

North Carolina's Kindergartners & Schools

Summary Report
April 2001



Fall 2000
North Carolina
School Readiness Assessment
FPG Child Development Center
University of North Carolina at Chapel Hill

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A technical report of the Fall 2000 North Carolina School Readiness Assessment is available at www.fpg.unc.edu/~SchoolReadiness/technical2000.pdf

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Contents

Executive Summary	1
Introduction	6
Study Description	10
Condition of Children	12
Capacity of Schools	19
Conclusions	24
Recommendations	27

Executive Summary

SCHOOL READINESS is a popular topic nationally and within North Carolina. Legislators, policy makers, and educators who face increasing pressures for accountability have called for the assessment of children as they enter school. They want to know, “Are we getting children ready for school?” This question is deceptively simple and requires a complex answer. It also leaves out an important second question about school readiness: “How well are schools prepared to meet the needs of children as they enter school?” This report provides information about two pieces of the school readiness puzzle: children and schools.

The Executive Summary presents key findings from the Fall 2000 North Carolina School Readiness Assessment (NC SRA). The Fall 2000 NC SRA gathered information about school readiness from a statewide representative sample of 1034 kindergartners and 189 public schools. The purpose of the assessment was to take a “snapshot” of school readiness at the state level.

North Carolina has defined school readiness as

- (a) the **condition of children** as they enter school, based on five areas of development and learning: health and physical development, social and emotional development, approaches toward learning, language development and communication, and cognition and general knowledge; and
- (b) the **capacity of schools** to educate all children who come to kindergarten, regardless of their condition. Kindergarten teachers, classrooms, and principals are important in determining schools’ readiness for children.

Condition of Children

This section briefly summarizes findings for each of the five areas of children's development and learning that are important components of school readiness. Differences between children at risk and not at risk for school failure are also highlighted. For this report, risk was determined by family income.

What did the data tell us about North Carolina's kindergartners?

1. Children entered kindergarten with a wide range of skills.
2. As a group, North Carolina kindergartners' skills in the five areas of development and learning were about the same as or lower than kindergartners nationally.
3. North Carolina kindergartners from lower-income families entered school at a significant disadvantage. Children from lower-income families had much lower skills in each of the five areas of development and learning at the beginning of school than children from higher-income families.

Health and Physical Development. North Carolina kindergartners varied in their parent-reported health status and motor skills. On average, kindergartners were in very good health and demonstrated age-appropriate motor skills. The health of children from lower-income families was significantly worse than the health of children from higher-income families. Children from lower-income families also had significantly lower motor skills than children from higher-income families.

Social Development. North Carolina kindergartners demonstrated a wide range of social skills. In general, the social skills of NC kindergartners were about as well developed as those of kindergartners nationally. Children from lower-income families in North Carolina had significantly lower social skills and more problem behaviors than children from higher-income families.

Approaches Toward Learning. Overall, North Carolina kindergartners were similar to their peers nationally in demonstrating positive approaches toward learning (e.g., eagerness to learn and creativity). Children from lower-income families were rated by their parents as demonstrating these positive characteristics significantly less often than children from higher-income families.

Language Development and Communication. On average, North Carolina kindergartners' language and communication skills were lower than the national average. More NC kindergartners scored very low on language measures than would be expected based on national norms. The language and communication skills of children from lower-income families were significantly lower than those of children from higher-income families.

General Knowledge and Math Development. North Carolina kindergartners generally knew the names of basic colors. Children varied widely in their math skills when they entered school. On average, North Carolina kindergartners' math skills were below the national average. More NC kindergartners scored very low on math measures than would be expected based on national norms. Kindergartners from lower-income families had significantly lower math skills than children from higher-income families.

Capacity of Schools

Highlights of the findings regarding the capacity of schools to educate all kindergartners effectively are presented here, organized into four sections: teachers, classrooms, principals, and schools. Comparisons are made between schools serving a high proportion and low proportion of kindergartners from lower-income families.

Teachers. North Carolina kindergarten teachers had about as much teaching experience as their peers nationally. However, far fewer NC teachers had a Master's degree or higher. Whereas almost all kindergarten teachers in North Carolina were teaching within their area of license, only a small percentage had a license that required extensive early childhood development training. Compared to teachers nationally, NC teachers were doing a better job helping children and families make the transition into school. Kindergarten teacher education and licensure did not differ for low-poverty and high-poverty schools.

Classrooms. North Carolina's average kindergarten class size of 21 was similar to classrooms nationwide, with classrooms in high-poverty schools significantly smaller than those in low-poverty schools (20 vs. 22). However, the average NC kindergarten class size was larger than the class size of 18 set as a goal by the U.S. Department of Education.¹ Kindergartners engaged in a variety of learning activities each week and, in general, had access to adequate materials in their classroom learning centers. The quantity and quality of learning center materials were the same or worse in high-poverty schools compared to low-poverty schools.

Principals. North Carolina principals had at least a Master's degree, and many had taken additional coursework. More NC principals had education beyond a Master's degree than their peers nationally. Although almost all principals had spent some time teaching, few had actually taught kindergarten. About half the principals had not received much early childhood education training recently. Principal education and early childhood training did not differ for high-poverty and low-poverty schools.

Schools. Schools varied in the types of services provided to kindergartners. In general, kindergartners from both high-poverty and low-poverty schools had the same type of professional services available to them. High-poverty schools were more likely to provide on-site prekindergarten programs for 4-year-olds at risk for later school difficulties, possibly because they had access to federal Title I funds to support these services.

What did the data tell us about North Carolina's schools?

1. In general, North Carolina schools were similar to schools nationally on most aspects of their capacity to meet the needs of kindergartners.
2. The capacity of high-poverty schools was generally the same as the capacity of low-poverty schools, but may not be good enough to meet the needs of kindergartners at risk for school failure.

Recommendations

The findings from the Fall 2000 NC SRA suggest that we still have work to do to ensure that each child enters school ready to succeed and that schools have the capacity to educate all kindergartners. Some recommendations are provided below.

- ❖ **Prioritize high quality services for children birth through five who are at risk for school failure.** To reduce the gap in skills between children at risk and those not at risk for school failure, North Carolina must provide high quality services and supports to these children and their families each year of their lives before they enter school. Many states, for example, are starting new prekindergarten programs for 4-year-olds at risk for school failure. These prekindergarten programs are designed as high quality educational programs to improve children’s school readiness skills. The Fall 2000 NC SRA data certainly suggest the need for efforts, like prekindergarten, to strengthen children’s skills. However, preparing children for school starts at birth—not just the year before they come to school. We need to provide services and supports for young children at risk and their families each year from birth through age five.
- ❖ **Continue to improve the quality of all early care and education programs in North Carolina.** About half of NC children were in some type of center-based early care and education program the year before kindergarten, and many were likely in these programs for more than one year. We know that children’s development and learning is positively affected if these programs are of high quality.² Smart Start efforts have improved the quality of care and have been shown to be related to school readiness.³ The Fall 2000 NC SRA data suggest that all children, not just those at risk for school failure, could benefit from high quality early care and education efforts. North Carolina should continue to improve its early care and education system in order to strengthen the skills of entering kindergartners.
- ❖ **Provide extra resources and supports for children at risk when they enter school.** North Carolina must continue to provide high quality services for children at risk when they enter and as they move through the public school system. Without extra help, these children will likely fall even further behind their peers from higher-income families.

