

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



Year 3 Report

JULY 1, 2003–JUNE 30, 2004

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



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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 program first targets “unserved” children (those not already being served in a preschool program) and secondly, “underserved” children (those eligible for but not receiving child care financial assistance and/or those in lower quality settings). (Appendix A provides further information about the 2003-2004 program guidelines for determining risk factors and service priority status.)¹ The *More at Four Program* was initiated in the 2001-2002 school year, with sites first serving children in the spring of 2002. In 2003-2004, it was estimated that there were approximately 53,000 at-risk 4-year-olds in North Carolina based on poverty status (at or below 185% of poverty), with more than 7,000 of these children remaining unserved in a preschool program and more than 10,000 underserved in low quality care.

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 partnership²). The programs are administered at the county or region (multi-county groupings) 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 participation in *More at Four* based on the identification of risk factors (such as poverty status, limited English proficiency, disability, and chronic health conditions). Priority for service is given first to children who are unserved in a preschool program at the time of enrollment, and second, to children who are underserved at enrollment (e.g., in a program but not receiving child care subsidy and/or in lower quality care). *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 services³.

In the third year of the program (July 1, 2003- June 30, 2004), the focus of the current report, *More at Four* sites were operating in all 100 North Carolina counties, administered by 91 local contractors (typically, public school districts or Smart Start partnerships). The program served nearly 11,000 children in more than 800 classrooms in over 600 sites (schools, Head Start programs, and private child care centers). The counties providing *More at Four* services during the third year included both those continuing from the first and second years as well as 11 counties beginning operation in the third year (administered by 10 new contractors). In addition, there was also some expansion in continuing counties during the third year, both through increasing the number of children served in existing sites and adding new sites. Children served through expansion slots or beginning counties typically entered the program later in the year than those served through continuing slots.

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 third year of operation (2003-2004), conducted by the FPG Child Development Institute at the University of North Carolina, Chapel Hill. (Separate reports with results of the year 1 and year 2 evaluations are also available^{4,5}.) 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?
- 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 three sources: monthly service reports, observations of classroom quality, and individual child assessments. The monthly service report data from each local contractor provided information about child and program characteristics for all children, classrooms, and sites participating in *More at Four* in their county or region (multi-county group), 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 (99 classrooms) and the level of curriculum implementation (83 classrooms). The global classroom quality measure (Early Childhood Environment Rating Scale-Revised, ECERS-R⁶) 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 (Materials and Activities Checklist, MAC⁷) 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).

Individual assessments of children’s language and literacy skills, math skills, general knowledge, and social skills were also conducted near the beginning and end of the program year for a sample of 514 children. These data provided information about the amount of developmental growth experienced by children over the *More at Four* program year based on a number of widely-used measures. In accord with the overall goal of the *More at Four Program*, the outcome areas measured were consistent with generally accepted definitions of school readiness, including the recommendations of the National Education Goals Panel.⁸

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

- *More at Four* continued to expand over the first three years, with an increasing number of children served each year—1,244 in the first year, 6,125 in the second year, and 10,891 in the third year. The program reached a milestone in the third year, with the inclusion of local sites in all 100 counties.
- 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 pre-kindergarten programs, with lead teachers and administrators in public school settings more likely by the third year to meet the 4-year *More at Four* program standards for staff qualifications than their counterparts in community settings or than assistant teachers in either setting.
- The *More at Four Program* primarily served the intended population based on children’s risk factors, especially low family income and limited English proficiency. The program also reached the target population on the basis of service priority status, with the vast majority of children (83%; 9,070) unserved at the time of enrollment and nearly two-thirds (62%; 6,788) never 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 high quality preschool experience for participating children and families. Observations of 99 classrooms using the ECERS-R indicated that the classroom practices were in the highest quality range based on generally accepted standards for best practice, with an average total score of 5.3; further, 88% of the classrooms met or exceeded the *More at Four* program guidelines in this area (total score=4.5). Observations in 83 classrooms showed that they partially met the criteria of the specific curriculum used, but typically did not fully meet the recommendations for implementation. There was some evidence that classrooms located in community (non-public school) settings had better quality practices and that classrooms with higher proportions of *More at Four* children had higher levels of curriculum implementation.

- Similarly to the second year, children participating in *More at Four* during the third year demonstrated substantial growth over the program year in skills related to kindergarten readiness. Individual assessments of 514 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 (greater overall risk or lower level of English proficiency). Specific structural characteristics of the classroom—better teacher qualifications, better quality classrooms, and a higher proportion of *More at Four* children in the classroom—were associated with greater gains in language/literacy skills, as well as some gains in math skills (teacher qualifications) and social skills (classroom quality).
- Comparisons to studies of other state pre-kindergarten programs and to Head Start suggest that during the third year, the *More at Four Program* continued to perform 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. In sum, these findings suggest that as the program has grown in scale over the first three years, it has maintained a high level of quality and positive outcomes for participating children.

Results

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

To address questions about characteristics of the local programs and the children they served, monthly service data reported by the local *More at Four* contractors were analyzed. These monthly reports included information about program size and operation days, teacher and administrator qualifications, and child demographic characteristics and attendance information. Each local *More at Four* contractor, representing a county or a multi-county region, was responsible for submitting these monthly reports via an online data collection tool, the More at Four Reporting System (MAFREPS). The data on which the current report is based represent submissions by all 91 local contractors (100 counties) providing services to children in 2003-2004. (Appendix B provides greater detail regarding data collection methods for the 2003-2004 evaluation.)

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

The *More at Four Program* experienced continued growth during its third year, serving nearly 11,000 children and expanding to encompass all 100 North Carolina counties. The total number of children served in the third year was 10,891, an increase of more than 75% from the previous year's total of 6,125 children. In 2003-2004, children were served in 883 classrooms in 628 sites (schools and child care centers) across North Carolina. (See Table 1 for comparisons of program characteristics each year.) Half (50%) of the local *More at Four* contracts were administered by public school systems, just under half (47%) were administered by local Smart Start partnerships, and a small minority (3%) were administered by other organizations (for instance, a community action agency or Head Start program). Statewide, the program increased from 89 counties (administered by 81 contractors) in the second year to all 100 counties (administered by 91 contractors) in the third year. (See Figure 1.) The 11 new counties initiated operations between August, 2003 and February, 2004. Ongoing change at the local level continued in existing counties as well, with the start-up of new sites and increases in slots throughout the year. Across the state, individual sites began operations between July, 2003 and May, 2004.

Table 1. Program Characteristics

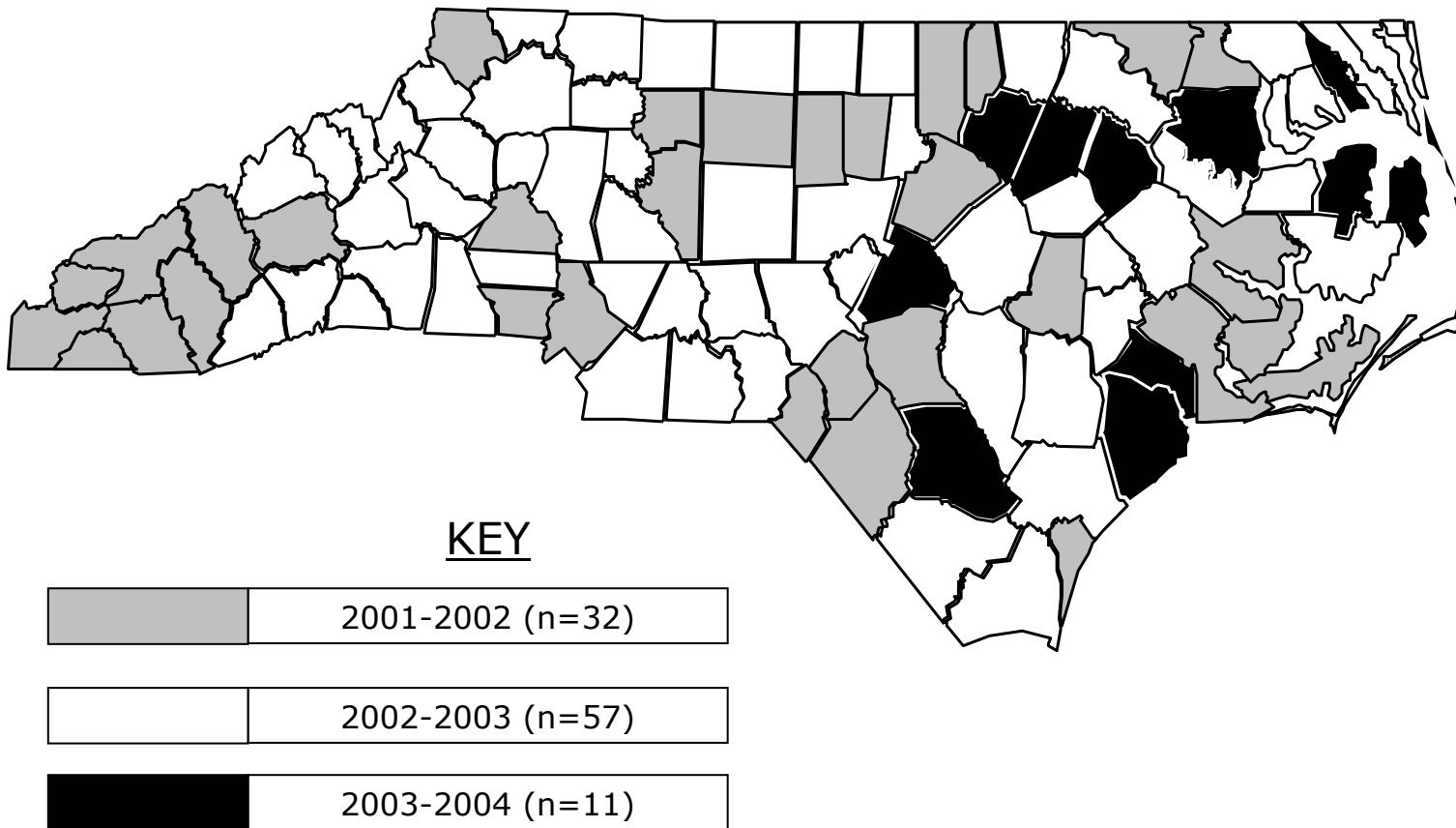
Program Characteristic	Year 1 Spring 2002	Year 2 2002-2003	Year 3 2003-2004
Total <i>More at Four</i> Local Contractors	26	81	91
Total <i>More at Four</i> Counties	32	89	100
Total <i>More at Four</i> Sites (Facilities)	102	419	628
Total <i>More at Four</i> Classrooms	139	526	883
Total Children Served	1,244	6,125	10,891
Total Children Never Previously Served ^a	926 (74%)	4,364 (71%)	6,788 (62%)
Total Children Not Served at Time of Enrollment	--- ^b	5,446 (89%)	9,070 (83%)
Average Class Size	14	17	17
Average Number of <i>More at Four</i> Children/ Class ^c	9 (62%)	11 (72%)	11 (75%)

^a These data are based on reported service priority status.

^b The service priority categories in the year 1 program guidelines did not distinguish children who were unserved at the time of enrollment.

^c These data are based on the maximum monthly reported proportion of *More at Four* children for each classroom.

Figure 1. N.C. *More at Four* Counties by Start Year



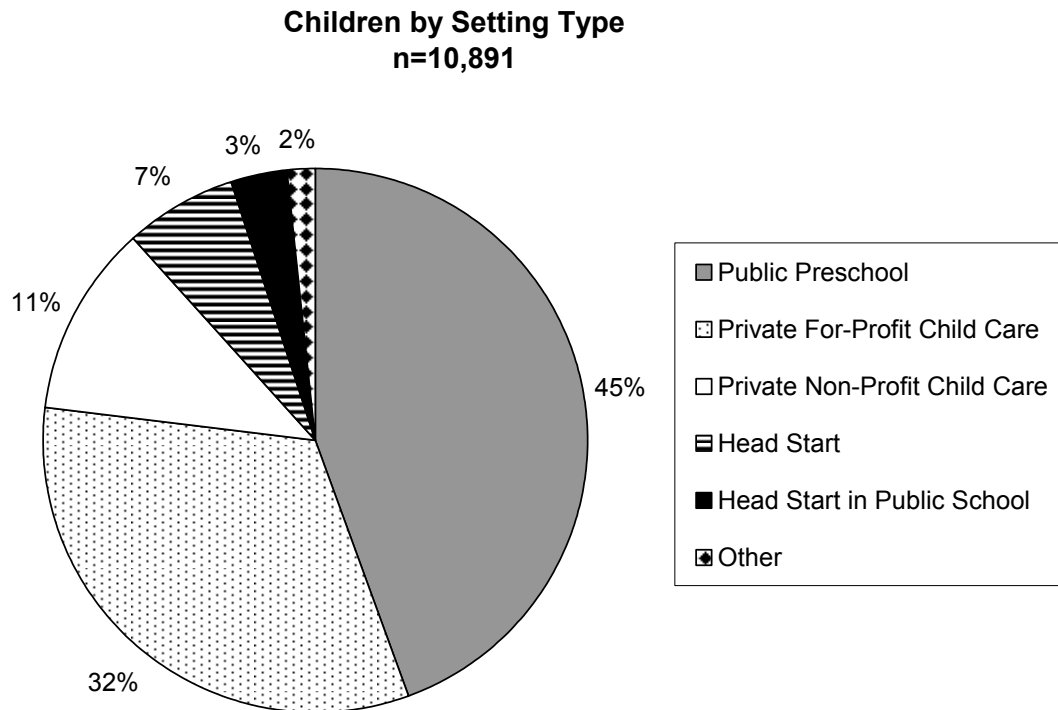
In what types of settings were *More at Four* children served?

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.

Approximately half (48%) 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 (75%) of these children were participating in *More at Four* (see Table 1). *More at Four* program setting characteristics were very similar from year 2 to year 3.

Figure 2. Distribution of Children by Setting Type.^a



^a Children who attended more than one *More at Four* site during the 2003-2004 school year (229 children attended 2 sites, 1 child attended 3 sites) are represented by the setting type in which they were enrolled the longest.

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.

The size of the local county/region *More at Four* program varied, ranging from 11 to 990 children, with a median of 77 children and a mean of 120 children. Individual counties 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 risk factor status of the children served within each county also varied, with from 27% to 100% eligible for free lunch and 0% to 55% eligible for reduced-price lunch, 0% to 88% with limited English proficiency, 0% to 50% with an identified disability, and 0% to 21% with a chronic health condition. (See Appendix A for further information on program guidelines for determining risk status.)

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 a substantial number of sites able to offer the full 10-month program. The average class size was 17, below the maximum of 18 allowed by the guidelines, with 99.7% of the classes having a maximum class size of 18 or less. 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 (97%) reported operating at least 6 hours per day.

As the *More at Four Program* has become more established within local communities over the first three years, the number of sites continuing operations from the previous year has increased each year as well. As more continuing sites have been able to begin services at the start of the school year, it has allowed a greater number of children the opportunity to participate for the full program year. In the third year of the program, 83% of the sites operated for the full 10 months. The total days of operation for all sites averaged 166 days, or 92% of the typical school year of 180 days specified in the program guidelines, with half of the sites operating for 175 days or more. The average length of operation has increased each year as the program has gotten underway, and the year 3 average represents a significant increase from the first two years of the program, which averaged 73 and 125, respectively.

Children attended *More at Four* for an average of 125 days (SD=48) during the 2003-2004 school year. Approximately one-fifth of the children (18%) withdrew before the end of the program year. Of the children who withdrew prior to the end of the year, about one-third (35%) moved out of the service area, another third (32%) left due to parent choice, and the remainder (34%) withdrew for other reasons.

All individual classrooms also met *More at Four* guidelines regarding curriculum type. The 2003-2004 guidelines specified that all programs must use a research-based curriculum from a list recommended by the *More at Four* Curriculum Review Committee. All classrooms (100%) reported using one or more of the recommended curricula. A large majority of classrooms (77%) used Creative Curriculum^{9, 10}, with smaller numbers of classes implementing Bright Beginnings¹¹ (14%), High/Scope (8%)¹², Montessori (0.5%) or some combination of these curricula (2%). (See Table 2.)

Table 2. Distribution of Classrooms by Primary Curriculum Type

n=871^a

Curriculum Type	Number	Percent
Creative Curriculum ^b	666	76.5%
Bright Beginnings ^c	121	13.9%
High/Scope ^d	67	7.7%
Bright Beginnings & Creative Curriculum	7	0.8%
Creative Curriculum & High/Scope	6	0.7%
Montessori	4	0.5%
Bank Street	0	0%

^a Curriculum information was not reported for 12 classrooms.

^b Of classrooms using Creative Curriculum alone or in combination with another curriculum, 8 classrooms reported using the 1st edition, 1 classroom reported using the 2nd edition, 50 classrooms reported using the 3rd edition, 498 classrooms reported using the 4th edition, and 122 classrooms did not report the edition used.

^c Of classrooms using Bright Beginnings alone or in combination with another curriculum, 5 Bright Beginnings classrooms reported using the 1st edition, 81 classrooms reported using the 2nd edition, and 42 classrooms did not report the edition used.

^d Of classrooms using High/Scope alone or in combination with another curriculum, 63 reported using the 2nd edition and 10 classrooms did not report the edition used.

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

According to the existing *More at Four* program guidelines, individual classrooms were given 4 years to meet the *More at Four* 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, although exceptions to these guidelines have been granted when appropriately credentialed staff could not be found. 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.)

***More at Four* teachers and site administrators reported fairly high levels of education and licensure/credentials, similar to those found in prior years of the program. While programs were given 4 years to meet the standards for staff qualifications (education and licensure/credentials), many staff met at least some of these standards by the third year of the *More at Four* Program.** As found in previous years of the *More at Four* Program, staff in public school settings tended to be more highly qualified than staff in community settings, both in terms of education and credentials. The proportion of staff meeting the standards for qualifications was fairly similar in years 2 and 3, with a few exceptions as noted. Lead teacher education levels overall were similar to or higher than those typically reported in pre-kindergarten or child care programs^{13,14}. However, lead teachers in public school settings were more likely than lead teachers in community settings or assistant teachers in either setting to meet the *More at Four* program standards for education and licensure/credentials. Almost all (94%) lead teachers in public schools and about two-thirds (67%) of lead teachers in community settings held bachelor's degrees or higher. In contrast, fewer than half (39%) of the assistant teachers had associate's degrees or higher (44% in public schools and 34% in community settings), indicating a decrease from year 2 (5% overall; 4% for public schools and 6% for community settings). (See Table 3.) Licensure/credential levels were also much higher for public school lead teachers than for other teaching staff. More than two-thirds (68%) of lead teachers in public schools held B-K or preschool add-on licenses or provisional licenses compared to 17% of those in community settings; these figures indicate a 5% increase from year 2 for public school settings but no change for community settings. Few assistant teachers held a CDA credential or higher, with slightly higher figures for community settings (17%) than public school settings (12%). (See Table 4.)

