Evaluation of the North Carolina More at Four Pre-kindergarten Program

Year 2 Report

JULY 1, 2002–JUNE 30, 2003

Ellen S. Peisner-Feinberg, PhD,
Catherine L. Maris, MA, &
the *More at Four* Evaluation Team

UNC
FPG CHILD DEVELOPMENT INSTITUTE

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For more information about the Evaluation of the North Carolina *More at Four Pre-kindergarten Program*, visit the web site at www.fpg.unc.edu/~mafeval.

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Overview of the *More at Four Program*

The *North Carolina More at Four Pre-kindergarten Program* is a state-funded initiative for at-risk 4-year-olds, designed to help them be more successful when they enter elementary school. *More at Four* is based on the premise that all children can learn if given the opportunity, but at-risk children have not been given the same level of opportunity. The purpose of *More at Four* is to provide a high quality, comprehensive educational program for at-risk children during the year prior to kindergarten entry. The focus of this program is on "unserved" children (those not already being served in a preschool program) and secondarily, on "underserved" children (those eligible for but not receiving child care financial assistance and/or those in below-standard care). The *More at Four Program* was initiated in late 2001, and sites began serving children as early as January 2002. At the inception of this program, it was estimated that there were approximately 40,000-45,000 at-risk 4-year-olds in North Carolina, with about 10,000 of these children unserved and even more underserved. (Appendix A provides further information about the 2002-2003 program guidelines for determining risk factors and service priority status.)[1]

More at Four provides funding for classroom-based educational programs at a variety of sites designated by the local administration within each county or region (typically, either the local public school system or the local Smart Start partnership[2]). The programs are administered at the county or region level, with oversight by the State *More at Four* Office, and must include collaboration among the local school system(s), the local Smart Start partnership, and other interested members of the early childhood community (e.g., Head Start, child care providers, resource and referral agencies). Children are eligible for *More at Four* based on the identification of risk factors (such as poverty status, limited English proficiency, disabilities, or chronic health conditions) and are selected for participation based on service priority status (with unserved children receiving higher priority than underserved children). *More at Four* classrooms operate in a variety of settings, including public schools, Head Start, and community child care centers (both for-profit and nonprofit). Children may be enrolled in classrooms serving *More at Four* children exclusively or in blended classrooms serving children funded through other sources such as Head Start or parent fees. The programs operate on a school calendar basis for 6 to 6-1/2 hours/day and 180 days/year. Local sites must meet a variety of program guidelines and standards around curriculum, training and education levels for teachers and administrators, class size and student-teacher ratios, North Carolina child care licensing levels, and provision of other program services[3].

In the second year of the program (July 1, 2002- June 30, 2003), the focus of the current report, 81 local *More at Four* programs representing 89 of the 100 counties in North Carolina were in operation. These programs served over 6,000 children in more than 500 classrooms in over 400 sites (schools and child care centers). It is important to note that the local *More at Four* programs operating during the second year included both those continuing from the first year (with programs operating in Year 1 between 1-6 months

from January 1-June 30, 2002) as well as new programs beginning operation in the second year. In addition, there was also some expansion of existing programs during the second year, both through increasing the number of children served in existing sites and adding new sites. Children served through expansion slots or new programs typically entered the program later in the year than those served through continuing slots, given that the authorizing legislation was not approved until September, 2003, with operational funds available in October, 2003.

Overview of the Statewide Evaluation of the *More at Four Program*

The current report contains results from a statewide evaluation of the *More at Four Program* during its second year of operation (2002-2003), conducted by the FPG Child Development Institute at the University of North Carolina, Chapel Hill. (A separate report with results of the year 1 evaluation is also available[4].) The goals of the evaluation were to provide information regarding the quality of the program and its effectiveness for children as well as to indicate suggested areas for program improvement.

The primary research questions addressed by this evaluation included:

- What were the characteristics of the local programs?
- Who was served by the *More at Four Program*?
- What was the quality of the services provided?
- How satisfied were families with the *More at Four Program*?
- What were the outcomes of children attending the *More at Four Program*?
- What factors were associated with better outcomes for children?

In order to address these questions, we gathered information from four sources: monthly service reports, observations of classroom quality, parent surveys, and individual child assessments. The monthly service report data from each local program provided information about child and program characteristics for all children, classrooms, and sites participating in *More at Four*, including program size, operation days, teacher and administrator qualifications, child demographic characteristics, and attendance information. Observations were conducted in a sample of classrooms to provide information about two different aspects of the classroom: the global quality of classroom practices (139 classrooms) and the level of curriculum implementation (48 classrooms). The global classroom quality measure examined the developmental appropriateness of classroom practices, including the activities and materials provided, the interactions among teachers and children, the physical environment, and the daily organization of the program. The measure of curriculum implementation assessed the extent to which the organization of the environment, the materials provided, and the schedule and routines were structured according to the criteria of the different curricula used in these classrooms (Creative Curriculum, High/Scope, and Bright Beginnings). Surveys from 1,499 parents provided information about satisfaction with the *More at Four Program*, perceptions of the program's effects on their children's skills and development, parents' level of involvement in program activities, and family demographic characteristics. Finally, individual assessments of children's language and literacy skills, math skills, general knowledge, and social skills were conducted near the beginning and end of the program year for a sample of 271 children. These data provided information about the amount of developmental growth experienced by children over the *More at Four* program

year. In accord with the overall goal of the *More at Four Program*, the outcome areas measured were consistent with widely accepted definitions of school readiness, including the recommendations of the National Education Goals Panel.[5]

The current report describes the results from the evaluation of the second year of operation of the North Carolina *More at Four Program.* Some key findings are highlighted below.

- The second year of *More at Four* was characterized by ongoing change, as local sites commenced operations throughout the year. The program experienced dramatic expansion from the first to the second year, with a nearly five-fold increase in the number of children served from 1,244 to 6,125.

- Children were served in a variety of settings, including public schools and community sites (e.g., for-profit and nonprofit child care, Head Start). The qualifications of the program staff were fairly high compared to other child care or prekindergarten programs, with some staff already meeting the 4-year program standards by the second year.

- The *More at Four Program* primarily served the intended population based on children's risk factors and service priority status, with nearly three-quarters of the children not previously served in a preschool program. A substantial portion of the children served also had identified disabilities (9%), higher than the US population average (6%).

- The *More at Four Program* provided a good quality preschool experience for participating children and families. Observations of 139 classrooms indicated that the classroom practices were in the highest quality range based on generally accepted standards for best practice; further, 85% of the classrooms met or exceeded the *More at Four* program guidelines in this area. Two factors were associated with higher quality classroom practices—classrooms located in community (non-public school) settings and classrooms with teachers who had an early childhood teaching license (B-K or preschool add-on). Observations in 48 classrooms showed that they partially met the criteria of the particular curriculum used, but typically did not fully meet the recommendations for implementation. Parents reported high levels of satisfaction with the quality of the program and its effects on their children, based on survey responses from 1,499 families.

- Children participating in *More at Four* demonstrated substantial growth over the program year in skills related to kindergarten readiness. Individual assessments of 271 children showed significant gains from the beginning to the end of the *More at Four* year for all outcome areas measured: language and literacy skills, math skills, general knowledge, and behavioral skills. The amount of growth indicates that children were developing at the expected rate or even greater than expected in some areas. The *More at Four Program* had even stronger effects in some skill areas for children entering the program with greater needs (higher level

of service priority status, greater overall risk, or lower level of English proficiency). Specific structural characteristics of the classroom—better teacher qualifications and a higher proportion of *More at Four* children in the classroom—were associated with greater gains on some measures of language and literacy skills.

- Comparisons to national studies of the Head Start Program and state pre-kindergarten programs in six states suggest that the *More at Four Program* in its second year was performing at least as well as or better than other more established large-scale pre-kindergarten programs, both in terms of program quality and children's outcomes.

Results

WHAT WERE THE CHARACTERISTICS OF THE LOCAL *MORE AT FOUR* PROGRAMS?

In order to address questions about characteristics of the local programs and the children they served, monthly service data reported by the local *More at Four* programs were analyzed. These monthly reports included information about program size, operation days, teacher and administrator qualifications, child demographic characteristics, and attendance information for all children, classrooms, and sites participating in the *More at Four Program*. (Appendix B provides greater detail regarding data collection methods for the 2002-2003 evaluation.)

What was the size of *More at Four Program* during its second year of operation?

The *More at Four Program* experienced dramatic expansion from the first year to the second year. The total number of children served in the second year was 6,125, almost a five-fold increase over the number of children served in the first year (1,244). These children were served in 526 classrooms in 419 sites (schools and child care centers) across North Carolina. Statewide, the program expanded from 26 local programs in the first year to 81 local programs in the second year. (See Table 1.) *More at Four* was characterized by ongoing change at the local level, as expansion related to both the start-up of new local programs and increases in slots within existing programs took place throughout the second year. Examination of the statewide data indicate that 55 new local programs (located in 57 counties) commenced operations over the seven-month period between August, 2002 and February, 2003 with individual sites starting between August, 2002 and April, 2003 (see Figure 1). Year 2 of *More at Four* provided the first opportunity for programs to offer a full year of services for children, given that the first year was only a partial year (January 2002-June 2002) with ongoing start-up of programs throughout that period.

"It was an initially challenging experience, because we began implementation of the *More At Four Program* during the middle of a school year (starting in January, 2003), but it has been very successful in making a difference in the lives of many of our county's young children and significantly increasing their chance for future success in school and life. It is an excellent program."

--*More at Four* contract administrator (from 2002-2003 survey)

Table 1. Program Characteristics

Program Characteristic	Year 1	Year 2
Total *More at Four* local programs	26	81
Total *More at Four* sites (facilities)	102	419
Total *More at Four* classrooms	139	526
Total children served	1,244	6,125
Total children not previously served[a]	926 (74%)	4,364 (71%)
Average class size	14	17
Average number of *More at Four* children/class[b]	9 (62%)	11 (72%)

[a] These data are based on reported service priority status.
[b] These data are based on the maximum monthly reported proportion of More at Four children for each classroom.

In what types of settings were *More at Four* children served?

Children were served in a variety of service delivery settings, including public schools, for-profit and nonprofit private child care, Head Start, and various other combinations. Half (50%) of the children were served in public school settings (including those combined with Head Start), 43% were served in private child care settings (mostly for-profit centers), and a small proportion were in Head Start and other types of settings (see Figure 2). *More at Four* children tended to be served in blended classrooms including children funded through other programs. The average class size was 17 children (below the program guidelines maximum of 18), and an average of 11 (72%) of these children were participating in *More at Four* (see Table 1).

Figure 1. N.C. *More at Four* Counties by Start Date
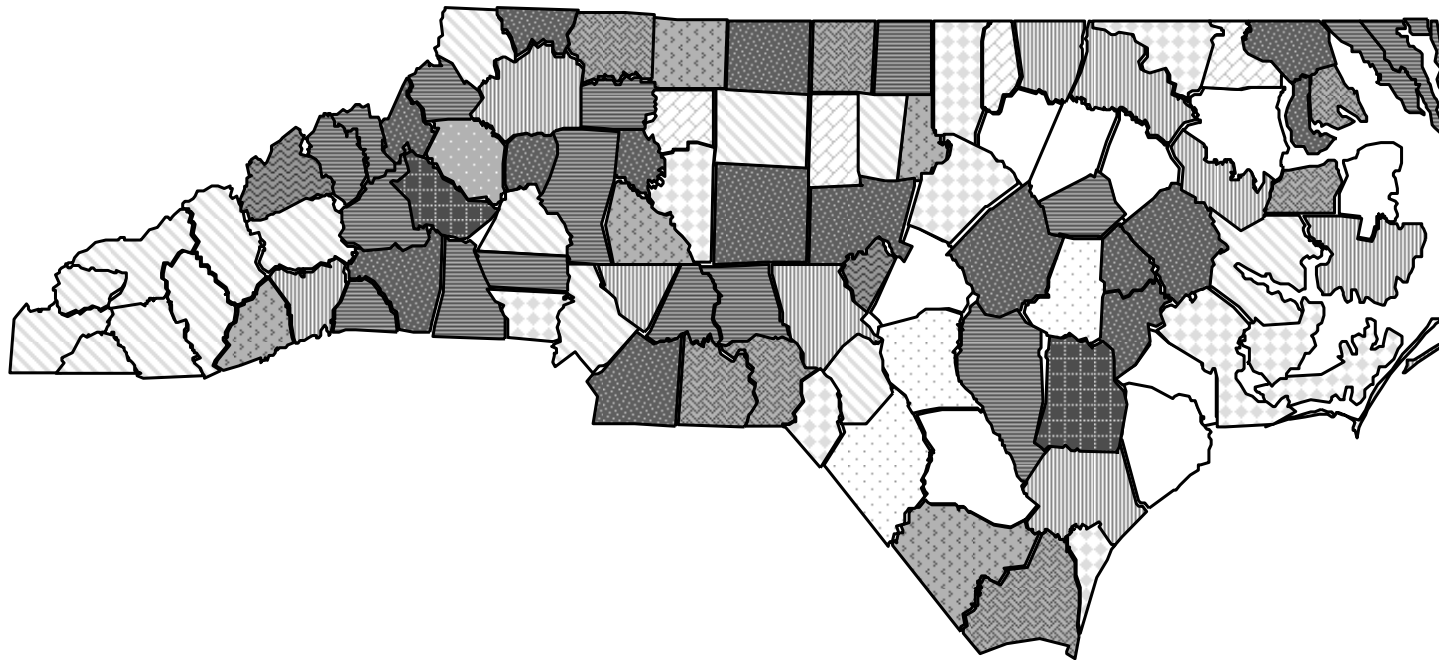
2001-2002

Jan 02, n=15	
Feb 02, n=3	
Mar 02, n=10	
Apr 02, n=4	

2002-2003

Aug 02, n=7	Dec 02, n=5
Sep 02, n=2	Jan 03, n=9
Oct 02, n=15	Feb 03, n=2
Nov 02, n=17	

Figure 2. Distribution of Children by Setting Type.

Children by Setting Type
n=6125

Legend:
- Public Preschool
- Private For-Profit Child Care
- Private Non-Profit Child Care
- Head Start
- Head Start & Public Preschool
- Other

Pie chart values: 47%, 31%, 12%, 5%, 3%, 2%
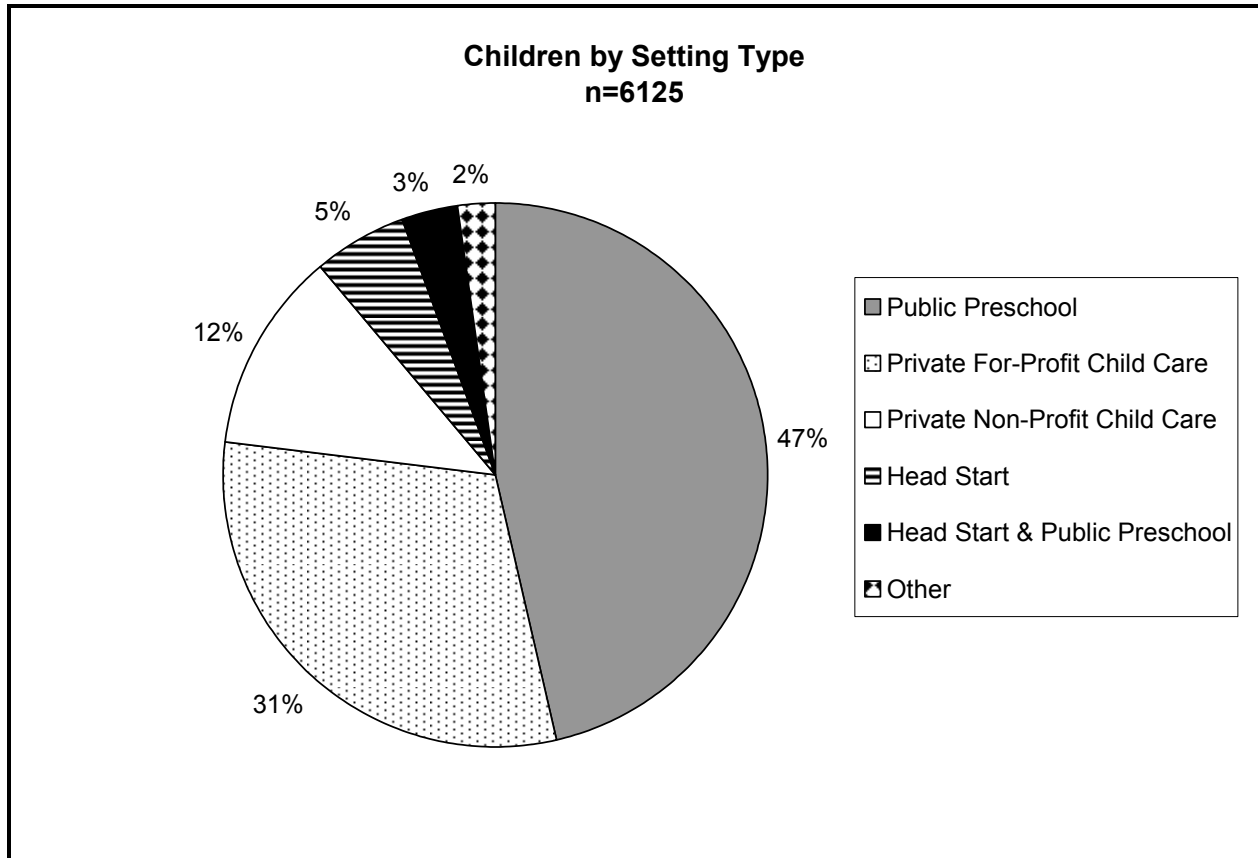
A great deal of variation in program characteristics existed among the different counties/regions, including program size, types of settings, and children's risk factor status. Local *More at Four* programs ranged in size from 6 to 640 children. Individual programs also varied in the types of sites in which they served children, with some utilizing only a single type of setting (e.g., public school, private child care or Head Start) and others utilizing multiple settings. The overall risk level of the children served also varied, with the average child risk factor score ranging from 2.5 to 8.9 across programs. [Based on the program guidelines for 2002-2003, children were designated at significant risk (score = 2), potential risk (score = 1), or negligible impact (score = 0) on each of 9 factors, with a total possible risk score of 0-18.] (See Appendix A for further information on the program guidelines.)

What were the education levels and licensure/credentials of the *More at Four* program staff?

In general, *More at Four* teachers, assistant teachers, and site administrators reported fairly high levels of education and licensure/credentials. Teacher education levels were similar to or higher than those typically reported in prekindergarten or child care programs[6,7]. As expected, staff in public school settings tended to be more highly qualified than staff in community settings, both in terms of education and credentials. (See Tables 2-5).

Table 2. Education Levels of *More at Four* Teachers

Highest Degree Earned	Lead Teachers			Assistant Teachers		
	Public School Settings n=269[a]	Community Settings n=301[b]	All Settings n=570	Public School Settings n=254[c]	Community Settings n=244[d]	All Settings n=498
MA/MS or higher	16.4% (44)	3.3% (10)	9.5% (54)	0.4% (1)	0% (0)	0.2% (1)
BA/BS	81.0% (218)	64.8% (195)	72.5%[e] (413)	19.3% (49)	16.0% (39)	17.7%[f] (88)
AA/AAS	1.5% (4)	22.9% (69)	12.8%[g] (73)	28.7% (73)	24.2% (59)	26.5%[h] (132)
HS diploma/ GED	1.1% (3)	9.0% (27)	5.3%[i] (30)	51.6% (131)	59.8% (146)	55.6%[j] (277)

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[a] These data were not reported for 5 public school lead teachers.
[b] These data were not reported for 3 community setting lead teachers.
[c] These data were not reported for 26 public school assistant teachers.
[d] These data were not reported for 38 community setting assistant teachers.
[e] Of lead teachers across all settings, 16 holding BA/BS degrees were working toward an MA/MS or higher.
[f] Of assistant teachers across all settings, 4 holding BA/BS degrees were working toward an MA/MS or higher.
[g] Of lead teachers across all settings, 21 holding AA/AAS degrees were working toward a BA/BS.
[h] Of assistant teachers across all settings, 11 holding AA/AAS degrees were working toward a BA/BS.
[i] Of lead teachers across all settings, 9 holding high school diplomas/GED's were working toward a BA/BS and 14 were working toward an AA/AAS.
[j] Of assistant teachers across all settings, 25 holding high school diplomas/GED's were working toward a BA/BS and 125 were working toward an AA/AAS.