- ❖ **Continue to improve the capacity of North Carolina public schools to educate all kindergartners.** Being at or above the national average on key school characteristics still leaves much room for improvement in meeting the needs of all children when they come to kindergarten. For example, the average NC kindergarten class size was higher than the class size of 18 set as a goal by the U.S. Department of Education.⁴ Compared to kindergarten teachers nationally, fewer NC kindergarten teachers had Master’s degrees. The racial and ethnic composition of kindergarten teachers should more closely reflect the racial and ethnic composition of their students. Finally, we could do more to support the successful transition of children and families as they move into the public school system.
- ❖ **Support families in their roles as parents and children’s first teachers.** Families are critical to their child’s success and should have access to information and support in their important roles. We should, for instance, provide information to families about developmentally appropriate ways to extend their child’s learning during everyday routines. Early childhood programs and public schools should work to build strong positive relationships with families and provide the support families request.
- ❖ **Focus on improving children’s early language and math skills.** The Fall 2000 data suggest that North Carolina kindergartners’ language and math skills were lower than average. To improve children’s skills in these areas, we must provide appropriate early learning opportunities for children before they enter public school. These efforts must continue when children enter the public school system. The challenge for families and teachers (both early childhood and public school teachers) is to promote children’s learning in ways that are appropriate for their ages and developmental levels.
- ❖ **Support children’s development and learning in each of the five areas.** Although it is important to pay close attention to language and math development, we must not ignore the other areas—health and physical development, social development, and approaches toward learning. Each of the five areas is important, and children’s development in one area is affected by their development in another. Families, early childhood programs, and public schools need to support children’s development in all five areas.

Introduction

SCHOOL READINESS is an important issue facing the nation. The first Education Goal states, “all children in America will start school ready to learn.”⁵ Since the establishment of this goal, the issue of children’s preparedness for school has drawn increased attention from legislators, policy makers, and educators who face accountability pressures. The national Goal 1 (Ready to Learn) subgroup defined school readiness and recommended assessment principles and guidelines, but did not adopt a national school readiness assessment.⁶ Thus, we do not have regularly reported national information about children’s skills as they enter school. In the late 1990s, the U.S. Department of Education began a national study of children, following them from kindergarten through fifth grade. This study provided national information about children’s school readiness skills in 1998–99. Whenever possible, findings from North Carolina’s Fall 2000 School Readiness Assessment are compared to findings from this national study of kindergartners.

Because there is no national school readiness assessment, some states have developed their own. As of 1999, 13 states conducted statewide screenings or assessments for children entering kindergarten; an additional 16 states were working on school readiness initiatives, but no state had a formal definition of school readiness.⁷

School readiness is an important issue in North Carolina. North Carolina’s First in America, State Board of Education, and Smart Start goals have each emphasized school readiness.⁸ In 1999, the Ready for School Goal Team, a state task force of members from the early childhood and public school communities, was charged with developing a definition of school readiness and a plan for assessing school readiness statewide.⁹ The North Carolina definition of school readiness and the task force’s assessment plan are described briefly below.

Definition of School Readiness

North Carolina has defined school readiness as

- a) the condition of children when they enter school, and
- b) the capacity of schools to educate all children.

The **condition of children** when they enter school includes the following five areas of development and learning.

- ❖ Health and Physical Development includes children’s physical development and abilities.
- ❖ Social and Emotional Development includes children’s feelings about themselves and others, ability to form positive relationships with adults and children, ability to understand the perspective and feelings of others, and skills needed to get along well in a group setting.
- ❖ Approaches Toward Learning includes curiosity, enjoyment of learning, confidence, creativity, attention to task, reflection, and interests.
- ❖ Language Development and Communication includes verbal and nonverbal skills to convey and understand others’ meaning as well as early literacy skills.
- ❖ Cognition and General Knowledge includes basic knowledge about the world and other thinking skills like early math and basic problem-solving skills.

The **capacity of schools** to educate all children includes four cornerstones.

- ❖ Knowledge of growth and development of children.
- ❖ Knowledge of strengths, interests, and needs of each child.
- ❖ Knowledge of the social and cultural contexts in which each child and family lives.
- ❖ Ability to translate knowledge into developmentally appropriate practice.

Schools are responsible for accepting and addressing the learning needs of all children who are old enough to enter kindergarten. They need to help children and families make a successful transition into kindergarten.¹⁰ Teachers and administrators must have the knowledge, resources, and supports to ensure that they are ready to teach all children—those who come to school with many skills and those who have few.

Additionally, teachers and administrators in ready schools establish a nurturing atmosphere, use a curriculum that provides meaningful contexts for learning and addresses the five areas of development described above, and support practices that address the unique ways in which young children learn. Ready schools build strong positive relationships with families. They create partnerships with preschool teachers, community programs, and higher education to ensure that they are able to

Caution

School readiness as described here should not be confused with eligibility for school. All children who meet the legal age requirement (i.e., are 5 by October 16) are eligible—indeed, they are legally entitled—to enter kindergarten.

educate all children. North Carolina's definition of ready schools is similar to the National Education Goals Panel description of ready schools.¹¹

Families and communities provide important support for each piece of the school readiness puzzle. As children's first teachers, parents' relationships and interactions with their children form the critical foundation for lifelong learning. Parents should have access to information and support in this important role. They should also have access to high quality out-of-home early care and education programs for their children. Nationally, 81% of 4-year-olds are cared for by someone other than their parents.¹² Many of these children attend center-based early care and education programs. Research has shown that children who attend high quality child care centers have better school outcomes than those who attend lower quality care.¹³ Thus, families need access to high quality care and education programs for their young children. Communities are responsible for providing support for young children and their families, including health care and early care and education. Communities must also provide resources to ensure that their schools are "ready" for all children.

School Readiness Assessment

North Carolina's school readiness task force made several assessment recommendations, including the creation of a new statewide assessment for the purpose of accountability in the broad sense. Assessment of children as they enter kindergarten provides the best source of data for examining the overall impact of early, before-school experiences provided by families, early child care and education programs, and communities on children's preparedness for school. Assessment of schools provides valuable information about how well schools are prepared to serve kindergartners. If conducted regularly, the assessment will allow us to monitor statewide trends over time. This new assessment, the North Carolina School Readiness Assessment (NC SRA), was pilot tested in the fall of 2000.

The Fall 2000 NC SRA was designed to provide a "snapshot" of the condition of children and the capacity of schools to educate all children in North Carolina. As such, it provides a statewide description of school readiness. The NC SRA does not provide information that will help guide kindergarten instruction or identify children who might have disabilities. The task force made separate recommendations for these two other assessment purposes. (See *School Readiness in North Carolina report*.)¹⁴

Purpose and Organization of Report

The purpose of this report is to describe key findings from the Fall 2000 North Carolina School Readiness Assessment. Information about two pieces of the school readiness puzzle—children and schools—is presented in this report. Comparisons are provided for any NC SRA measure for which national data are available. The first section describes the condition of children as they enter school, organized by the five domains of development and learning. Because family and community circumstances place some children at greater risk of school failure than others, descriptions of children at risk and not at risk for school failure are also provided. The second section of the report describes key indicators of schools' capacity to meet the needs of all kindergartners. Comparisons are made between schools that serve a large proportion of children at risk and schools that do not. The final section draws conclusions and makes recommendations based on the findings.