The education and credential levels of site administrators tended to be fairly high, with (not unexpectedly) higher levels for those in public school than community settings. Although the program guidelines specify different standards for administrators by setting, those in public school settings were still more likely to meet these standards than those in community settings. Nearly all (99%) administrators in public settings held a bachelor's degree or higher, compared to 62% in community settings. (See Table 5.) Nearly all (91%) public school administrators held principal's licenses¹⁵. For directors in community settings, 40% held a Level III administrator credential (or a principal's license) and another 29% held a Level II credential. (See Table 6.) Compared to year 2, these figures indicate a substantial increase in the credential

levels of directors in community settings, with a 5% increase in those with at least a Level II credential and a 13% increase in those with a Level III credential (or principal's license).

In the third year of the *More at Four Program*, most of the 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 (93%) met the specifications for provisional approval for education in year 3, similarly to year 2. Specifically, 100% of assistant teachers held a high school diploma or higher, 94% of public school lead teachers held a BA/BS degree or higher, and 92% of community setting lead teachers held an AA/AAS degree or higher.

As in year 2, there was greater variation in compliance with the specifications for provisional approval of licensure/credentials. For site administrators in community settings, 74% held a Level II administrative certification or higher or were working towards a Level III certification. (There were no provisional specifications for administrators in public school settings.) Across all settings, 65% of lead teachers held or were working toward a B-K or preschool add-on license, with higher numbers for public school (81%) than community settings (51%). For assistant teachers, 77% held or were working toward a CDA credential or higher and/or held or were working toward an AA degree or higher, with similar numbers for public school (77%) and community settings (78%)¹⁶.

Table 3. Education Levels of *More at Four* Teachers

Highest Degree Earned	Lead Teachers			Assistant Teachers		
	Public School Settings n=449 ^a	Community Settings n=535 ^b	All Settings n=984	Public School Settings n=405 ^c	Community Settings n=465 ^d	All Settings n=870
MA/MS or higher	17.2% (77)	4.1% (22)	10.1% (99)	0% (0)	0.2% (1)	0.1% (1)
BA/BS	77.1% (346)	62.6% (335)	69.2% ^e (681)	16.1% (65)	12.5% (58)	14.1% ^f (123)
AA/AAS	2.5% (11)	25.2% (135)	14.8% ^g (146)	27.7% (112)	21.7% (101)	24.5% ^h (213)
HS diploma/ GED	3.3% (15)	8.0% (43)	5.9% ⁱ (58)	56.3% (228)	65.6% (305)	61.3% ^j (533)

^a These data were not reported for 4 public school lead teachers.

^b These data were not reported for 1 community setting lead teachers.

^c These data were not reported for 3 public school assistant teachers.

^d These data were not reported for 6 community setting assistant teachers.

^e Of lead teachers across all settings, 17 holding BA/BS degrees were working toward an MA/MS or higher.

^f Of assistant teachers across all settings, 3 holding BA/BS degrees were working toward an MA/MS or higher.

^g Of lead teachers across all settings, 49 holding AA/AAS degrees were working toward a BA/BS.

^h Of assistant teachers across all settings, 18 holding AA/AAS degrees were working toward a BA/BS.

ⁱ Of lead teachers across all settings, 12 holding high school diplomas/GED's were working toward a BA/BS and 31 were working toward an AA/AAS.

^j Of assistant teachers across all settings, 27 holding high school diplomas/GED's were working toward a BA/BS and 264 were working toward an AA/AAS.

Table 4. Licensure/Credential Levels of *More at Four* Teachers

Highest License/ Credential ^a	Lead Teachers			Assistant Teachers		
	Public School Settings n=453	Community Settings n=536	All Settings n=989	Public School Settings n=406	Community Settings n=471 ^b	All Settings n=877
B-K or Preschool add-on License	66.2% (300)	15.9% (85)	38.9% (385)	2.5% (10)	0.4% (2)	1.4% (12)
Provisional B-K License	1.8% (8)	0.8% (4)	1.2% (12)	0% (0)	0.2% (1)	0.1% (1)
Other Teacher's License	17.4% (79)	10.4% (56)	13.7% ^c (135)	1.2% (5)	0.9% (4)	1.0% (9)
Provisional Teacher's License	0.9% (4)	0% (0)	0.4% (4)	0% (0)	0% (0)	0% (0)
CDA Credential	0% (0)	3.9% (21)	2.1% ^d (21)	8.4% (34)	15.5% (73)	12.2% (107)
NCECC	1.1% (5)	16.2% (87)	9.3% ^e (92)	17.2% (70)	40.3% (190)	29.7% (260)
None	12.6% (57)	52.8% (283)	34.4% ^f (340)	70.7% (287)	42.7% (201)	55.6% (488)

^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 2 community setting assistant teachers.

^c Of lead teachers across all settings with an Other Teacher's License, 39 were working toward a B-K License.

^d Of lead teachers across all settings with a CDA Credential, 6 were working toward a B-K License.

^e Of lead teachers across all settings with an NCECC, 5 were working toward an Other Teacher's License and 25 were working toward a B-K License.

^f Of lead teachers across all settings without a credential or license, 4 were working toward an NCECC, 2 were working toward a CDA credential, 26 were working towards an Other Teacher's License, and 175 were towards a B-K License.

Table 5. Education Levels of *More at Four* Site Administrators

Highest Degree Earned	Public School Settings n=318	Community Settings n=314	All Settings n=632
PhD/EdD	13.5% (43)	2.6% (8)	8.1% (51)
MA/MS	79.3% (252)	20.7% (65)	50.2% ^a (317)
BA/BS	6.3% (20)	38.9% (122)	22.5% ^b (142)
AA/AAS	0% (0)	21.3% (67)	10.6% ^c (67)
HS diploma/ GED	0.9% (3)	16.6% (52)	8.7% ^d (55)

^a Of site administrators across all settings, 9 holding MA/MS degrees were working toward a PhD/EdD.

^b Of site administrators across all settings, 5 holding BA/BS degrees were working toward an MA/MS.

^c Of site administrators across all settings, 15 holding AA/AAS degrees were working toward a BA/BS.

^d Of site administrators across all settings, 9 holding high school diplomas/GED's were working toward a BA/BS and 31 were working toward an AA/AAS.

Table 6. Licensure/Credential Levels of *More at Four* Site Administrators

Highest License/ Credential ^a	Public School Settings n=318	Community Settings n=314	All Settings n=632
Principal’s License	90.9% (289)	6.4% (20)	48.9% (309)
NCECAC Level III	1.6% (5)	33.8% (106)	17.6% ^b (111)
NCECAC Level II	0.3% (1)	29.3% (92)	14.7% ^c (93)
NCECAC Level I	0.6% (2)	12.4% (39)	6.5% ^d (41)
None	6.6% (21)	18.2% (57)	12.3% ^e (78)

^a Note: NCECAC = North Carolina Early Childhood Administration Credential

^b Of site administrators across all settings, 2 holding a NCECAC Level III credential were working toward a Principal Certification.

^c Of site administrators across all settings, 23 holding a NCECAC Level II credential were working toward a NCECAC Level III credential.

^d Of site administrators across all settings, 18 holding a NCECAC Level I credential were working toward a NCECAC Level II credential and 3 were working toward a NCECAC Level III credential.

^e Of site administrators across all settings, who did not hold certifications or licenses, 9 were working toward a NCECAC Level I credential, 7 were working toward a NCECAC Level II credential, 11 were working toward a NCECAC Level III credential, and 2 were working toward a Principal’s Certification.

WHO WAS SERVED BY THE *MORE AT FOUR* PROGRAM?

The *More at Four Program* continued to serve a diverse group of children its third year of operation. The demographic characteristics of the children served during the third year were generally similar to those served in the first and second years of the program. About half of the children served in 2003-2004 were male (51.5%) and half were female (48.5%). Nearly all (97.5%) children were North Carolina residents and almost all (95.0%) were US citizens (although these are not required for eligibility). The children represented a variety of ethnic and racial backgrounds, including 43% African-American, 31% Caucasian, 18% Latino, and small percentages of children of other racial and ethnic groups. (See Figure 3.)

All children were 4 years old as of October 16, 2003, in accord with the program guidelines. The average child age at program entry was 4.4 years (range 3.7-5.5 years), with children enrolling in the program later in the school year tending to be older than those enrolling earlier.

More at Four children lived in households with an average of 4 family members (typically 1-2 adults and approximately 2 children). These families had low incomes, with an average family income of \$17,402, although half the families had incomes at or below the median of \$15,360. Most (69%) of the children’s primary caregivers were employed. (See Table 7.)

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

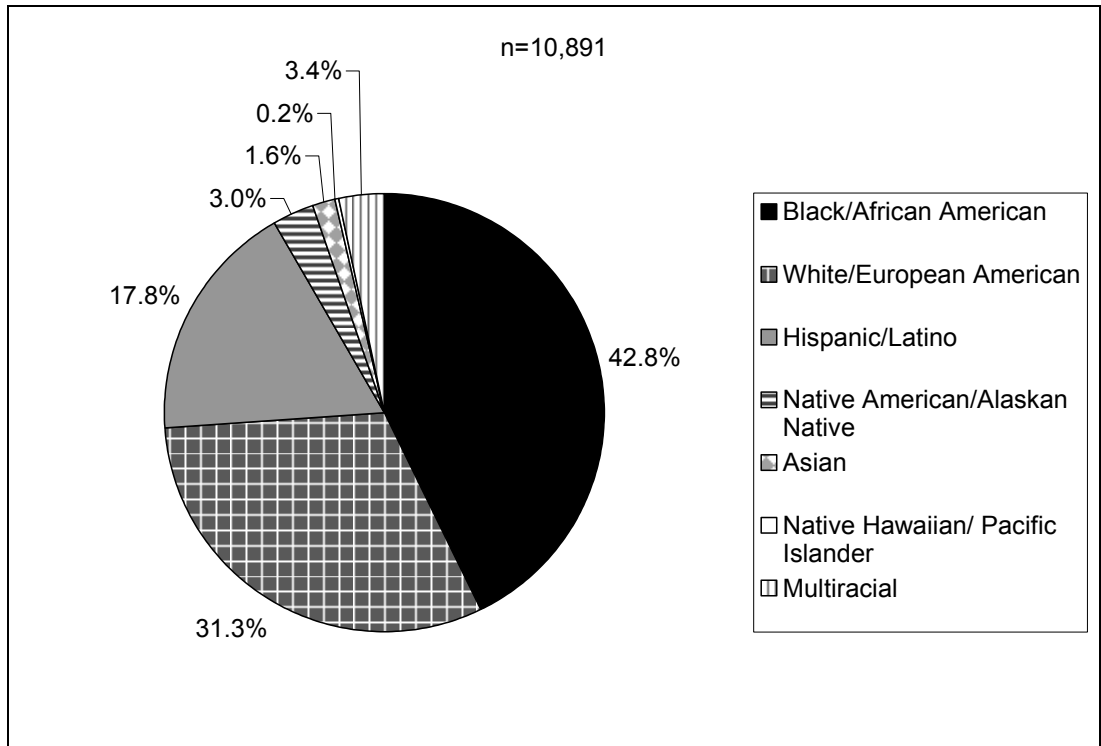


Table 7. Family Characteristics of *More at Four* Children.

Household Composition	Mean	SD	Range	N
Number of Adults	1.7	0.7	1-9	10,872
Number of Children	2.3	1.2	1-13	10,790
Total Household Size	4.0	1.4	2-18	10,786
Family Yearly Income ^a	\$17,402	\$12,664	\$0-81,600	10,471

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%¹⁷. Of all the children attending *More at Four* during the third year, 9% (924) were reported as having some type of identified disability, the same proportion as was found in year 2. Approximately 3% (332) of all children attending *More at Four* were referred for a disability evaluation during their time in *More at Four*, and an additional 8% (906) were referred for a disability evaluation prior to enrollment in *More at Four*. Of the children with identified disabilities, 85% (718/842 reported) had an active Individualized Education Plan (IEP) and 88% (713/807 reported) were receiving special services. Of the children with identified disabilities (one or more categories), more than three-quarters (78%) were diagnosed with speech/language impairments and approximately one-quarter (24%) were identified as Preschool Developmentally Delayed, with other categories of impairments reported for small numbers. (See Table 8.)

^a Note: Family income data excludes the upper ½% of the range, to eliminate extreme outliers likely to be erroneous values.

Table 8. Frequency of Categories of Identified Disabilities.

n=920^a

Disability Category	Number	Percent
Speech/Language Impaired	714	77.6%
Preschool Developmentally Delayed	217	23.6%
Other Health Impaired	43	4.7%
Behaviorally/Emotionally Disabled	37	4.0%
Visually Impaired	18	2.0%
Hearing Impaired	17	1.8%
Autistic	15	1.6%
Orthopedically Impaired	13	1.4%
Specific Learning Disabled	10	1.1%
Severe/Profound Mentally Disabled	2	0.2%
Multi-handicapped	1	0.1%
Trainable Mentally Disabled	1	0.1%
Traumatic Brain Injured	1	0.1%
Deaf-Blind	0	0%
Educable Mentally Disabled	0	0%

^a Disability category information was not reported for 4 children. More than one category was indicated for 151 children.

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 2003-2004 program guidelines allowed local contracts to choose which of two models (Model I and Model II) to use for determining children's eligibility for *More at Four* services (with contracts required to use Model II beginning in 2004-2005). In year 3, three-quarters (75%) of the local contracts (representing 74% of children) chose to use Model I, with the remainder (25%) implementing Model II (representing 26% of children). (See Appendix A for further information on the program guidelines related to risk factor determinations and program eligibility.)

Model I was the original model developed by the task force for determining program eligibility, and was used in the first two years of the program. In this model, children are 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. The 9 factors include: family income, health status, identified disabilities, parent education, parent employment, family composition, housing stability, English proficiency, and minority status with additional risk factors.

Under Model II, first available in the third year, children's eligibility for the program is first determined by family income at or below 250% of poverty, and secondly, considers additional risk factors, including limited English proficiency, an identified disability, and/or a chronic health condition. In addition, children with family incomes between 251%-300% of poverty may be eligible if the child also has at least one of the three additional risk factors and/or is at risk based on developmental/educational need. Children's risk scores for Model II are determined by their poverty status (<130% of federal poverty level = 5 points, 131-185% = 4, 186-200% = 3, 201-250% = 2, 251-300% = 0) and additional risk factors (1 point each).

The program primarily served the intended population based on certain risk factors, particularly poverty status. Across both models for program eligibility, the majority of children were at significant risk based on family income, with approximately three-quarters (74%) of the children eligible for free lunch and another 15% eligible for reduced price lunch. Approximately one-fifth (18%) of all children were at risk based on limited English proficiency. Fewer children were at risk based on disability status (7% had an Individualized Education Plan) or chronic health conditions (3%). (See Table 9 for the distribution of risk factors for each model.)

Model I included five additional factors that were not part of the Model II criteria. The majority of children enrolled under Model I were at significant or potential risk on the factors of parental employment (57%) and family composition (53%), as well as minority status in combination with 1 or more other risk factors (65%). Approximately one-third of the children enrolled under Model I were at significant or potential risk based on parental education (37%) and housing stability (35%).

There was significant variety in the types and combinations of Model I risk factors children exhibited, with an average risk factor score of 5.6 (possible range=0-18), and individual scores spanning the full range. These distributions are similar to those reported for year 2, suggesting that the program is still reaching a similar population of at-risk children. The average risk factor score for Model II was 4.9 (possible range=1-8). As with Model I, individual children's scores covered the full range of possible scores.

Table 9. Distribution of Children’s Risk Factor Status

Risk Factor	Model I ^a (n=8,080 ^b)		Model II ^c (n=2,753 ^d)	
	Definition of Risk Levels	% (n)	Definition of Risk Levels	% (n)
Family Income	Eligible for free lunch	74.1% (5,988)	Below 130% of poverty (eligible for free lunch)	74.9% (2063)
	Eligible for reduced price lunch	15.3% (1,235)	131-185% of poverty (eligible for reduced price lunch)	15.2% (418)
	--	--	186-200% of poverty	3.4% (93)
	--	--	201-250% of poverty	5.0% (138)
	--	--	251-300% of poverty	1.5% (41)
Limited English Proficiency	Family and child do not speak English	10.0% (805)	Family and/or child speak limited or no English in the home	22.1% (616)
	Family and child speak limited English	6.7% (537)		
Identified Disability	Child has current Individualized Education Plan (IEP)	7.0% (568)	Child has a current Individualized Education Plan (IEP)	7.0% (194)
	Child has an Individualized Family Service Plan (IFSP) but does not qualify for an IEP	2.0% (158)	--	--
Chronic Health	Child is identified as mentally or physically chronically ill or medically fragile	2.7% (217)	Child has a chronic health condition as indicated by a health care provider diagnosis	5.2% (144)
	Child is seen or has been seen by a pediatric specialist for a chronic health concern	9.1% (738)	--	--

^a For Model I, the first definition listed for each risk factor corresponds to Level 2 (“significant risk”) and the second definition corresponds to Level 1 (“potential risk”).

^b Model I risk information was not reported for 5 children.

^c Developmental/Educational Need was included as an additional risk factor under Model II only for children whose family incomes were in the 251-300% of poverty range. Of children in this income category, 6 (0.2%) were identified as having a developmental/educational need.

^d Model II risk information was not reported for 53 children.

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Risk Factor	Model I^a (n=8,080 ^b)		Model II^c (n=2,753 ^d)	
	Definition of Risk Levels	% (n)	Definition of Risk Levels	% (n)
Minority Status with Additional Risk Factors	Child is a member of a minority group & demonstrates any 4 or more risk factors	27.5% (2,220)	--	--
	Child is a member of a minority group & demonstrates up to 3 risk factors	37.2% (3,004)	--	--
Family Composition	Child lives with a single parent and there are compounding factors such as parental substance abuse or abuse/neglect	5.8% (471)	--	--
	Child lives with single parent	46.7% (3,773)	--	--
Parent Employment	Primary caregiver unemployed	30.6% (2,473)	--	--
	Primary caregiver employed at current job for less than 12 months	26.7% (2,153)	--	--
Parent Education	Primary caregiver does not have a high school diploma	27.0% (2,184)	--	--
	Primary caregiver has GED	10.0% (809)	--	--
Housing Stability	Child has no stable place to live. Child may be homeless.	1.1% (87)	--	--
	Child has lived at multiple addresses during the preceding 12 months	33.4% (2,698)	--	--

Programs were also serving the intended population based on service priority status, with the vast majority (more than 80%) of children being unserved at the time of enrollment.