Table 3. Licensure/Credential Levels of *More at Four* Teachers

Highest License/ Credential[a]	Lead Teachers			Assistant Teachers		
	Public School Settings n=274	Community Settings n=303[b]	All Settings n=577	Public School Settings n=275[c]	Community Settings n=278[d]	All Settings n=553
B-K or Preschool add-on License	61.7% (169)	15.2% (46)	37.3% (215)	1.1% (3)	1.1% (3)	1.1% (6)
Provisional B-K License	1.5% (4)	2.0% (6)	1.7% (10)	0% (0)	0% (0)	0% (0)
Other Teacher's License[e]	16.8% (46)	8.9% (27)	12.7% (73)	2.2% (6)	0% (0)	1.1% (6)
Provisional Teacher's License[f]	1.1% (3)	1.3% (4)	1.2% (7)	0% (0)	0% (0)	0% (0)
Working toward B-K / Preschool add-on License	6.6% (18)	27.1% (82)	17.3% (100)	2.9% (8)	5.0% (14)	4.0% (22)
Working toward Other Teacher's License	2.6% (7)	1.3% (4)	1.9% (11)	2.9% (8)	0.4% (1)	1.6% (9)

[a] Note: B-K = Birth-Kindergarten, CDA = Child Development Associate, NCECC = North Carolina Early Childhood Credential; Other teacher's license includes non-early childhood licenses from other states.

[b] These data were not reported for 1 community setting lead teacher.

[c] These data were not reported for 5 public school assistant teachers.

[d] These data were not reported for 4 community setting assistant teachers.

[e] For lead teachers, 8.0% (22) in public schools, 6.6% (20) in community settings, and 7.3% (42) overall were also working toward a B-K or preschool add-on license.

[f] For lead teachers, 0 in public schools, 1.0% (3) in community settings, and 0.5% (3) overall were also working toward a B-K or preschool add-on license.

	Lead Teachers			Assistant Teachers		
Highest License/ Credential[a]	**Public School Settings** n=274	**Community Settings** n=303[b]	**All Settings** n=577	**Public School Settings** n=275[c]	**Community Settings** n=278[d]	**All Settings** n=553
CDA Credential	0.7% (2)	6.3% (19)	3.6% (21)	10.5% (29)	12.2% (34)	11.4% (63)
NCECC	1.1% (3)	9.6% (29)	5.5% (32)	10.2% (28)	49.3% (137)	29.8% (165)
Working toward CDA Credential	0.7% (2)	0% (0)	0.3% (2)	4.4% (12)	1.4% (4)	2.9% (16)
Working toward NCECC	0.7% (2)	0% (0)	0.3% (2)	2.9% (8)	5.0% (14)	4.0% (22)
None	6.6% (18)	28.4% (86)	18.0% (104)	62.9% (173)	25.5% (71)	44.1% (244)

Table 4. Education Levels of *More at Four* Site Administrators

Highest Degree Earned	Public School Settings n=201[a]	Community Settings n=194[b]	All Settings n=395
PhD/EdD	14.4% (29)	1.5% (3)	8.1% (32)
MA/MS	78.1% (157)	25.3% (49)	52.2%[c] (206)
BA/BS	7.0% (14)	35.1% (68)	20.8%[d] (82)
AA/AAS	0.5% (1)	23.7% (46)	11.9%[e] (47)
HS diploma/ GED	0% (0)	14.4% (28)	7.1%[f] (28)

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[a] These data were not reported for 5 administrators in public school settings.
[b] These data were not reported for 11 administrators in community settings.
[c] Of site administrators across all settings, 4 holding MA/MS degrees were working toward a PhD/EdD.
[d] Of site administrators across all settings, 5 holding BA/BS degrees were working toward an MA/MS.
[e] Of site administrators across all settings, 10 holding AA/AAS degrees were working toward a BA/BS.
[f] Of site administrators across all settings, 6 holding high school diplomas/GED's were working toward a BA/BS and 16 were working toward an AA/AAS.

Table 5. Licensure/Credential Levels of *More at Four* Site Administrators

Highest License/ Credential[a]	Public School Settings n=205[b]	Community Settings n=202[c]	All Settings n=407
Principal's License	86.3% (177)	3.5% (7)	45.2% (184)
Working toward Principal's License	1.0% (2)	0.5% (1)	0.7% (3)
NCECAC Level III	1.5% (3)	23.8% (48)	12.5% (51)
Working toward NCECAC Level III	0.5% (1)	9.4% (19)	4.9% (20)
NCECAC Level II	2.0% (4)	31.7% (64)	16.7% (68)
Working toward NCECAC Level II	0% (0)	9.4% (19)	4.7% (19)
NCECAC Level I	0% (0)	6.9% (14)	3.4% (14)
Working toward NCECAC Level I	0% (0)	1.5% (3)	0.7% (3)
None	8.8% (18)	13.4% (27)	11.1% (45)

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[a] Note: NCECAC = North Carolina Early Childhood Administration Credential
[b] These data were not reported for 1 administrator in a public school setting.
[c] These data were not reported for 3 administrators in community settings.

Did the local staff meet the *More at Four* program education and credentials guidelines?

According to the *More at Four* program guidelines, individual classrooms are given 4 years to meet the program standards around qualifications of lead teachers, assistant teachers, and site administrators. Accordingly, the guidelines include a set of specifications for provisional approval which local programs are expected to meet in the interim while working toward the program standards. In addition, in some cases, the guidelines distinguish between public school and community settings. (See Appendix A for a complete description of the guidelines related to staff qualifications.)

In the second year of the *More at Four* Program, most of the teaching staff met some or all of the specifications for provisional approval of education and licensure/credentials.

Across settings, all assistant teachers (100%) and most lead teachers (95%) met the provisional guidelines for education. Specifically, 100% of assistant teachers in all settings held a high school diploma or higher; 97% of public school lead teachers held a BA/BS degree or higher and 91% of community setting lead teachers held an AA/AAS degree or higher. (There were no provisional guidelines for administrator education levels.)

There was greater variation in compliance with specifications for provisional approval of licensure/credentials. Across settings, 65% of lead teachers and 40% of assistant teachers met the provisional licensure/credential guidelines. For lead teachers, 78% in public schools and 52% in community settings held or were working toward a B-K or preschool add-on license. For assistant teachers, 43% in community settings and 37% in public schools held a CDA or higher or were working toward either a CDA credential or an AA/AAS degree. For administrators in community settings, 69% held Level II administrative certification or higher or were working towards Level III certification (there were no provisional licensure or credential guidelines for administrators in public school settings).

While programs were given 4 years to meet the standards for staff qualifications (education and licensure/credentials), some staff met these standards by the second year of the *More at Four* program. For instance, 63% of public school lead teachers and 17% of community setting lead teachers held B-K or preschool add-on licenses or provisional licenses; approximately 20% of public school and 19% of community setting assistant teachers held a CDA credential or higher; 86% of public school principals held principal's licenses[8] and 28% of directors in community settings held a Level III North Carolina Early Childhood Administration Credential (or a principal's license). Moreover, 99.5% of public school principals and 62% of administrators in community settings met the goal of a BA/BS degree or higher. Although *More at Four* program staff reported relatively high levels of education and credentials and were generally meeting at least some of the specifications for provisional approval, many staff had not yet attained the higher-level qualifications in the program standards.

Did the individual sites and classrooms meet the *More at Four* guidelines for program operation?

Nearly all individual sites met the guidelines for program operation in terms of class size and daily hours of operation, with greater variation in the length of the program year given the ongoing expansion occurring throughout the second year. The average class size was 17, below the maximum of 18 allowed by the guidelines, with 99.6% of the classes having a maximum class size of 18 or less for each month of operation. Sites operated for an average of 6.5 hours per day, in accord with the guidelines requiring programs to operate for 6- to 6-1/2 hours per day, consistent with the length of a regular school day. Almost all classes (99.2%) met the requirement of at least a 6-hour day for each month they were in operation. The total days of operation averaged 125 days, or about 6 full months of services (excluding holidays and breaks), which represents about two-thirds of the typical school year of 180 days articulated in the program guidelines. However, the length of the program year varied widely across individual sites, ranging from 19 to 226 days. The length of operation was affected by the substantial amount of expansion of new programs in the second year of *More at Four*, with these programs typically beginning later in the school year (given the timing of the funding approval by the legislature) and therefore only able to serve children for a shorter period of time. The local county/region programs began operations from July to February, with some individual sites first serving children as late as April. Not surprisingly, only 11.2% of the sites operated 180 days or more per year, with another 12.9% of sites operating within 15 days of that (i.e., 165-179 days per year).

"The requirements for *More at Four* classrooms continue to help raise the quality of early care and education programs."

--*More at Four* program collaborator (from 2002-2003 survey)

What were the characteristics of the children served in the *More at Four Program*?

The *More at Four Program* continued to serve a diverse group of children in the second year. The demographic characteristics of the children served during the second year were similar to those served in the first year. About half the children were boys (54%) and half girls (46%). The children represented varied ethnic and racial backgrounds, with 39% African-American, 33% White, 19% Latino, and small percentages of children of other racial and ethnic groups (see Figure 3).

Figure 3. Distribution of Ethnicity/Race for *More at Four* Children.

n=6044[a]

2.8%
0.2%
1.6%
3.8%
18.9%
39.4%
33.2%

- Black/African American
- White/European American
- Hispanic/Latino
- Native American/Alaskan Native
- Asian
- Native Hawaiian/ Pacific Islander
- Multiracial

[a]Note: These data were not reported for 81 children.
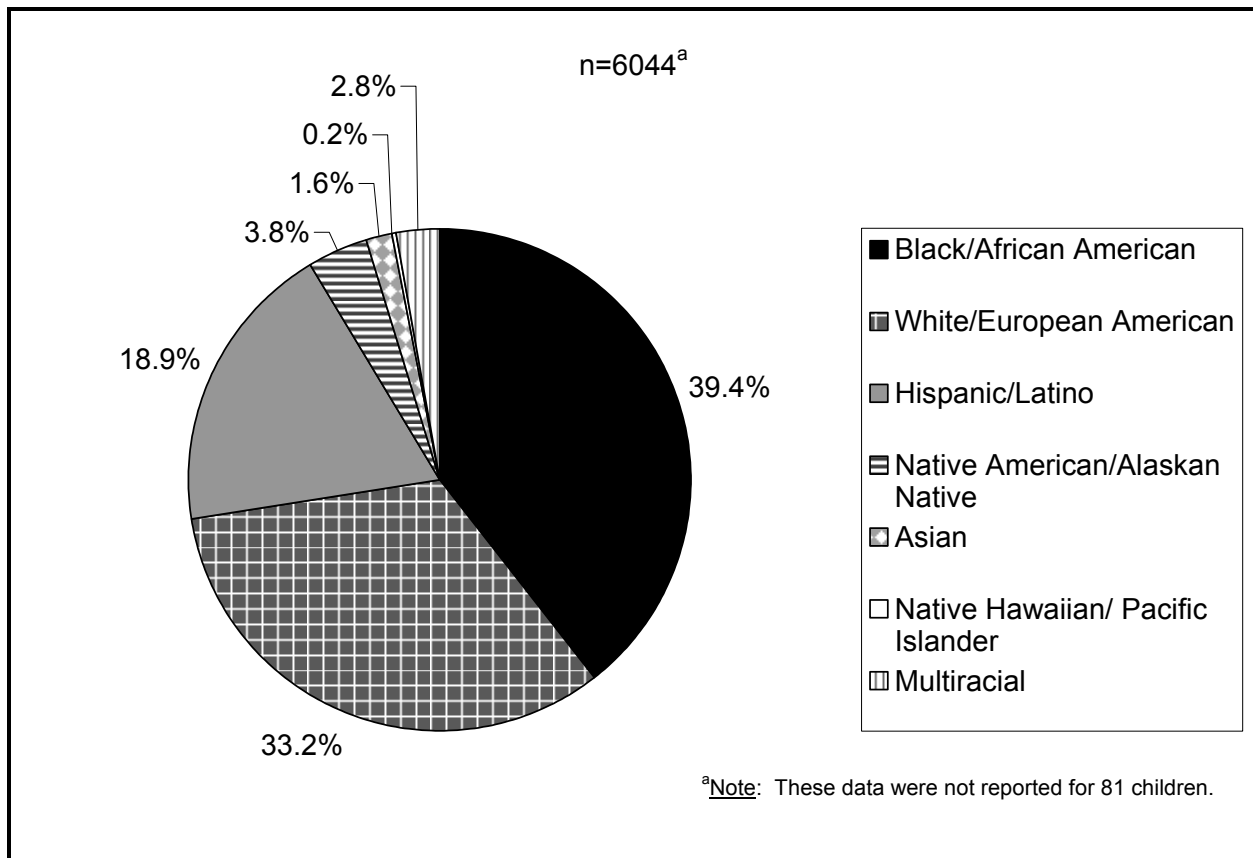
A significant proportion of the children served in *More at Four* had an identified disability (9%), more than the estimated US population average of 6%[9]. Of all the children attending *More at Four* during the second year, 9% were reported as having some type of identified disability. About 4% of all children attending *More at Four* were referred for a disability evaluation during their time in *More at Four*. Of the children with identified disabilities, 83% had an active Individualized Education Plan (IEP) and were receiving special services.

Did the children served by the *More at Four Program* meet the program guidelines in terms of risk factor status and service priority status?

The program primarily served the intended population based on certain risk factors. Based on the 2002-2003 program guidelines, children were designated at significant risk (score = 2), potential risk (score = 1), or negligible impact (score = 0) on each of 9 factors, with a total possible risk score of 0-18. (See Appendix A for further information on the program guidelines related to risk factor determinations.) In particular, the majority of children were at significant risk (Level 2) or potential risk (Level 1) on the factors of family income and parental employment, and substantial proportions of children were at risk on the factors of parent education, family composition, housing stability, and minority status. Fewer children were at risk in terms of health status, special needs, and English proficiency. (See Table 6.) There was a great deal of variety in the types and combinations of risk factors children exhibited. Children typically had multiple risk factors, with an average risk factor score of 5.7 (out of a possible 18 points). Most children (85.5%) were at significant risk on at least one factor and another 11.2% of children were at potential risk on at least one factor.

Table 6. Distribution of Children's Risk Factor Status (n = 6,125)

Risk Factor	Definition of Risk Levels	Significant Risk (Level 2)	Potential Risk (Level 1)	Negligible Risk (Level 0)
Family Income	**2:** Eligible for free lunch **1:** Eligible for reduced price lunch **0:** Ineligible for free or reduced price lunch	71.3%	13.7%	15.0%
Parental Employment Status	**2:** Primary caregiver unemployed **1:** Primary caregiver employed at current job for less than 12 months **0:** Primary caregiver employed at current job for 12 months or more	44.2%	19.1%	36.8%
Parental Education	**2:** Primary caregiver does not have a high school diploma **1:** Primary caregiver has GED **0:** Primary caregiver has high school diploma	28.8%	9.1%	62.0%

Risk Factor	Definition of Risk Levels	Significant Risk (Level 2)	Potential Risk (Level 1)	Negligible Risk (Level 0)
Minority Status with Additional Risk Factors	**2:** Child is a member of a minority group and demonstrates any 4 or more risk factors **1:** Child is a member of a minority group and demonstrates up to 3 risk factors **0:** Child is a member of a minority group and does not demonstrate any risk factors or child is not a member of a minority group (not applicable)	28.0%	30.4%	41.6%
English Proficiency	**2:** Family and child do not speak English **1:** Family and child speak limited English **0:** Family and child speak English	10.9%	8.1%	81.0%
Special Needs	**2:** Child has current Individualized Education Plan (IEP) **1:** Child has an Individualized Family Service Plan (IFSP) but does not qualify for an IEP **0:** No special needs identified	7.9%	1.4%	90.7%
Family Composition	**2:** Child lives with a single parent and there are compounding factors such as parental substance abuse or abuse/neglect **1:** Child lives with single parent **0:** Child lives with two parents	6.3%	41.4%	52.3%
Health Status	**2:** Child is identified as mentally or physically chronically ill or medically fragile **1:** Child is seen or has been seen by a pediatric specialist for a chronic health concern **0:** Child has no significant health concerns	2.9%	9.1%	88.0%
Housing Stability	**2:** Child has no stable place to live. Child may be homeless. **1:** Child has lived at multiple addresses during the preceding 12 months **0:** Child has resided at the same address during the preceding 12 months	1.8%	31.0%	67.3%
Highest Risk Level Indicated	**2:** 1 or more risk factors at level 2 **1:** 1 or more risk factors at level 1, and no risk factors at level 2 **0:** All risk factors at level 0	85.5%	11.2%	3.2% [a]

[a] Note: This number includes child report forms with default settings of "0" as well as selected values of "0" reported for all risk factors.

Programs were also serving the intended population based on service priority status. The focus of *More at Four* is primarily on reaching "unserved" at-risk children (i.e., those who are not in a pre-kindergarten program), and secondarily, on reaching "underserved" at-risk children (i.e., those who are in a low-quality setting). (See Appendix A for program guideline definitions of service priority status levels.) Similarly to the first year, almost three-quarters (71%) of the children had not been previously served in a preschool or child care setting, the highest service priority group. In addition, another 18% were unserved at the time of enrollment. (See Table 7.)

Table 7. Distribution of Children by *More at Four* Service Priority Status at Time of Enrollment (n=6125)

Service Priority Status at Time of Enrollment[a]	Number	Percent
Unserved Never been served in a child care or preschool program	4364	71.2%
Unserved in a child care/preschool program and eligible for, but not receiving, child care financial assistance	637	10.4%
Unserved in a child care/preschool program and not eligible for child care financial assistance	445	7.3%
Underserved Was being served in another program and eligible for, but not receiving, child care financial assistance	183	3.0%
Was being served in another program below *More at Four* standards	133	2.2%
Other	363	5.9%

"My daughter had never been in a 'school based' setting before and had some mild behavior problems. [Her] teachers have been so caring and wonderful and done everything possible to make her comfortable. Now she cries on Saturday and Sunday when there's no school. Our experience with the *More at Four Program* has been wonderful."

--More at Four parent (from 2002-2003 survey)

"Before my child started this program he was in a daycare facility but it exceeded my budget financially, so then he was in an in-home daycare but was not receiving the challenge at learning that he needed. Since moving here to this facility and program it has gone way beyond meeting [his learning needs] to get him prepared for kindergarten and I'm most thankful and grateful to the teachers and to Governor Mike Easley for starting this program."

--More at Four parent (from 2002-2003 survey)

[a] Note: Service priority status levels are listed in the table from highest to lowest priority.

WHAT WAS THE QUALITY OF THE SERVICES PROVIDED?

To address the question about the quality of services provided, observations were conducted in a sample of *More at Four* classrooms in their second year of operation. These observations included measures of the global quality of classroom practices (139 classrooms) using the Early Childhood Environment Rating Scale (ECERS-R)[10] and the implementation of specific curricula (48 classrooms) using the Materials and Activities Checklist (MAC)[11]. (See Appendix B for more information about these data collection procedures.)