Study Description

Participants

The Fall 2000 NC SRA gathered information about school readiness from a random sample of elementary school principals, kindergarten teachers, parents, and children just entering kindergarten. The sample is representative of kindergartners and public schools in the state and includes 1034 kindergartners from 568 different classrooms at 189 public schools. Schools were randomly selected and varied in their geographical location, proportion of enrolled children from lower-income families, and school performance as estimated by third grade test scores. Approximately 5 kindergarten children were randomly chosen from each selected school. The sample included children with and without disabilities. It also included children who spoke English or Spanish as their primary language. Children repeating kindergarten were not included. A more detailed description of the sampling procedures is provided in the technical report.¹⁵

Assessments

A variety of measures were used to assess two pieces of the school readiness puzzle—children and schools. NC SRA staff developed surveys for principals, teachers, and parents. The principal and teacher surveys focused on schools' capacity to educate kindergartners. Questions addressed class size, education and experience, activities and materials, kindergarten transition practices, professional development opportunities, and school services. Information about kindergarten transition practices was also obtained from the parent survey.

Information about the condition of children was gathered from parents, kindergarten teachers, and children. Questions on the parent survey addressed children's health, health insurance coverage, motor skills, approaches toward learning, previous child care experiences, and family demographics. Kindergarten teachers were asked to rate children's social skills and problem behaviors. NC SRA staff assessed children's language and math skills during one-on-one activities with the children. A complete description of the assessment battery used in Fall 2000 is available on the NC SRA web site.¹⁶

Procedures for Gathering Information

NC SRA staff visited children early in the school year (about the seventh week) to obtain an accurate picture of the condition of children near the time they entered school. During our visit, we gave teachers a social skills rating scale to complete for each participating child and sent a parent survey home with each participating child. In October, we mailed surveys about schools' readiness for children to principals and kindergarten teachers of the participating children. Principals, teachers, and parents were eager to share their thoughts about school readiness. Sixty-six percent of parents returned surveys; 95% of teachers returned surveys; 92% of teachers rated children's social skills; and 88% of principals returned surveys. The information provided by these individuals was used to create population estimates that are included in this report.

Defining Risk

If North Carolina wants all children to be successful in school, then we must look beyond the general descriptions of children and schools. We should examine differences between children at risk and not at risk for school failure and the schools that serve them. Years of research have demonstrated that children from lower-income families have poorer educational outcomes than children from higher-income families.¹⁷ For this report, risk was determined by family income. Specifically, children whose teachers reported that they were eligible for free or reduced-price school lunch were defined as at risk for school failure. Children from families with an income up to 185% of the poverty level are eligible for free or reduced-price lunch at schools that participate in the National School Lunch Program. For the period July 1, 2000, through June 30, 2001, 185% of the poverty level was determined to be an annual income of \$31,543 for a family of four.¹⁸ The terms *at risk* and *lower income* are used in this report to refer to North Carolina children who qualify for free or reduced-price lunch.

National comparisons about the skills of children at risk for school failure included in this report were obtained from the U.S. Department of Education's national study of children (ECLS-K).¹⁹ In this national study, risk was defined as the receipt of public assistance. This definition of risk was more strict (i.e., required a lower family income) than that used for the Fall 2000 NC SRA, which means that North Carolina considered more children at risk than did the national study. Although different definitions of risk were used in the two studies, comparisons are still useful in understanding lower-income vs. higher-income differences in North Carolina.

In this report, we also examine characteristics of schools that served a high proportion of kindergartners at risk for school failure. We used free and reduced-price lunch eligibility as our definition of risk. *High-poverty schools^a* were defined as those with half or more of the kindergartners eligible for free or reduced-price lunch. *Low-poverty schools* were defined as those with less than half of the kindergartners eligible for free or reduced-price lunch.

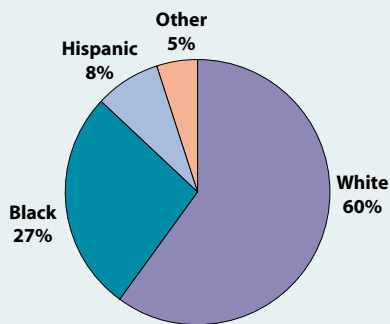
Criteria other than family income can be used to define risk. Future reports will examine in more detail various risk factors and their relationship to school readiness.

Condition of Children

This section begins by describing basic characteristics of kindergartners. Findings from each of the five domains of development and learning are then presented.

Who Are North Carolina's Kindergartners?

Figure 1
Racial & Ethnic Composition of NC Kindergartners



On average, kindergartners were about 5½ years old at the beginning of the school year. About half of the children were female. The racial and ethnic composition of North Carolina's kindergarten population is shown in Figure 1. About 6% of children spoke Spanish as their primary language, and another 1% spoke some other language besides English or Spanish. Principals reported that 7% of kindergartners received special education or related services.

Forty percent of North Carolina's kindergartners were at risk for school difficulties because they were from lower-income families. Approximately 14% of kindergartners' mothers did not have a high school diploma. Twenty percent of kindergartners' mothers had a Bachelor's degree or higher.

Table 1
Care Arrangements for Children the Year Before Kindergarten

Parent only	31%
Child care center	33%
Relative	9%
Head Start	6%
Public preschool	6%
Babysitter	5%
Half-day preschool	5%
Family child care home	3%
Unknown (not parent)	3%

Parents reported that approximately 69% of North Carolina kindergartners were cared for by someone other than a parent for at least 10 hours a week during the year before they entered kindergarten. (See Table 1.) This proportion was similar for North Carolina children from lower-income and higher-income families. Nationally, 81% of 4-year-olds were cared for by someone other than a parent.²⁰ Child care center was the most frequent nonparental care arrangement for both lower-income and higher-income children (20% and 39%).

Health and Physical Development

Children's health and physical development are critical to their school success. The Fall 2000 NC SRA included measures of children's general health status, health insurance coverage, and motor skills.

Overall, the health of North Carolina kindergartners as rated by their parents was very similar to their peers nationally. Eighty-five percent (85%) of kindergartners in NC were rated as having very good or excellent health. Nationally, 83% of kindergartners were rated as having very good or excellent health.²¹ Fewer North Carolina kindergartners from lower-income families (76%) were in very good or excellent health compared to kindergartners from higher-income families (91%). This difference was significant.^b A difference in health status between lower-income and higher-income children has also been found nationally.²²

According to parent reports, approximately 6% of kindergartners in North Carolina did not have any health insurance coverage. A higher percentage of lower-income than higher-income children were uninsured (9% vs. 5%).

Most North Carolina kindergartners demonstrated age-appropriate motor skills according to their parents:

- ❖ 95% could button their own clothes,
- ❖ 86% could mostly write and draw rather than scribble, and
- ❖ 88% could walk without tripping, stumbling, or falling easily.