The first target of *More at Four* is reaching “unserved” at-risk children (i.e., those who are not in a pre-kindergarten program), and secondarily, 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.) More than 80% of the children served during the second and third years of the program were unserved at the time of enrollment (comparable categories were not utilized in year 1), suggesting that the program has been successful in reaching this target group. (See Table 10.) A total of 83% (9,070) of the children were unserved at the time of enrollment in year 3, a similar proportion to year 2 (89%; 5,446), although the absolute number has increased as the size of the program has increased. However, the proportion of children who had never been previously served in any child care or preschool program has declined slightly each year, although the absolute number has continued to increase. Nearly two-thirds (62%; 6,788) of the children had never been served in year 3, compared to 71% (4,364) in year 2 and 75% (926) in year 1. This decrease is not surprising and likely reflects the program’s success at reaching unserved children. While the total number of children served in the program has grown each year, the number of children in poverty and the number of 4-year-olds in the state have continued to increase as well, suggesting that there will continue to be a substantial number of children eligible for *More at Four* and continued room for growth in order to serve all eligible children¹⁸.

Table 10. Distribution of Children by *More at Four* Service Priority Status at Time of Enrollment

n=10,891

Service Priority Status at Time of Enrollment^a	Number	Percent
<u>Unserved</u>		
Never been served in a child care or preschool program	6,788	62.3%
Unserved in a child care/preschool program and eligible for, but not receiving, child care financial assistance	1,072	9.8%
Unserved in a child care/preschool program and not eligible for child care financial assistance	1,210	11.1%
<u>Underserved</u>		
Was being served in another program and eligible for, but not receiving, child care financial assistance	606	5.6%
Was being served in another program below <i>More at Four</i> standards	206	1.9%
Other	1,009	9.3%

^a Service priority status levels are listed in the table from highest to lowest priority.

WHAT WAS THE QUALITY OF THE SERVICES PROVIDED?

Information was gathered in order to examine the quality of classrooms serving children participating in the *More at Four Program* during the 2003-2004 year. These observations included measures of the global quality of classroom practices using the Early Childhood Environment Rating Scale-Revised (ECERS-R)⁶ in 99 classrooms and the implementation of specific curricula using the Materials and Activities Checklist (MAC)⁷ in 83 of these classrooms. (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 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 using the Early Childhood Environment Rating Scale-Revised (ECERS-R) for 99 randomly-selected classrooms. Scores on this measure are 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. The *More at Four* program guidelines require that classrooms have a total score of 4.5 or above on this scale by their second year of operation.

The *More at Four Program* provided a good quality preschool experience overall based on generally accepted standards for best practices, with 88% of the classrooms meeting or exceeding the program guidelines. As seen in Table 11, average scores on the ECERS-R were in the highest quality range in year 3 (2003-2004), with a mean total score of 5.3 (SD=0.6), compared to a mean of 5.0 (SD=0.6) the previous year (2002-2003). 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^{14, 19}. The scores were similar for public school and community (non-public school) settings (public school mean=5.3, SD=0.6, community mean=5.4, SD=0.6).

Table 11. Quality of Classroom Practices in Year 3 (ECERS-R Mean Item Scores)

Subscales and Items	Item Description	Public School Settings (n=52)		Community Settings (n=47)		All Settings (n=99)	
		Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
▪ Total Overall Score	(items 1-43)	5.3 (0.6)	3.4-6.3	5.4 (0.6)	4.4-6.4	5.3 (0.6)	3.4-6.4
▪ Total Child Items Score	(items 1-37)	5.2 (0.7)	3.0-6.3	5.5 (0.6)	4.4-6.6	5.3 (0.7)	3.0-6.6
▪ Space and Furnishings Subscale	(items 1-8)	4.9 (0.9)	3.0-6.4	5.2 (0.8)	3.4-6.8	5.0 (0.9)	3.0-6.8
1	Indoor space	5.1 (2.0)	1-7	4.9 (1.7)	2-7	5.0 (1.9)	1-7
2	Furniture for routine care, play, and learning	6.1 (1.4)	2-7	6.8 (0.7)	3-7	6.4 (1.2)	2-7
3	Furnishings for relaxation and comfort	5.3 (1.6)	3-7	5.7 (1.5)	3-7	5.5 (1.6)	3-7
4	Room arrangement for play	5.4 (1.7)	1-7	5.7 (1.8)	1-7	5.6 (1.7)	1-7
5	Space for privacy	5.3 (1.9)	2-7	5.1 (1.9)	2-7	5.2 (1.9)	2-7
6	Child-related display	4.8 (1.4)	3-7	5.0 (1.5)	3-7	4.9 (1.5)	3-7
7	Space for gross motor play	3.2 (1.9)	1-7	3.9 (2.0)	1-7	3.5 (2.0)	1-7
8	Gross motor equipment	3.8 (2.2)	1-7	4.1 (2.4)	1-7	3.9 (2.3)	1-7
▪ Personal Care Routines Subscale	(items 9-14)	4.7 (1.2)	2.3-6.8	5.2 (1.0)	2.6-7.0	4.9 (1.1)	2.3-7.0
9	Greeting/departing	6.6 (0.9)	4-7	6.6 (0.9)	4-7	6.6 (0.9)	4-7

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Subscales and Items	Item Description	Public School Settings (n=52)		Community Settings (n=47)		All Settings (n=99)	
		Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
10	Meals/snacks	3.4 (2.1)	1-7	4.7 (1.9)	1-7	4.0 (2.1)	1-7
11	Nap/rest ^a	5.2 (2.0)	2-7	4.7 (1.9)	2-7	5.0 (2.0)	2-7
12	Toileting/diapering	4.8 (2.6)	1-7	5.3 (2.4)	1-7	5.1 (2.5)	1-7
13	Health practices	4.8 (2.0)	1-7	5.5 (1.8)	2-7	5.2 (1.9)	1-7
14	Safety practices	3.5 (2.4)	1-7	4.3 (2.6)	1-7	3.9 (2.5)	1-7
▪ Language-Reasoning Subscale	(items 15-18)	5.8 (0.9)	3.3-7.0	5.7 (0.9)	3.8-7.0	5.8 (0.9)	3.3-7.0
15	Books and pictures	5.7 (1.5)	3-7	5.4 (1.6)	2-7	5.5 (1.5)	2-7
16	Encouraging children to communicate	6.6 (0.8)	4-7	6.6 (0.8)	4-7	6.6 (0.8)	4-7
17	Using language to develop reasoning skills	5.0 (1.4)	3-7	5.0 (1.6)	2-7	4.9 (1.5)	2-7
18	Informal use of language	5.9 (1.5)	2-7	5.9 (1.3)	4-7	5.9 (1.4)	2-7
▪ Activities Subscale	(items 19-28)	4.8 (0.9)	2.8-6.6	5.0 (0.8)	3.4-6.4	4.9 (0.8)	2.8-6.6
19	Fine motor	5.5 (1.5)	3-7	5.7 (1.5)	3-7	5.6 (1.5)	3-7
20	Art	4.8 (1.7)	1-7	5.1 (1.6)	2-7	5.0 (1.7)	1-7
21	Music/movement	4.3 (1.4)	2-7	4.3 (1.7)	2-7	4.3 (1.6)	2-7
22	Blocks	4.5 (1.0)	3-7	4.6 (1.2)	3-7	4.5 (1.1)	3-7
23	Sand/water	4.8 (1.5)	1-7	4.9 (1.3)	3-7	4.8 (1.4)	1-7

^a Item 11: Public School Settings n=49, Community Settings n=42, and All Settings n=91.

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Subscales and Items	Item Description	Public School Settings (n=52)		Community Settings (n=47)		All Settings (n=99)	
		Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
24	Dramatic play	4.7 (1.3)	2-7	5.2 (1.4)	2-7	4.9 (1.4)	2-7
25	Nature/science	4.4 (1.6)	2-7	4.7 (1.8)	2-7	4.5 (1.7)	2-7
26	Math/number	4.9 (1.4)	3-7	4.8 (1.6)	1-7	4.9 (1.5)	1-7
27	Use of TV, video, and/or computers ^b	4.9 (2.2)	1-7	5.6 (1.7)	2-7	5.2 (2.0)	1-7
28	Promoting acceptance of diversity	4.8 (1.3)	2-7	5.6 (1.4)	2-7	5.1 (1.4)	2-7
▪ Interaction Subscale	(items 29-33)	6.1 (1.2)	1.4-7.0	6.2 (0.8)	4.4-7.0	6.2 (1.0)	1.4-7.0
29	Supervision of gross motor activities ^c	5.1 (1.7)	1-7	5.2 (1.7)	1-7	5.1 (1.7)	1-7
30	General supervision of children	6.2 (1.6)	1-7	6.5 (1.1)	2-7	6.3 (1.4)	1-7
31	Discipline	6.2 (1.3)	1-7	6.1 (1.2)	2-7	6.2 (1.2)	1-7
32	Staff-child interactions	6.5 (1.4)	1-7	6.7 (0.9)	4-7	6.6 (1.2)	1-7
33	Interactions among children	6.6 (1.1)	1-7	6.6 (0.8)	4-7	6.6 (1.0)	1-7
▪ Program Structure Subscale	(items 34-37)	6.1 (0.9)	3.8-7.0	6.3 (0.8)	4.3-7.0	6.2 (0.9)	3.8-7.0
34	Schedule	5.7 (1.7)	2-7	6.3 (1.3)	2-7	6.0 (1.6)	2-7
35	Free play	6.3 (1.4)	1-7	6.4 (1.1)	4-7	6.3 (1.3)	1-7
36	Group time	6.2 (1.3)	3-7	6.5 (1.1)	4-7	6.3 (1.2)	3-7

^b Item 27, Public School Settings n=48, Community Settings n=42, and All Settings n=90.

^c Item 29, Public School Settings n=51, Community Settings n=47, and All Settings n=98.

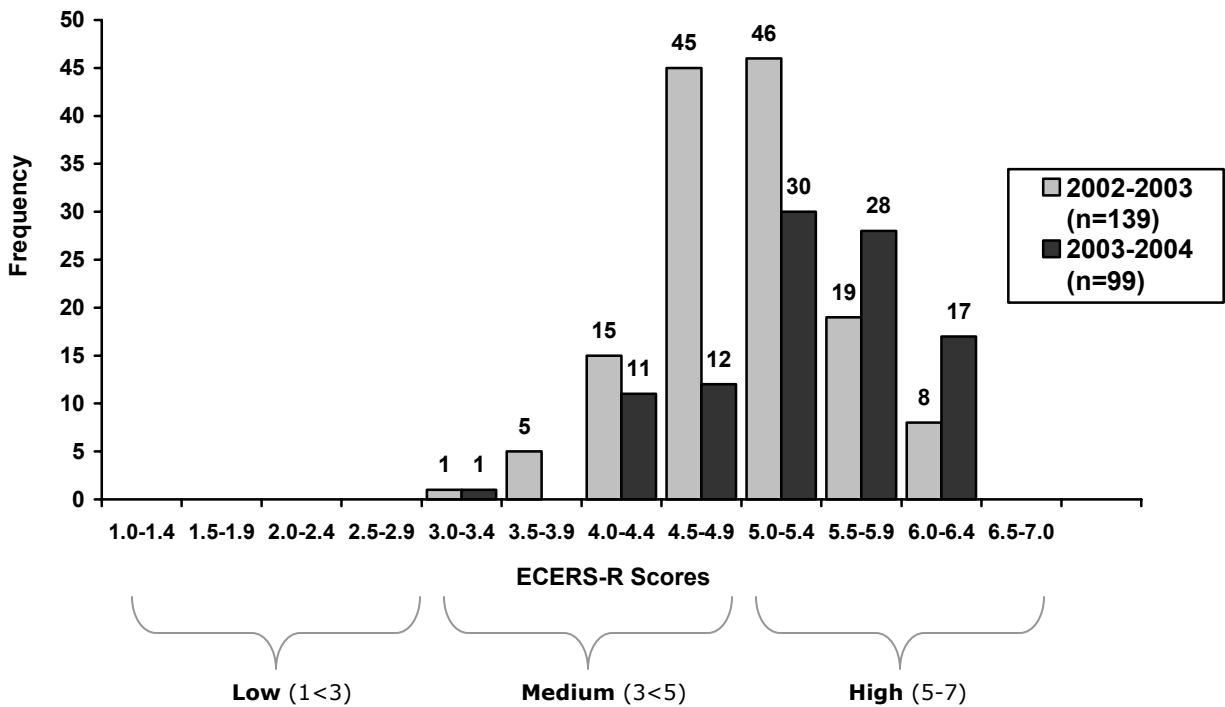
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Subscales and Items	Item Description	Public School Settings (n=52)		Community Settings (n=47)		All Settings (n=99)	
		Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
37	Provisions for children with disabilities ^d	6.2 (0.9)	4-7	5.9 (1.5)	1-7	6.1 (1.2)	1-7
▪ Parents and Staff Subscale	(items 38-43)	5.5 (0.8)	3.5-7.0	5.1 (0.9)	2.5-6.8	5.3 (0.9)	2.5-7.0
38	Provisions for parents	6.0 (1.1)	1-7	5.8 (1.1)	2-7	5.9 (1.1)	1-7
39	Provisions for personal staff needs	3.4 (1.5)	1-7	3.5 (1.7)	1-7	3.4 (1.6)	1-7
40	Provisions for professional staff needs	5.2 (2.1)	1-7	4.3 (2.0)	1-7	4.8 (2.1)	1-7
41	Staff interaction and cooperation	6.8 (0.9)	2-7	6.5 (1.2)	1-7	6.6 (1.1)	1-7
42	Supervision and evaluation of staff	6.3 (1.3)	1-7	5.6 (1.7)	1-7	5.9 (1.5)	1-7
43	Opportunities for professional growth	5.5 (1.5)	1-7	5.1 (1.7)	1-7	5.3 (1.6)	1-7

^d Item 37, Public School Settings n=43, Community Settings n=27, and All Settings n=70.

As seen in Figure 4, total scores were in the highest quality range for 76% (75) of the observed classrooms, and another 24% (24) had total scores in the medium quality range. A higher proportion of classrooms scored in the highest quality range in year 3 compared to year 2 (53% high and 47% medium). It is notable that none of the classrooms observed had total scores in the poor quality range either year, and only one classroom had a score below 4.0 in year 3. In addition, 88% (75) of the classrooms in year 3 had total scores of 4.5 or above, indicating that the majority of classrooms met or exceeded the program guidelines in this area.

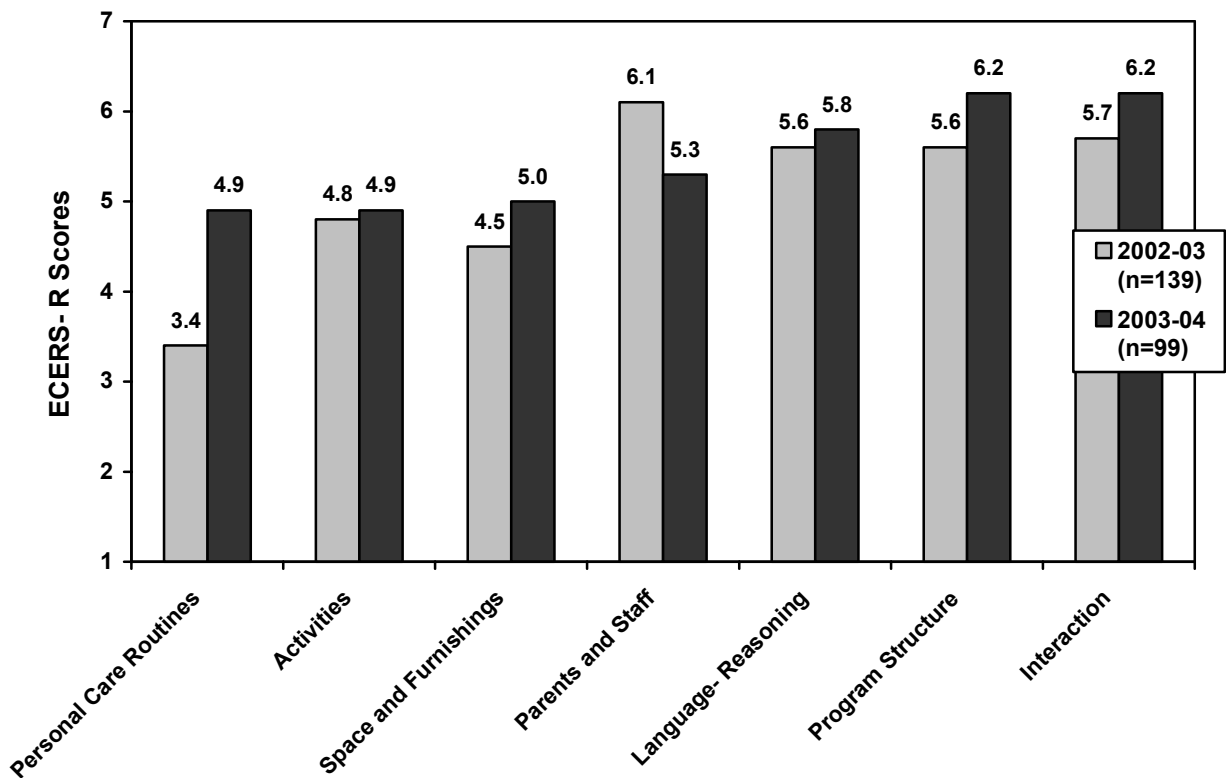
Figure 4. Year 2 and Year 3 Distribution of Global Classroom Quality Scores (ECERS-R Total)



The average classroom quality scores were also very good at the subscale and the item levels, suggesting that classroom quality was relatively consistent across the various domains assessed. The average scores were at or above 5.0, in the high quality range, for five of the seven subscales (Space and furnishings; Language and reasoning; Interaction; Program structure; Parents and staff), and were above 4.5 for all of the subscales, including the remaining two (Personal care routines and Activities). As seen in Figure 5, these scores were similar to or slightly higher than in year 2 for all subscales except one (Parents and Staff).

The average scores in the third year were very good at the item level as well, with slightly more average item scores in the highest quality range compared to the previous year and none in the lowest quality range. Average scores were in the high quality range for 67% (29) of the items, and equal to or above 4.5 for 86% (37) of the items. For the remaining 14% (6) of the items, average scores were in the medium range (Space for gross motor activities, Gross motor equipment, Meals and snacks, Safety practices, Music and movement activities, and Provisions for personal needs of staff). These latter areas may be of particular interest for any quality improvement training or facilities enhancement efforts (especially in relation to playground/gross motor provisions for the latter).

Figure 5. Year 2 and Year 3 Global Classroom Quality Mean Subscale Scores (ECERS-R)



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

The Materials and Activities Checklist⁷ (MAC), an instrument developed by the evaluators, was used to measure curriculum implementation in 83 of the classrooms in which the classroom practices (ECERS-R) data were gathered. 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 recommendations of the particular curriculum being used in the classroom (Creative Curriculum 3rd or 4th edition, High/Scope, or Bright Beginnings). The sample included 49 (59%) classrooms using Creative Curriculum 4th edition, 15 (18%) classrooms using Bright Beginnings, 12 (15%) classrooms using High/Scope, and 7 (8%) classrooms using Creative Curriculum 3rd edition. The distribution of curriculum types is similar to that found in the overall *More at Four Program*, except for a slight oversampling of the High/Scope curriculum in order to insure that they were adequately represented in the sample (see Table B1 in the Appendix).