What was the quality of the classrooms serving children participating in the *More at Four Program*?
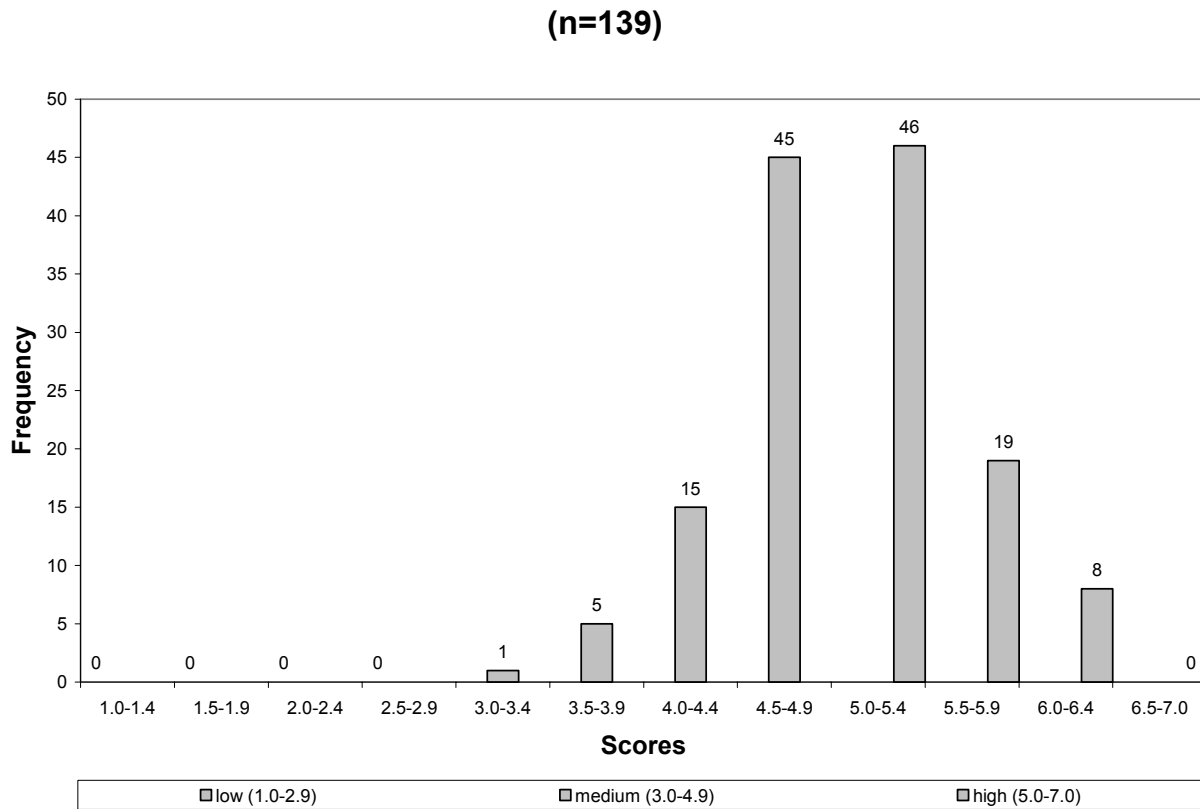
The *More at Four Program* provided a good quality preschool experience overall based on generally accepted standards for best practices, with 85% of the classrooms meeting or exceeding the program guidelines. The quality of classroom practices, including the activities and materials, the interactions among teachers and children, the physical environment, and the daily organization of the program was measured for a sample of classrooms using the ECERS-R. Scores on this measure are often categorized into three groups representing good (5.0-7.0), medium (3.0-4.9), and poor (1.0-2.9) quality practices. Scores in the highest range, commonly described as "developmentally appropriate practices," are considered to meet the standards of best practice for promoting children's development. Scores in the medium quality range indicate classrooms that are likely to meet children's basic care needs, but may not always utilize practices that promote their development. Scores in the poor quality range indicate practices which are not likely to meet children's basic care needs and offer few opportunities for promoting children's development. According to the *More at Four* program guidelines, classrooms are required to have a total score of 4.5 or above on this scale by their second year of operation.

> "The learning environment was suited to [my child's] needs as well as to those of her classmates. She got to participate quite a lot in class room activities. She was placed with special needs children, which helped her develop compassion for others. Her teachers were absolutely the best I could ever hope for. I commend them on an <u>excellent job</u>! The principal was also involved in a lot. She and her office staff did a great job. I could go on for days about our experience there. Also, the director was very kind and helpful on many occasions. My needs and concerns were immediately addressed when they arose. This was a great program!"
> --*More at Four* parent (from 2002-2003 survey)

These observations showed that the quality of classroom practices was high overall, with a mean score of 5.0 (SD=0.6). (See Figure 4.) This average score is higher than what is often found in samples of preschool programs, where the average score is usually around the middle of the medium range and below the *More at Four* minimum standard of 4.5[7,12]. Slightly more than half (53%) of the observed classrooms had total scores in the highest quality range, and the remaining classrooms (47%) had total scores in the medium quality range. It is notable that none of the classrooms observed had total scores in the poor quality range. In addition, 85% (118) of these classrooms had total scores of 4.5 or above, indicating that the majority of classrooms met the program guidelines in this area.

Figure 4. Distribution of Global Classroom Quality Scores (ECERS-R Total)

(n=139)

Bar chart. X-axis labeled "Scores" with categories: 1.0-1.4 (0), 1.5-1.9 (0), 2.0-2.4 (0), 2.5-2.9 (0), 3.0-3.4 (1), 3.5-3.9 (5), 4.0-4.4 (15), 4.5-4.9 (45), 5.0-5.4 (46), 5.5-5.9 (19), 6.0-6.4 (8), 6.5-7.0 (0). Y-axis labeled "Frequency" from 0 to 50. Legend: low (1.0-2.9), medium (3.0-4.9), high (5.0-7.0).

Looking at specific areas of classroom quality, the average scores were in the highest quality range for four of the subscale areas and in the medium quality range for the remaining three. Moreover, classrooms met the program standard for total scores of 4.5 or above for six of the seven subscale areas. Four subscales had average scores in the good quality range (5.0-7.0), including practices related to interactions with and supervision of children, language and reasoning experiences, the program structure and organization, and provisions for parents and staff. (See Figure 5.) Average scores for two of the subscales were in the medium quality range (3.0-4.9), but still at or above 4.5. These included daily activities, which measures the materials provided and variety of activities (e.g., fine motor, creative activities, math and science), and the space and furnishings available to children. The average score for one subscale, practices related to routine care needs (e.g., nap and rest, health practices), was in the medium quality range but below 4.5.

Figure 5. Global Classroom Quality Mean Subscale Scores (ECERS-R)

(n =139)

Low = 1.0-2.9   Medium = 3.0-4.9   High = 5.0-7.0
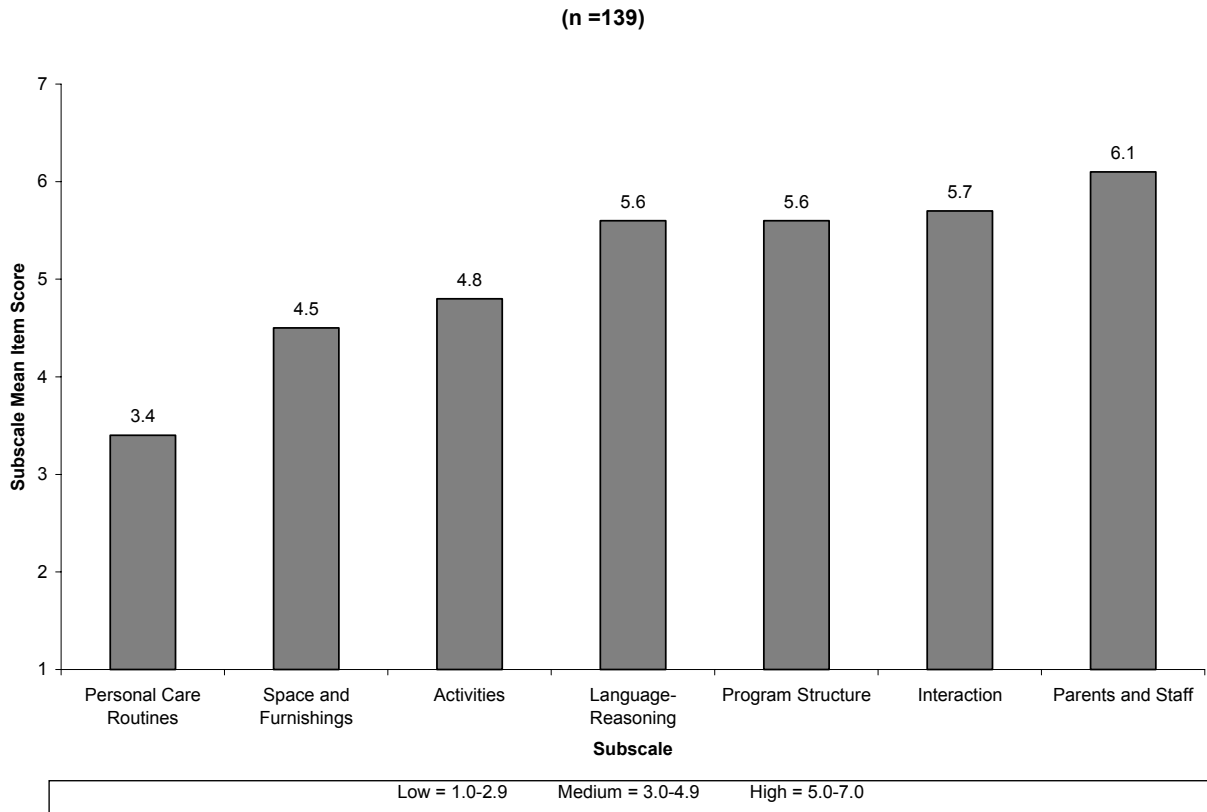
While the overall quality scores were good, there were a few individual items with average scores in the poor quality range, which potentially may compromise children's health and safety. More than half of the items (51%, 22 items) on the ECERS-R classroom quality measure had average scores in the good quality range (5.0-7.0), and almost three-quarters of the items (72%, 31 items) had average scores of 4.5 or above (see Table 8). Another 19% (8) of the items had average scores in the medium quality range (3.0-4.9) but below the overall program standard of 4.5. However, four items (9%) had average scores in the poor quality range (1.0-2.9). These items included space for gross motor play, meals/snacks, toileting, and safety practices. The lower-scoring items and subscales are important areas to consider for staff training to insure that the quality of the classrooms is uniformly high. While the ECERS-R scores tended to be slightly better for classrooms in community (i.e., non-public school) settings than those in public school settings, these four items were low scoring across both setting types.

Table 8. ECERS-R Mean Item Scores

Subscales and Items	Item Description	Public School Settings (n=72)		Community Settings (n=67)		All Settings (n=139)	
		Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
▪ **Total Overall Score**	(items 1-43)	4.9 (0.7)	3.2-6.4	5.1 (0.5)	3.6-6.2	5.0 (0.6)	3.2-6.4
▪ **Total Child Items Score**	(items 1-37)	4.7 (0.7)	3.0-6.2	4.9 (0.5)	3.4-6.2	4.8 (0.6)	3.0-6.2
▪ **Space and Furnishings Subscale**	(items 1-8)	4.3 (0.8)	2.9-6.4	4.7 (0.7)	3.3-6.6	4.5 (0.7)	2.9-6.6
1	Indoor space	5.2 (1.6)	2-7	4.9 (1.6)	2-7	5.1 (1.6)	2-7
2	Furniture for routine care, play, and learning	5.3 (1.7)	2-7	6.3 (1.2)	4-7	5.8 (1.5)	2-7
3	Furnishings for relaxation and comfort	4.6 (1.4)	3-7	5.1 (1.6)	3-7	4.9 (1.5)	3-7
4	Room arrangement for play	4.2 (1.9)	2-7	4.5 (2.0)	2-7	4.4 (2.0)	2-7
5	Space for privacy	4.7 (1.8)	2-7	5.0 (2.0)	2-7	4.8 (1.9)	2-7
6	Child-related display	4.9 (1.3)	2-7	4.7 (1.2)	2-7	4.8 (1.3)	2-7
7	Space for gross motor play	2.0 (0.6)	1-6	2.2 (1.0)	2-7	2.1 (0.8)	1-7
8	Gross motor equipment	3.4 (2.3)	1-7	4.7 (2.3)	1-7	4.0 (2.4)	1-7
▪ **Personal Care Routines Subscale**	(items 9-14)	3.2 (0.8)	2.0-5.8	3.6 (0.8)	2.2-6.2	3.4 (0.9)	2.0-6.2
9	Greeting/departing	6.5 (1.0)	2-7	6.7 (0.8)	4-7	6.6 (0.9)	2-7
10	Meals/snacks	2.2 (1.3)	1-7	2.6 (1.5)	1-7	2.4 (1.4)	1-7
11	Nap/rest	3.4[a] (2.0)	1-7	3.8[b] (1.9)	1-7	3.6 (2.0)[c]	1-7

Subscales and Items	Item Description	Public School Settings (n=72)		Community Settings (n=67)		All Settings (n=139)	
		Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
12	Toileting	2.4 (1.5)	1-7	2.9 (2.0)	1-7	2.6 (1.8)	1-7
13	Health practices	3.0 (1.9)	1-7	3.6 (2.2)	2-7	3.3 (2.0)	1-7
14	Safety practices	1.8 (0.4)	1-2	2.2 (0.9)	1-7	2.0 (0.7)	1-7
▪ **Language-Reasoning Subscale**	(items 15-18)	5.6 (0.9)	3.5-7.0	5.6 (0.8)	4.0-7.0	5.6 (0.8)	3.5-7.0
15	Books and pictures	4.7 (1.4)	3-7	5.0 (1.5)	2-7	4.8 (1.4)	2-7
16	Encouraging children to communicate	6.6 (0.8)	4-7	6.7 (0.6)	4-7	6.7 (0.7)	4-7
17	Using language to develop reasoning skills	5.2 (1.5)	3-7	5.0 (1.4)	3-7	5.1 (1.4)	3-7
18	Informal use of language	5.9 (1.3)	3-7	5.7 (1.4)	4-7	5.8 (1.3)	3-7
▪ **Activities Subscale**	(items 19-28)	4.7 (0.9)	3.1-6.8	5.0 (0.8)	3.3-7.0	4.8 (0.9)	3.1-7.0
19	Fine motor	4.9 (1.4)	2-7	5.0 (1.3)	3-7	4.9 (1.4)	2-7
20	Art	4.4 (1.6)	1-7	4.8 (1.5)	3-7	4.6 (1.6)	1-7
21	Music/movement	4.8 (1.7)	2-7	5.6 (1.5)	2-7	5.2 (1.6)	2-7
22	Blocks	4.0 (1.0)	1-6	4.1 (0.9)	2-7	4.1 (1.0)	1-7
23	Sand/water	5.6 (1.4)	1-7	6.1 (1.3)	1-7	5.9 (1.4)	1-7
24	Dramatic play	4.5 (1.3)	2-7	5.1 (1.3)	2-7	4.8 (1.3)	2-7
25	Nature/science	4.5 (1.3)	2-7	4.6 (1.4)	2-7	4.5 (1.4)	2-7

Subscales and Items	Item Description	Public School Settings (n=72)		Community Settings (n=67)		All Settings (n=139)	
		Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
26	Math/number	4.5 (1.2)	3-7	4.7 (1.3)	3-7	4.6 (1.2)	3-7
27	Use of TV, video, and/or computers	4.3[d] (2.3)	1-7	4.3[e] (2.3)	1-7	4.3 (2.3)[f]	1-7
28	Promoting acceptance of diversity	5.4 (1.5)	2-7	5.5 (1.7)	2-7	5.4 (1.6)	2-7
▪ **Interaction Subscale**	(items 29-33)	5.7 (1.1)	2.0-7.0	5.7 (1.0)	2.4-7.0	5.7 (1.1)	2.0-7.0
29	Supervision of gross motor activities	5.0 (1.8)	1-7	5.1 (1.6)	2-7	5.1 (1.7)	1-7
30	General supervision of children	5.5 (1.7)	1-7	5.4 (1.6)	2-7	5.5 (1.7)	1-7
31	Discipline	5.3 (1.8)	2-7	5.5 (1.5)	1-7	5.4 (1.7)	1-7
32	Staff-child interactions	6.2 (1.5)	1-7	6.3 (1.4)	1-7	6.2 (1.5)	1-7
33	Interactions among children	6.3 (1.3)	2-7	6.0 (1.5)	2-7	6.1 (1.4)	2-7
▪ **Program Structure Subscale**	(items 34-37)	5.4 (1.1)	2.8-7.0	5.7 (0.7)	3.7-7.0	5.6 (0.9)	2.8-7.0
34	Schedule	4.3 (1.3)	2-7	4.5 (1.3)	2-7	4.4 (1.3)	2-7
35	Free play	6.1 (1.3)	2-7	6.5 (0.9)	2-7	6.3 (1.1)	2-7
36	Group time	5.6 (1.5)	1-7	6.0 (1.3)	3-7	5.8 (1.5)	1-7
37	Provisions for children with disabilities	5.8[g] (1.4)	2-7	5.6[h] (1.3)	2-7	5.7[i] (1.4)	2-7
▪ **Parents and Staff Subscale**	(items 38-43)	6.1 (0.6)	3.8-7.0	6.1 (0.7)	4.0-7.0	6.1 (0.6)	3.8-7.0

Subscales and Items	Item Description	Public School Settings (n=72)		Community Settings (n=67)		All Settings (n=139)	
		Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
38	Provisions for parents	6.0 (1.0)	2-7	6.3 (0.9)	4-7	6.1 (1.0)	2-7
39	Provisions for personal staff needs	4.0 (1.9)	1-7	4.6 (1.7)	2-7	4.3 (1.8)	1-7
40	Provisions for professional staff needs	6.6 (1.0)	2-7	6.4 (1.1)	3-7	6.5 (1.1)	2-7
41	Staff interaction and cooperation	6.5 (0.7)	4-7	6.3[j] (1.0)	2-7	6.4[k] (0.9)	2-7
42	Supervision and evaluation of staff	6.7[l] (0.5)	5-7	6.7 (0.6)	4-7	6.7[m] (0.5)	4-7
43	Opportunities for professional growth	6.5 (1.2)	1-7	6.2 (1.2)	2-7	6.4 (1.2)	1-7

[a] n = 71
[b] n = 66
[c] n = 137
[d] n = 65
[e] n = 62
[f] n = 127
[g] n = 53
[h] n = 45
[i] n = 98
[j] n = 66
[k] n = 138
[l] n = 71
[m] n = 138

What was the level of curriculum implementation in *More at Four* classrooms?

Classrooms partially met the criteria for implementing the particular curriculum chosen, but typically did not fully meet the recommendations for implementation. The *More at Four* program guidelines required that classrooms use an approved research-based early childhood curriculum[13]. Observations of curriculum implementation focused on the extent to which the organization of the environment, the materials provided, and the schedule and routines were structured according to the criteria of the particular curriculum being used in the classroom (Creative Curriculum 3rd or 4th edition, High/Scope, or Bright Beginnings). The Materials and Activities Checklist (MAC) was used to measure curriculum implementation, with different versions for each curriculum. A common set of subscale areas was measured across the different versions, but the specific items reflected the key requirements of the particular curriculum. Scores on the MAC could range from 0-2 (low-high), representing how well various aspects of the curriculum were being carried out in the classroom. A score of 0 indicates that the curriculum requirements are not being implemented, a score of 1 indicates that the curriculum requirements are being partially implemented, and a score of 2 indicates that the curriculum requirements are being fully implemented.

"One of the major strengths of all the *More at Four Program* is that it had a great curriculum to follow, which really helped us out in our classroom.

--*More at Four* assistant teacher (from 2002-2003 survey)

"[To be more effective as a *More at Four* teacher, I needed] more in depth coverage of the curriculum. I don't feel I received enough information and guidance on the areas and items I should be covering."

--*More at Four* teacher (from 2002-2003 survey)

The average total scores on the MAC were approximately half of the total possible score for the various curricula, at the partial implementation level (see Table 9). Scores at this level suggest that these classrooms were structured according to some of the criteria for their chosen curriculum, but were not fully meeting all of the criteria. Scores tended to be lowest for the Materials Scale, which is the largest component of the MAC, and measures how well the various activity areas in the classroom (e.g., library, writing, computers, listening, music, dramatic play, blocks, manipulatives, sand and water, art, woodworking, science, math, and cooking) provide the materials, equipment, and organization recommended by the particular curriculum. Scores tended to be somewhat higher for the General Environment and the Schedule and Routines Scales, indicating that the classrooms were closer to full implementation for these more general aspects of the curriculum.

There were also some differences in the level of implementation among the different types of curricula, although these differences should be regarded cautiously given that the sample size is fairly small for each curriculum type. Analyses examining total scores on the MAC found some significant differences by curriculum type [$F(3,44)=5.96, p<.02$]. The classrooms using Creative Curriculum 3rd edition tended to do a better job implementing these curricula than those using Creative Curriculum 4th edition or Bright Beginnings. Similarly, classrooms utilizing the High/Scope curriculum tended to have higher implementation scores than those using Bright

Beginnings. Further study using a larger sample would be needed to determine the extent to which these variations may be related to differences in curriculum requirements, curriculum and/or general training experiences, and/or resources to support implementation (both materials and technical assistance). For example, some curricula may be less costly or easier to implement in terms of the materials needed or the organization of the environment. Similarly, the curricula may vary in terms of the skills or training required to meet the curriculum criteria or the pre-existing levels of experience with the particular curriculum. For example, of the four curricula examined, Creative Curriculum 3rd edition has been in existence the longest and therefore may have been more familiar to the teachers utilizing it. The resources available for training and technical assistance related to the different curricula may also vary, including both formal and informal sources. For example, Creative Curriculum is used much more often in the *More at Four Program* than the others, which may result in more informal as well as formal opportunities for training and assistance with implementation.