Significantly fewer lower-income than higher-income children were able to write and draw rather than scribble (80% vs. 90%) and walk without tripping, stumbling, or falling easily (83% vs. 93%).

Summary

North Carolina kindergartners varied in their parent-reported health status and motor skills. On average, kindergartners were in very good health and demonstrated age-appropriate motor skills. The health of children from lower-income families was significantly worse than the health of children from higher-income families. Children from lower-income families also had significantly lower motor skills than children from higher-income families.

Social Development

Children’s ability to interact well with other children and adults is an important part of school. The Fall 2000 NC SRA included teacher ratings of kindergartners’ social skills and problem behaviors.

North Carolina kindergartners varied widely in both their social skills and problem behaviors. The NC average score of 97 for social skills was lower than the national average^c of 100. The NC average score of 98 for problem behaviors was about the same as the national average (higher scores indicate more problem behaviors). Compared to national norms,^d about the same number of NC kindergartners had very low^e social skills (18% in NC vs. 16% nationally) and fewer NC kindergartners had very high^f problem behaviors (11% in NC vs. 16% nationally).

We compared NC data with U.S. data from the ECLS-K study for certain social skill and problem behavior items.²³ Overall, fewer North Carolina kindergartners were rated by their teachers as making friends easily and accepting peer ideas than kindergartners nationally. (See Table 2.) On the positive side, fewer North Carolina children were rated as fighting often with others or getting angry easily compared to kindergartners nationally. Because these are teacher-reported data, differences between kindergartners in North Carolina and the ECLS-K national study may be due to differences in children’s skills or differences in teachers’ expectations. Most likely, both factors account for the difference.

Children’s risk status was related to both social skills and problem behaviors. Children from lower-income families were rated by teachers as having significantly fewer positive social skills (Figure 2) and significantly more problem behaviors (Figure 3) than children from higher-income families.

Table 2
Percentage of Kindergartners Who Very Often...

	NC	U.S.
Make friends easily	63%	77%
Accept peer ideas	41%	74%
Fight with others	4%	10%
Get angry easily	6%	11%

Figure 2
Social Skills by Family Income

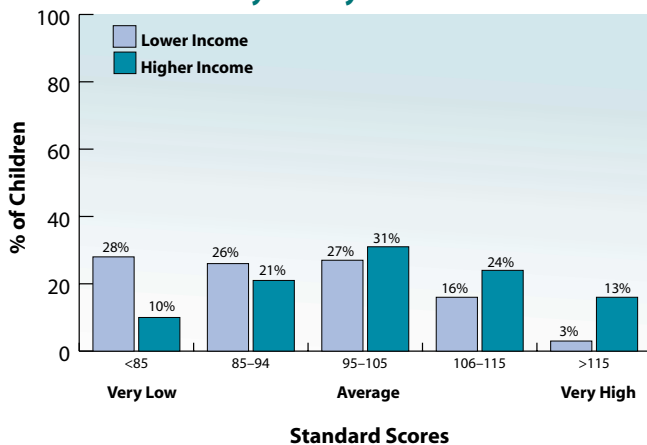
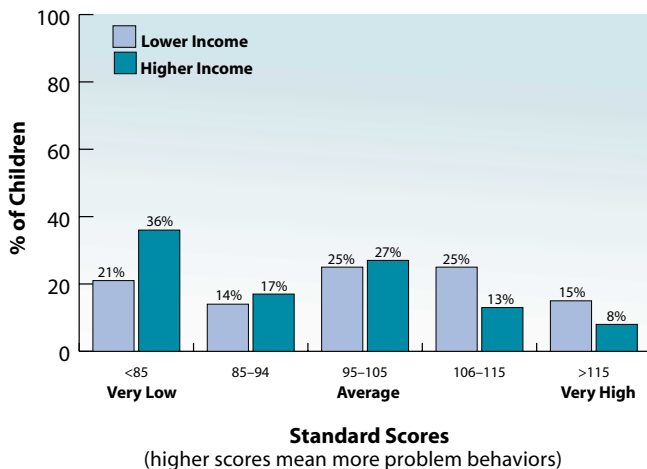


Figure 3
Problem Behaviors by Family Income



Summary

North Carolina kindergartners demonstrated a wide range of social skills. In general, the social skills of NC kindergartners were about as well developed as those of kindergartners nationally. Children from lower-income families in North Carolina had significantly lower social skills and more problem behaviors than children from higher-income families.

Approaches Toward Learning

This domain includes characteristics important in developing lifelong learners—eagerness to learn, creativity, persistence, pride in own work, asking for help when needed, and enjoyment of school. In the Fall 2000 NC SRA, parents rated the frequency with which their child demonstrated each of these characteristics.

Overall, kindergartners in North Carolina were as eager to learn and creative as their peers nationally.²⁴ (See Table 3.) North Carolina kindergartners were rated by their parents as less likely than their national peers to try hard. This difference may be due to differences in the children, differences in parents' expectations, or both. North Carolina kindergartners at risk for school difficulties were rated lower by their parents on these positive approaches toward learning items than children who were not at risk. (See Figure 4.)

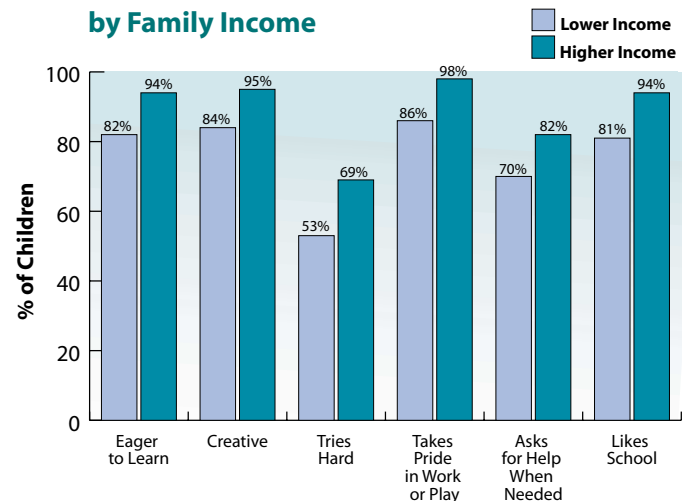
Summary

Overall, North Carolina kindergartners were similar to their peers nationally in demonstrating positive approaches toward learning (e.g., eagerness to learn and creativity). Children from lower-income families were rated by their parents as demonstrating these positive characteristics significantly less often than children from higher-income families.

Table 3
Percentage of Kindergartners Who Often or Very Often...

	NC	U.S.
Seem eager to learn	89%	92%
Show creativity	91%	85%
Try hard (persist)	63%	73%

Figure 4
Approaches Toward Learning by Family Income



Language Development and Communication

Several measures of children’s language skills provided information about children’s understanding of spoken words, their ability to name letters of the alphabet, their ability to break spoken words into parts (i.e., phonemic awareness), and their understanding of story and print concepts. Children’s performance in each of these areas is presented in this section.

North Carolina kindergartners varied in their understanding of spoken words. The average score of 97 on this measure was lower than the national average of 100.