Different versions of the MAC were used for each curriculum type. These different versions included a common set of subscale areas, but the specific items reflected the key requirements of the particular curriculum. Scores on the MAC can range from 0-2 (low-high), representing how well various aspects of the curriculum are being carried out in the classroom. A score of 0 indicates that the curriculum recommendations are not being implemented, a score of 1 indicates that the curriculum recommendations are being partially implemented, and a score of 2 indicates that the curriculum recommendations are being fully implemented.

Classrooms partially met the criteria for implementing the particular curriculum chosen, but typically did not fully meet the recommendations for implementation. As shown in Table 12, the average total scores on the MAC were at or slightly above half of the possible score for the various curricula (i.e., at the partial implementation level). In contrast to the classroom practices measure, scores on curriculum implementation remained fairly constant from year 2 to year 3 (see Figure 6). Scores at this level suggest that these classrooms were structured according to some of the guidelines for their chosen curriculum, but were not fully meeting most of the guidelines.

As in year 2, scores tended to be lowest for the Materials Scale, which is the largest component of the MAC (including at least 85% of the items), 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 substantially higher for the General Environment and the Schedule and Routines Scales, indicating that the classrooms were close to full implementation for these more general aspects of the curriculum.

The total and scale scores were in a similar range across the different types of curricula, although classrooms using Creative Curriculum 3rd edition or Bright Beginnings had significantly higher total scores than those using Creative Curriculum 4th edition [$F(3,79)=3.83, p<.02$]. In contrast, in year 2, scores tended to be lower for classrooms using Bright Beginnings. However, given the relatively low sample sizes for each curriculum type, it is difficult to determine the extent to

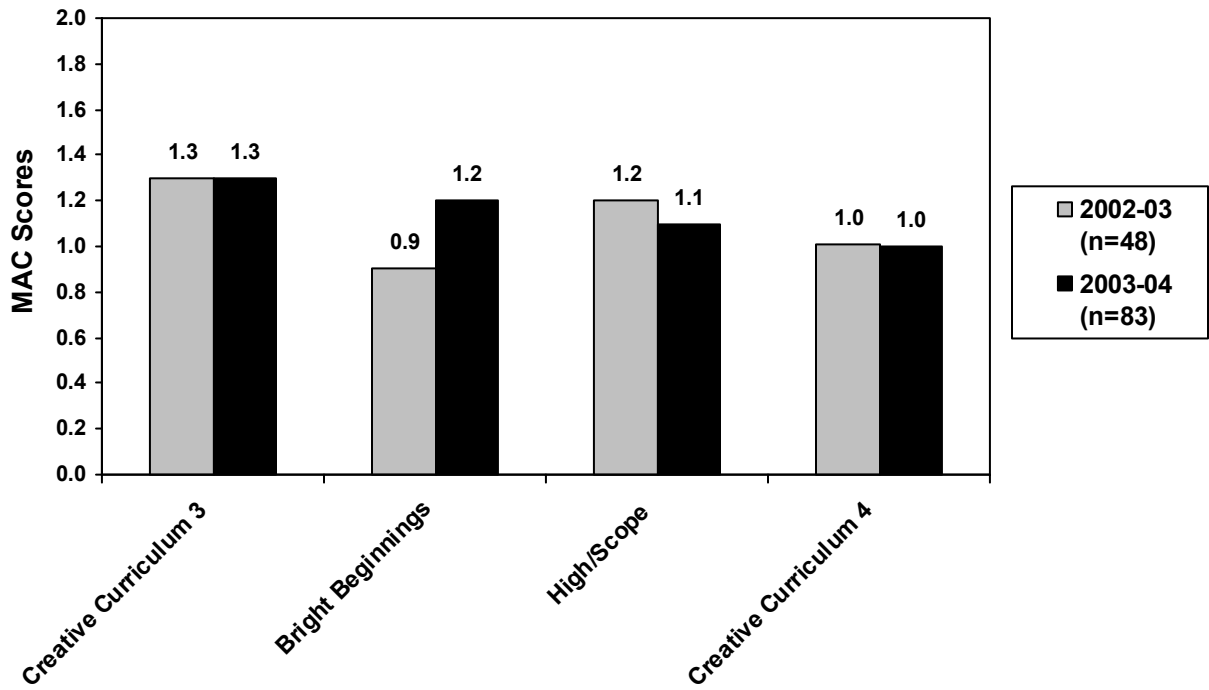
which this reflects overall program changes versus differences in the characteristics of the particular sample each year. Further study using a larger sample would be needed to determine the extent to which these variations may be related to differences in curriculum requirements, curriculum and/or general 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 12. Level of Curriculum Implementation in Year 3
(MAC Mean Item Scores)^a**

Curriculum	n	Total		Materials Scale		Environment Scale		Schedule & Routines Scale	
		M (SD)	Range	M (SD)	Range	M (SD)	Range	M (SD)	Range
Bright Beginnings	15	1.2 (0.3)	0.7-1.7	1.1 (0.3)	0.6-1.7	1.7 (0.2)	1.5-2.0	1.9 (0.2)	1.5-2.0
Creative Curriculum 3	7	1.3 (0.2)	0.9-1.5	1.2 (0.2)	0.9-1.4	1.7 (0.3)	1.3-2.0	1.6 (0.3)	1.3-2.0
Creative Curriculum 4	49	1.0 (0.2)	0.6-1.6	0.9 (0.2)	0.5-1.5	1.7 (0.2)	1.2-2.0	1.8 (0.3)	1.3-2.0
High/Scope	12	1.1 (0.2)	0.6-1.5	1.0 (0.3)	0.4-1.5	1.9 (0.2)	1.5-2.0	1.8 (0.3)	1.3-2.0
All	83	1.1 (0.2)	0.6-1.7	1.0 (0.3)	0.4-1.7	1.7 (0.2)	1.2-2.0	1.8 (0.3)	1.3-2.0

^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 3rd edition, 57 items for Creative Curriculum 4th edition, and 50 items for High/Scope. The General Environment Scale contains 4 items for Bright Beginnings, Creative Curriculum 3rd edition, and High/Scope, and 5 items for Creative Curriculum 4th edition. 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.

Figure 6. Year 2 and Year 3 Mean MAC Scores by Curriculum Type



What factors are associated with classroom quality?

Associations between Classroom Practices and Curriculum Implementation

The correlations between total and subscale scores on the measure of classroom practices (ECERS-R) and on the measure of curriculum implementation (MAC) were calculated, to examine the extent to which these represent different aspects of the quality of the *More at Four* classrooms.

There were moderate associations between the global quality of classroom practices and the level of curriculum-specific implementation, similar to what was found in year 2. As seen in Table 13, these two different measures of the classroom environment were moderately correlated. 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 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 guidelines 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). Moreover, 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 13. Correlations between Global Classroom Quality Scores (ECERS-R) and Curriculum Implementation Scores (MAC)

(n=83)

MAC Scale	ECERS-R Subscale							
	Space & Furnishings	Personal Care Routines	Language-Reasoning	Activities	Interaction	Program Structure	Parents and Staff	Total Score
Materials	0.25*	0.24*	0.33**	0.71***	0.09	0.38***	0.11	0.52***
Environment	0.44***	0.32**	0.46***	0.48***	0.25*	0.37***	0.10	0.55***
Schedule & Routines	0.48***	0.25*	0.38***	0.44***	0.45***	0.58***	0.30**	0.62***
Total Score	0.30**	0.27*	0.36***	0.72***	0.14	0.42***	0.14	0.57***

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

Structural Characteristics Associated with Classroom Quality

Four sets of structural characteristics of the program were examined to see whether they were associated with the quality of classroom practices (ECERS-R total child items score) or the level of curriculum implementation (MAC total score) in separate analyses. The structural characteristics included: staff qualifications for the lead teacher, assistant teacher, and director/principal (education and credentials composites); class size (total number of children including *More at Four* and non-*More at Four* children); setting type (public school vs. community); 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 the classroom.

Classrooms did not differ in the quality of classroom practices nor the level of curriculum implementation based on differences in this set of structural characteristics as a whole, although two characteristics (classrooms in community settings and higher classroom proportions of *More at Four* children), respectively, were significant predictors. The overall models predicting the quality of classroom practices and curriculum implementation from the various sets of structural characteristics were not significant, indicating that differences in this combination of structural characteristics were not related to classroom quality. However, there were two individual characteristics that were associated with classroom quality, after adjusting for all other characteristics, but these differences should be regarded cautiously given that the overall models were not significant. There was an association between setting type and ECERS-R scores, indicating that classrooms in community settings tended to have slightly higher quality than those in public school sites (see Table C1 in the Appendix for the regression model coefficients). This difference by type of setting was also found in year 2; however, the year 2 finding that licensed teachers with B-K or preschool add-on licenses tended to have higher

quality classrooms was not replicated in year 3. There was also an association between the proportion of *More at Four* children in the classroom and MAC scores, indicating that classroom with higher proportions of *More at Four* children tended to have higher levels of curriculum implementation (see Table C2 in the Appendix for the regression model coefficients). Given that *More at Four* classrooms are expected to utilize one of the approved research-based curricula, it may be that classrooms serving a larger number of participating children are more likely to seek teachers trained in the selected curriculum and/or are more attentive to the program requirements for curriculum and training, or conversely, that classrooms already using one of these curricula are in a better position to participate in the *More at Four* program. In contrast, none of these characteristics were associated with higher levels of curriculum implementation in year 2.

WHAT WERE THE OUTCOMES OF CHILDREN ATTENDING THE *MORE AT FOUR PROGRAM*?

In order to address questions about the outcomes for children attending *More at Four* and factors associated with better outcomes, individual child assessments were conducted near the beginning and end of the program year for a sample of 514 children in 58 randomly selected *More at Four* classrooms. The classrooms included in the sample were located in sites that had been in operation during the previous year (2002-03) and were serving children in the current (2003-04) year. The sampling pool included classrooms in sites that had begun operations both during the first year (January-June 2002) and the second year (2002-03) of *More at Four*.

The child assessments included measures of children's language and literacy skills, math skills, general knowledge, and behavioral skills. Two sources of data were gathered: trained assessors administered measures of children's language/literacy skills, math skills, and general knowledge, and teachers completed ratings of children's behavioral skills. The outcome areas measured were consistent with the recommendations of the National Education Goals Panel⁸ for defining school readiness. (See Table B2 in the Appendix for an overview of these measures.)

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. As expected for an at-risk population, these children entered the program with some skills below average, but made significant gains during the year in all major 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 children²⁰.

As seen in Table 14, significant gains were found across almost all measures in all outcome areas: language and literacy skills (receptive language, phonological awareness, alphabet knowledge, story and print concepts); math skills (applied problems and counting); general knowledge (social awareness and color naming); and behavioral skills (social skills). These findings are similar to year 2, where children exhibited significant change over the program year in all outcome areas. 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.²⁰ For three of these measures, receptive language skills, applied math skills, and 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. Language, math, and social skills are all important areas related to children's readiness for kindergarten.

Children's scores on one measure, problem behaviors, remained constant over time, indicating that they were growing at the expected rate in this area and not losing any ground. Further, their scores on this measure were quite close to the expected average of 100 for the general population, suggesting that their skills were in the typical range. For the remaining measures, which were not age-standardized, there was a substantial amount of growth, with spring scores nearly double or triple 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 6). 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 12 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 to either participate or not participate in *More at Four*, so that we could actually compare the progress between those who received the program and those who did not. Because local programs attempted to serve as many children as they could, 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.

Table 14. Fall and Spring Mean Scores on Child Outcome Measures^a

Domain	Outcome	Fall 2003 (n=453-514)		Spring 2004 (n=419-466)		Fall-Spring Change (n=382-462)
		Mean (SD)	Range	Mean (SD)	Range	Mean (SD)
Language and literacy	PPVT-III receptive language ^b	85.4 (19.3)	40-124	89.9 (17.2)	40-126	4.1*** (10.0)
	WJ-III Rhyming ^c	1.9 (2.7)	0-15	4.4 (4.1)	0-15	2.6*** (3.2)
	Naming Letters ^d	6.1 (7.9)	0-26	15.1 (9.5)	0-26	8.6*** (7.4)
	Story and Print Concepts ^e	3.0 (2.2)	0-10	4.9 (2.6)	0-12	1.9*** (2.1)
Pre-math	WJ-III Applied Problems ^b	93.1 (15.0)	46-128	94.0 (13.9)	51-124	2.3** (11.3)
	Counting Task ^f	11.8 (8.1)	1-40	18.9 (11.5)	1-40	7.3*** (9.7)
General knowledge	Social Awareness ^g	3.7 (1.8)	0-6	4.5 (1.5)	0-6	0.8*** (1.4)
	Color Naming ^h	16.3 (5.6)	0-20	18.8 (2.7)	3-20	2.4*** (4.3)

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

^b Indicates standardized, norm-referenced measure with mean=100, SD=15.

^c Possible range =0-17.

^d Possible range =0-26.

^e Possible range =0-14.

^f Possible range =0-40.

^g Possible range =0-6.

^h Possible range =0-20.

Domain	Outcome	Fall 2003 (n=453-514)		Spring 2004 (n=419-466)		Fall-Spring Change (n=382-462)
		Mean (SD)	Range	Mean (SD)	Range	Mean (SD)
Classroom behavior	SSRS Social Skills ^b	101.2 (16.0)	54-130	108.3 (15.9)	60-130	6.7*** (13.8)
	SSRS Problem Behaviors ^b	98.6 (11.9)	85-138	99.3 (12.8)	85-145	0.9 (10.4)

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

The *More at Four Program* had even stronger effects on several outcomes 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, at different levels of overall risk²¹, or at different levels of English proficiency (based on individual assessments of children’s English language proficiency) benefited differently. Differences in the amount of gain over the *More at Four* year were found for several outcome measures on the basis of risk status and English proficiency (see Table 15). The standardized effect sizes of these findings are in the medium to high range, suggesting that they represent meaningful differences on these measures. To illustrate these effects, the amount of gain on the particular outcome measures was calculated using low and high values for the predictors (risk scores or English Proficiency scores), with low values defined as the 25th percentile value on the predictor and high values defined as the 75th percentile value on the predictor, as indicated in Table 15 and figures 7-14.

Children at greater overall risk exhibited more growth in language skills (receptive language) than those at lower risk (see Figure 7). While children at greater risk had lower receptive language skills than children at higher risk, this discrepancy was greater at the beginning of the year than at the end of the year. Children at lower levels of English proficiency showed greater improvement over the program year than those at higher levels of English proficiency in all domains of development, including greater gains in language skills (receptive language), math skills (applied problems), cognitive knowledge (social awareness and color naming), and social skills (see Figures 8-12). While children with lower English proficiency still had somewhat lower scores in the spring, they made greater gains over the program year. Children with lower levels of English proficiency also exhibited smaller increases in problem behaviors (see Figure 13). On average, children’s scores increased slightly from the beginning to the end of the year, indicating a slight increase in problem behaviors, although the scores were still within the expected range for this age group. Although their scores started out slightly higher, children with lower English proficiency exhibited a smaller increase in problem behaviors compared to

children with greater English proficiency. In contrast, children at lower levels of English proficiency made fewer gains in phonological awareness (see Figure 14). Given that phonological awareness is a relatively advanced skill for four-year-olds, it is not surprising that children with better English language skills gained more in this area. There were no differences in the amount of gain on the basis of service priority status. These findings are similar to those for year 2, where children at greater risk (both in terms of higher overall risk factor scores and lower English proficiency) showed greater gains in a number of areas.

Table 15. Child and Program Characteristics Predicting Changes in Child Outcomes Over the *More at Four* Program Year

Domain	Outcome	Significant Predictors	Predictor Value	Change Scores ^a	Effect Size ^b
Language and literacy	PPVT-III Receptive Language ^c	Risk Factor	Low	7.1	1.02
		Total	High	10.2	1.48
		English Proficiency	Low	8.9	1.28
	WJ-III Rhyming	English Proficiency	Low	1.6	0.75
			High	2.3	1.08
		Classroom Quality	Low	1.4	0.64
			High	2.0	0.94
	<i>More at Four</i> Class Proportion	Low	1.1	0.53	
		High	2.0	0.91	
	Naming Letters	Lead Teacher Qualifications	Low	4.6	0.91
			High	6.7	1.31
	Story and Print Concepts	Class Size	Low	1.1	0.71
High			1.5	1.00	

^a To compute change scores, low and high values of the significant predictors were calculated at the 25th percentile (low) and 75th percentile (high). 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 at the 25th percentile (low) and 75th percentile (high). 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 Indicates standardized, norm-referenced measure with mean=100, SD=15.