Table 9. Level of Curriculum Implementation (MAC Curriculum-Specific Mean Item Scores)[a]

Curriculum	n	Total		Materials Scale		Environment Scale		Schedule & Routines Scale[b]	
		M (SD)	Range	M (SD)	Range	M (SD)	Range	M (SD)	Range
Bright Beginnings	14	0.9 (0.2)	0.7-1.5	0.8 (0.2)	0.6-1.4	1.6 (0.3)	1.0-2.0	1.4 (0.4)	1.0-2.0
Creative Curriculum 3	11	1.3 (0.2)	1.0-1.6	1.2 (0.2)	1.0-1.5	1.7 (0.2)	1.0-2.0	1.7 (0.2)	1.5-2.0
Creative Curriculum 4	15	1.0 (0.3)	0.6-1.4	0.9 (0.3)	0.5-1.4	1.6 (0.3)	1.0-2.0	1.6 (0.4)	0.8-2.0
High/Scope	8	1.2 (0.3)	0.8-1.6	1.1 (0.3)	0.7-1.6	1.7 (0.3)	1.3-2.0	1.8 (0.2)	1.5-2.0
All	48	1.1 (0.3)	0.6-1.6	1.0 (0.3)	0.5-1.6	1.6 (0.3)	1.0-2.0	1.6 (0.4)	0.8-2.0

[a] The number of items varies for each scale and for each MAC version, with the majority of items contained in the Materials Scale. The Materials Scale contains 60 items for Bright Beginnings, 47 items for Creative Curriculum 3, 57 items for Creative Curriculum 4, and 50 items for High/Scope. The General Environment Scale contains 4 items for Bright Beginnings, Creative Curriculum 3, and High/Scope, and 5 items for Creative Curriculum 4. The Schedules and Routines Scale contains 4 items for each version. The total score is calculated as a mean item score based on all items included on that version of the scale.

[b] For Schedules and Routines Scale, n =12 Bright Beginnings, n = 10 Creative Curriculum 3, n = 14 Creative Curriculum 4, n = 8 High/Scope.

What factors are associated with classroom quality?

There were moderate associations between the global quality of classroom practices and the level of curriculum-specific implementation. These two different measures of the classroom environment were moderately correlated (see Table 10). This finding suggests that classrooms with better quality global practices were somewhat more likely (but not always) to have better curriculum implementation, and vice versa. While it is to be expected that better implementation of a research-based curriculum would be consistent with better quality global practices, these may be somewhat different aspects of the classroom environment. The measure of curriculum implementation focused primarily on the organization and utilization of the materials and the environment for children according to the criteria of the particular curriculum being used in the classroom. The measure of classroom practices examined the global quality of both the environment and the interactions that occurred according to standards for developmentally appropriate practices for early childhood education, independent of the particular curriculum used. Not surprisingly, more similar components of each measure tended to be more strongly associated (e.g., MAC Materials scale and ECERS-R Activities subscale), although the overall level of classroom quality tended to be higher than that of curriculum implementation. Therefore, there may be a need for different types of training focused on general practices and curriculum-specific practices in order to insure that classrooms are doing well in both.

Table 10. Correlations between Global Classroom Quality Scores (ECERS-R) and Curriculum Implementation Scores (MAC) (n=43-47)

MAC Scale	ECERS-R Subscale							
	Space & Furnishings	Personal Care Routines	Language-Reasoning	Activities	Interaction	Program Structure	Parents and Staff	Total Score
Materials	0.28	0.36*	0.41**	0.63***	0.39**	0.39**	0.38**	0.58***
Environment	0.26	0.25	0.25	0.35*	0.13	0.39**	0.14	0.37*
Schedule & Routines	0.34*	0.31*	0.49**	0.39**	0.44**	0.22	0.22	0.48***
Total Score	0.31*	0.38**	0.43**	0.63***	0.40**	0.40**	0.37**	0.60***

*$p < .05$, **$p < .01$, ***$p < .001$

Two structural characteristics were associated with better quality classroom practices—classrooms in community settings and classrooms with teachers with an early childhood teaching license (B-K or preschool add-on license). Four sets of structural characteristics of the program were examined to see whether they were associated with the quality of classroom practices (ECERS-R)[14] or the level of curriculum implementation (MAC)[15]. The structural characteristics included: staff qualifications for the lead teacher, assistant teacher, and site administrator (education and credentials composites)[16]; class size (total number of children including *More at Four* and non-*More at Four* children); setting type (public school vs. community setting); and characteristics of children in the classroom, including average risk total for all *More at Four* children, average service priority status for all *More at Four* children, and proportion of *More at Four* children. In addition, curriculum type was included in the analyses examining MAC data. Stepwise regression was used to examine each set of structural characteristics sequentially from those expected to be most directly associated with classroom quality to those less directly associated, including in order, staff qualifications, class size, setting type, and classroom child characteristics. (See Tables C1 and C2 in Appendix C for more information.)

Two factors, setting type and lead teacher qualifications, were associated with the global quality of classroom practices (ECERS-R). Classrooms in community (i.e., non-public) sites were somewhat more likely to have better quality practices [$F(3,110)=3.42, p<.02$]. As seen in Table 8 shown previously, the total classroom quality scores were somewhat higher for community than public school settings (5.1 vs. 4.9 and 4.9 vs. 4.7), as were several of the subscale scores. Classrooms with lead teachers having B-K or preschool add-on licenses tended to be higher quality (least squares mean = 5.9) in comparison to classrooms with lead teachers having another type of teacher's license (not related to early childhood education) (least squares mean = 4.5), but were not typically different from classrooms with teachers without teaching licenses [$F(1,110)=7.50, p<.008$].

None of these structural factors, however, were associated with differences in the level of curriculum implementation (see Table C2 in Appendix C for more information). As noted earlier, however, there was some evidence of differences among the curricula in level of implementation. After adjusting for staff qualifications, classrooms using Creative Curriculum 3rd edition or High/Scope generally implemented these curricula better than those using Bright Beginnings, although these findings did not persist when other classroom characteristics (class size, setting type, and child characteristics) were included in the model.

HOW SATISFIED WERE FAMILIES WITH THE *MORE AT FOUR PROGRAM*?

In order to address the question about parent satisfaction with *More at Four*, parents of all children attending the *More at Four Program* were asked to complete surveys. A total of 1,499 parents responded to the surveys, which included questions about their perceptions of the program as well as family demographics. The respondents included approximately 29% of all families with children in the program at the time the surveys were distributed and represented nearly all (96%) of the counties and regions. (Appendix B provides more information regarding the survey methods.)

How satisfied were parents with various aspects of the *More at Four Program*?

Most parents were very satisfied with the *More at Four Program*. The majority of parents (78%-87%) described themselves as very satisfied with all aspects of the *More at Four Program*, including maintaining a safe program, supporting and respecting the family's culture and background, preparing their child to enter kindergarten, helping their child grow and develop, and being open to the parent's ideas and participation. Very few parents (less than 7%) reported dissatisfaction with the *More at Four Program*. (See Table 11.)

"It was a wonderful program to have [our child] to attend. She is so much more prepared to enter kindergarten. She loves school. She has learned everything from how to write her name to follow directions. I am so very thankful for the *More at Four Program*. We have a large family. Had this program not been in place our daughter would not have been able to be in a school type setting before starting kindergarten. It has been a wonderful answer to our prayers."

--*More at Four* parent (from 2002-2003 survey)

Table 11. Parent Satisfaction with the *More at Four Program*

Area	n	"How satisfied are you with the *More at Four Program* in each of the following areas?"			
		Very Satisfied (%)	Somewhat Satisfied (%)	Somewhat Dissatisfied (%)	Very Dissatisfied (%)
Maintaining a safe program (e.g., secure playgrounds, clean and tidy classrooms)	1486	87.1%	7.9%	0.7%	4.4%
Supporting and respecting your family's culture and background	1479	85.1%	9.9%	0.9%	4.0%
Preparing your child to enter kindergarten	1484	84.2%	9.7%	1.8%	4.2%
Helping your child grow and develop	1487	84.1%	10.8%	0.8%	4.3%
Being open to your ideas and participation	1473	78.1%	16.1%	1.6%	4.2%

What were parents' perceptions of their children's experiences in the *More at Four Program*?

Most parents reported that their children had positive experiences in the *More at Four Program*. We asked parents about their perceptions of four aspects of the program that represent better quality: whether their child felt safe and secure, whether their child was happy, whether the teacher was open to new information and learning, and whether the child got lots of individual attention. Nearly all parents (92%-98%) stated that all four of these aspects of the program were "always" or "often" true. Although the ratings were still high, parents were less likely to view their child as "always" receiving individual attention compared to the other three aspects. (See Table 12.)

"[My child] loves this program. He gets upset on weekends & holidays when he can't attend. Each day he comes home excited about the day's activities. I hope this program continues to stay in place as I believe it is very beneficial to all children to prepare them for kindergarten!"
--*More at Four* parent (2002-2003 survey)

"My son really enjoyed the *More at Four Program*. I noticed that his social and academic skills have increased. I feel confident that he is ready for kindergarten. His opinion is that *More at Four* is 'Super Cool for kids!' Thank you!"
--*More at Four* parent (2002-2003 survey)

Table 12. Parent Perceptions of the *More at Four Program*

Statement	n	"Please tell us what you think about your child's experiences in the *More at Four Program*."			
		Always (%)	Often (%)	Sometimes (%)	Never (%)
Your child feels safe and secure in the *More at Four Program*.	1484	84.4%	13.0%	1.9%	0.7%
Your child has been happy in the program.	1490	84.0%	13.5%	1.8%	0.7%
Your child's teacher is open to new information and learning.	1469	83.9%	12.1%	3.4%	0.6%
Your child gets lots of individual attention.	1473	63.1%	28.5%	7.5%	1.0%

Parents were pleased with how well the *More at Four Program* helped their children develop skills related to kindergarten success. We asked parents how well they thought the *More at Four Program* helped prepare their children for kindergarten in 12 areas. Nearly all parents (82%-95%) reported that the program prepared their children very well or fairly well across all skill areas. Parents were particularly satisfied with their children's preparation in motor skills, social skills, literacy skills, engaging in assigned activities, self-direction, following teacher directions, and using and understanding language, with 70%-81% reporting the program performed very well in these areas (see Table 13).

"When my child entered the program he didn't speak any English. Now he practically speaks it perfectly and I know it was thanks to this stupendous program."
--*More at Four* parent (2002-2003 survey, response translated from Spanish)

"This program needs to be continued for the children. Had it not been for *More at Four* our daughter would have minimal exposure and preparation to enter kindergarten. This program seems to have prepared her well to enter the public school system. Thank you very much."
--*More at Four* parent (2002-2003 survey)

Table 13. Parent Ratings of Children's Kindergarten Preparation

Area	n	"How well do you think the *More at Four Program* has prepared your child for kindergarten in each of these areas?"				
		Very (%)	Fairly (%)	Somewhat (%)	Slightly (%)	Not at all (%)
Motor skills (ex: putting puzzles together [fine motor or small muscle skills]; running and jumping [gross motor or large muscle skills])	1476	81.3%	14.0%	3.5%	1.1%	0.1%
Getting along with other children and adults (social skills)	1468	76.0%	17.1%	5.5%	1.2%	0.2%
Literacy skills (ex: knowing the difference between pictures and words in books, listening to stories)	1466	73.9%	17.4%	6.8%	1.6%	0.3%
Doing activities the teacher assigns	1473	73.8%	19.9%	5.6%	0.5%	0.2%
Choosing activities or playmates (being self-directed)	1477	73.3%	20.4%	4.7%	1.5%	0.1%
Following the teacher's directions	1469	73.1%	20.8%	5.0%	1.0%	0.1%
Using and understanding language	1471	70.1%	21.5%	5.9%	2.2%	0.3%
Learning self control and appropriate behavior	1477	66.6%	23.6%	7.9%	1.6%	0.3%
Thinking and intellectual skills	1463	64.3%	27.1%	6.5%	1.8%	0.3%
Pre-math skills (ex: counting)	1461	62.9%	21.0%	10.3%	4.0%	1.7%
Emotional development (ex: coping with difficulties and developing self-esteem)	1476	62.6%	26.2%	8.3%	2.3%	0.7%
Pre-reading skills (ex: letter names and sounds)	1480	56.1%	26.3%	12.0%	4.2%	1.5%

In what types of parent activities were *More at Four* families involved?

Parents were involved with the *More at Four Program* in a variety of ways, with most parents involved in several activities. We asked parents to indicate how often they were involved in various parent activities offered by their child's *More at Four Program*. On average, parents took part in 4 or more different activities at least once during the year. Almost all parents (94.6%) participated in at least one activity one or more times. The most frequent activities included visiting their child's classroom for at least 30 minutes, attending a parent-teacher conference, attending a parent meeting, preparing food or materials for special events, and attending an open house, with most parents (65%-83%) participating in these activities at least once during the year. Approximately half the parents reported volunteering in their child's classroom or eating lunch with their child's class at least once, while about one-third reported going on at least one field trip. (See Table 14.).

> "[One of the strengths of the program is that] parent involvement was encouraged and workshops and activities were planned."
>
> --*More at Four* parent (2002-2003 survey)

Table 14. Parent Reports of Program Involvement

Activity	n[a]	"How often have you…"		
		Several times (%)	**Once or twice (%)**	**Not this year (%)**
Visited your child's classroom for at least 30 minutes	1394	46.2%	37.2%	16.6%
Attended parent-teacher conferences	1270	37.6%	42.9%	19.4%
Prepared food or materials for special events	1297	32.8%	37.2%	30.0%
Attended parent meetings	1193	31.7%	39.4%	28.9%
Helped out or volunteered in your child's classroom	1307	24.3%	29.3%	46.4%
Attended an open house event	1146	19.6%	45.2%	35.2%
Eaten lunch with your child's class	1260	15.5%	34.2%	50.3%
Gone on field trips with the children	1096	11.5%	21.2%	67.3%

[a] These numbers only include parents who reported that these activities were offered by their child's program.

In order to address the questions about the outcomes for children attending *More at Four* and the factors associated with better outcomes, individual child assessments were conducted near the beginning and end of the program year for a sample of 271 children in 40 randomly selected *More at Four* classrooms in their second year of operation. These assessments included measures of children's language and literacy skills, math skills, general knowledge, and behavioral skills. The outcome areas measured were consistent with the recommendations of the National Education Goals Panel for defining school readiness.[5] (See Appendix B for further information on the data collection methods.)

How much growth in developmental skills occurred for children participating in *More at Four*?

Children showed significant developmental growth over the *More at Four* program year in all outcome areas measured: language and literacy skills, math skills, general knowledge, and behavioral skills. The amount of change in children's scores from the fall to the spring was examined to see how much children gained in developmental skills over the course of the *More at Four* year. The amount of change was examined after adjusting for the associations among children in the same classrooms, since children were sampled within classrooms. As expected for an at-risk population, these children entered the program with skills below average, but made significant gains during the year in a number of areas. While some growth in skills would be expected as children become older over the year, such growth is often more limited for at-risk children.

Significant gains were found across most measures in all outcome areas: language and literacy skills (receptive language, phonological awareness, alphabet knowledge, story and print concepts); math skills (counting); general knowledge (social awareness and color naming); and behavioral skills (social skills). (See Table 15.) Several of these measures were age-standardized, which means that the scores already adjust for the fact that older children have more advanced skills than younger children. Scores on such measures would not typically be expected to increase over time, but rather, a consistent score would indicate that the child is making the expected amount of progress for that time period, given his/her starting level. However, some research studies suggest that for at-risk children, their scores on such measures may actually decrease over time without appropriate intervention programs.[17] In two cases, one measure of language skills (receptive language) and one of behavioral skills

"We have seen children grow right before our eyes- children who will now be able to 'hit the ground running' when they enter kindergarten in the fall. There were children who could not speak English and are now speaking English fluently. Children who had never been in a preschool program and had tremendous difficulty separating from parents are now coming to school and saying good bye to them with smiles on their faces."

--*More at Four* site director
(2002-2003 survey)

(social skills), children showed significant gains over time in standardized scores. Such gains indicate that children in the *More at Four Program* were developing at an even greater rate than expected in these areas. These two areas—understanding language and getting along with others—are both important skills related to children's readiness for kindergarten. In the two other cases, a measure of math skills (applied problems) and another of behavioral skills (problem behaviors), children's scores remained constant over time, indicating that they were growing at the expected rate in these areas and not losing any ground. For the remaining measures, which were not age-standardized, there was a substantial amount of growth, with the spring scores nearly double or triple the fall scores on some measures. For example, children's scores on letter naming more than doubled, indicating that they knew more than twice as many letters in the spring (about 15) as in the fall (about 7). On the counting measure, for example, the average scores indicate that children were able to count in one-to-one correspondence up to about 19 in the spring compared to about 11 at the start of the program.

In order to know for certain that these changes are due to solely to participation in the *More at Four Program*, we would have to compare similar children who were randomly assigned either to participate in *More at Four* or to not participate, so that we could actually measure the progress for children receiving the program versus those not receiving the program. Because local programs attempted to serve as many children as possible, it was not possible to conduct such a study. However, the increases in standardized scores on some of the measures are strong evidence that the program is likely having a positive effect, as the children would not otherwise be expected to show gains in these scores. Moreover, on many of the non-standardized measures, the amount of growth was quite substantial, suggesting that children showed noticeable differences in their knowledge and skills at the end of the year compared to the beginning of the year.

"I have loved every minute of this job this year. I left my job as a kindergarten teacher to take on this position. I felt students were coming into kindergarten unprepared for the challenges ahead of them. I feel my *More at Four* children are so much better prepared (families too) because of this experience. Thank you Mr. Easley!!"

--*More at Four* lead teacher (from 2002-2003 survey)

Table 15. Fall and Spring Mean Scores on Child Outcome Measures[18]

Domain	Outcome	Mean (SD)		
		Fall 2002 (n=258-271)	**Spring 2003 (n=227-230)**	**Spring-Fall Change (Adjusted for Classroom)**
Language and literacy	PPVT-III receptive language[a]	85.6 (15.1)	89.0 (14.0)	3.5*** (0.7)
	WJ-III Rhyming[b]	1.0 (1.7)	3.4 (3.2)	2.4*** (0.2)
	Naming Letters[c]	6.5 (7.9)	15.4 (9.1)	8.9*** (0.5)
	Story and Print Concepts[d]	2.8 (1.8)	4.8 (2.4)	2.0*** (0.1)
Pre-math	WJ-III Applied Problems[a]	92.9 (13.5)	93.9 (11.9)	1.3 (0.7)
	Counting Task[e]	10.8 (7.5)	18.8 (11.3)	8.0*** (0.7)
General knowledge	Social Awareness[f]	3.8 (1.6)	4.7 (1.3)	0.9*** (0.1)
	Color Naming[g]	15.9 (5.6)	18.7 (3.2)	2.8*** (0.3)
Classroom behavior	SSRS Social Skills[a]	101.7 (14.3)	108.9 (14.1)	6.9*** (0.8)
	SSRS Problem Behaviors[a]	100.7 (13.5)	100.9 (14.1)	0.2 (0.7)

*p < .05, **p < .01, ***p <.001

[a] Standardized, norm-referenced measures with mean =100, SD =15. [b] Possible range =0-17; [c] Possible range =0-26; [d] Possible range =0-14; [e] Possible range =0-40; [f] Possible range =0-6; [g] Possible range =0-20

Which children gained the most from participation in *More at Four*?

The *More at Four Program* had even stronger effects for children entering the program with greater needs compared to those with lesser needs. Analyses were conducted to see whether children entering the program at different levels of service priority status or at different levels of risk (overall and English proficiency) benefited differently[19]. Children at a higher level of service priority status made greater gains in math skills (applied problems) than children at lower service priority levels. Children at greater overall risk (based on the risk factors in the program guidelines) exhibited more growth in language skills (receptive language), literacy skills (story and print concepts), and general cognitive knowledge (color naming) than those at lower risk. Similarly, children at lower levels of English proficiency (higher risk) showed greater gains over the program year in language skills (receptive language) and cognitive knowledge (color naming) than those at higher levels of English proficiency (lower risk). (See Table 16 and Figures 6-11.)