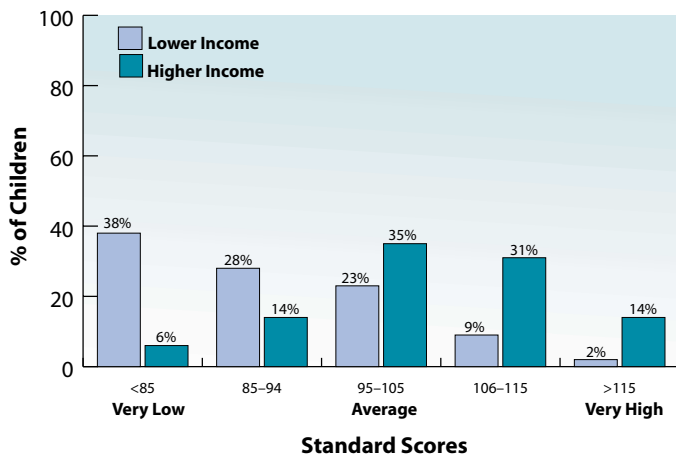
More North Carolina children scored very low and fewer children scored very high when compared to national norms. (See Table 4.)

Table 4
Understanding of Spoken Words

	NC	National Norms ^d
% with very low scores (<85)	21%	16%
% with very high scores (>115)	8%	16%

This pattern was also evident in a measure of children’s ability to recognize letters of the alphabet and simple words. North Carolina kindergartners varied in these skills. Some children could not correctly identify any letters of the alphabet that were shown to them while others could read words. North Carolina’s average score of 93 on this measure was lower than the national average of 100. Compared to national norms, more NC kindergartners had very low scores (28% in NC vs. 16% nationally) and fewer NC kindergartners had very high scores (4% in NC vs. 16% nationally).

Figure 5
Understanding of Spoken Words by Family Income



On a measure of phonemic awareness, 39% of NC kindergartners could not answer correctly any items. Of those kindergartners who were able to answer at least 1 item correctly, the average number of correct items was 2. Based on national norms, children between the ages of 5 and 5½ years should be able to answer correctly an average of 3 items. Although NC kindergartners were below average on this phonemic awareness measure, it is important to realize that many children this age are just beginning to master this skill.²⁵

The NC SRA also included information about kindergartners’ understanding of books. Many children (87%) could identify the front of a book. More than half (64%) understood that one reads from left to right.

Language and communication skills differed greatly between children from lower-income and higher-income families. These differences were significant for each skill measured—children’s understanding of spoken words, their ability to name letters

of the alphabet, their ability to break spoken words into parts (i.e., phonemic awareness), and their understanding of story and print concepts. Figure 5 provides an example of the wide gap in skills between children from lower-income families and those from higher-income families. The ECLS-K national study of kindergartners also reported income differences in children’s language and communication skills.²⁶

Summary

On average, North Carolina kindergartners’ language and communication skills were lower than the national average. More NC kindergartners scored very low on language measures than would be expected based on national norms. The language and communication skills of children from lower-income families were significantly lower than those of children from higher-income families.

General Knowledge and Math Development

The Fall 2000 NC SRA included measures of children’s knowledge of color names and early math skills. Two different math assessments were administered to kindergartners. These assessments measured children’s basic math skills such as counting and understanding concepts like big. A composite math score (the average of the two assessment scores) is reported.

Many North Carolina kindergartners (78%) could name 10 basic colors. Almost all children (91%) could either name or find 10 basic colors. About twice as many children from lower-income families could not name or find all 10 basic colors as compared to children from higher-income families (14% vs. 6%).

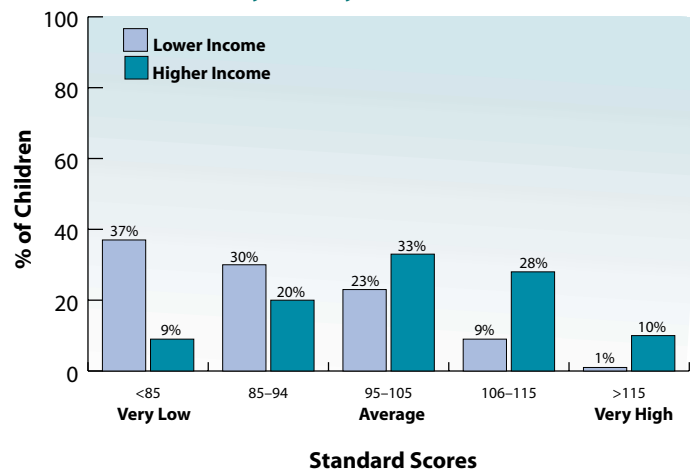
Children’s math skills varied widely. The average score of 95 was below the national average of 100. More NC kindergartners scored very low and fewer scored very high compared to national norms. (See Table 5.)

As shown in Figure 6, many more children from lower-income families had very low math scores compared to children from higher-income families. Additionally, far fewer children from lower-income families had very high math scores compared to children from higher-income families. Income differences in math skills were also evident in the ECLS-K national study of kindergartners.²⁷

Table 5
Math Skills

	NC	National Norms ^d
% with very low scores (<85)	22%	16%
% with very high scores (>115)	6%	16%

Figure 6
Math Skills by Family Income



Summary

North Carolina kindergartners generally knew the names of basic colors. Children varied widely in their math skills when they entered school. On average, North Carolina kindergartners' math skills were below the national average. More NC kindergartners scored very low on math measures than would be expected based on national norms. Kindergartners from lower-income families had significantly lower math skills than children from higher-income families.

Capacity of Schools

North Carolina recognizes that schools are an important part of “readiness.” Schools must be able to educate effectively all children who enroll in kindergarten. This section of the report describes key characteristics of kindergarten teachers, classrooms, principals, and schools. Characteristics of schools serving a high proportion of lower-income kindergartners are highlighted throughout the section.

Teachers

Kindergarten teachers play an important role in helping children make the transition to school and facilitating their learning. In the fall of 2000, 97% of kindergarten teachers in North Carolina were female; 88% were White and 11% were Black. Approximately 25% of kindergarten teachers had earned a Master’s degree or higher. This number is lower than national figures of 40% to 47% of kindergarten teachers with a Master’s degree or higher.²⁸ With the state’s incentives for obtaining advanced certification from the National Board for Professional Teaching Standards, it is possible that more North Carolina teachers have been working toward national certification instead of a Master’s degree.

Almost all kindergarten teachers in North Carolina (95%) were licensed to teach at the kindergarten level. A much smaller percentage of teachers (11%) was licensed in an area that requires extensive coursework in early childhood development (i.e., Birth-Kindergarten or PreK-K add-on license). NC kindergarten teachers had taught preschool or kindergarten for an average of 11 years, very similar to the national average.²⁹ Forty-one percent of kindergarten teachers had no more than 5 years of experience. (See Figure 7.) Kindergarten teacher education and licensure were similar for low-poverty and high-poverty schools.