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Domain	Outcome	Significant Predictors	Predictor Value	Change Scores ^a	Effect Size ^b
Pre-math	WJ-III Applied Problems ^c	English Proficiency	Low High	8.2 5.6	1.05 0.72
		Class Size	Low High	7.0 8.6	0.89 1.10
	Counting Task	Lead Teacher Qualifications	Low High	3.0 5.1	0.44 0.76
	General knowledge	Social Awareness	English Proficiency	Low High	0.8 0.5
Color Naming			English Proficiency	Low High	2.4 0.7
		Classroom Quality	Low High	2.4 1.8	0.96 0.71
<i>More at Four</i> Class Proportion		Low High	3.0 1.7	1.18 0.69	
Classroom Behavior	SSRS Social Skills ^c	English Proficiency	Low High	3.8 2.4	0.40 0.26
		Classroom Quality	Low High	2.3 4.5	0.24 0.48
	SSRS Problem Behaviors ^c	English Proficiency	Low High	1.7 2.9	0.25 0.40

Figure 7. Growth in Receptive Language Skills (PPVT-III) for Children with Low vs. High Risk Factor Scores

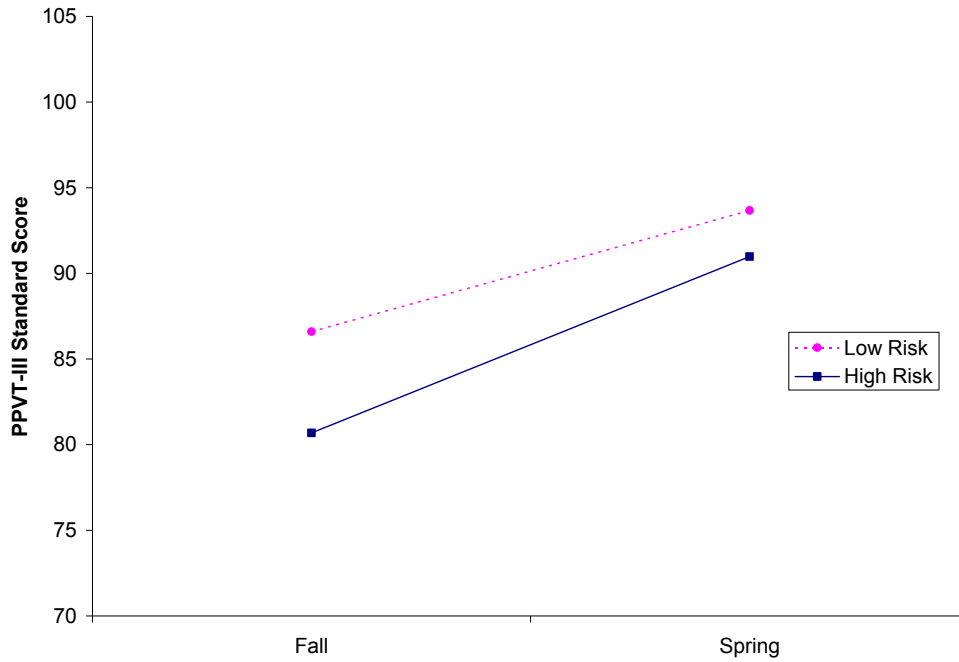


Figure 8. Growth in Receptive Language Skills (PPVT-III) for Children with Low vs. High English Proficiency

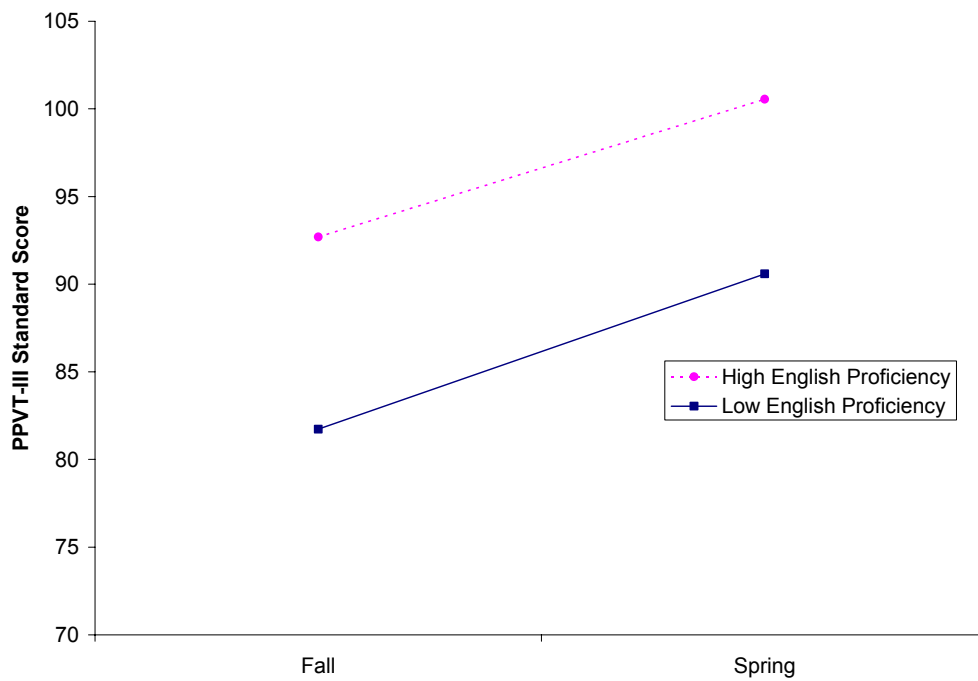


Figure 9. Growth in Math Skills (WJ-III Applied Problems) for Children with Low vs. High English Proficiency

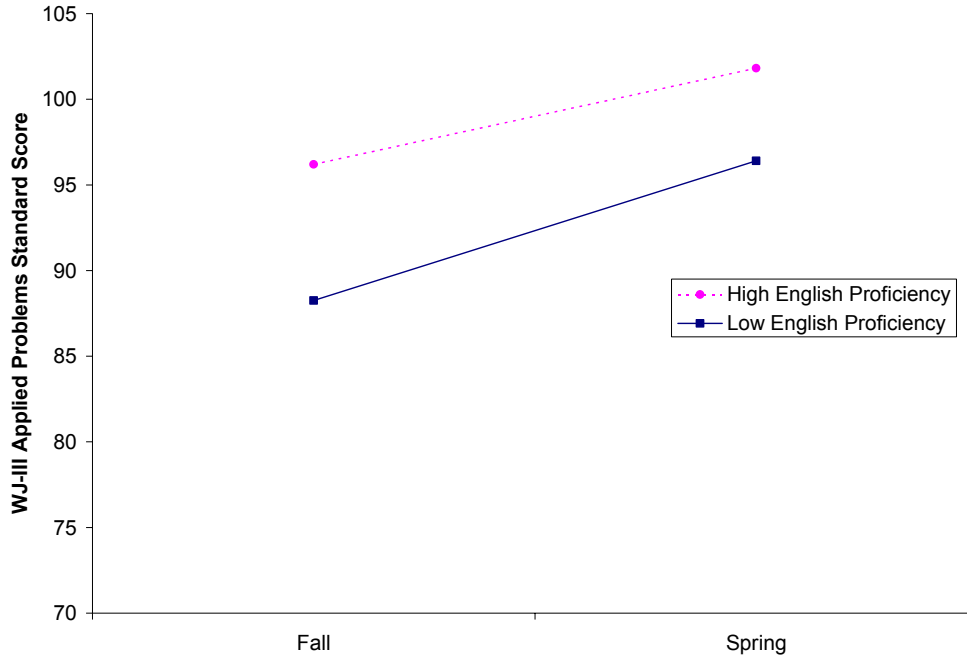


Figure 10. Growth in Social Awareness Knowledge for Children with Low vs. High English Proficiency

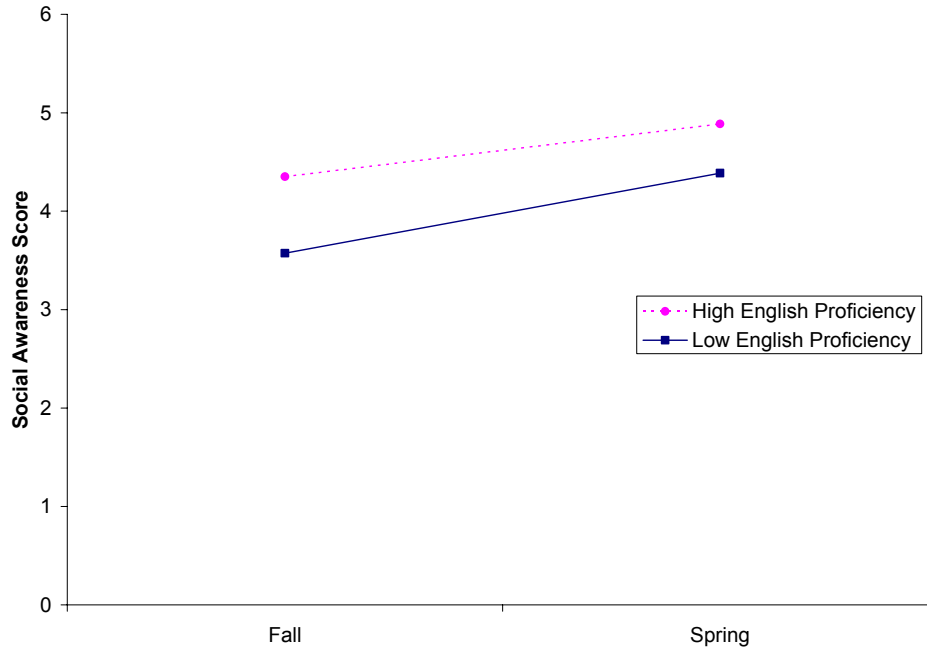


Figure 11. Growth in Color Knowledge for Children with Low vs. High English Proficiency

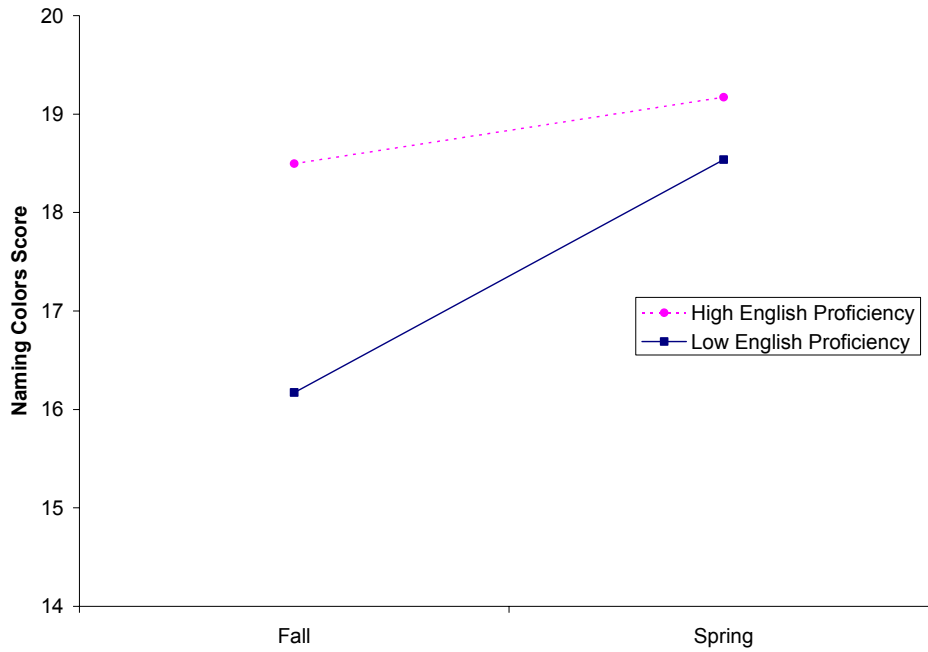


Figure 12. Growth in Social Skills (SSRS) for Children with Low vs. High English Proficiency

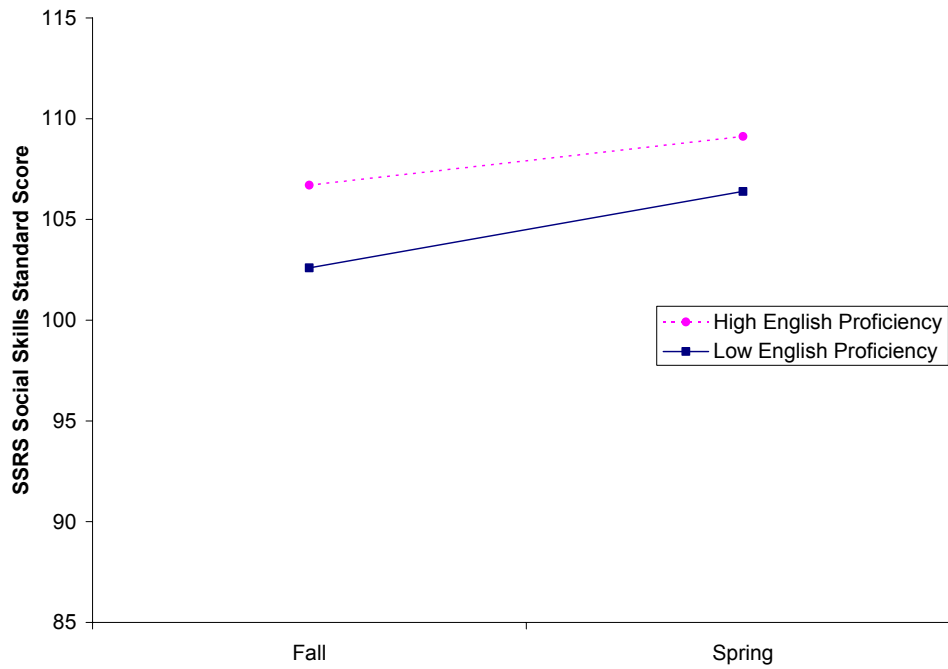


Figure 13. Changes in Problem Behaviors (SSRS) for Children with Low vs. High English Proficiency

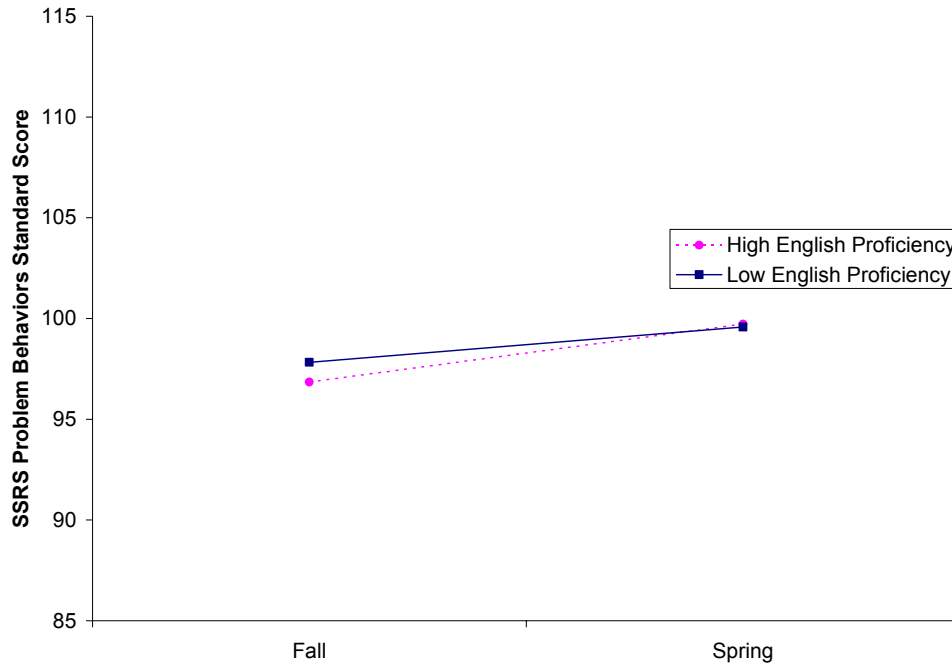
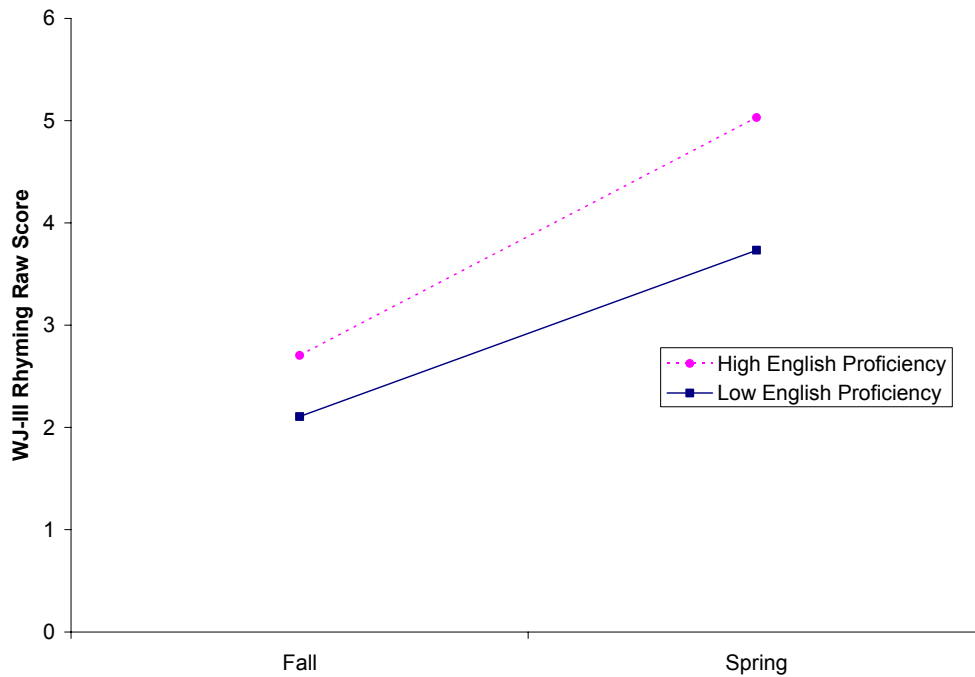


Figure 14. Growth in Phonological Awareness Skills (WJ-III Rhyming) for Children with Low vs. High English Proficiency



WHAT FACTORS WERE ASSOCIATED WITH BETTER OUTCOMES FOR CHILDREN?

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), classroom quality (global practices and curriculum implementation composite), 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—better teacher qualifications, better classroom quality, and a higher proportion of *More at Four* children in the classroom—were associated with greater gains in children's language/literacy skills over the program year, as well as some gains in math skills (teacher qualifications) and social skills (classroom quality). Analyses were conducted to see whether children attending classrooms with different structural characteristics benefited differently. There was some evidence that children in higher quality classrooms, as measured by lead teacher qualifications or observations of classroom practices, gained more over the course of the *More at Four* program year (see Table 15). In general, the effect sizes for the differences in children's gains on the basis of program characteristics were in the moderate to large range, suggesting that they are meaningful. To illustrate these effects, the amount of gain on the particular outcome measures was calculated using low and high values for the predictors (teacher qualifications or classroom quality scores), with low values defined as the 25th percentile value on the predictor and high values defined as the 75th percentile value on the predictor, as indicated in Table 15 and figures 15-23.

Children in classrooms with more highly qualified lead teachers based on education and credentials showed greater gains in both language skills (alphabet knowledge) and math skills (counting) (see Figures 15 and 16). While children whose teachers had higher and lower levels of qualifications started at a similar point, children with more highly qualified teachers gained more over the course of the program year. Children in classrooms with higher observed quality showed greater gains in another aspect of language/literacy skills, phonological awareness (rhyming skills), and in social skills (see Figures 17 and 18). While children in higher quality classrooms scored slightly higher in the fall, they also exhibited a greater rate of growth than children in lower quality classrooms, so that these differences were even greater in the spring. Children in classrooms with higher proportions of *More at Four* participants also showed greater gains in phonological awareness (rhyming) over the course of the year (see Figure 19). This pattern of findings is similar to that of year 2, where children in classrooms with more highly qualified teachers or with higher proportions of *More at Four* participants showed greater gains in language and literacy skills, although these differences were found for a wider variety of

outcome measures (language/literacy, math, and social skills) and for one additional structural characteristic (classroom quality) in year 3.

For one outcome measuring general knowledge (color naming), there were effects in the opposite direction, with children in higher quality classrooms or in classrooms with higher proportions of *More at Four* children showing less gain in this area (see Figures 20 and 21). Children in lower quality classrooms scored lower on this measure in the fall than children in higher quality classrooms, but both groups had similar scores by the spring. However, there may have been some ceiling effects on this measure; the average score was fairly high and spring scores were close to the maximum (66% of the sample scored at the ceiling on the spring administration of the color naming task, as compared with 41% in the fall), indicating little or no room for growth for many children. There were also some effects related to class size, with children in larger classes showing greater gains in literacy skills (story/print concepts) and math skills (applied problems) (see Figures 22 and 23). However, the differences on these measures, although significant, were fairly slight. Further, this finding may be partially explained by the moderate correlations between class size and other structural characteristics related to classroom quality and program experience; for example, larger classes were positively associated with better teacher qualifications ($r=.30$) and with being a community-based site ($r=.13$), both of which are factors related to higher quality practices, as well as with greater days of attendance ($r=.19$), which would result in children experiencing a larger “dose” of the program.

