risk. These and other programs supporting high risk children throughout their school careers are important. They are important, not only because our children are such an important resource, but because an investment in our children is fiscally responsible.

North Carolina must weigh the costs of postponing action, given the information already available concerning preschool intervention and its affect on high risk children. Those in our state who shape public policy are understandably in search of panaceas, but there are no quick and easy solutions for the difficult problem of developing the educational and social competence to sustain a person to the threshold of adulthood and beyond.

Gray et al. (1983) remind us of the tale of Alexander and his study of geometry. Alexander became impatient with Euclid's systematic explanation and asked him for a brief summary. With this request, Euclid put down his scroll and replied that there is no royal road to geometry. There is neither a royal road to solving the problem of educating children who come to school without the tools necessary to meet with educational success. North Carolina has made some steps toward meeting the needs of these children, but the road is long and arduous. While these

early steps are important and necessary, the road must be traveled to its destination. North Carolina cannot meet the goals of enhancing educational and social competence for children and youths without providing to them the necessary help and guidance needed along the way.

APPENDIX A. CONSENT FORMS

315 Balsam Drive
Lexington, NC 27292
January 8, 1988

High/Scope Foundation
600 North River Street
Ypsilanti, MI 48197

Dear Publishers,

I am preparing a doctoral dissertation entitled, Children at Risk: The Need For a Preschool Intervention Program for North Carolina's Schools, under the leadership of Dr. M. Irwin at the University of North Carolina at Greensboro. I cite data from the High/Scope Perry Preschool Project to prove the effectiveness of intervention programs. The results of your studies have proved invaluable to my research. In the dissertation, I would like to reproduce, properly cited, several of the Figures included in the text of Young Children Grow Up: The Effects of the Perry Preschool Program on Youths Through Age 15, Schweinhart and Weikart, 1980; An Economic Analysis of the Perry Preschool Project, Webber, Foster, & Weikart, 1978; Changed Lives: The Effects Of the Perry Preschool Program on Youths Through Age 19, Berrueta-Clement, Schweinhart, Barnett, Epstein, & Weikart, 1984, published by your Foundation.

I would like your permission to reproduce and cite the following figures:

- 1) Years in Special Education by Group, Schweinhart & Weikart, 1980.
- 2) Self-Reported Delinquent Behavior by Group, Schweinhart & Weikart, 1980.

- 3) Economic Costs and Benefits Per Child of Two Years of the Perry Preschool Program, Webber, Foster, & Weikart, 1978.
- 4) Perry Preschool Program Per-Child Costs and Benefits to Taxpayers, Berreta-Clement, Schweinhart, Barnett, Epstein, & Weikart, 1984.

Please respond as soon as possible, as I plan to defend the dissertation in the next few weeks. Thank you for your help in these regards.

Sincerely,



Lisa Conrad Horne

High/Scope Educational Research Foundation
600 North River Street
Ypsilanti, Michigan 48198

Permission Granted By:



Date: 1-15-88

315 Balsam Drive
 Lexington, NC 27292
 January 8, 1988

Lawrence Erlbaum Associates
 365 Broadway
 Hillsdale, NJ 07642

Dear Publishers,

I am preparing a doctoral dissertation entitled, Children at Risk: The Need For a Preschool Intervention Program for North Carolina's Schools, under the leadership of Dr. M. Irwin at the University of North Carolina at Greensboro. I cite data from the Consortium for Longitudinal Studies to prove the effectiveness of intervention programs. The results of several studies have proved invaluable to my research. In the dissertation, I would like to reproduce, properly cited, several of the Tables included in the text of As the Twig is Bent...Lasting Effects of Preschool Programs, (The Consortium for Longitudinal Studies, 1983) published by your firm.

I would like your permission to reproduce and cite the following Tables and Figures:

- Fig. 3.2 Total School Achievement By Group Over Time (p. 87)
- Fig. 3.4 Self-Reported Delinquent Behavior by Group (p. 92)
- Fig. 3.5 Economic Costs and Benefits Per Child of Two Years of the Perry Preschool Program (p. 94)
- Table 12.4 Mean Stanford-Binet Scores for First Four Waves of Children at Each Administration (p. 396)
- Table 12.5 Mean PPVT IQ Scores for First Four Waves of Children at Each Administration (p. 397)

Table 12.6 Selected Analysis of Variance Results from Initial
Program Evaluation (p. 398)

Please respond as soon as possible, as I plan to defend
the dissertation in the next few weeks. Thank you for your
help in these regards.

Sincerely,

Lisa Horne

Lisa Conrad Horne

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