"Participation in the program appears to have assisted in closing the achievement gap that traditionally existed between families who are better able to help their children and those who are not."

--*More at Four* contract administrator (2002-2003 survey)

The effect sizes of these findings are in the medium range, suggesting that they represent meaningful differences. To illustrate these effects, the amount of gain on the outcome measures was calculated for low values of the significant predictors (defined as the lower 25% of the sample) and high values (defined as the upper 25% of the sample). For example, the gains in math skills (applied problems) made by children at higher levels of service priority status (i.e., children at the highest level, those who had never been served) were compared to those for children at lower levels (i.e., children at the third level, those who were unserved and not eligible for child care subsidy at the time of enrollment). The scores of children at lower service priority status remained fairly constant over time on this age-standardized measure. In contrast, children at higher service priority status had lower scores in the fall but caught up to other children in the spring, gaining over 2 points (2.2 vs. -0.2). Similarly, children at higher total risk (i.e., total risk score of 7) evidenced greater gains, compared to children at lower risk (i.e., total risk score of 3), on receptive language (2.9 points vs. -0.4 points), story and print concepts (1.1 vs. 0.7), and color naming (1.1 points vs. -0.1 points). The scores of children at lower risk remained fairly constant over time, while children at higher risk made some gains, even though their scores were lower. Similarly, children at greater risk in terms of English proficiency (i.e., children who speak limited or no English), compared to children at lower risk (i.e., children who speak English), gained substantially more on receptive language (6.3 vs. 1.1 points) and color naming (4.0 vs. 0.3), with comparable scores on the latter measure for both groups by the end of the program year.

"[My child] was born prematurely and she was developmentally behind before she started the *More at Four Program*. She is now on level or above because of the *More at Four Program*."

--*More at Four* parent (2002-2003 survey)

Table 16. **Child and Program Characteristics Predicting Changes in Child Outcomes** [19]

Domain	Outcome	Significant Predictors	Spring-Fall Change Scores for Low vs. High Predictor Values[a]	Effect Size[b]
Language and literacy	PPVT-III receptive language[c]	Risk Factor Total	Low -0.4 High 2.9	Low -0.06 High 0.41
		English Proficiency Risk	Low 1.1 High 6.3	Low 0.16 High 0.89
	WJ-III Rhyming	Proportion of *More at Four* Children in Class	Low 1.1 High 1.7	Low 0.52 High 0.82
	Naming Letters	Proportion of *More at Four* Children in Class	Low 3.8 High 6.0	Low 0.75 High 1.19
	Story and Print Concepts	Risk Factor Total	Low 0.7 High 1.1	Low 0.49 High 0.79
		Lead Teacher Qualifications	Low 0.3 High 1.3	Low 0.22 High 0.89
Pre-math	WJ-III Applied Problems[c]	Service Priority Status	Low -0.2 High 2.2	Low -0.03 High 0.30
	Counting Task	---	---	---

Domain	Outcome	Significant Predictors	Spring-Fall Change Scores for Low vs. High Predictor Values[a]	Effect Size[b]
General knowledge	Social Awareness	---	---	---
	Color Naming	Risk Factor Total	Low -0.1 High 1.1	Low -0.03 High 0.38
		English Proficiency Risk	Low 0.3 High 4.0	Low 0.11 High 1.37
Classroom Behavior	SSRS Social Skills[c]	Class Size	Low 0.3 High 3.7	Low 0.03 High 0.41
	SSRS Problem Behaviors[c]	Lead Teacher Qualifications	Low 6.3 High -1.1	Low 0.81 High -0.14

[a] To compute change scores, low and high values of the significant predictors were calculated based on the values for the lower 25% and the upper 25% of the sample, respectively. The change score (difference between spring scores and fall scores) was then computed based on the regression equation for that outcome measure using the corresponding low and high values of the predictor.

[b] To compute effect sizes, low and high values of the significant predictors were calculated based on the values for the lower 25% and the upper 25% of the sample, respectively. Effect size was computed as the calculated change scores (difference between spring scores and fall scores) for the corresponding values of the predictor divided by the square root of the model residual error (RMSE).

[c] Standardized, norm-referenced measures. On these measures, the mean = 100 and SD =15.
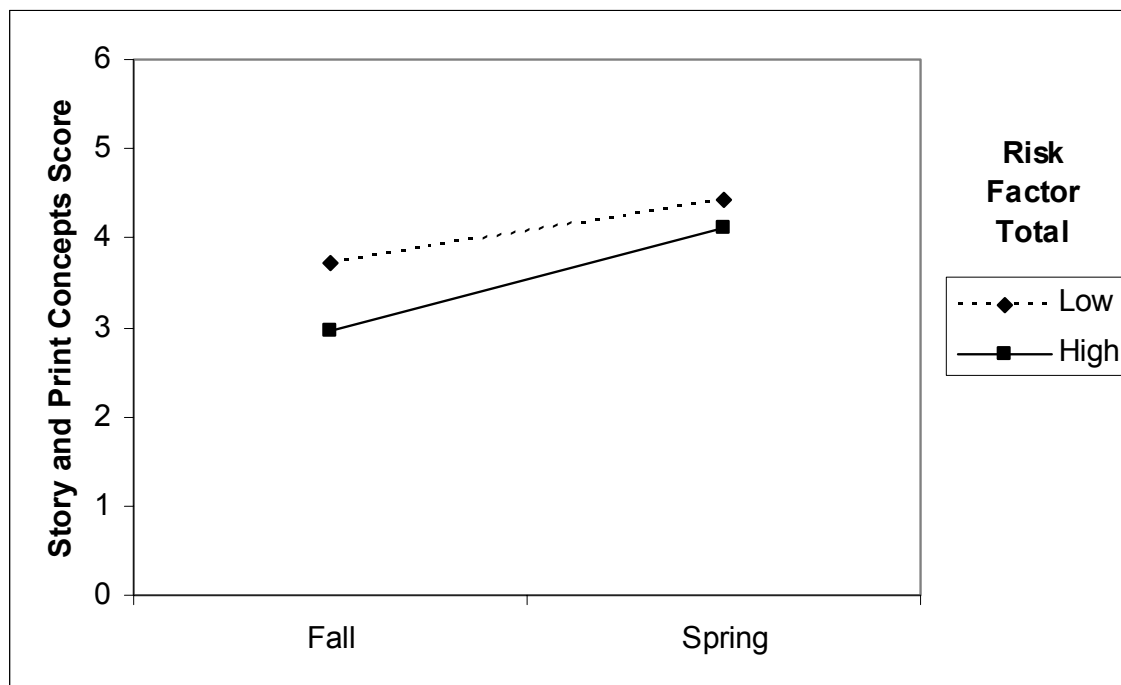
Figure 6. WJ-III Applied Problems Fall and Spring Scores for Children with Low vs. High Service Priority Status
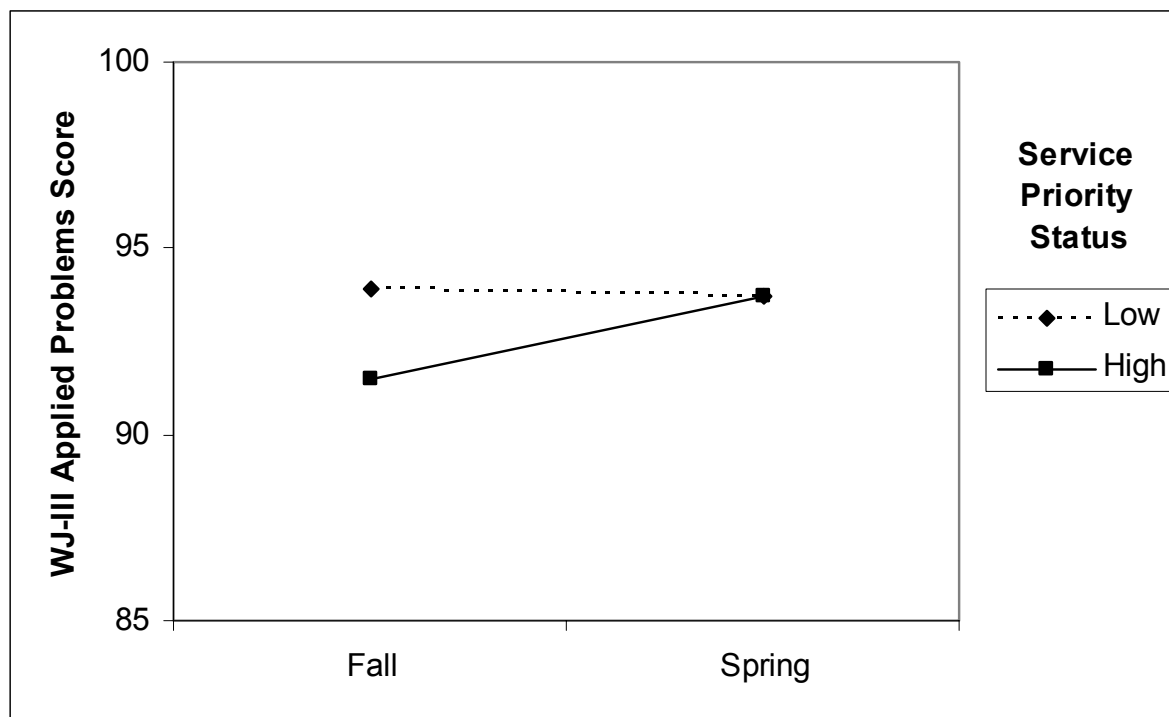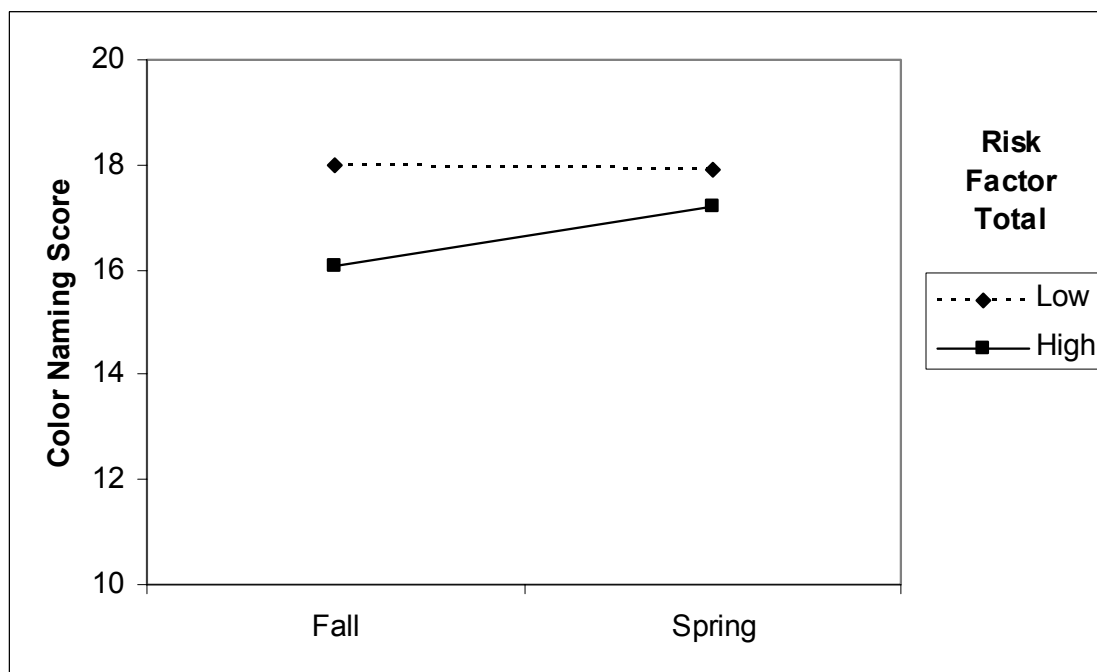

Figure 7. PPVT-III Fall and Spring Scores for Children with Low vs. High Risk Factor Totals
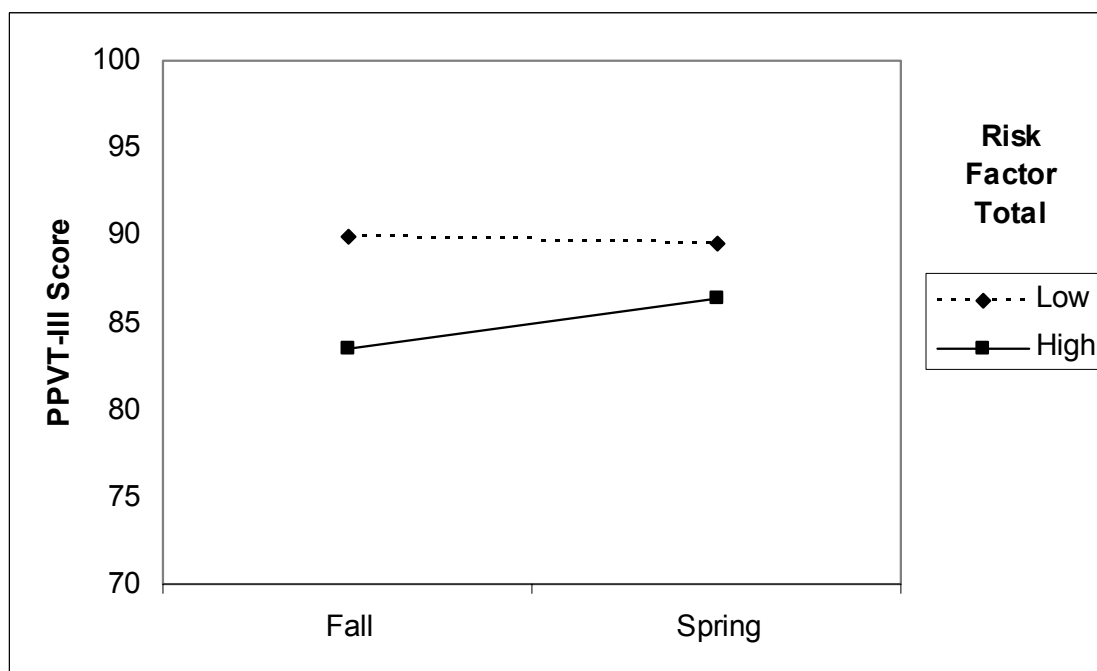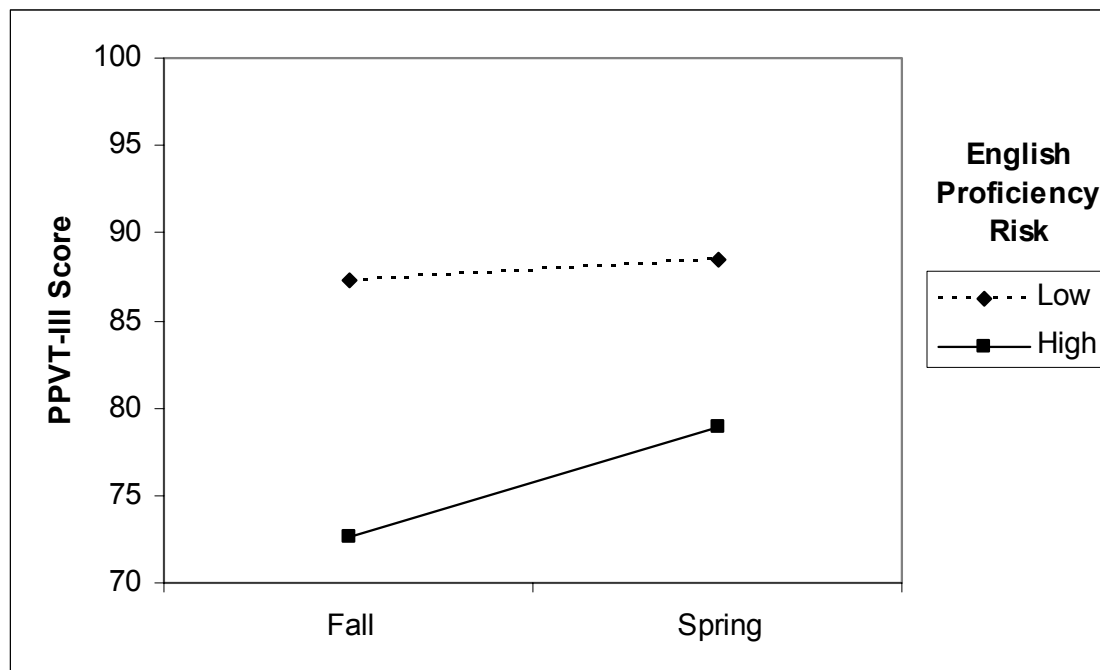
Figure 8. Story and Print Concepts Fall and Spring Scores for Children with Low vs. High Risk Factor Totals
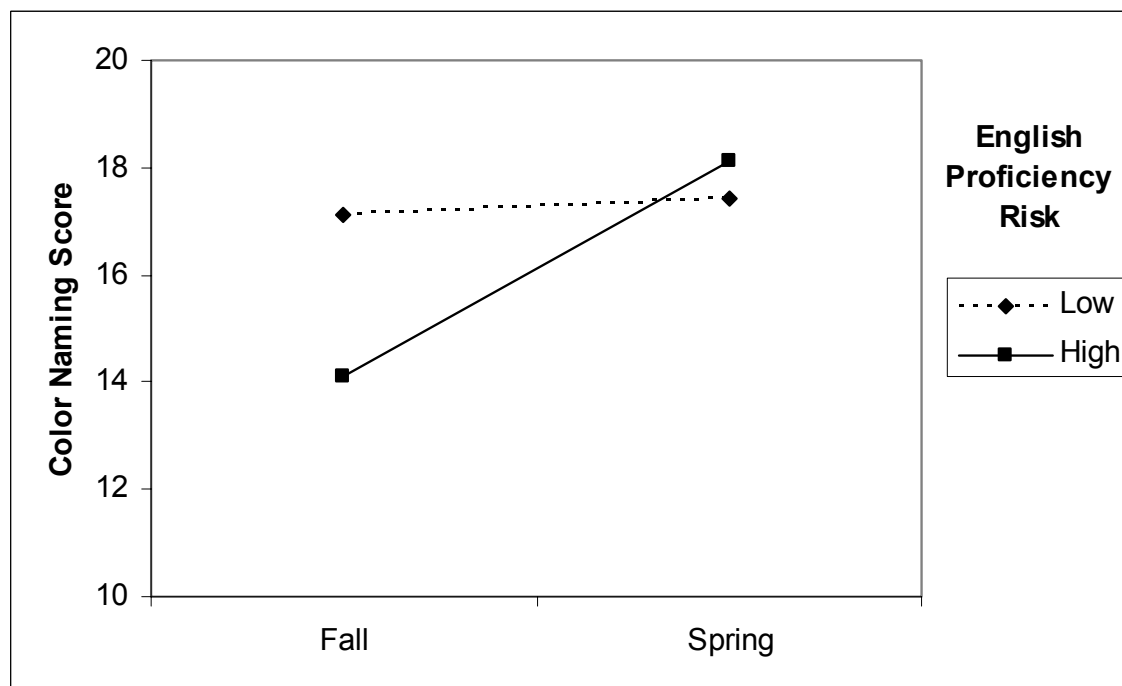

Figure 9. Color Naming Fall and Spring Scores for Children with Low vs. High Risk Factor Totals

Figure 10. PPVT-III Fall and Spring Scores for Children with Low vs. High Risk for English Proficiency

Figure 11. Color Naming Fall and Spring Scores for Children with Low vs. High Risk for English Proficiency

Were differences in classroom quality or local program characteristics associated with differences in children's growth?

A number of structural characteristics of the classroom and program were examined to see whether they were associated with differences in children's outcomes. The characteristics examined included: lead teacher qualifications (education and credentials composite)[20], classroom quality (global practices and curriculum implementation composite)[21], total class size (both *More at Four* and non-*More at Four* children), and proportion of *More at Four* children in the classroom.