Figure 15. Growth in Alphabet Knowledge for Children with Teachers with Low vs. High Qualifications

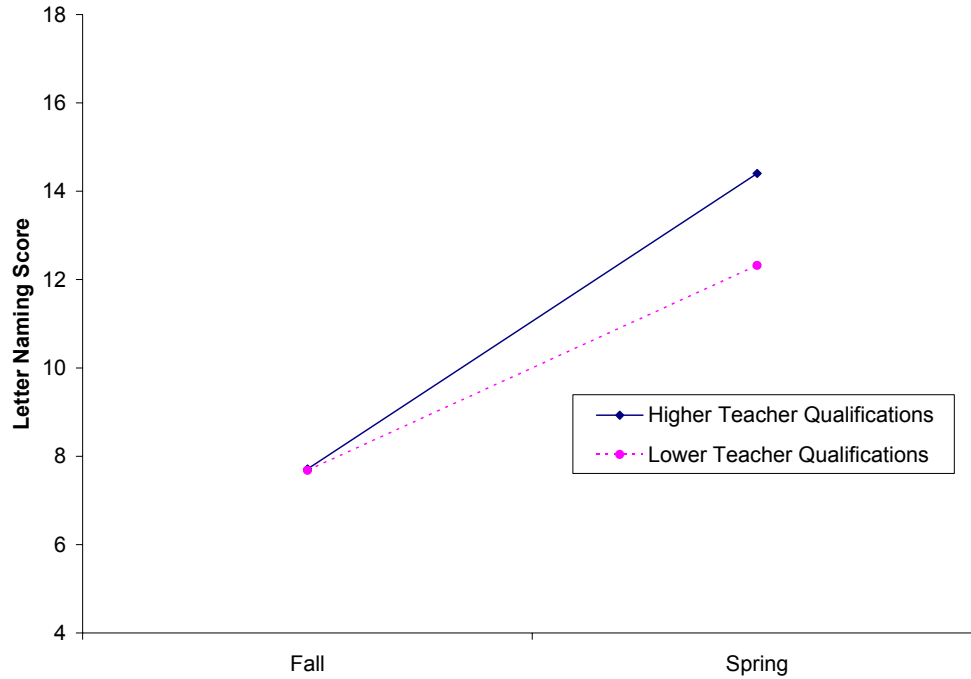


Figure 16. Growth in Math Skills (Counting) for Children with Teachers with Low vs. High Qualifications

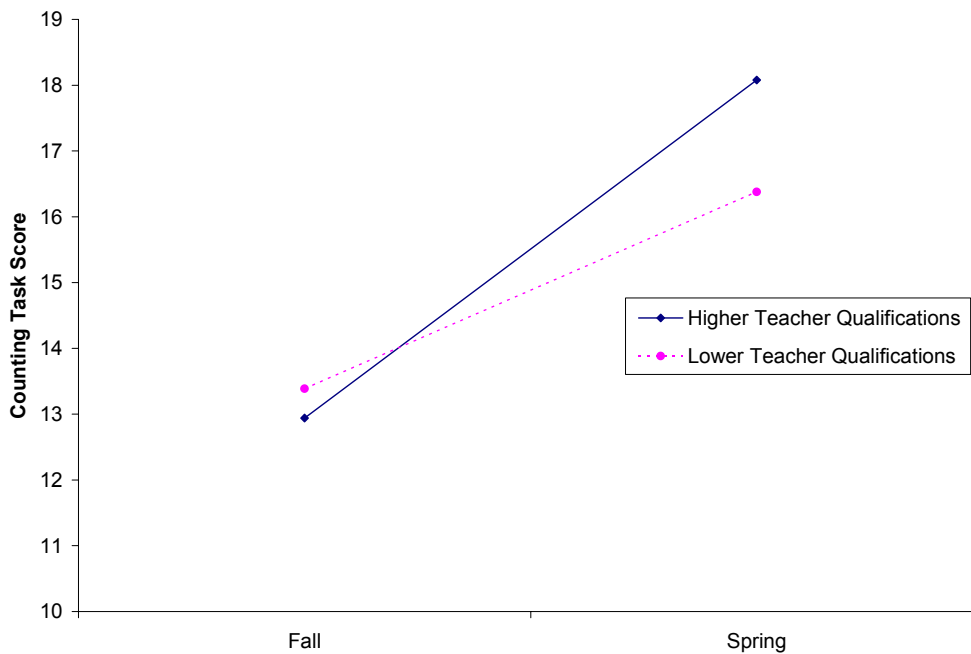


Figure 17. Growth in Phonological Awareness Skills (WJ-III Rhyming) for Children in Low vs. High Quality Classrooms

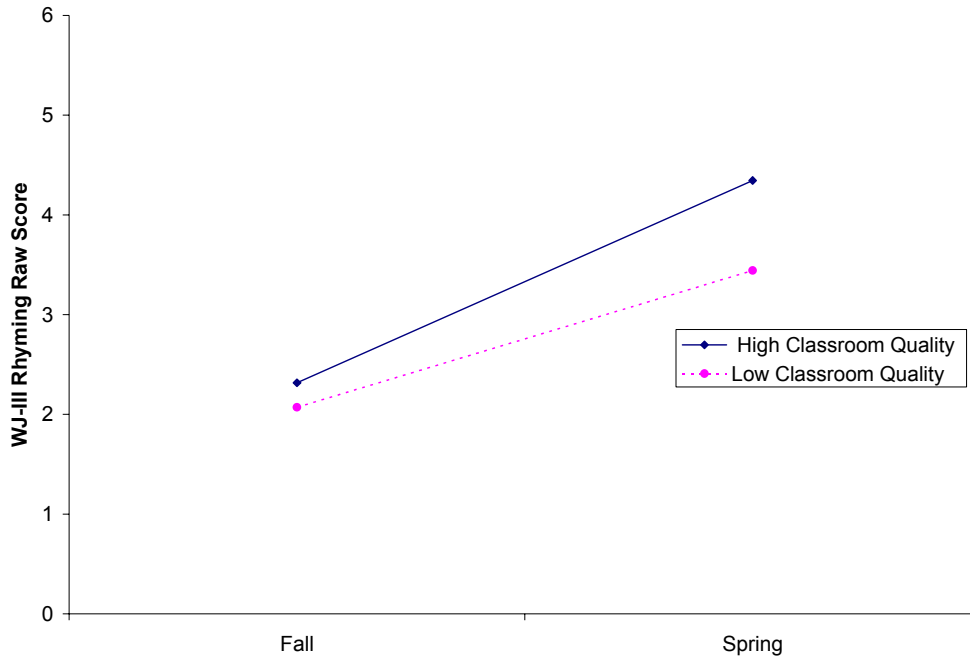


Figure 18. Growth in Social Skills (SSRS) for Children in Low vs. High Quality Classrooms

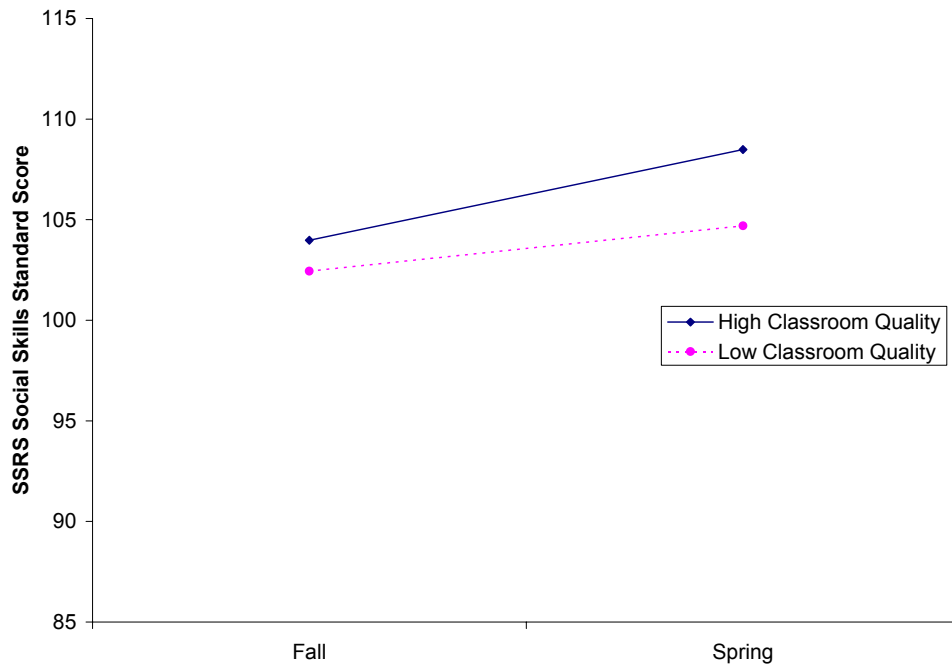


Figure 19. Growth in Phonological Awareness Skills (WJ-III Rhyming) for Children in Classrooms with Low vs. High Proportions of *More at Four* Children

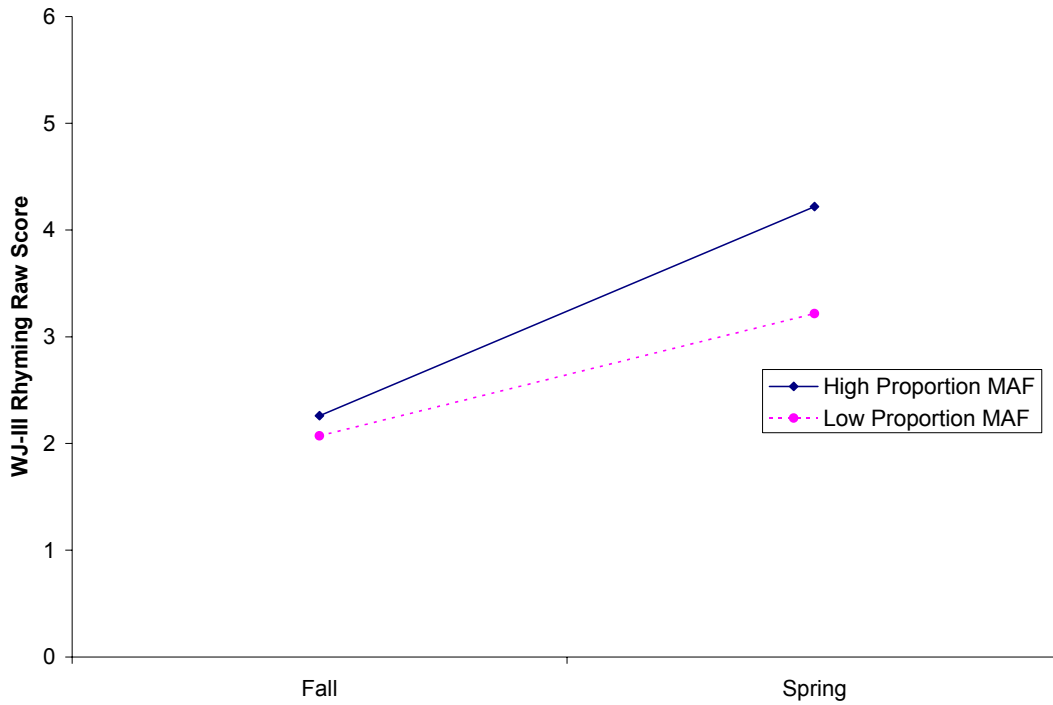


Figure 20. Growth in Color Knowledge for Children in Low vs. High Quality Classrooms

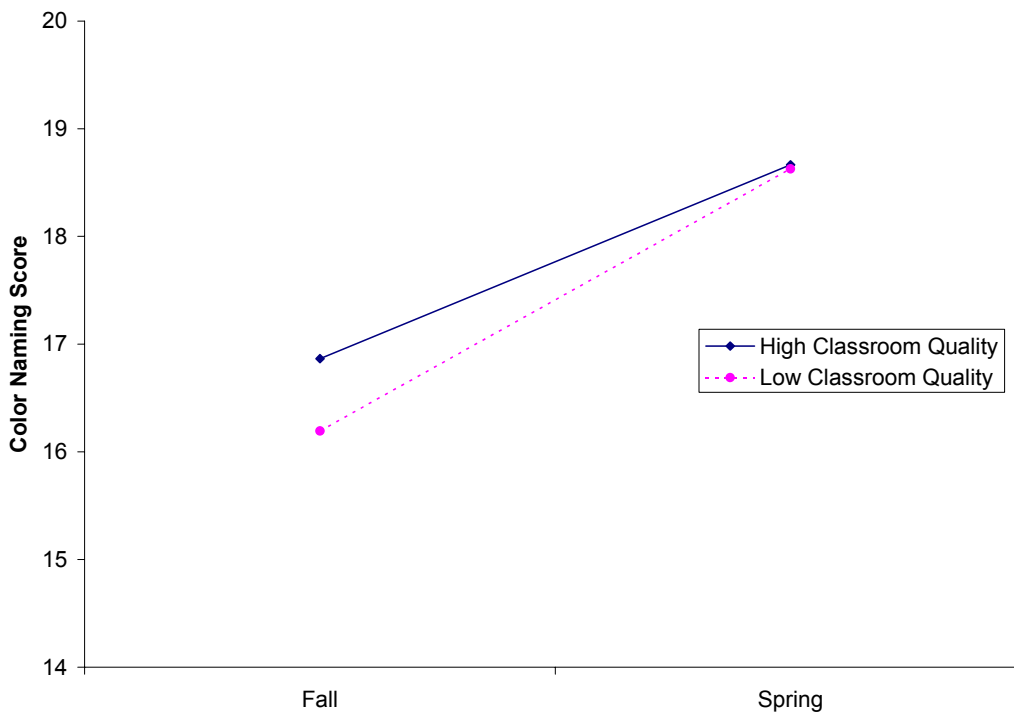


Figure 21. Growth in Color Knowledge for Children in Classrooms with Low vs. High Proportions of *More at Four* Children

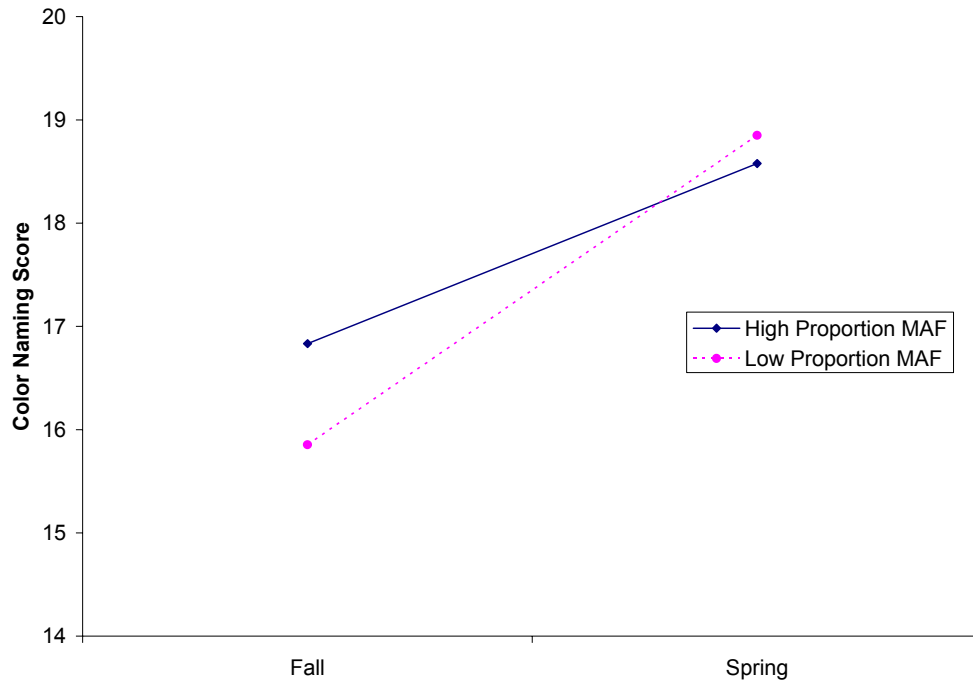


Figure 22. Growth in Literacy Skills (Story and Print Concepts) for Children in Larger vs. Smaller Classrooms

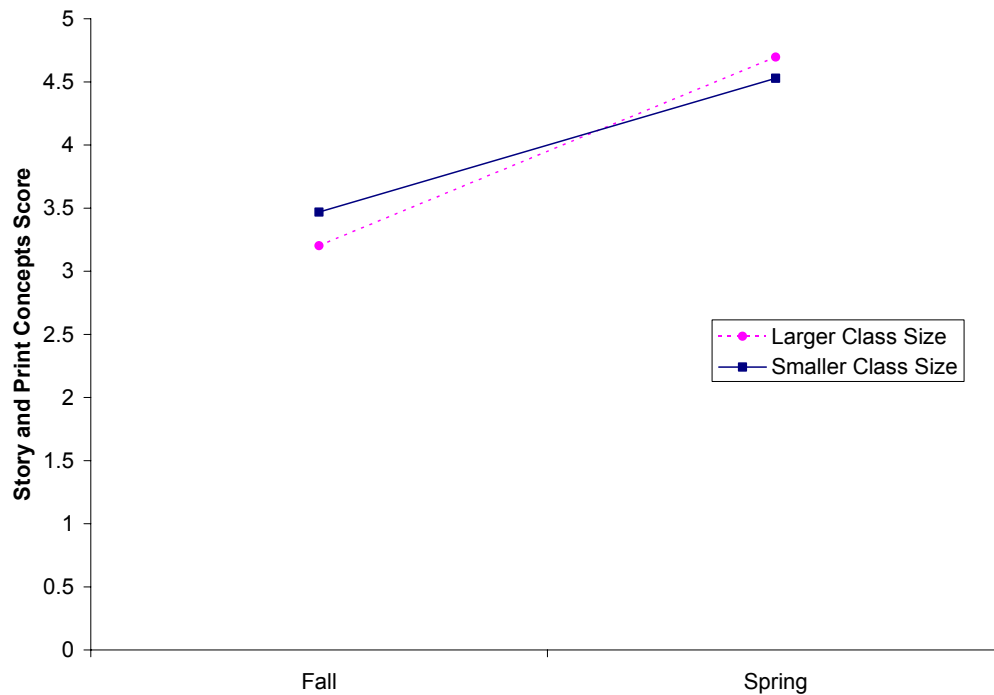
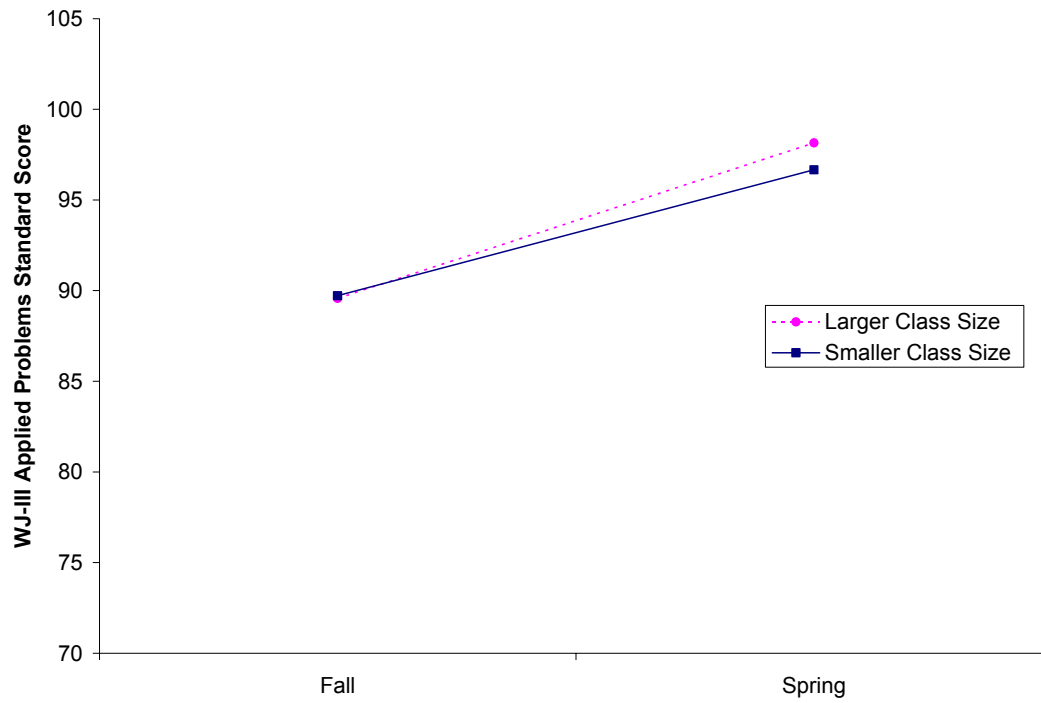


Figure 23. Growth in Math Skills (WJ-III Applied Problems) for Children in Larger vs. Smaller Classrooms



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

Similarly to the findings for the second year, during the third year of operation, the *More at Four Program* continued to perform 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 three studies: a national study of state pre-kindergarten programs in six states, a statewide study of the Georgia Pre-kindergarten Program, and a national study of the Head Start Program. These studies were selected to provide comparisons for the effectiveness of the *More at Four Program*, since they included representative samples of established state and national pre-kindergarten programs and utilized a number of the same measures. In general, these comparisons suggest that the quality of the program and the outcomes for children participating in *More at Four* were similar to or even slightly better than those for these other pre-kindergarten programs.