Figure 7
Teaching Experience of
NC Kindergarten Teachers

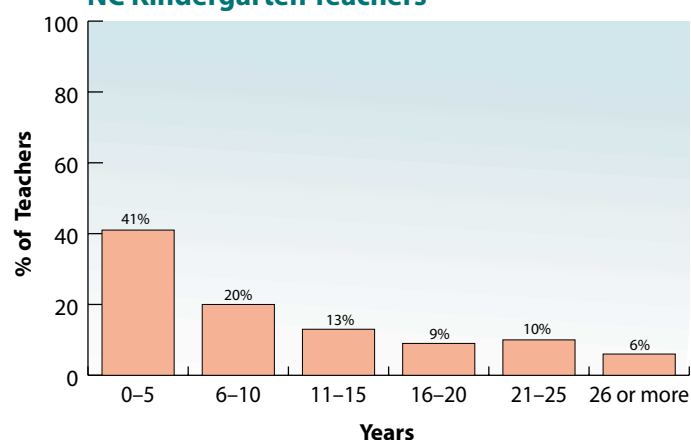


Table 6
Kindergarten Transition Practices Used
with Some or All Students

	NC	U.S.
Open house before school starts	84%	62%
Written records of child's past experiences	77%	74%
Regular meetings among school & early childhood community	35%	29%
Preschoolers visit kindergarten classroom	33%	39%
Kindergarten teacher visits preschools	10%	17%
Informal contacts with preschool teachers	40%	NA

Kindergarten teachers across the state used a variety of strategies to help children and families prepare for school entry. As evident in Table 6, North Carolina's kindergarten teachers reported engaging in most of these transition practices more frequently than kindergarten teachers nationally.³⁰ The frequency of all but two of these transition activities was the same for high-poverty and low-poverty schools. Preschool teachers were significantly more likely to bring children to visit kindergarten classrooms in high-poverty rather than low-poverty schools (41% vs. 24%), and kindergarten teachers in high-poverty schools were significantly more likely to visit preschools than teachers in low-poverty schools (13% vs. 4%).

Parents also provided important information about kindergarten transition activities. Almost all parents (96%) reported meeting their child's teacher during the early part of the school year. This number is very similar to national figures. More North Carolina parents reported that they had received written information about preparing their child for kindergarten than parents of kindergartners nationally (93% vs. 66%).³¹

Summary

North Carolina kindergarten teachers had about as much teaching experience as their peers nationally. However, far fewer NC teachers had a Master's degree or higher. Whereas almost all kindergarten teachers in North Carolina were teaching within their area of license, only a small percentage had a license that required extensive early childhood development training. Compared to teachers nationally, NC teachers were doing a better job helping children and families make the transition into school. Kindergarten teacher education and licensure did not differ for low-poverty and high-poverty schools.

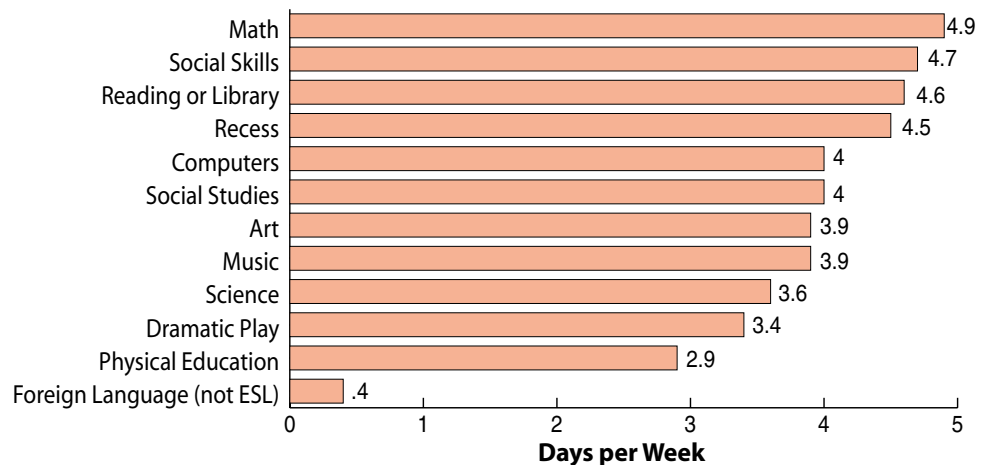
Classrooms

The classroom environment is a critical part of schools' readiness for children. NC kindergarten programs in public schools were full day, five days a week. Kindergarten class size in North Carolina ranged from 13 to 28 students. The average North Carolina kindergarten classroom had 21 students, only 1 more than the national average of 20 students.³² The average class size for high-poverty schools was significantly smaller than for low-poverty schools (20 vs. 22). However, these class sizes were larger than the class size of 18 set as a goal by the U.S. Department of Education.³³

Almost all NC kindergarten classrooms (99%) had a teacher assistant. In 95% of these classrooms, the assistant worked full time. The average child to adult ratio in kindergarten was 11 children per adult.

North Carolina kindergartners were exposed to many learning activities at school. Teachers reported that math, social skills, reading, and recess were covered about every day. The frequency of classroom activities is shown in Figure 8.

Figure 8
Frequency of Classroom Activities



Teachers also provided information about the learning centers in their classrooms. The availability of learning centers in North Carolina kindergartens was generally high and closely matched national availability.³⁴ Kindergarten teachers rated the quantity and quality of most learning center materials as adequate or excellent, but some centers were rated as having better materials than others. (Note that this information is about learning center materials. Teachers were not asked to rate the quantity and quality of other classroom materials.) Overall, teachers rated math, reading, fine motor, and block center materials as the best. Materials for science/nature centers were rated as less adequate. Teachers contributed an average of \$425 of their own money to purchase classroom materials in the past year. The quantity and quality of learning center materials were the same or worse for high-poverty than for low-poverty schools. (See Table 7.)

Table 7
Percentage of Classrooms with Excellent Learning Center Materials

	Overall	High Poverty	Low Poverty
Math	48%	45%	50%
Reading	42%	33%*	48%
Fine motor	41%	37%	43%
Blocks	39%	29%*	47%
Computer	32%	32%	33%
Art	26%	17%*	31%
Dramatic play	26%	21%	30%
Sand/Water	26%	22%	29%
Writing	22%	12%*	28%
Listening	21%	13%*	26%
Music	11%	11%	11%
Science	9%	5%	12%

*Significantly fewer high-poverty than low-poverty classrooms with materials rated as excellent

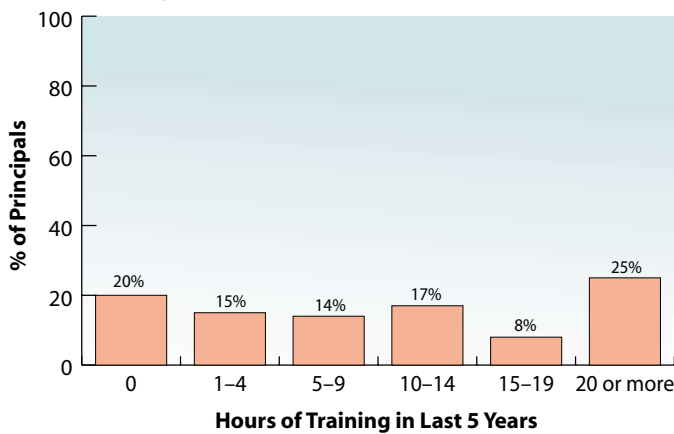
Summary

North Carolina’s average kindergarten class size of 21 was similar to classrooms nationwide, with classrooms in high-poverty schools significantly smaller than those in low-poverty schools (20 vs. 22). However, the average NC kindergarten class size was larger than the class size of 18 set as a goal by the U.S. Department of Education.³⁵ Kindergartners engaged in a variety of learning activities each week and, in general, had access to adequate materials in their classroom learning centers. The quantity and quality of learning center materials was the same or worse in high-poverty schools compared to low-poverty schools.