Some structural characteristics of the classroom were associated with greater gains in children's language/literacy skills over the program year, particularly better teacher qualifications and higher proportion of *More at Four* children in the classroom. Analyses were conducted to see whether children attending programs with different structural characteristics benefited differently[19]. Differences were found in the area of language and literacy skills for two characteristics, lead teacher qualifications and proportion of *More at Four* children in the classroom. Children in classrooms with more highly qualified lead teachers based on education and credentials showed greater gains in knowledge of story and print concepts, one area of literacy skills (see Figure 12). Similarly, children in classrooms with higher proportions of *More at Four* participants showed greater gains in phonemic awareness (rhyming skills) and letter naming over the course of the year, another aspect of language/literacy skills (see Figures 13 and 14). There were also differences related to behavioral skills, with children in classrooms with more highly qualified lead teachers showing slight reductions in problem behaviors over the year, compared to increases for children with less highly qualified teachers (see Figure 15). Given that the teachers provided the ratings on the behavioral measures, it is difficult to know to what extent this finding represents differences in the children versus differences in the teachers. It may be that more highly trained teachers know how to better utilize behavior management strategies in the classroom or that they have more reasonable expectations for the behavior of preschool-age children. There was also one effect related to class size; however, this finding was fairly slight and found in only one area. Children in larger classes showed slightly greater gains in social skills over the year compared to children in smaller classes (see Figure 16; see also Table 16).

The effect sizes for the differences in children's gains were in the moderate to large range, suggesting that they are meaningful. To illustrate these differences, gain scores were calculated based on low values of each significant predictor (defined as the lower 25% of the sample) and high values (defined as the upper 25% of the sample). For example, children's scores on the literacy measure (story and print concepts) were compared for classrooms having teachers with higher qualifications (i.e., a bachelor's degree or above with a B-K or preschool add-on license) compared to those with lower qualifications (i.e., a bachelor's degree or above with no early

childhood credential or license). While children in both groups scored about the same at the start of the year, children with more highly qualified teachers gained about four times as much (1.3 points vs. 0.3 points) as children with less qualified teachers. Children in classrooms with high proportions of *More at Four* children (i.e., 100%) compared to those with lower proportions (i.e., 78%) gained somewhat more on letter naming (6.0 vs. 3.8 points) and on phonemic awareness (1.7 vs. 1.1 points). While the two groups started at about the same point in the fall on both measures, children in classrooms with higher proportions of *More at Four* children gained at a faster rate. Perhaps it is easier to provide appropriate instruction in such skills when there is a more similar group of children in the classroom.

Figure 12. Story and Print Concepts Fall and Spring Scores for Children in Classrooms with Low vs. High Lead Teacher Education and Credentials
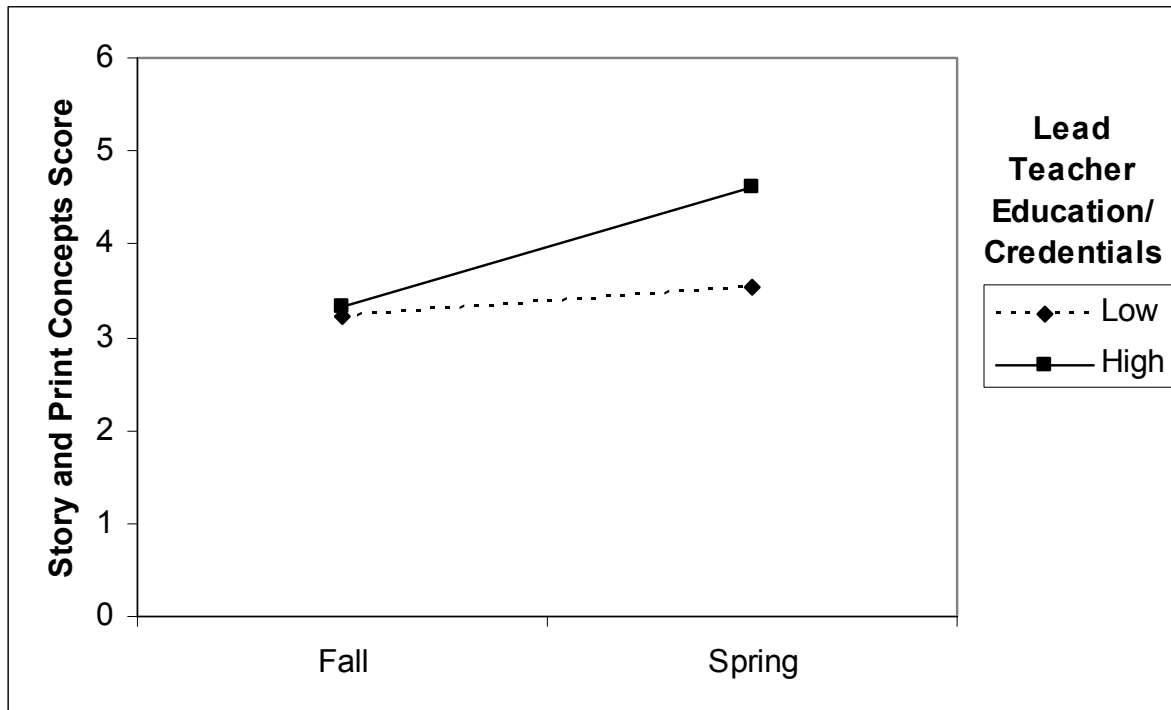
Figure 13. Naming Letters Fall and Spring Scores for Children in Classrooms with Low vs. High Proportions of *More at Four* Children
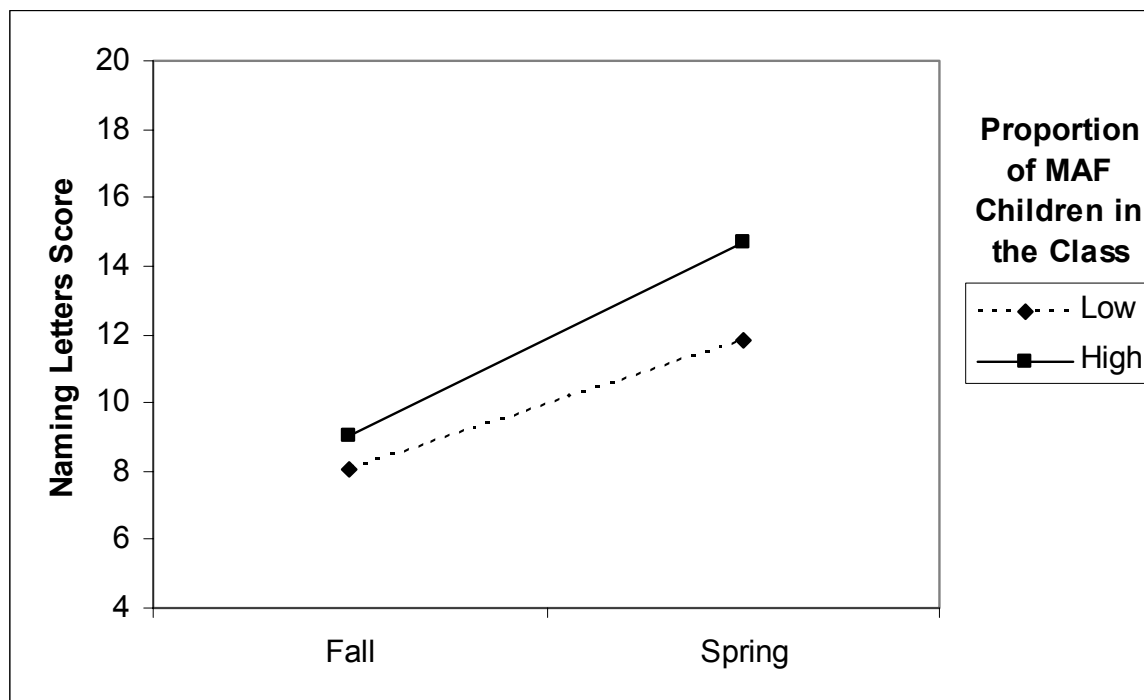
Figure 14. WJ-III Rhyming Fall and Spring Scores for Children in Classes with Low vs. High Proportions of *More at Four* Children
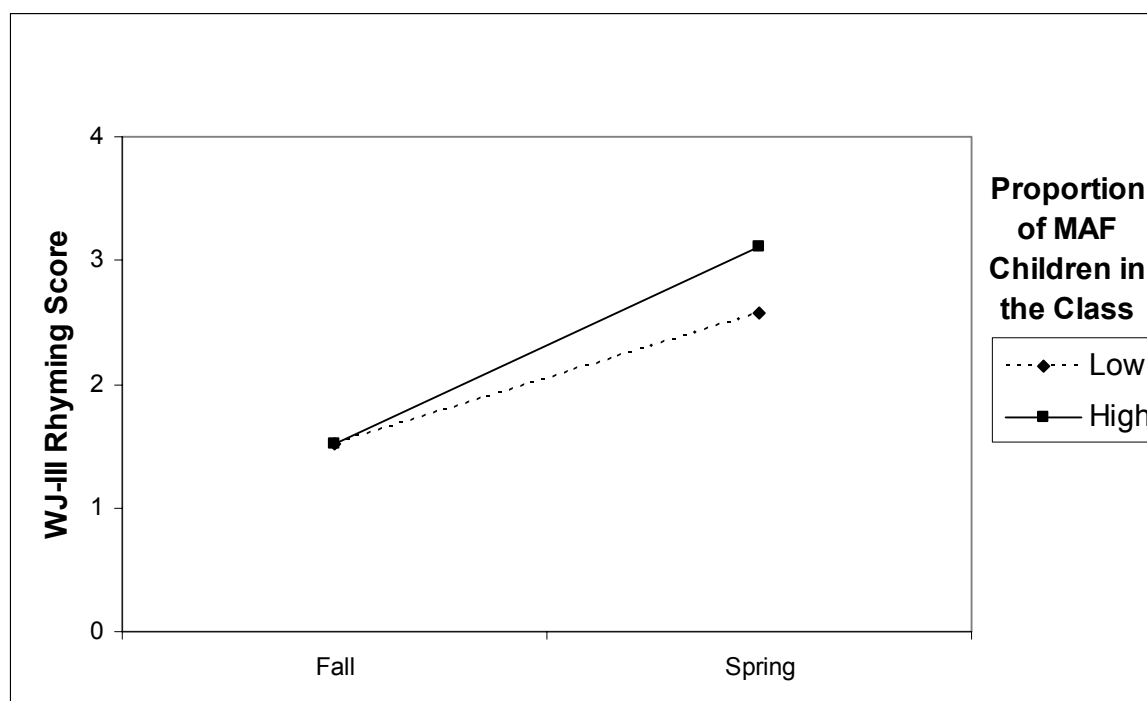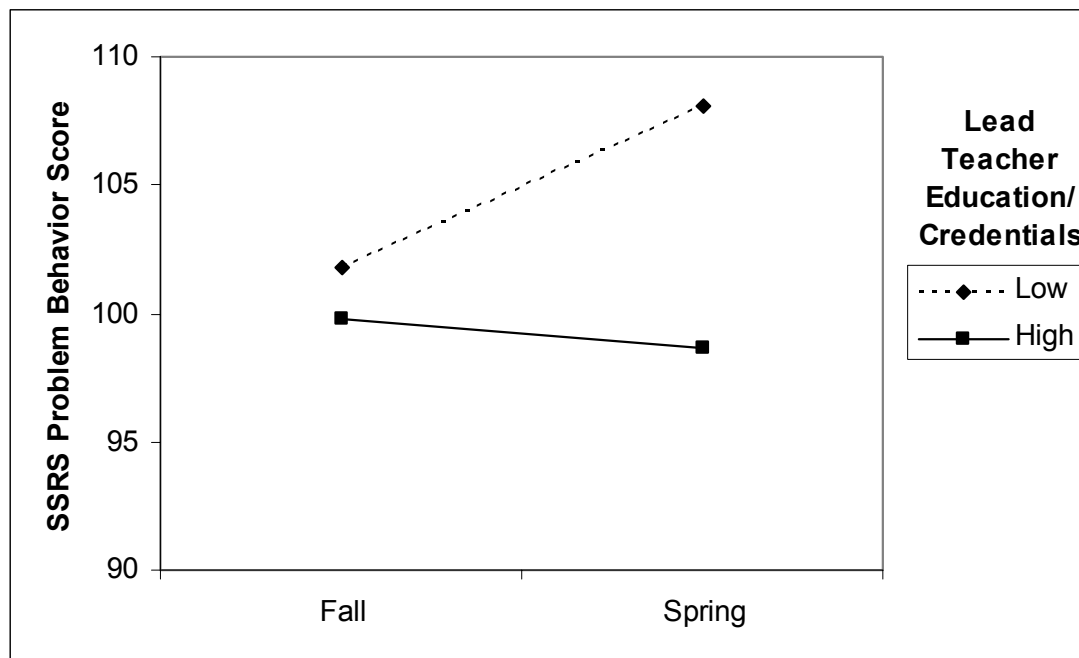
Figure 15. SSRS Problem Behavior Fall and Spring Scores for Children with Low vs. High Lead Teacher Education and Credentials

Figure 16. SSRS Social Skills Fall and Spring Scores for Children in Classes with Low vs. High Class Sizes
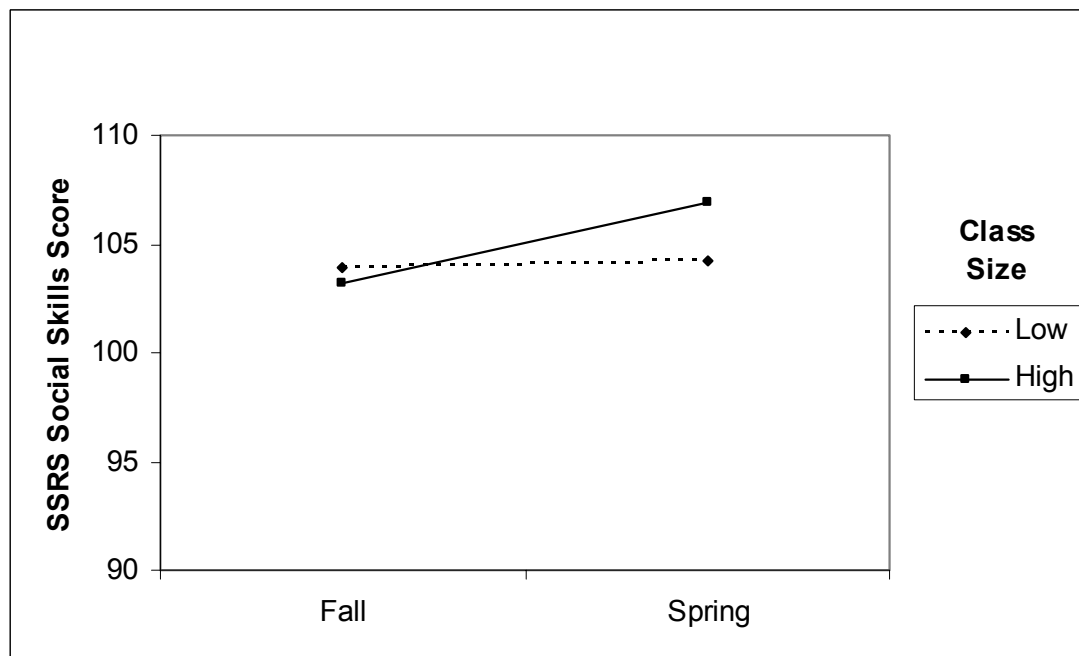
One factor, classroom quality, had no association with the amount of developmental growth children exhibited over the year; however, classroom quality was fairly high overall. The scores on classroom quality tended to be high in the *More at Four Program*, with most children in moderate to high quality programs. The finding of no differences in the amount of developmental growth based on this measure suggests that children in different classrooms within this range of quality benefited similarly from participation in *More at Four*.

<div style="border:1px solid black; text-align:center;">

HOW DO THESE FINDINGS COMPARE TO OTHER STUDIES OF SIMILAR PROGRAMS?

</div>

During its second year of operation, the *More at Four Program* was performing at least as well as or better than other more established large-scale pre-kindergarten programs, both in terms of program quality and child outcomes. We compared the findings from the present study of the *More at Four Program* to the results from a national study of the Head Start Program and a national study of state pre-kindergarten programs in six states. Head Start is a federally-funded early education program for preschool children from low-income families, with a similar goal to *More at Four* of preparing children for kindergarten. The Head Start Program, one of the more widespread and more widely studied programs, has been in existence for nearly 40 years and served over 900,000 children in 47,000 classrooms nationwide during 2002-2003. The Head Start FACES 2000 Study, a national study of program quality and child outcomes in Head Start, involved a sample of 43 programs, 278 classrooms, and more than 2,500 children.[22] Many of the same measures and/or domains of measurement were used for the *More at Four* and the FACES studies, and the results are quite similar. The average quality of the Head Start classrooms was slightly lower than that found in this sample of *More at Four* classrooms using the ECERS-R total score (4.8 vs. 5.0). The amount of gain children demonstrated over the *More at Four* year was similar for measures of receptive language (PPVT-III), math skills (WJ-III Applied Problems), and behavioral skills (similar domains of social skills and problem behavior). Children's scores on receptive language were nearly identical in the fall and spring, respectively, for the *More at Four* (85.6 & 89.0) and Head Start (85.3 & 89.1) samples. Fall and spring math scores were higher for the *More at Four* (92.9 & 93.9) than the Head Start (87.9 & 89.0) sample, but the fall-spring differences were nonsignificant for both studies, indicating that children's scores remained constant over time. The two studies also had similar findings of positive increases in social skills from fall to spring, but no differences in problem behaviors over time. Further, both studies found no association between classroom quality and children's outcomes, most likely due to the overall high level of classroom quality in both programs. These parallels between the two studies which are examining programs with similar goals and serving similar populations of children, suggest that even in its second year, the *More at Four Program* is performing similarly to other well-established educational intervention programs for at-risk children.

The Multi-State Study of Pre-kindergarten conducted by the National Center for Early Development and Learning examined established public pre-kindergarten programs in six states (California, Illinois, Kentucky, Ohio, Georgia, and New York)[7]. The study involved a sample of 240 classrooms (40 per state) and 960 children (4 per classroom). Both the *More at Four* and Multi-State studies used several of the same measures of program characteristics (site type, curriculum type, hours of operation, class size, teacher education), classroom quality (ECERS-R), and child outcomes for language skills (PPVT-III, Naming Letters) and math skills (WJ-III Applied Problems, Counting Task). Comparisons of program characteristics suggest that the *More at Four Program* was generally operating at a higher level of quality than these other statewide programs, although some of the setting characteristics were similar. About half the

sites were in public school settings for both the *More at Four Program* and the Multi-State Study. In accord with the variety of statewide pre-kindergarten programs included in the Multi-State Study, there was more variation in the primary curricula used by those classrooms (19% Creative Curriculum, 37% High/Scope, 23% state or locally developed, 17% other, 4% none) compared to *More at Four* classrooms in the evaluation sample (77% Creative Curriculum, 6% High/Scope, 17% Bright Beginnings). The average daily hours of operation for the *More at Four* sites were greater than those for the Multi-State study sites (6.5 vs. 5.0). Class sizes were slightly lower on average in the *More at Four Program* than in the Multi-State Study (17 vs. 18). A higher proportion of *More at Four* lead teachers had at least a bachelor's degree compared to those in the Multi-State study (82% vs. 69%). The average classroom quality score (ECERS-R) was substantially higher in *More at Four* than in the Multi-State Study (5.0 vs. 3.9). The average score in the *More at Four* classes was in the highest quality range and well above the minimum standard of 4.5 outlined in the program guidelines, while the average score in the Multi-State Study was in the medium quality range and more similar to what is typically found in studies of child care.

In terms of child outcomes, only fall data from the beginning of the pre-kindergarten year for selected measures is available for comparison, but it provides information about the extent to which the *More at Four Program* is serving a similar population of children as the programs in the Multi-State Study. The Multi-State Study includes results for all children in the sample as well as for poor vs. non-poor children. The fall scores for the complete sample in the Multi-State Study are higher than those for the *More at Four* sample for both language (93 vs. 86 on PPVT-III and 10 vs. 7 on Naming letters) and math skills (97 vs. 93 on Applied Problems and 15 vs. 11 on Counting task). However, when the Multi-State poor sample is examined, a population consistent with that of *More at Four*, the scores are quite similar for both language skills (88 vs. 86 on PPVT-III and 6 vs. 7 on Naming Letters) and math skills (94 vs. 93 on Applied Problems and 12 vs. 11 on Counting Task). These similarities suggest that children in *More at Four* are performing at the expected level for an at-risk population when entering the program, and the results of the current evaluation indicate that they are making substantial progress over the course of the program year.