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).¹⁴ 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). Similarly to the findings from the second year, comparisons of program characteristics suggest that the *More at Four Program* was generally operating at a higher level of quality in the third year 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 (77% Creative Curriculum, 8% High/Scope, 14% Bright Beginnings, and 1% Montessori). 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 (79% vs. 69%). The average classroom quality score (ECERS-R) was substantially higher in *More at Four* than in the Multi-State Study (5.3 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. 85 on PPVT-III and 10 vs. 6 on Naming letters) and math skills (97 vs. 93 on Applied Problems and 15 vs. 12 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. 85 on PPVT-III and 6 vs. 6 on Naming Letters) and math skills (94 vs. 93 on Applied Problems and 12 vs. 12 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.

The state of Georgia has offered a universal pre-kindergarten program since 1995, and by 2001, served over 63,000 children (52% of the state's population of four-year-olds), with over 25,000 of them at-risk. A statewide evaluation of this program (The Early Childhood Study) has examined the quality of the program and preschool outcomes for children, including a sample of 353 children in the Georgia Pre-K Program in 69 classrooms.²² The Early Childhood Study incorporated many of the same measures as the *More at Four* Evaluation, including program characteristics (site type, curriculum type, class size, teacher education), classroom quality (ECERS-R), and child outcomes in the areas of language and literacy skills (PPVT-III, Story and Print Concepts) and math skills (WJ-III Applied Problems). A higher proportion of sites were located in public school settings for the *More at Four* than the Georgia Pre-K program (48% vs. 30%). The distribution of curriculum types differed, with a higher proportion of *More at Four* classrooms using Creative Curriculum (77% vs. 26%) and a lower proportion using High/Scope (8% vs. 48%). Class sizes were slightly lower for *More at Four* compared to Georgia Pre-K (17 vs. 18). Teacher education levels were similar for *More at Four* and Georgia Pre-K (79% vs. 80% with a bachelor's degree or above). Classroom quality, based on the ECERS-R, was higher in the *More at Four* than the Georgia Pre-K program, both in terms of mean scores (5.3 vs. 4.7) and the proportion of high quality classrooms (76% vs. 35%).

The Georgia Pre-K study sample included children from a range of socioeconomic backgrounds, although in some cases, separate results were reported for poor children. The amount of gain over the preschool year was slightly higher for *More at Four* compared to Georgia Pre-K on receptive language (4.1 vs. 3.1 points on the PPVT-III) and literacy skills (1.9 vs. 1.2 points on Story and Print Concepts), and somewhat higher on math skills (2.3 vs. 0.8 points on the WJ-III Applied Problems). The actual fall and spring scores tended to be higher for children in the Georgia Pre-K program, although where separate results were available for poor children, their scores were lower and closer to those for children in *More at Four*. Similarly to the results from the Multi-State Study, these results suggest that compared to the Georgia Pre-kindergarten Program, the *More at Four Program* is providing a higher quality experience, with similar or slightly greater gains in developmental skills.

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 905,000 children in 48,000 classrooms nationwide

during 2003-2004, with the majority of children attending part-day rather than full-day programs. 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.²³ Many of the same measures and/or domains of measurement were used for the *More at Four* and the FACES studies. The education level of lead teachers was higher in *More at Four* than Head Start (79% vs. 39% with bachelor's degrees or above). In terms of credentials/licensure, 54% of the *More at Four* teachers had teaching licenses and another 2% had CDA credentials, while 74% of the Head Start teachers had CDA credentials (no information about licensure was reported for the FACES study). Similarly to the results from the second year of *More at Four*, the average quality of the Head Start classrooms was lower than that found in the third year sample of *More at Four* classrooms using the ECERS-R total score (4.8 vs. 5.3). The amount of gain children demonstrated over the *More at Four* year was similar or slightly greater 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* (85.4 & 89.9) and Head Start (85.3 & 89.1) samples, with significant gains over time for both samples. Fall and spring math scores were higher for the *More at Four* (93.1 & 94.0) than the Head Start (87.9 & 89.0) sample, with small but significant gains found for both studies. 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. These parallels between the two studies which are examining programs with similar goals and serving similar populations of children, suggest that even in its third year, the *More at Four Program* is performing similarly to other well-established educational intervention programs for at-risk children.

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 has addressed a series of questions about the operations of the program, the quality of the program, and the outcomes for participating children over the first three year of operation (2002-2004), with findings from the third year (2003-2004) presented in the current report.

The *More at Four Program* experienced dramatic growth over the first three years, increasing from 1,244 children served in the first year, to 6,125 in the second year, and 10,891 in the third year. The program expanded to encompass the entire state of North Carolina by the third year, with services provided in all 100 counties. Similarly to previous years, children were served in a variety of service delivery settings in the third year, including public schools, for-profit and nonprofit private child care centers, Head Start, and various other combinations. Nearly half (48%) were in public school settings and 43% in private child care settings.

There was a great deal of variation among the different counties/regions in local program characteristics, including program size, types of settings, and children's risk factor status. Nearly all individual sites met the guidelines for program operation in terms of class size, length of day, and curriculum use. While there was still some expansion in year 3, there were fewer new local contracts and sites beginning operations during the year, thus allowing a substantial proportion of children to experience the full 10 months of services. Staff qualifications were fairly high compared to findings from other samples of similar programs. Moreover, the majority of lead teachers and administrators in public school setting met the *More at Four* program standards for education, licensure, and credentials by the third year (although programs are given four years to attain these standards), although their counterparts in community settings and assistant teachers in either setting were less likely to meet these standards. However, nearly all staff met some or all of the specifications for provisional approval regarding qualifications.

As in previous years, the *More at Four Program* served a diverse group of children in the third 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, with the majority of children designated at risk on the factor of family income (89% eligible for free or reduced-price lunch) and almost one-fifth also at risk based on limited English proficiency. Programs also were serving the intended population based on service priority status, with the majority of children (83%; 9,070) unserved at the time of enrollment and nearly two-thirds (62%; 6,788) of the children never previously served in a preschool or child care setting, the highest service priority group. While the total number of children served in the program has grown each year, the number of children in poverty and the number of 4-year-olds in the state have continued to increase as well, suggesting that there will continue to be a substantial number of children eligible for *More at Four* and continued room for growth in order to serve all eligible children.

Observations of classroom practices indicated that in its third year, the *More at Four Program* continued to provide a high quality preschool experience based on generally accepted standards for best practice, with an average ECERS-R score of 5.3 and 88% of the classrooms meeting or

exceeding the program guidelines (total score=4.5). Total scores on this measure were in the highest (good) quality range for three-quarters of the sample and in the medium quality range for the remaining classrooms, with no classrooms scoring in the poor quality range. Average scores for classroom practices were in the highest quality range for most areas—space and furnishings, interactions with and supervision of children, language and reasoning experiences, program structure and organization, and provisions for parents and staff—and were in the medium quality range for the remaining two areas (daily activities and routine care). 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. As a whole, a variety of structural characteristics often found to be associated with classroom quality (staff qualifications, class size, public school vs. community settings, and child-level characteristics of the classroom) were not related to differences in the quality of classroom practices or the level of curriculum implementation. However, two individual characteristics—classrooms in community settings and classrooms with higher proportions of *More at Four* children—were associated with better quality classroom practices and higher levels of curriculum implementation, respectively.

Similarly to the second year, children attending the *More at Four Program* in the third year demonstrated substantial growth in skills related to kindergarten readiness, 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 greater 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 (applied problems and 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 three standardized measures (receptive language, applied math problems, and social skills) and maintained their scores at the expected level for the remaining one (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 in language skills were made over the program year for children at greater overall risk compared to those at lower risk. Children at lower levels of English proficiency exhibited greater improvement over the

program year in all skill areas—language/literacy skills, math skills, cognitive knowledge, and social skills. In addition, specific structural characteristics of the classroom—better teacher qualifications, better classroom quality, and a higher proportion of *More at Four* children in the classroom—were associated with greater gains in language and literacy skills, as well as some gains in math skills (teacher qualifications) and social skills (classroom quality). This pattern of findings is similar to that of year 2, where children in classrooms with more highly qualified teachers or with higher proportions of *More at Four* participants showed greater gains in language and literacy skills, although these differences were found for a wider variety of outcome measures and for one additional structural characteristic in year 3.

In sum, the *More at Four Program* continued to offer a high quality pre-kindergarten program for at-risk children in North Carolina, as it expanded to serve nearly 11,000 children in the third year. The program has been successful in recruiting unserved children, the intended primary target group. Local sites continued to meet many of the standards in the established program guidelines intended to support the provision of high quality services. Participating children showed expected or better than expected growth over the *More at Four* year in a wide variety of developmental skills linked to school readiness, with even greater growth for children in higher quality classrooms. 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. The findings of this evaluation indicate a level of program quality and outcomes for children comparable to or even slightly better than that found for other more established large-scale programs, including other statewide pre-kindergarten programs and Head Start. These results suggest that as the *More at Four Program* has grown in scale over the first three years, it has maintained a high level of program quality and positive outcomes for participating children, serving a substantial number of at-risk children who otherwise would not be likely to benefit from participation in a pre-kindergarten readiness program.

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

2003-2004 Service Priority Status

A primary goal of the *More at Four Pre-Kindergarten Program* is to enroll those unserved at-risk children as defined below. Underserved at-risk children as defined below should be considered next.

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 not eligible for subsidy, but who meet at-risk criteria as specified in the *More at Four* Guidelines.
- d. Children identified during *More at Four* recruitment efforts that meet at-risk criteria as specified in the *More at Four* Guidelines, are placed in a child care situation, and **served** for 5 months or less in the year prior to *More at Four* age-eligibility.

Underserved Children

- a. 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.
- b. 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 *More at Four* Guidelines and Requirements.
- c. 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, eligible children on the public school Title I pre-k waiting list, and siblings of *More at Four* Pre-K children will be required.

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

2003-2004 Criteria for Identifying At-Risk Children

The characteristics or factors of children (and their families) that make them at-risk of academic failure are many; however, there is agreement around some of the most significant characteristics or factors. Two models are provided for local programs to use in identifying eligible children for *More at Four* services: Model I (effective SFY 2001-2004), and Model II (effective beginning SFY 2003-2004). During state fiscal year 2003-2004, local programs should select and use only one of the two models for the entire fiscal year.

Model I

	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 (IFSP) 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.	Primary provider (single parent mother or primary caregiver or two parents/caregivers) 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

Model II

A. Eligibility by Income

Family income is a leading indicator that a student may be at-risk of academic failure. A family's inability to provide for the basic needs of a child can impact every aspect of a child's development (physical, emotional, social, and cognitive).

In this model, eligibility is determined primarily by family income. **Children in families with annual incomes falling below the following poverty categories are automatically eligible for *More at Four* services.**

FAMILY SIZE	PERCENT of POVERTY			
	130% (Free Lunch)	185% (Reduced Price Lunch)	200% (*TANF)	250%
1	\$11,674	\$16,613	\$17,960	\$22,450
2	\$15,756	\$22,422	\$24,240	\$30,300
3	\$19,838	\$28,231	\$30,520	\$38,150
4	\$23,920	\$34,040	\$36,800	\$46,000
5	\$28,002	\$39,849	\$43,080	\$53,850
6	\$32,084	\$45,658	\$49,360	\$61,700
7	\$36,166	\$51,467	\$55,640	\$69,550
8	\$40,248	\$57,276	\$61,920	\$77,400

*TANF - Temporary Assistance to Needy Families

B. Eligibility for Families above 250% of poverty:

When a family's income exceeds the defined income guidelines, a child may be deemed eligible if certain conditions are met. Their income cannot exceed 300% of poverty, and they must meet one of the following criteria:

- Limited English Proficiency (LEP) as indicated by the family and/or child speaking limited or no English in the home;
- Identified Disability as indicated by the child having a current Individualized Education Plan (IEP);
- Chronic Health Condition as indicated by a health care provider diagnosis, e.g., asthma, sickle cell anemia, cancer, HIV;
- Developmental/Educational Need as indicated by the child performance results on a developmental screen.

No more than 20% of a county/region's *More at Four* slots may be filled in this manner.

FAMILY SIZE	PERCENT OF POVERTY
	300%
1	\$26,940
2	\$36,360
3	\$45,780
4	\$55,200
5	\$64,620
6	\$74,040
7	\$83,460
8	\$92,880

Eligibility Factors:

- 1) Will the child be four years of age on or before **October 16th** of the current year?
Yes___(Continue) **No**___(Discontinue, not eligible for M@4)

- 2) What is the annual family gross income? _____
 What is the family size? _____

Does family size and income fall within any of the following cut-off points? Is so, check the appropriate income range in **Table 1**.

TABLE 1		
Family Income	Check	Points
Below 130% of Poverty		5
131 - 185% of Poverty		4
186 - 200% of Poverty		3
201 - 250% of Poverty		2
Income eligible? yes no		
If yes, are there any additional factors listed below that impact the child? Check all that apply.		
LEP		1
Identified Disability		1
Chronic Health		1
Total point values below to indicate severity of risk.		
	Total	/8

If the child is not income eligible, do any of the condition in **Table 2** apply? If so, the child is considered eligible if family income falls 251-300% of poverty. No more than 20% of a county/region's *More at Four* slots may be filled in this manner.

TABLE 2 (251-300% poverty)	
	Check
LEP	
Identified Disability	
Chronic Health	
Dev./Ed. Need	

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

2003-2004 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

All teachers will hold Birth-Kindergarten (B-K) or preschool add-on licensure. When teachers have less than the required credential, the following requirements apply:

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.

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. The local *More at Four* contractor will maintain documentation of the progress toward the required standard.
- 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

All assistants will hold a CDA (Child Development Associate) credential. An Early Childhood Education/Child Development (ECE/CD) associate degree is strongly encouraged. When teacher assistants have less than a CDA the following requirements apply:

Provisional Approval – Teacher Assistants

- Assistants will hold a 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.

Exception

Teacher assistants that work in public school pre-kindergarten settings and meet the employment requirements outlined by federal “No Child Left Behind” legislation are exempt from this requirement if they have:

1. Six documented hours of coursework in early childhood education **or**,
2. Two years of work experience in an early childhood setting.

Administrators

Public Schools

- **Principal licensure is required.**
- All principals/directors are encouraged to hold a BS degree or complete coursework in ECE/CD.

Other Child Care/Pre-Kindergarten Settings

- Administrators in child care must 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. Level II must be completed within the same timeline as the star status requirement.

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

Appendix B: Methods

Child and Program Characteristics

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

Participating Contracts

Each local *More at Four* program, representing a county or a multi-county region, was responsible for submitting these monthly reports via an online data collection tool, the *More at Four* Reporting System (MAFREPS). The data on which the current report is based represent submissions by all 91 local contractors (100 counties) providing services to children in 2003-2004.

Procedure

MAFREPS is a web-based reporting system specifically designed to collect information about *More at Four* services. Local contractors enter information in MAFREPS at four levels, hierarchically linked within the system: Contract (e.g., agency information, slots allocated); Site (e.g., operation days, teacher workdays, director/principal 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* contractors for each month of operation between July 1, 2003 and June 30, 2004. MAFREPS data were downloaded by the FPG Evaluation Team each month following the due date for that month's report.

Classroom Quality

Information was gathered in order to examine the quality of classrooms serving children participating in the *More at Four Program* during the 2003-2004 year.

Participants

Observations were conducted in a random sample of *More at Four* classrooms in sites that had been in operation during the previous year (2002-03) and were serving children in the current (2003-04) year. The sampling pool included both classrooms in sites that had begun operations during the first year (January-June 2002) and the second year (2002-03) of *More at Four*. Observations of the global quality of classroom practices were conducted in 99 randomly selected classrooms from 47 *More at Four* counties/regions. This sample of classrooms included 57 of the 58 classrooms from which the child sample was drawn (one of the 58 classrooms was no longer part of the *More at Four* program by Spring 2004 when the classroom observations were conducted).

Observations of curriculum implementation were conducted for a sample of 83 of the 99 classrooms. The sample included observations of 7 (8%) classrooms using the MAC for Creative Curriculum 3rd edition, 49 (59%) using the MAC for Creative Curriculum 4th edition, 15 (18%) classrooms using the MAC for Bright Beginnings, and 12 (15%) classrooms using the MAC for High/Scope curriculum. For classrooms that reported more than one curriculum type, the observation was conducted using the appropriate version for their primary reported type. The distribution of curriculum types is similar to that found in the overall *More at Four Program*, except for a slight oversampling of the High/Scope curriculum in order to insure that they were adequately represented in the sample.