Principals

Elementary school principals provide leadership and support for the teachers and staff who work with kindergartners. In North Carolina, 56% of principals were female; 80% were White and 19% were Black. All principals had a Master’s degree and about 7% had earned a Doctorate degree. More principals in North Carolina had education beyond a Master’s degree (e.g., Education Specialist) compared to their peers nationally (51% in NC vs. 34% in U.S.).³⁶ Principal education did not differ for high-poverty and low-poverty schools.

Figure 9
NC Principals’ Recent Training
in Early Childhood Education



Principals had, on average, 11 years of experience as principals, higher than the national average of 9 years.³⁷ North Carolina’s principals had an average of 13 years of teaching experience compared to the national average of 11 years.³⁸ Approximately 47% of NC principals were licensed to teach at the kindergarten level, but only 17% had actually taught either preschool or kindergarten.

Continuing education and in-service training allow education professionals to stay current with knowledge in the field. Although 25% of North Carolina’s principals had 20 or more hours of early childhood education training in the last five years, 20% of principals had not had any early childhood education training in the last five years. (See Figure 9.) Principals’ early childhood training did not differ for high-poverty and low-poverty schools.

Summary

North Carolina principals had at least a Master’s degree, and many had taken additional coursework. More NC principals had education beyond a Master’s degree than their peers nationally. Although almost all principals had spent some time teaching, few principals had actually taught kindergarten. About half of the principals had not received much early childhood education training recently. Principal education and early childhood training did not differ for high-poverty and low-poverty schools.

Schools

School resources such as buildings and services contribute to the school’s ability to meet the needs of all students. Approximately 39% of North Carolina’s elementary schools had at least one building that was 40 years old or older.

Schools provided a range of services for children outside the normal K-12 age range and traditional school day. In North Carolina, 31% of schools with kindergarten programs offered before- or after-school care for students. Approximately 30% of schools had on-site prekindergarten programs for at-risk 4-year-olds and 8% offered prekindergarten for at-risk 3-year-olds. About half of the high-poverty schools (47%) offered prekindergarten for at-risk 4-year-olds compared to 24% of the low-poverty schools. The significantly higher percentage of pre-kindergarten programs in high-poverty schools was possibly because they had access to federal Title I funds to support these services.

Schools also varied somewhat in the type of professional services available to kindergartners. Most schools had speech and language therapists and counselors. Fewer schools had a drama teacher, reading specialist, or curriculum specialist available to kindergartners. (See Table 8.) Only 76% of the schools that served at least one kindergartner who spoke English as a second language had an English as a Second Language (ESL) teacher. Most professional services were equally available in high-poverty and low-poverty schools. Only occupational and physical therapists were significantly less likely to be available in high-poverty schools than in low-poverty schools.

Summary

Schools varied in the types of services they provided to kindergartners. In general, kindergartners from both high-poverty and low-poverty schools had the same type of professional services available to them. High-poverty schools were more likely to provide on-site prekindergarten programs for 4-year-olds at risk for later school difficulties, possibly because they had access to federal Title I funds to support these services.

Table 8
Percentage of Schools with Professional Services Available to Kindergartners

Speech & language therapist	99%
Counselor	96%
Music teacher	93%
School psychologist	93%
Special education teacher	92%
PE teacher	92%
School nurse	87%
Art teacher	83%
Social worker	79%
Occupational therapist	79%
Physical therapist	72%
ESL teacher	61%
Curriculum specialist	50%
Reading specialist	43%
Drama teacher	7%

Conclusions

The Fall 2000 North Carolina School Readiness Assessment provides a comprehensive set of data that will help both the early childhood and public school communities better understand their strengths and areas for improvement. The Fall 2000 NC SRA may be most useful, though, as a baseline from which to compare change over time. The Ready for School Goal Team proposed that this statewide assessment be conducted regularly to monitor progress over time. These Fall 2000 data provide the starting point for monitoring change.

North Carolina Kindergartners

What did the data tell us about North Carolina's kindergartners? Key points are summarized in this section.

Children entered kindergarten with a wide range of skills. Anyone who has been around a group of young children knows that they vary in their skills and abilities. We should expect this, and the Fall 2000 data confirmed this. The challenge for North Carolina is two-fold. First, we must accept this variability as normal for children entering school. Schools must be prepared to address the diverse needs of kindergartners. Children should not be expected to have a certain level of skills before they come to school. We should also not keep out of school children with low skills. Every child in North Carolina who is 5 years old by October 16 is legally entitled to—and could benefit from—school. Our second challenge is to provide opportunities for every young child to build his or her skills in each of the five areas of development and learning before coming to school. Knowing that children vary in their skills does not excuse us from doing something about it.

As a group, North Carolina kindergartners' skills in each of the five areas of development and learning were about the same as or lower than kindergartners nationally. On average, NC kindergartners' health status, approaches toward learning, and social development were about the same as kindergartners nationally. NC kindergartners' language and math skills were lower than kindergartners nationally. We must provide early learning opportunities for children to develop their skills in all areas. These learning opportunities should be available at home and in the early care and education programs that so many young children attend.

North Carolina kindergartners from lower-income families entered school at a significant disadvantage compared to their peers from higher-income families.

Years of research have demonstrated that children from lower-income families have poorer educational outcomes than children from higher-income families.³⁹ NC kindergartners from lower-income families had much lower skills in each of the five areas of development and learning at the beginning of school than children from higher-income families. North Carolina is not unique in facing this problem. Nationally, kindergartners from lower-income families have lower school readiness skills. The fact that this is a national problem does not dismiss us from our responsibility to do something about it. As a final note, it is important to remember that these are *group* differences. Not all children from lower-income families had low skills.

North Carolina Schools

What did the data tell us about North Carolina's schools? Two main findings are summarized below.

In general, North Carolina schools were similar to schools nationally on most aspects of their capacity to meet the needs of kindergartners. Compared to national data about schools, North Carolina did as well or better in many areas of school preparedness for children. In particular, the average kindergarten class size in NC was about the same as the national average. Compared to their peers nationally, more NC teachers engaged in activities to help children and families make a smooth transition into kindergarten. More NC principals had coursework beyond a Master's degree than their peers nationally.

The capacity of high-poverty schools was generally the same as the capacity of low-poverty schools, but may not be good enough to meet the needs of kindergartners at risk for school failure. Overall, schools serving a high proportion of lower-income kindergartners had similar characteristics to those serving a low proportion of lower-income kindergartners. For example, teacher and principal education, services offered, and kindergarten transition activities were generally the same in high-poverty schools as in low-poverty schools. While it is good that the capacity of schools was generally similar for high-poverty and low-poverty schools, one could argue that the capacity of high-poverty schools should be better than that for low-poverty schools if we want to help children at risk catch up to their peers.