Summary

The purpose of the *North Carolina More at Four Pre-kindergarten Program*, a state-funded initiative for at-risk 4-year-olds, is to provide a high quality educational program to help children be more successful when they enter elementary school. The statewide evaluation addressed a series of questions about the operations of the program, the quality of the program, and the outcomes for participating children during the second year of operation (2002-2003).

One of the challenges faced by the program was the dramatic expansion experienced from the first year to the second year, with a nearly five-fold increase in the number of children served from year 1 (1,244) to year 2 (6,125). The second year included 26 continuing programs from the first year and 55 new local programs (located in 57 counties) commencing operations over a seven-month period. The second year of operation was characterized by ongoing change at the local level, as expansion related to both the start-up of new local programs and increases in slots within existing programs took place throughout the year. Nevertheless, the program operations were defined by a number of characteristics related to the program guidelines and goals. Children were served in a variety of service delivery settings, including public schools, for-profit and nonprofit private child care centers, Head Start, and various other combinations. Half the children were served in public school settings and half in community settings (with nearly one-third in for-profit child care settings). Most individual sites met the guidelines for program operation in terms of class size and length of day. Staff qualifications were fairly high compared to other samples. Moreover, some staff met the *More at Four* program standards for education, licensure, and credentials by the second year (although programs are given four years to attain these standards) and most staff met at least some specifications for provisional approval regarding qualifications.

The *More at Four Program* served a diverse group of children in the second year, including a higher proportion of children with an identified disability (9%) than the US average (6%). The program served the intended population based on risk factors, especially family income and parental employment. The program also served the intended group based on service priority status, with almost three-quarters of the children not previously served in a preschool or child care setting, the highest service priority group.

Observations of classroom practices indicated that the *More at Four Program* provided a good quality preschool experience based on generally accepted standards for best practice, with 85% of the classrooms meeting or exceeding the program guidelines. Overall scores on the measure of classroom practices were in the highest (good) quality range for slightly over half the sample and in the medium quality range for the remaining classrooms, with no classrooms scoring in the poor quality range. Specifically, classroom practices related to interactions with and supervision of children, language and reasoning experiences, program structure and organization, and provisions for parents and staff were in the highest quality range on average. While the overall quality scores were high, there were a few individual items in the poor quality range, which potentially may compromise children's health and safety, including space for gross motor play, meals/snacks, toileting, and safety practices. Observations of the level of curriculum implementation indicated that classrooms partially met the specific curriculum's criteria for implementation, but typically did not fully meet the recommendations for implementation.

There were moderate associations between the quality of classroom practices and curriculum implementation, suggesting that somewhat different training may be needed to improve the global quality of classroom practices and to improve the level of curriculum implementation. Two structural characteristics were associated with better quality classroom practices, but not with the level of curriculum implementation. Classrooms in community (non-public school) sites and classrooms with teachers who had an early childhood teaching license (B-K license or preschool add-on) were somewhat more likely to have better quality practices.

Based on survey responses, parents perceived the *More at Four Program* positively, both in terms of the quality of the program and the outcomes for their children. Most parents were very satisfied with all aspects of the *More at Four Program*, and nearly all parents reported that their children always or often had positive experiences in the program. Parents also were pleased with how well the program helped their children develop skills related to kindergarten success. Parents reported involvement with the *More at Four Program* in a variety of ways, with parents involved in an average of four program activities and almost all parents participating in at least one activity.

Children demonstrated substantial growth in skills related to kindergarten readiness over the *More at Four* program year, based on individual assessments near the beginning and end of the program year. As expected for an at-risk population, these children entered the program with skills below average. However, the gains made by children in the *More at Four Program* indicate that they were developing at the expected rate or even more than expected in some areas. They showed significant improvement in scores from the beginning to the end of the *More at Four* year for all outcome areas measured: Language and literacy skills (receptive language, alphabet knowledge, phonological awareness, story and print concepts); math skills (counting); general knowledge (social awareness and color naming); and behavioral skills (social skills). For children progressing at the typical rate, scores on standardized measures would remain constant over time, as they take into account expected changes related to age. In the present sample, however, children showed greater than expected growth (increases in scores) on two standardized measures (receptive language and social skills) and expected growth (maintained their scores) on the remaining two (applied math problems and behavior problems). Children also showed substantial growth on the non-standardized measures in all areas. While some growth in skills would be expected over the year as children become older, such growth is often more limited for at-risk children, with some research evidence suggesting that their scores on standardized measures may actually decrease over time without appropriate intervention programs.

The *More at Four Program* had even stronger effects in some skill areas for children entering the program with greater needs compared to those with lesser needs. Greater gains were made over the program year for children at a higher level of service priority status (math skills), at greater overall risk (language and literacy skills and general cognitive knowledge), or at lower levels (greater risk) of English proficiency (language skills and general cognitive knowledge) compared to other children in the program. In addition, specific structural characteristics of the classroom—better teacher qualifications and a higher proportion of *More at Four* children in the classroom—were associated with greater gains on some measures of language and literacy skills. Classroom quality had no association with the amount of developmental growth children

exhibited, although the fairly high scores on classroom quality suggest that most children were in fairly good to high quality programs.

In sum, these findings suggest that the program was generally meeting the guidelines and goals in terms of service delivery and the population served. The program provided a high quality classroom experience for children. Children participating in the program showed expected or better than expected developmental growth across all areas, which represent key skills for school readiness. Although the *More at Four Program* focused on serving an at-risk population, children who entered the program at greater risk gained even more than those at lower risk in some areas. Comparisons of these findings to two national studies of the Head Start Program and of other state pre-kindergarten programs suggest that the *More at Four Program* was performing similarly to or better than these other well-established programs, both in terms of program quality and children's outcomes. While there are some areas for program improvement, the overall picture suggests that after its second year of operation, the *More at Four Program* is of clear benefit to children and families.

"This is something very important and I must thank you for concerning yourselves with our children and helping them learn, remembering that children are not only the future of our world but our present."

-- *More at Four* parent (2002-2003 survey, translated from Spanish)

Appendix A: Priority Status, Risk Factor Criteria and Staff Credentials and Standards

2002-2003 Service Priority Status

A primary goal of the *More at Four Pre-Kindergarten Program* is to enroll those unserved <u>at-risk children</u> as defined in priority 1 below. Subsequent priorities should be considered in consecutive order as defined in priorities 2 through 4 below.

<u>Unserved Children</u>

1. **Unserved Children**:
   a. Children who have **never** been served in any preschool or child care setting and meet the *More at Four* Pre-K at-risk criteria as specified in the *More at Four* Guidelines. (Note that those on **subsidy waiting** list should be considered first).
   b. Children who are **currently unserved** (at home now but may previously have been in child care or preschool program) and are on the subsidy waiting list and meet the *More at Four* Pre-K at-risk criteria as specified in the *More at Four* Guidelines.
   c. Children who are **currently unserved** (at home now but may previously have been in child care or some other preschool program) and are <u>not</u> eligible for subsidy, but who meet at-risk criteria as specified in the *More at Four* Guidelines.

<u>Underserved Children</u>

2. Children who are eligible for subsidy but are not receiving it (but are in some kind of child care or preschool program) and meet the at-risk criteria as specified in the *More at Four* Guidelines.
3. Children who are in unregulated child care that does not meet the *More at Four* Pre-K standards and meet the at-risk criteria as specified in the <u>*More at Four* Guidelines and Requirements.</u>
4. Other children who meet the *More at Four* at-risk criteria, including those in pre-kindergartens or child care that do not meet *More at Four* standards (this is the last resort and documentation that children who fit Priority 1, followed by 2 and 3 were diligently recruited should be available). In addition to any other possible ways of searching for unserved children, documentation of attempts to locate eligible children on the local DSS waiting list for child care, eligible children on the Head Start waiting list, and siblings of *More at Four* Pre-K children will be required.

Source: *More at Four* Pre-Kindergarten Program Guidelines and Requirements, February 2003

Risk Factor Criteria (Criteria for Inclusion in *More at Four Program*)

	Risk Factors	**Level 2** **Significant Factor**	**Level 1** **Potential Factor**	**Level 0** **Negligible Impact**	**Score**
1	Family income	Eligible for free lunch.	Eligible for reduced price lunch.	Ineligible.	
2	Child's health status	Child is identified as mentally or physically chronically ill or medically fragile	Child is seen or has been seen by a pediatric specialist for a chronic health concern.	Child has no significant health concerns.	
3	Identified disabilities	Child has a current Individualized Education Plan (IEP).	Child had an Individualized Family Service Plan (IFPS) but does not qualify for an Individualized Education Plan (IEP).	Child has no identified disabilities.	
4	Parent education	Mother (or primary caregiver) does not have a high school diploma.	Mother (or primary caregiver) has a GED.	Mother (or primary caregiver) has a high school diploma.	
5	Parent employment	Single parent (mother or primary caregiver) is unemployed. Two parents (or caregivers) are unemployed.	Single parent (mother or primary caregiver) has been employed at current job for less than 12 months. Two parents (or caregivers) have been employed for less than 12 months.	Mother (or primary caregiver) has been employed at current job for 12 months or more.	
6	Family composition	Child lives with a single parent and there are compounding factors such as parental substance abuse or abuse/neglect.	Child lives with a single parent.	Child lives with two parents.	
7	Housing stability	Child has no stable place to live. Child may be homeless.	Child has lived at multiple addresses during the preceding 12 months.	Child has resided at the same address during the preceding 12 months.	
8	English proficiency	Family and child do not speak English.	Family and child speak limited English.	Family and child speak English.	
9	Minority status	Child is a member of a minority group and demonstrates any 4 or more risk factors.	Child is member of a minority group and demonstrates up to 3 risk factors.	Child is a member of a minority group and does not demonstrate any risk factors.	
	TOTAL				**/18**

Source: *More at Four* Pre-Kindergarten Program Guidelines and Requirements, February 2003

Staff Credentials and Standards

In providing an academic pre-kindergarten program for at-risk children, the staff standards are perhaps the most difficult for programs to meet. Thus, in the category of standards, a phase-in period is provided for programs in which staff will be allowed to hold less than the required credential for a period of time while the individual staff members complete the requirements for licensure/credentialing.

Teachers

Goal: All teachers will hold Birth-Kindergarten (B-K) or preschool add-on licensure.

Provisional Approval – Public Schools
- Teachers will hold at least a BA/BS degree and provisional license and be working toward B-K licensure/preschool add-on.

Provisional Approval – Other Child Care/Pre-Kindergarten Settings
- Teachers will hold a minimum of an Early Childhood Education/Child Development (ECE/CD) associate degree and be working toward B-K licensure.

Time Limit for Provisional Licensure/Approval
- Provisional approval will be given for an absolute maximum of **four years**. After this time the program will have a fully certified teacher in the classroom or funding for that class will not be approved.
- Progress toward B-K or pre-school add-on licensure will be considered a minimum of six documented semester hours per year.
- Teachers are eligible for T.E.A.C.H. Early Childhood Scholarships.

Teachers in *More at Four* classrooms shall not serve as the administrator of the child care center while assigned to a *More at Four* classroom.

Teacher Assistants

Goal: All assistants will hold a CDA (Child Development Associate) credential as a minimum.

An Early Childhood Education/Child Development (ECE/CD) associate degree is strongly encouraged as a goal. This goal is especially important in light of the new federal "No Child Left Behind" legislation that requires teacher assistants in Title I funded public school pre-kindergarten programs to have a two-year degree, two years of college, or pass a rigorous exam.

Provisional Approval – Teacher Assistants

- Assistants will hold high school diploma or GED equivalent and be working toward the CDA (minimum) or ECE/CD associate degree.
- Progress toward the CDA or ECE/CD will be considered a minimum of six documented semester hours per year.
- Teacher assistants may eligible for T.E.A.C.H. Early Childhood Scholarships.

Administrators

Public Schools

- **Principal licensure is required.**
- **Goal:** All principals/directors will hold a BS degree in ECE/CD.

Other Child Care/Pre-Kindergarten Settings

- Administrators in child care should hold at least a Level II administrative certification and be working toward Level III.
- Progress toward Level III administrative certification should be a minimum of six documented semester hours per year.
- If a 3-star licensed center has an administrator with a Level I administrative certification, then that administrator must also begin to work toward the Level II, and ultimately a Level III.

Source: *More at Four* Pre-Kindergarten Program Guidelines and Requirements, February 2003

Appendix B: Methods

Child and Program Characteristics

Local *More at Four* programs submitted monthly reports of child and program characteristics via an online data collection tool, the *More at Four* Reporting System (MAFREPS).

Participating Programs

Each local program, representing a county or a multi-county region, was responsible for submitting the monthly MAFREPS reports. Of the 81 programs (89 counties) providing services to children in 2002-2003, a total of 79 programs (87 counties) submitted 2002-2003 MAFREPS data, on which the current report is based.

Procedure

MAFREPS is a web-based reporting system specifically designed to collect information about *More at Four* services. Local programs enter information in MAFREPS at four levels, hierarchically linked within the system: Program (e.g., agency information, slots allocated); Site (e.g., operation days, teacher workdays, site administrator education and certifications/credentials); Classroom (e.g., hours of operation, class size, slots allocated and filled, lead and assistant teacher education and certifications/credentials); and Child (e.g., date of birth, level of risk factor, service priority status, household composition, monthly attendance, and disability status).

Data were entered directly into MAFREPS by local *More at Four* programs for each month of operation between July 1, 2002 and June 30, 2003.   MAFREPS data were downloaded each month following the due date for that month's report.

Classroom Quality

Observations of classroom quality and curriculum implementation were conducted in a sample of *More at Four* classrooms in their second year of operation.

Participants

Observations of the global quality of classroom practices were conducted in 139 classrooms from 28 *More at Four* counties/regions. The sample included all classrooms in second-year programs providing a full year of *More at Four* services in 2002-2003. Observations of curriculum implementation were conducted for a sample of 48 of the 139 classrooms. Of these 48 classrooms, 40 were randomly selected from the 139 to participate in both the classroom observations and the child assessments (see Child Outcomes section for more information on child assessment sampling procedures). In order to insure adequate representation of the High/Scope and Bright Beginnings curricula, an additional 8 classrooms were selected for the

curriculum observations, including all 3 classes using High/Scope and 5 of the 14 classes using Bright Beginnings.

Procedures

The two measures of classroom quality were gathered by separate teams of data collectors. Global ratings of the quality of the classroom environment were conducted in Fall 2002 (9/10/02-12/12/02) by the NC Rated License Assessment Project, an independent team from the University of North Carolina-Greensboro.   Observations of curriculum implementation were conducted in Spring 2003 (3/24/03-5/2/03) by the *More at Four* Evaluation Team at the FPG Child Development Institute at the University of North Carolina-Chapel Hill. Each observation typically lasted 3 to 4 hours per classroom.

Measures

Global classroom quality was assessed using the *Early Childhood Environment Rating Scale-Revised*[10] (ECERS-R), an observational rating scale that measures the developmental appropriateness of classroom practices, including the activities and materials provided, the interactions among teachers and children, the physical environment, and the daily organization of the program. The scale contains 43 items arranged into 7 subscales: Space and Furnishings, Personal Care Routines, Language-Reasoning, Activities, Interaction, Program Structure, and Parents and Staff. Each subscale item is rated on a 7-point scale from low to high (where 1 = "inadequate," 3 = "minimal," 5 = "good," and 7 = "excellent"). In the current study, the total and subscale scores were computed as mean item scores ranging from 1.0 to 7.0, where higher scores indicate higher classroom quality. The ECERS-R and its predecessor, the ECERS, have been used in a wide range of early education research studies. The scales have been demonstrated to have good interrater reliability (total scale $r = .92$) and predictive validity (e.g., Peisner-Feinberg & Burchinal, 1997).[23]

The *Materials and Activities Checklist*[11] (MAC) is an observational rating scale used to assess the extent to which preschool classrooms implement specific curricula, based on the particular curriculum criteria regarding the materials provided, the organization of the environment, and the general schedule and routines. Separate versions of the MAC were used for each curriculum implemented by *More at Four* classrooms (Bright Beginnings version 2[24], Creative Curriculum 3rd edition[25], Creative Curriculum 4th edition[26], and High/Scope 1st & 2nd editions[27]) (See Table B1 for the distribution of curricula in the sample). A common set of subscale areas is measured across the different versions, but the specific items reflect the key requirements of the particular curriculum.

The MAC is organized into three scales: Materials, General Environment, and Schedules and Routines. The number of items varies for each scale and for each MAC version, with the majority of items contained in the Materials Scale. The Materials Scale contains 60 items for Bright Beginnings, 47 items for Creative Curriculum 3, 57 items for Creative Curriculum 4, and 50 items for High/Scope. The General Environment Scale contains 4 items for Bright

Beginnings, Creative Curriculum 3, and High/Scope, and 5 items for Creative Curriculum 4. The Schedules and Routines Scale contains 4 items for each version.

The Materials Scale evaluates the presence and adequacy of materials and equipment that are expected to be available and accessible to children on a regular basis for various activity areas, based on the particular published curriculum criteria. The General Environment Scale provides global ratings of the organization and arrangement of the classroom environment based on the specific curriculum recommendations, while the Schedules and Routines Scale provides global ratings of the effectiveness of major components of the daily structure of the program (schedule, circle time, transition times, meals and snacks). The Materials Scale is divided into subscales representing activity categories required by each curriculum, including: Library, Writing, Computers, Listening, Music, Dramatic Play, Blocks, Manipulatives, Sand and Water, Art, Woodworking, Science, Math, and Cooking. Only the activity categories required by the particular curriculum are included in that version of the MAC.

Individual items are rated from low to high on a 3-point scale (where 0 = "none," 1 = "some/few," 2 = "many") representing the extent to which the criteria for the particular curriculum are being met. Figure B1 shows a sample item from the Art Subscale for the Bright Beginnings version of the MAC. For the present study, the total and scale scores were calculated as mean item scores, ranging from 0 to 2, where higher ratings indicate more complete implementation of the curriculum. Interrater reliability data were collected on 20% (10) of the classrooms representing the four different curriculum types. The interrater reliability was very good, with a Pearson's correlation coefficient for the total score of 0.90 and coefficients ranging from 0.66-0.94 for the scale scores.

Figure B1. Sample MAC Item (Bright Beginnings curriculum, Art subscale)

Rating (0, 1, 2)	Item	Scoring Info	Criteria
____	10-2 Art Tools[a]	Adequate materials in each category required for 2 pts	**Painting Tools** ☐ Paints (watercolor, fingerpaint, etc.) ☐ Paint brushes **Drawing and Writing Tools** ☐ Pencils/pens ☐ Colored pencils ☐ Crayons ☐ Markers ☐ Other **Cutting, Pasting, Fastening Tools** ☐ Scissors ☐ Glue, glue sticks ☐ Tape ☐ Other fastening materials (e.g., brass fasteners, hole punch, tape, stapler)

[a] This is one of 5 items on the Art subscale.

Table B1. Distribution of Curricula Types

Primary Curriculum	MAC Sample (n=48)		ECERS-R Sample (n=134)[a]	
	n	**%**	**n**	**%**
Bright Beginnings	14	29.2%	23	17.2%
Creative Curriculum	26	54.1%	103	76.8%
High/Scope	8	16.7%	8	6.0%

[a] Primary curriculum used was not reported for 5 classrooms.

Parent Surveys

Parents of *More at Four* children were given surveys regarding their perceptions of the program and family demographics.

Participants & Procedures

In May 2003, we distributed English and Spanish versions of a parent survey to all *More at Four* classrooms. Surveys were returned from 28.5% (1,499 of 5,246) of parents whose children were attending *More at Four* at that time. Of the surveys returned, 13.2% (198) were Spanish and 86.8% (1301) were English, with 96.2% of the counties and regions with *More at Four* programs represented.

Measure

The parent survey included questions addressing parent satisfaction with the *More at Four Program*, parental perceptions of program effects on their children's skills and development, frequency of parent participation in *More at Four* program activities (e.g., field trips and parent-teacher conferences), and family demographic characteristics (e.g., parental education and ethnicity). The survey included fixed-response items, as well as several open-ended questions.

Child Outcomes

Individual children's language and literacy skills, math skills, general knowledge, and social skills were measured near the beginning and end of the program year for a sample of children participating in *More at Four*.