Procedures

Observations of the quality of the classroom environment and curriculum implementation were conducted in Spring 2004 (3/19/04-6/3/04) by data collectors from the *More at Four* Evaluation Team at the UNC-Chapel Hill FPG Child Development Institute. Each observation typically lasted 4 to 5 hours per classroom, and both measures were gathered simultaneously.

Classroom Practices

Global classroom quality was assessed using the *Early Childhood Environment Rating Scale-Revised*⁶ (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).²⁴

Curriculum Implementation

The *Materials and Activities Checklist*⁷ (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 2nd edition¹¹, Creative Curriculum 3rd edition⁹, Creative Curriculum 4th edition¹⁰, and High/Scope editions 1 & 2¹²) (See Table B1 for the distribution of curricula in the samples and the overall program.). A common set of subscale areas is measured across the different versions, but the specific items reflect the key requirements of the particular curriculum.

Table B1. Distribution of Classroom Observation Samples and Total *More at Four* Program Classrooms by Curriculum Type

Primary Curriculum	MAC Sample n=83		ECERS-R Sample n=99		All Classrooms n=871	
	n	%	n	%	n	%
Bright Beginnings	16	19.3%	17	17.2%	121	13.9%
Creative Curriculum	54	65.1%	68	68.7%	666	76.5%
High/Scope	10	12.1%	10	10.1%	67	7.7%
Bright Beginnings & Creative Curriculum	1	1.2%	1	1.0%	7	0.8%
Creative Curriculum & High/Scope	2	2.4%	3	3.0%	6	0.7%
Montessori	0	0%	0	0%	4	0.5%
Bank Street	0	0%	0	0%	0	0%

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, the largest section, 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.

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	<p>Painting Tools</p> <input type="checkbox"/> Paints (watercolor, fingerpaint, etc.) <input type="checkbox"/> Paint brushes
			<p>Drawing and Writing Tools</p> <input type="checkbox"/> Pencils/pens <input type="checkbox"/> Colored pencils <input type="checkbox"/> Crayons <input type="checkbox"/> Markers <input type="checkbox"/> Other
			<p>Cutting, Pasting, Fastening Tools</p> <input type="checkbox"/> Scissors <input type="checkbox"/> Glue, glue sticks <input type="checkbox"/> Tape <input type="checkbox"/> Other fastening materials (e.g., brass fasteners, hole punch, tape, stapler)

^aThis is one of 5 items on the Art subscale.

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 58 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 514 children in Fall 2003 and 434 of these children in Spring 2004.

Sample Selection

Sample selection was conducted at the classroom level. Fifty-eight classrooms were randomly selected from all classrooms (n=599) in sites that had been in operation during the previous year (2002-03) and were serving children in the current year (2003-04). Only classes that began operations by early September were included. We attempted to recruit all *More at Four* children enrolled in the selected classrooms, with an overall consent rate of 85% (573/675). Children who were absent or had withdrawn from the program at the time of data collection were not assessed. Comparisons of assessed children to non-assessed *More at Four* children in the same classrooms (including both those who had parental consent but were not assessed and those who did not have parental consent) indicated that the two groups were similar in terms of average risk factor scores, service priority status, and demographic characteristics (the non-assessed group included 6% more boys, 9% more African-Americans, 6% fewer Caucasians, 5% fewer children with employed parents, and 4% higher average family income).

Child Characteristics

The average child age was 4.5 years (range = 4.0-5.0 years) at the time of the Fall 2003 assessments and 5.1 years (range 4.6–5.6 years) at the time of the Spring 2004 assessments. Half (50%) of the children were female and half were male; 37% were African-American, 36% Caucasian, 17% Latino, and 10% 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 2003 (9/20/03-11/7/03) and again in Spring 2004 (4/28/04-6/10/04). 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. The outcome areas measured were consistent with the recommendations of the National Education Goals Panel⁸ for defining school readiness. (See Table B2 for an overview of these measures.)

In addition, children were administered the PreLAS 2000²⁵, an individual assessment designed to measure young children’s oral language proficiency in English, in order to adjust for children’s English language proficiency in the analyses, as well as to examine English language proficiency as a moderator of program effects. Total scores based on the administration of three subscales were used (Simon Says, Art Show, and The Human Body), to measure both receptive and expressive language ability.

Table B2. Child Outcome Measures

Domain	Measure	Skills Assessed
Language and literacy	<i>Peabody Picture Vocabulary Test-III</i> (PPVT-III) ²⁶	receptive vocabulary
	<i>Woodcock Johnson-III Tests of Achievement</i> (WJ-III) ²⁷ <i>Rhyming Subtest</i> (subtest 21A, Sound Awareness test)	phonological awareness
	<i>Naming Letters Task</i> ²⁸	alphabet knowledge
	<i>Story and Print Concepts Task</i> ²⁹	early literacy skills including knowledge of books, story comprehension, and print awareness
Pre-math	<i>Woodcock Johnson-III Tests of Achievement</i> ²⁷ <i>Applied Problems Test</i> (Test 10)	ability to solve practical math problems including counting, simple addition and subtraction
	<i>Counting Bears Task</i> ³⁰	ability to count in one-to-one correspondence
General knowledge	<i>Social Awareness Task</i> ³¹	knowledge of child’s full name, age and birth date
	<i>Color Bears Task</i> ³²	knowledge of 10 basic colors
Classroom behavior	<i>Social Skills Rating System</i> (SSRS) Social Skills subscale ³³	social skills (e.g., “follows your directions”)
	<i>Social Skills Rating System</i> (SSRS) Problem Behaviors subscale ³³	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(7,73)=0.67	Model 2 F(8,72)=0.71	Model 3 F(9,71)=1.08	Model 4 F(12,68)=0.87
R ²	.06	.07	.12	.13
Intercept	5.48 (.23)***	6.10 (.68)***	6.55 (.71)***	6.43 (.97)***
Education/credentials				
Lead teacher	F(3,73)=0.71	F(3,72)=0.56	F(3,71)=0.64	F(3,68)=0.99
1: HS, GED, AA	-.05 (.29)	-0.10 (.30)	-.31 (.31)	-.30 (.32)
2: >= BA	.26 (.22)	0.21 (.22)	.06 (.23)	.06 (.24)
3: >= BA with license	.10 (.22)	0.08 (.22)	.04 (.22)	.05 (.23)
4: >=BA with BK	reference	reference	reference	reference
Assistant teacher	F(3,73)=0.57	F(3,72)=0.61	F(3,71)=0.61	F(3,68)=0.50
1: HS no credential	-.29 (.26)	-.30 (.26)	-.31 (.25)	-.27 (.26)
2: HS and credential	-.15 (.27)	-.14 (.27)	-.27 (.28)	-.28 (.28)
3: AA	-.29 (.28)	-.28 (.28)	-.35 (.28)	-.34 (.29)
4: BA or greater	reference	reference	reference	reference
Site Administrator	F(1,73)=0.01	F(1,72)=0.03	F(1,71)=.11	F(1,68)=.03
1: <BA	.02 (.21)	.04 (.22)	-.07 (.22)	-.04 (.22)
2: >= BA	reference	reference	reference	reference
Class size	---	-0.03 (.04)	-.04 (.04)	-.04 (.04)
Setting type	---	---	-.40 (.20)	-.44 (.21)*
Child characteristics				
Avg risk factor total	---	---	---	-.02 (.20)
Avg service priority status	---	---	---	-.07 (.10)
Proportion of <i>More at Four</i> children	---	---	---	-.18 (.28)

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

^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. For the average classroom risk total used in these analyses, a common risk total score was constructed for each child using the common elements from risk factor Models I and II (limited English proficiency, identified disability, and chronic health condition), along with income information based on eligibility for free/reduced price lunch. The common risk total scores could range from 0-5, with 1 point assigned for each element of risk based on the Model II definitions and 2 points assigned for free lunch eligibility, 1 point for reduced-price lunch eligibility, and 0 points for full-price lunch status.

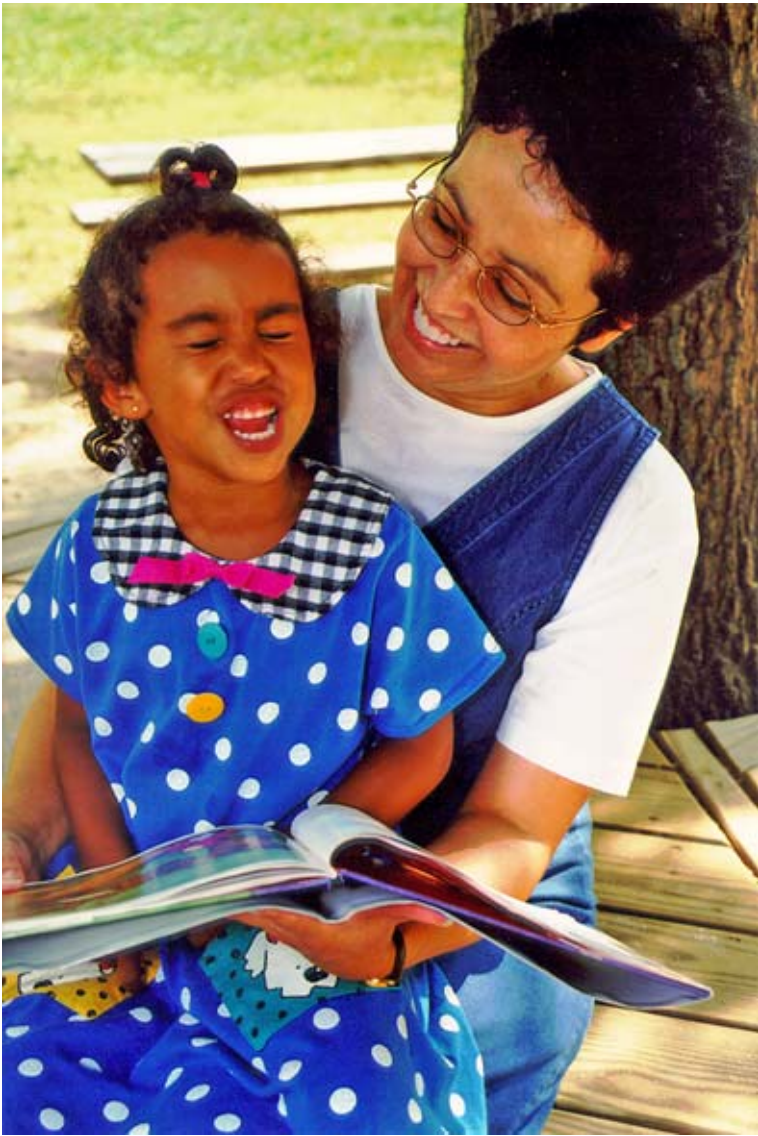
Table C2. Structural Predictors of Curriculum Implementation (MAC)^a

Predictor	β Estimate (standard error)			
	Model 1 F(10,56)=1.79	Model 2 F(11,55)=1.65	Model 3 F(12,54)=1.70	Model 4 F(15,51)=1.75
R ²	.24	.25	.27	.34
Intercept	1.03 (.09)***	1.18 (.26)***	1.40 (.30)***	1.06 (.40)**
Curriculum type^b	F(3,56)=2.95* 2>3	F(3,55)=3.05* 2>3	F(3,54)=3.37* 2>3	F(3,51)=2.98* 2>3
1: Bright Beginnings	.08 (.11)	.08 (.11)	.08 (.11)	.11 (.11)
2: Creative Curriculum 3	.24 (.14)	.26 (.14)	.31 (.15)	.29 (.15)
3: Creative Curriculum 4	-.07 (.09)	-.06 (.09)	-.05 (.09)	-.03 (.09)
4: High/Scope	reference	reference	reference	reference
Education/credentials				
Lead teacher	F(3,56)=1.09	F(3,55)=0.98	F(3,54)=1.11	F(3,51)=0.90
1: HS, GED, AA	-.03 (.11)	-.05 (.11)	-.14 (.13)	-.15 (.13)
2: >= BA	.12 (.08)	.10 (.09)	.04 (.10)	.02 (.10)
3: >= BA with license	.07 (.08)	.06 (.08)	.05 (.08)	.01 (.08)
4: >=BA with BK	reference	reference	reference	reference
Assistant teacher	F(3,56)=1.06	F(3,55)=1.15	F(3,54)=0.94	F(3,51)=1.39
1: HS no credential	-.08 (.15)	-.04 (.10)	-.07 (.10)	-.09 (.10)
2: HS and credential	-.11 (.15)	.11 (.11)	.06 (.11)	.06 (.11)
3: AA	-.09 (.16)	.05 (.11)	.02 (.11)	.04 (.11)
4: BA or greater	reference	reference	reference	reference
Site Administrator	F(1,56)=0.52	F(3,55)=0.43	F(1,54)=1.08	F(1,51)=1.90
1: <BA	.02 (.14)	-.05 (.08)	-.08 (.08)	-.11 (.08)
2: >= BA	reference	reference	reference	reference
Class size	---	-.01 (.01)	-.02 (.01)	-.02 (.01)
Setting type	---	---	-.12 (.08)	-.10 (.09)
Child characteristics				
Avg risk factor total	---	---	---	.07 (.07)
Avg service priority status	---	---	---	.03 (.04)
Proportion of <i>More at Four</i> children	---	---	---	.23 (.11)*

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

^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. For the average classroom risk total used in these analyses, a common risk total score was constructed for each child using the common elements from risk factor Models I and II (limited English proficiency, identified disability, and chronic health condition), along with income information based on eligibility for free/reduced price lunch. The common risk total scores could range from 0-5, with 1 point assigned for each element of risk based on the Model II definitions and 2 points assigned for free lunch eligibility, 1 point for reduced-price lunch eligibility, and 0 points for full-price lunch status.

^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=1.12, CC3=1.30, CC4=0.98, H/S=1.01.



End Notes

¹ The guidelines for determining eligibility 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*, June 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 Peisner-Feinberg, E.S. & Maris, C.L. (2005). *Evaluation of the North Carolina More at Four Pre-kindergarten Program: Year 2 Report (July 1, 2002-June 30, 2003)*. Chapel Hill, NC: FPG Child Development Institute.

⁶ Harms, T., Clifford, R.M., & Cryer, D. 1998. *Early Childhood Environment Rating Scale Revised Edition*. New York: Teachers College Press.

⁷ 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.

⁸ 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.

⁹ Dodge, D., & Colker, L. (1992). *The Creative Curriculum for Early Childhood Third Edition*. Washington, DC: Teaching Strategies Inc.

¹⁰ Dodge, D., Colker, L & Heroman, C. (2002). *The Creative Curriculum for Preschool Fourth Edition*. Washington, DC: Teaching Strategies Inc.

¹¹ Smith, E. (2001). *Charlotte-Mecklenburg Schools Bright Beginnings Pre-Kindergarten Curriculum (Revised)*.

¹² 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.

¹³ 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.

¹⁴ 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.

¹⁵ It is likely that the remaining 9% of administrators without a principal's license were directing programs located in public school settings, but were not the school principal.

¹⁶ The 2003-2004 *More at Four* Program Guidelines include an exception to the education/credential requirement for assistant teachers working in public schools. Specifically, assistant teachers in public schools who meet the federal "No Child Left Behind" requirements are exempt if they have six documented hours of coursework in early childhood education or two years of work experience in an early childhood setting.

¹⁷ US Census Bureau. (1995). *Population Profile of the United States: 1995*. Washington, DC: U.S. Government Printing Office.

¹⁸ These numbers are based on projected population estimates for 4-year-olds in North Carolina (State Demographics Unit, <http://demog.state.nc.us>) and the reported percentages of children eligible for free or reduced-price lunch (NC Department of Public Instruction, 2003).

¹⁹ 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.

²⁰ Burchinal, M., Lee, M., & Ramey, C. (1989). Type of day-care and preschool intellectual development in disadvantaged children. *Child Development*, 60, 128-137.

²¹ A common risk total score was constructed for each child using the common elements from risk factor Models I and II (limited English proficiency, identified disability, and chronic health condition), along with income information based on eligibility for free/reduced price lunch. The common risk total scores could range from 0-5, with 1 point assigned for each element of risk based on the Model II definitions and 2 points assigned for free lunch eligibility, 1 point for reduced-price lunch eligibility, and 0 points for full-price lunch status.

²² Henry, G.T., Henderson, L.W., Ponder, B.D., Gordon, C.S., Mashburn, A.J., & Rickman, D.K. (2003). *Report of the findings from the Early Childhood Study: 2001-2002*. Atlanta, GA: Andrew Young School of Policy Studies, Georgia State University.

²³ Zill, N., Resnick, G., Kim, K., O'Donnell, K., Sorongon, A., McKey, R.H., Pai-Samant, S., Clark, C., O'Brien, R., & D'Elia, M. (2003). *Head Start FACES 2000: A whole-child*

perspective on performance. Washington, DC: Administration for Children and Families, US Department of Health and Human Services.

For more information about the FACES study, see

http://www2.acf.dhhs.gov/programs/core/ongoing_research/faces/faces_intro.html

²⁴ Peisner-Feinberg, E. S., & Burchinal, M. R. (1997). Relations between child-care experiences and children's concurrent development: The Cost, Quality, and Outcomes Study. *Merrill-Palmer Quarterly*, *43*, 451-477.

²⁵ De Avila, E. and Duncan, S. Examiner's Manual, English, Forms C&D. *preLAS 2000*. Monterey, CA: CTB/McGraw-Hill, 1998

²⁶ Dunn, L. M. & Dunn, L. M. 1997. *Peabody Picture Vocabulary Test Third Edition*. Circle Pines, Minnesota: American Guidance Service.

²⁷ Woodcock, R.W., McGrew, K.S., & Mather, N. 2001. *Woodcock-Johnson III Tests of Achievement*. Itasca, IL: The Riverside Publishing Company

²⁸ National Center for Early Development and Learning (2001). *Identifying Letters*. Unpublished instrument. The University of North Carolina at Chapel Hill.

²⁹ 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

³⁰ National Center for Early Development and Learning (2001). *Counting Numbers*. Unpublished instrument. The University of North Carolina at Chapel Hill.

³¹ 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.

³² FACES Research Team, modified from the Color Concepts task in: J. M. Mason and J. Stewart (1989), *The CAP Early Childhood Diagnostic Instrument* (prepublication edition), American Testronics.

³³ 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:

*YEAR 1 (JANUARY–JUNE, 2002) REPORT
AND EXECUTIVE SUMMARY*

EVALUATION OF THE NORTH CAROLINA
MORE AT FOUR PRE-KINDERGARTEN PROGRAM

*YEAR 2 (JULY 1, 2002–JUNE 30, 2003) REPORT
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