High-poverty schools were better than low-poverty schools on class size and pre-school services for 4-year-olds at risk for school failure. Reducing class size is important, but it is uncertain whether an average reduction of two students per class is enough to impact student learning.⁴⁰ About half of high-poverty schools offered on-site prekindergarten programs for children at risk. High-poverty schools may have been more likely to provide prekindergarten programs because they had

access to federal funding that could be used to support such services. As a final note, we cannot draw conclusions about the extent of prekindergarten services available in the community for children at risk because we only obtained information on school-based prekindergarten services.

The Fall 2000 NC SRA provides stark data that show us how wide the gap is in children's skill levels before they enter the K-12 public school system. Providing the same educational services for everyone may not guarantee success for each child. Some schools need extra resources and support if they are to be successful in reducing the gap in children's skills.

NC's School Readiness Assessment

The Fall 2000 NC SRA provides a general description of the condition of children as they enter school and the capacity of schools to educate all kindergartners in North Carolina. The demographic characteristics of the children, teachers, and principals in the sample were very similar to those of all students, teachers, and principals in the state as reported by the NC Department of Public Instruction.⁴¹ The Fall 2000 NC SRA demonstrated that gathering information on a *sample* of children and schools, rather than *all*, is an accurate and efficient way of describing school readiness at the state level.

The statewide assessment will be most useful if conducted on a regular basis to monitor trends over time. This assessment also could help North Carolina evaluate the effectiveness of existing early childhood initiatives like Smart Start as well as new initiatives like public prekindergarten. Lessons learned from the Fall 2000 assessment should be used to strengthen future assessments. For example, the next statewide assessment should include direct measures of children's health in addition to parent-reported information. It should also obtain data on national certification of kindergarten teachers. Finally, observations of kindergarten classrooms would provide important additional information about classroom practices.

The Fall 2000 NC SRA provided data representative of kindergartners and public schools in the state of North Carolina, not of children and schools in each county. The Ready for School Goal Team recommended that the North Carolina School Readiness Assessment be conducted not only at the state level but also in each of North Carolina's 100 counties. If implemented, this assessment would provide each community with specific information about how well their children and schools are doing. A county-level assessment would provide valuable feedback to communities as they work to improve services for all children and especially for those who are at risk of school failure.

Recommendations

The findings from the Fall 2000 NC SRA suggest that we still have work to do to ensure that each child enters school ready to succeed and that schools have the capacity to educate all kindergartners. Some recommendations are provided below.

- ❖ **Prioritize high quality services for children birth through five who are at risk for school failure.** To reduce the gap in skills between children at risk and those not at risk for school failure, North Carolina must provide high quality services and supports to these children and their families each year of their lives before they enter school. Many states, for example, are starting new prekindergarten programs for 4-year-olds at risk for school failure. These prekindergarten programs are designed as high quality educational programs to improve children’s school readiness skills. The Fall 2000 NC SRA data certainly suggest the need for efforts, like prekindergarten, to strengthen children’s skills. However, preparing children for school starts at birth—not just the year before they come to school. We need to provide services and supports for young children at risk and their families each year from birth through age five.
- ❖ **Continue to improve the quality of all early care and education programs in North Carolina.** About half of NC children were in some type of center-based early care and education program the year before kindergarten, and many were likely in these programs for more than one year. We know that children’s development and learning is positively affected if these programs are of high quality.⁴² Smart Start efforts have improved the quality of care and have been shown to be related to school readiness.⁴³ The Fall 2000 NC SRA data suggest that all children, not just those at risk for school failure, could benefit from high quality early care and education efforts. North Carolina should continue to improve its early care and education system in order to strengthen the skills of entering kindergartners.
- ❖ **Provide extra resources and supports for children at risk when they enter school.** North Carolina must continue to provide high quality services for children at risk when they enter and as they move through the public school system. Without extra help, these children will likely fall even further behind their peers from higher-income families.

❖ **Continue to improve the capacity of North Carolina public schools to educate all kindergartners.** Being at or above the national average on key school characteristics still leaves much room for improvement in meeting the needs of all children when they come to kindergarten. For example, the average NC kindergarten class size was higher than the class size of 18 set as a goal by the U.S. Department of Education.⁴⁴ Compared to kindergarten teachers nationally, fewer NC kindergarten teachers had Master's degrees. The racial and ethnic composition of kindergarten teachers should more closely reflect the racial and ethnic composition of their students. Finally, we could do more to support the successful transition of children and families as they move into the public school system.

❖ **Support families in their roles as parents and children's first teachers.** Families are critical to their child's success and should have access to information and support in their important roles. We should, for instance, provide information to families about developmentally appropriate ways to extend their child's learning during everyday routines. Early childhood programs and public schools should work to build strong positive relationships with families and provide the support families request.

❖ **Focus on improving children's early language and math skills.** The Fall 2000 data suggest that North Carolina kindergartners' language and math skills were lower than average. To improve children's skills in these areas, we must provide appropriate early learning opportunities for children before they enter public school. These efforts must continue when children enter the public school system. The challenge for families and teachers (both early childhood and public school teachers) is to promote children's learning in ways that are appropriate for their ages and developmental levels.

❖ **Support children's development and learning in each of the five areas.**

Although it is important to pay close attention to language and math development, we must not ignore the other areas—health and physical development, social development, and approaches toward learning. Each of the five areas is important, and children's development in one area is affected by their development in another. Families, early childhood programs, and public schools need to support children's development in all five areas.

How can this report be used to promote school readiness?

1. Discuss the report with local school officials and Smart Start partnership members.
2. Invite families to talk about their views of school readiness and ideas for supporting children and families' transition into public school.
3. Organize a group of preschool and kindergarten teachers to discuss kindergarten transition.
4. Ask local school officials and Smart Start members what they are doing for children at risk for school failure. Offer to help.

Notes

- ^a High-poverty schools as defined in this report are not the same as and should not be confused with low wealth counties. Many more factors besides free and reduced-price lunch are considered in designating a county as low wealth. The NC Department of Public Instruction's *Allotment Policy Manual for FY 2000-01* describes in more detail criteria for defining low wealth counties. This manual is available at <http://www.ncpublicschools.org/fbs/allotmentmanual2001.pdf>.
- ^b Throughout the report, the term *significant* means statistically significant at $p < .05$.
- ^c Throughout the report, *national average* refers to the overall mean of the standard scores for the national standardization sample for each measure. The average, or mean, for children of all income levels was set at 100 with a standard deviation of 15 for these measures. Scores on these measures can range from 40 to 160, with most scores falling between 70 and 130.
- ^d *National norms* are based on the national standardization samples of the measures. These norms were set so that 16% of the children had scores less than 85 and an additional 16% had scores greater than 115.
- ^e Throughout the report, *very low* refers to standard scores less than 85.
- ^f Throughout the report, *very high* refers to standard scores greater than 115.

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- ⁴² See reference 2.
- ⁴³ See reference 3.
- ⁴⁴ See reference 1.



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