Participants

More at Four children were recruited from 40 randomly selected classrooms across North Carolina. These classrooms also participated in the observations of global classroom quality and curriculum implementation. Child assessment data were gathered on 271 children in Fall 2002 and 230 of these children in Spring 2003.

Sample Selection
Sample selection was conducted at the classroom level. Forty classrooms were randomly selected from all classrooms (n=136) in second year programs providing a full year of *More at Four* services and beginning operations by early September. We attempted to recruit all *More at Four* children enrolled in the selected classrooms, with an overall consent rate of 76% (305/403). Children who were absent or had withdrawn from the program at the time of data collection were not assessed.

Child Characteristics
The average child age was 4.5 years (range = 4.0-5.0 years) at the Fall 2002 assessments and 5.1 years (range 4.6–5.7 years) at the time of the Spring 2003 assessments. Approximately half of the children were female (51%) and half were male (49%); 49% were African-American, 32% Caucasian, 7% Latino, and 12% were from other ethnic/racial groups or combinations of groups.

Procedures

Two sources of child outcomes data were gathered: individual assessments of children's language and cognitive skills and teacher ratings of children's social skills and problem behaviors. These data were gathered in Fall 2002 (10/1/02-11/11/02) and again in Spring 2003 (4/28/03-6/25/03). Child assessments were conducted on-site at each school or child care center, and lead teachers were given rating scales following the assessments.

Measures

The child assessment battery consisted of eight measures focusing on language and literacy skills, pre-math skills, and general knowledge. In addition, lead teachers rated each child's social skills and problem behaviors in the classroom. (See Table B2 for an overview of these measures.)

Table B2. Child Outcome Measures

Domain	Measure	Skills Assessed
Language and literacy	*Peabody Picture Vocabulary Test-III* (PPVT-III)[28]	receptive vocabulary
	Woodcock Johnson-III Tests of Achievement (WJ-III)[29] *Rhyming Subtest* (subtest 21A, Sound Awareness test)	phonological awareness
	Naming Letters Task[30]	alphabet knowledge
	Story and Print Concepts Task[31]	early literacy skills including knowledge of books, story comprehension, and print awareness
Pre-math	*Woodcock Johnson-III Tests of Achievement*[29] *Applied Problems Test* (Test 10)	ability to solve practical math problems including counting, simple addition and subtraction
	Counting Bears Task[32]	ability to count in one-to-one correspondence
General knowledge	*Social Awareness Task*[33]	knowledge of full name, age and birth date
	Color Naming Task[34]	knowledge of 10 basic colors
Classroom behavior	*Social Skills Rating System* (SSRS) Social Skills subscale[35]	social skills (e.g., "follows your directions")
	Social Skills Rating System (SSRS) Problem Behaviors subscale[35]	problem behaviors (e.g., "argues with others")

Appendix C: Structural Predictors Tables

Table C1. Structural Predictors of Global Quality of Classroom Practices (ECERS-R)[a]

Predictor	β Estimate (standard error)			
	Model 1 F(7,115) =2.48*	**Model 2** F(8,114)=2.73**	**Model 3** F(9,113)=3.71**	**Model 4** F(12,110)=3.22***
R^2	.13	.16	.23	.26
Intercept	5.07(.16)***	4.36(.39)***	4.81(.40)***	4.28(.41)***
Education/credentials				
Lead teacher[b]	F(3,115)=3.22* 4>3**,1>3*	F(3,114)=2.81* 4>3**,1>3*	F(3,113)=3.40* 4>3**	F(3,110)=3.42* 4>3**
1: HS, GED, AA	.02(.18)	.06(.18)	-.15(.19)	-.17(.19)
2: >= BA	-.23(.16)	-.17(.16)	-.27(.16)	-.26(.15)
3: >= BA with license	-.52(.18)	-.48(.18)	-.51(.17)	-.52(.17)
4: >=BA with BK	reference	reference	reference	reference
Assistant teacher	F(3,115)=1.25	F(3,114)=1.51	F(3,113)=2.20	F(3,110)=2.28
1: HS no credential	-.30(.18)	-.33(.18)	-.33(.18)	-.35(.18)
2: HS and credential	-.30(.18)	-.30(.18)	-.44(.18)	-.43(.18)
3: AA	-.33(.18)	-.37(.18)	-.39(.18)	-.43(.18)
4: BA or greater	reference	reference	reference	reference
Site Administrator	F(1,115)=3.07	F(1,114)=1.19	F(1,113)=0.00	F(1,110)=0.00
1: <BA	.24(.14)	.16(.14)	.01(.15)	.003(.15)
2: >= BA	reference	reference	reference	reference
Class size		.05(.02)*	.04(.02)	.04(.02)
Setting type			-.44(.14)**	-.40(.15)**
Child characteristics Avg risk factor total				-.02(.03)
Avg service priority status				.17(.09)
Proportion of *More at Four* children				.01(.19)

*p < .05, **p < .01, ***p <.001

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[a] Stepwise regression analyses were conducted to examine structural predictors of the global quality of classroom practices (ECERS-R total child items score). Four sets of predictors were examined in order: Staff qualifications, including lead teacher, assistant teacher, and site administrator education and credentials composites; Class size as a continuous variable; Setting type (public school=1, community settings=0); and Characteristics of children in the classroom, including average risk total for all *More at Four* children in classroom, average service priority status for all *More at Four* children in classroom, and proportion of *More at Four* children, all as continuous variables. Composite categorical variables of staff qualifications were constructed based on obtained educational degrees and credentials/licensure, with separate variables created for lead teachers, assistant teachers, and site administrators. For lead teachers, the composite variable included four levels: 1) High School diploma/GED or associate's degree, with or without an early childhood credential (CDA or NCECC), 2) bachelor's degree or above without a teacher's license, with or without an early childhood credential, 3) bachelor's degree or above with a teacher's license or provisional teacher's license other than B-K or preschool add-on, and 4) bachelor's degree or above with a B-K or preschool add-on license or provisional license. For assistant teachers, the composite variable included four levels: 1) High School diploma/GED without an early childhood credential, 2) High School diploma/GED with an early childhood credential (NCECC or CDA), 3) associate's degree with or without an early childhood credential, and 4) bachelor's degree or above with or without an early childhood credential or teacher's license. For site administrators, the composite variable included two levels: 1) associate's degree with or without any credential or license or bachelor's degree or above with no principal's license and either no administrator credential or NCECAC Level I, and 2) bachelor's degree or above with NCECAC Level II or III or principal's license. Parameter estimates are based on a reference cell coding of the matrix, with lead teachers with category 4 education, assistant teachers with category 4 education, and site administrators with category 2 education serving as the reference cell for each model as applicable.

[b] Comparisons by teacher qualifications were conducted only in the case of a significant overall effect for curriculum type. Least squares means by teacher type for final model are 1=4.8, 2=4.7, 3=4.5, 4=5.0.

Table C2.   Structural Predictors of Curriculum Implementation (MAC)[a]

Predictor	β Estimate (standard error)			
	Model 1 F(10,31) =2.00	**Model 2** F(11,30)=1.92	**Model 3** F(12,29)=1.74	**Model 4** F(15,26)=1.75
R^2	.39	.41	.42	.50
Intercept	1.44(.18)***	1.16(.32)***	1.28(.39)**	1.40(.42)**
Curriculum type[b]	F(3,31)=3.27* 4>1**,2>1*	F(3,30)=3.33* 4>1*,2>1*	F(3,29)=2.78	F(3,26)=2.68
1: Bright Beginnings	-.41(.15)	-.40(.15)	-.38(.15)	-.42(.19)
2:Creative Curriculum 3	-.10(.15)	-.08(.15)	-.09(.15)	-.15(.17)
3:Creative Curriculum 4	-.29(.15)	-.29(.15)	-.30(.15)	-.37(.16)
4: High/Scope	reference	reference	reference	reference
Education/credentials				
Lead teacher	F(3,31)=.64	F(3,30)=.46	F(3,29)=.53	F(3,26)=1.52
1: HS, GED, AA	-.05(.14)	-.04(.14)	-.13(.23)	-.23(.23)
2: >= BA	-.14(.15)	-.12(.15)	-.20(.21)	-.42(.24)
3: >= BA with license	-.14(.12)	-.12(.12)	-.15(.13)	-.26(.14)
4: >=BA with BK	reference	reference	reference	reference
Assistant teacher	F(3,31)=.18	F(3,30)=.21	F(3,29)=.26	F(3,26)=.43
1: HS no credential	-.08(.15)	-.10(.15)	-.11(.15)	-.11(.15)
2: HS and credential	-.11(.15)	-.12(.15)	-.14(.16)	-.11(.16)
3: AA	-.09(.16)	-.11(.16)	-.11(.16)	.003(.17)
4: BA or greater	reference	reference	reference	reference
Site Administrator	F(1,31)=.02	F(1,31)=.03	F(1,29)=.05	F(1,26)=.44
1: <BA	.02(.14)	-.03(.15)	-.03(.15)	.12(.19)
2: >= BA	reference	reference	reference	reference
Class size		.02(.02)	.02(.02)	.003(.02)
Setting type			-.11(.20)	-.30(.23)

Predictor	β Estimate (standard error)			
	Model 1 F(10,31) =2.00	**Model 2** F(11,30)=1.92	**Model 3** F(12,29)=1.74	**Model 4** F(15,26)=1.75
Child characteristics Avg risk factor total				.02(.03)
Avg service priority status				-.03(.03)
Proportion of *More at Four* children				.29(.21)

*p < .05, **p < .01, ***p <.001

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[a] Stepwise regression analyses were conducted to examine structural predictors of the quality of curriculum implementation (MAC total score). The analyses adjusted for curriculum type (Bright Beginnings=1, Creative Curriculum 3rd edition=2, Creative Curriculum 4th edition=3, and High/Scope=4). Four sets of predictors were examined in order: Staff qualifications, including lead teacher, assistant teacher, and director/principal education and credentials composites; Class size as a continuous variable; Setting type (public school=1 vs. community settings=0); and Characteristics of children in the classroom, including average risk total for all *More at Four* children in classroom, average service priority status for all *More at Four* children in classroom, and proportion of *More at Four* children in classroom, all as continuous variables. In addition, interactions between the structural predictors and curriculum type were tested, but none were significant and therefore they were dropped from the final model. Composite categorical variables of staff qualifications were constructed based on obtained educational degrees and credentials/licensure, with separate variables created for lead teachers, assistant teachers, and site administrators. For lead teachers, the composite variable included four levels: 1) High School diploma/GED or associate's degree, with or without an early childhood credential (CDA or NCECC), 2) bachelor's degree or above without a teacher's license, with or without an early childhood credential, 3) bachelor's degree or above with a teacher's license or provisional teacher's license other than B-K or preschool add-on, and 4) bachelor's degree or above with a B-K or preschool add-on license or provisional license. For assistant teachers, the composite variable included four levels: 1) High School diploma/GED without an early childhood credential, 2) High School diploma/GED with an early childhood credential (NCECC or CDA), 3) associate's degree with or without an early childhood credential, and 4) bachelor's degree or above with or without an early childhood credential or teacher's license. For site administrators, the composite variable included two levels: 1) associate's degree with or without any credential or license or bachelor's degree or above with no principal's license and either no administrator credential or NCECAC Level I, and 2) bachelor's degree or above with NCECAC Level II or III or principal's license. Parameter estimates are based on a reference cell coding of the matrix, with classrooms using category 4 curriculum, lead teachers with category 4 education, assistant teachers with category 4 education, and site administrators with category 2 education serving as the reference cell for each model as applicable.

[b]Comparisons among curriculum types were conducted only in the case of a significant overall effect for curriculum type. Least squares means for curriculum types for final model are: BB=0.90, CC 3=1.16, CC 4=0.95, H/S=1.32.

"This has been the most rewarding experience of my career. I have never seen a group of children so prepared for kindergarten. In the short time that I have been here, these children have come so far. I feel that the *More at Four Program* is a great opportunity for the children we serve. They will certainly leave this program ready for kindergarten."

--*More at Four* teacher (from 2002-2003 survey)

End Notes

[1] The guidelines for determining risk factor and service priority status changed in subsequent years. The current guidelines can be found at http://www.governor.state.nc.us/Office/Education/Home.asp.

[2] Smart Start is a comprehensive early childhood initiative created in 1993 to ensure that all North Carolina children enter school healthy and ready to succeed. The program focuses on improving the quality of child care and providing health and family support services to children from birth to age five and their families. Program funds are distributed to 81 community partnerships serving all 100 North Carolina counties. For more information about Smart Start, visit the North Carolina Partnership for Children's website at http://www.ncsmartstart.org/.

[3] For further details, see *More at Four Pre-Kindergarten Program Guidelines and Requirements*, February 2003.

[4] Peisner-Feinberg, E. S. (2003). Child and Program Characteristics of the North Carolina More at Four Pre-kindergarten Program: Year 1 (January-June 2002). Chapel Hill, NC: FPG Child Development Institute University of North Carolina at Chapel Hill.

[5] Kagan, S.L., Moore, E., & Bredekamp, S. (Eds.) (1995). Reconsidering children's early development and learning: Toward common views and vocabulary. *Goal 1 Technical Planning Group Report 95-03*. Washington, DC: National Education Goals Panel. See also http://govinfo.library.unt.edu/negp/ for a description of the National Education Goals.

[6] Cost, Quality and Child Outcomes Study Team. (1995). Cost, quality and child outcomes in child care centers: Public Report. Denver, CO: Economics Department, University of Colorado at Denver.

[7] Bryant, D., Barbarin, O., Clifford, R., Early, D., & Pianta, R. (2005, June). The National Center for Early Development and Learning: Multi-State study of Pre-kindergarten. Presentation at the Head Start Seventh National Research Conference, Washington, DC.

[8] It is likely that the remaining 14% of administrators without a principal's license were directing programs located in public school settings, but were not the school principal.

[9] US Census Bureau. (1995). *Population Profile of the United States: 1995*. Washington, DC: U.S. Government Printing Office.

[10] Harms, T., Clifford, R.M., & Cryer, D. (1998). *Early Childhood Environment Rating Scale Revised Edition*. New York: Teachers College Press.

[11] Peisner-Feinberg, E. S., Herstine, M. & Maris, C. L. (2002). *Materials and Activities Checklist*. Chapel Hill, NC: FPG Child Development Institute University of North Carolina at Chapel Hill.

[12] Cost, Quality and Child Outcomes Study Team. (1995). Cost, quality and child outcomes in child care centers: Key findings and recommendations. *Young Children, 50*, 40-44.

[13] Program guidelines have since been revised to *recommend* that classrooms use an approved research-based curriculum.

[14] Stepwise regression analyses were conducted to examine structural predictors of the global quality of classroom practices (ECERS-R total child items score). Four sets of predictors were examined in order: Staff qualifications, including lead teacher, assistant teacher, and site administrator education and credentials composites (see previous endnote for explanation of composite variables for staff qualifications); Class size as a continuous variable; Setting type (public school=1, community settings=0); and Characteristics of children in the classroom, including average risk total for all *More at Four* children in classroom, average service priority status for all *More at Four* children in classroom, and proportion of *More at Four* children, all as continuous variables.

[15] Stepwise regression analyses were conducted to examine structural predictors of the quality of curriculum implementation (MAC total score). The analyses adjusted for curriculum type (Bright Beginnings=1, Creative Curriculum version 3=2, Creative Curriculum version 4=3, and High/Scope=4). Four sets of predictors were examined in order: Staff qualifications, including lead teacher, assistant teacher, and site administrator education and credentials composites (see previous endnote for explanation of composite variables for staff qualifications); Class size as a continuous variable; Setting type (public school=1, community settings=0); and Characteristics of children in the classroom, including average risk total for all *More at Four* children in the classroom, average service priority status for all *More at Four* children in classroom, and proportion of *More at Four* children in the classroom, all as continuous variables. In addition, interactions between the structural predictors and curriculum type were tested, but none were significant and therefore they were dropped from the final model.

[16] Composite categorical variables of staff qualifications were constructed based on obtained educational degrees and credentials/licensure, with separate variables created for lead teachers, assistant teachers, and site administrators. For lead teachers, the composite variable included four levels: 1) High School diploma/GED or associate's degree, with or without an early childhood credential (CDA or NCECC), 2) bachelor's degree or above without a teacher's license, with or without an early childhood credential, 3) bachelor's degree or above with a teacher's license or provisional teacher's license other than B-K or preschool add-on, and 4) bachelor's degree or above with a B-K or preschool add-on license or provisional license. For assistant teachers, the composite variable included four levels: 1) High School diploma/GED without an early childhood credential, 2) High School diploma/GED with an early childhood credential (NCECC or CDA), 3) associate's degree with or without an early childhood credential, and 4) bachelor's degree or above with or without an early childhood credential or teacher's license. For site administrators, the composite variable included two levels: 1) associate's degree with or without any credential or license or bachelor's degree or above with

no principal's license and either no administrator credential or NCECAC Level I, and 2) bachelor's degree or above with NCECAC Level II or III or principal's license.

[17] Burchinal, M., Lee, M., & Ramey, C. (1989). Type of day-care and preschool intellectual development in disadvantaged children. *Child Development, 60*, 128-137.

[18] A repeated measures hierarchical linear model (HLM) approach was used to examine the changes in children's outcomes over time based on fall and spring assessments, with separate analyses conducted for each outcome measure. These analyses adjusted for classroom, to account for the non-independence of measurement among children in the same classroom.

[19] A repeated measures hierarchical linear model (HLM) approach was used to examine differences in the amount of change in children's outcomes over time based on fall and spring assessments, with separate analyses conducted for each outcome measure. These analyses adjusted for classroom, to account for the non-independence of measurement among children in the same classroom. Child characteristics and program characteristics were included as covariates and, in conjunction with the interactions with time, as predictors of changes over time. Child characteristics included age as a covariate only, gender, total risk factor score, level of English proficiency risk, service priority status, and total days of attendance. Program characteristics included a composite of lead teacher education and credentials, a composite of classroom quality, total class size, and proportion of *More at Four* children in the classroom. (See subsequent footnotes for explanation of calculation of composite variables.)

[20] A continuous composite variable for lead teacher qualifications was constructed based on obtained educational degrees and credentials/licensure. The composite variable included four levels, from low to high: 1) High School diploma/GED or associate's degree, with or without an early childhood credential (CDA or NCECC), 2) bachelor's degree or above without a teacher's license, with or without an early childhood credential, 3) bachelor's degree or above with a teacher's license or provisional teacher's license other than B-K or preschool add-on, and 4) bachelor's degree or above with a B-K or preschool add-on license or provisional license.

[21] A composite variable combining the two aspects of classroom quality that were measured, global quality of classroom practices and level of curriculum implementation, was constructed based on a first principal components analysis of the ECERS-R and MAC total scores.

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For more information about the FACES study, see
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[26] Dodge, D., Colker, L & Heroman, C. (2002). *The Creative Curriculum for Preschool Fourth Edition*. Washington, DC: Teaching Strategies Inc.

[27] 1st Edition: Hohmann, M & Weikart, D. (1995). *Educating Young Children*. Ypsilanti, MI: High/Scope Press. 2nd Edition: Hohmann, M. & Weikart, D. 2002. *Educating Young Children Second Edition*. Ypsilanti, MI: High/Scope Press.

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[29] Woodcock, R.W., McGrew, K.S., & Mather, N. (2001). *Woodcock-Johnson III Tests of Achievement*. Itasca, IL: The Riverside Publishing Company.

[30] National Center for Early Development and Learning (2001). *Identifying Letters*. Unpublished instrument. The University of North Carolina at Chapel Hill.

[31] FACES Research Team, modified from Story and Print Concepts tasks in: J. M. Mason and J. Stewart (1989), *The CAP Early Childhood Diagnostic Instrument* (prepublication edition), American Testronics.

[32] National Center for Early Development and Learning (2001). *Counting Numbers*. Unpublished instrument. The University of North Carolina at Chapel Hill.

[33] FACES Research Team, modified from the Social and Communicative Competence tasks in: J. M. Mason and J. Stewart (1989), *The CAP Early Childhood Diagnostic Instrument* (prepublication edition), American Testronics.

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[35] Gresham, F. & Elliott, S. (1990). *Social Skills Rating System*. Circle Pines, MN: American Guidance Service.

Other *More at Four* Evaluation Team Publications

Child and Program Characteristics of the
North Carolina More at Four Pre-kindergarten Program:

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