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

Performance and Progress in the Seventh Year (2007–2008)

Year 7 Report (July 1, 2007–June 30, 2008)

Ellen S. Peisner-Feinberg, Ph.D. &
Jennifer M. Schaaf, Ph.D.

UNC
FPG CHILD DEVELOPMENT INSTITUTE

© 2008 by Ellen S. Peisner-Feinberg, FPG Child Development Institute, University of North Carolina at Chapel Hill.

We wish to acknowledge the members of our More at Four Evaluation Team who assisted with this phase of the research: Research assistants Lisa Hildebrandt, Diana Knechtel, Cyndee Lohr, Judith Owen, and Yalitza Ramos; Programmers Steve Magers, Mitu Nandi, and Rita Slater; Statisticians Kirsten Kainz and R. J. Wirth; and Data collectors Amber Alsobrooks, Caroline Butler, Erica Fornaris, Verlyn Evans, Aaron Freeman, Ed Kroll, Martha Lee, Susan Lowell, Kim Rangel, Kim Vanover, and Susan Wilson.

Special thanks to Lisa Hildebrandt for publications assistance with this report.

Photographs: Don Trull, FPG Child Development Institute

In addition, we offer our appreciation to the teachers, administrators, and other staff of the More at Four programs across the state and to the families of More at Four children who provided these data.

Suggested citation: Peisner-Feinberg, E. S. & Schaaf, J.M. (2008). Evaluation of the North Carolina More at Four Pre-kindergarten Program: Performance and Progress in the Seventh Year (2007-2008). Chapel Hill, NC: FPG Child Development Institute.

This research was funded by the North Carolina More at Four Pre-kindergarten Program, NC Office of School Readiness, NC Department of Public Instruction, as part of the statewide evaluation of the North Carolina More at Four Pre-kindergarten Program.

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.

Table of Contents

Overview of the More at Four Program....5

Overview of the More at Four Evaluation....6

Methods....7

Classroom Quality Observation Methods....7

Child Outcomes Assessment Methods....11

Program Characteristics....15

Results....26

Classroom Quality....26

Classroom Practices....26
Instructional Practices....35
Literacy Environment....40
Teacher-Child Interactions....45
Classroom Activities....49
Factors Predicting Classroom Quality....58
Analysis Strategies....58

Child Outcomes....60

Changes over Time in Child Outcomes....60
Factors Associated with Differences in Child Outcomes....61
Growth in Developmental Skills for Spanish Subsample....64
Analysis Strategies....66

Summary and Discussion....94

References....98

List of Tables

Table 1. Classroom Observation Measures for More at Four Evaluation 10
Table 2. Characteristics of Assessed and Non-Assessed Children in Evaluation Sample..... 13
Table 3. Child Outcome Measures for More at Four Evaluation 14
Table 4. More at Four Program Charateristics for Years 3–7..... 16
Table 5. Primary Curriculum Type of More at Four Classrooms for Years 3–7..... 18
Table 6. Education Levels of More at Four Lead Teachers for Years 3–7..... 20
Table 7. Licensure/Credential Levels of More at Four Lead Teachers for Years 3–7 21
Table 8. Characteristics of All More at Four Children for Years 3–7 23
Table 9. Risk Factor Status of All More at Four Children for Years 3–7..... 24
Table 10. Service Priority Status at Time of Enrollment for All More at Four Children for Years 3–7..... 25
Table 11. Quality of Classroom Practices (ECERS-R) in More at Four 28
Table 12. Quality of Instructional Practices (CLASS) in More at Four 36
Table 13. Quality of the Literacy Environment (ELLCO) in More at Four Classrooms..... 41
Table 14. Quality of Teacher-Child Interactions (CIS) in More at Four 46
Table 15. Proportion of Classroom Activities (DAC) in More at Four 51
Table 16. Children's Average Percentage of Time in Activities (DAC)..... 53
Table 17. Frequency of Child-led Classroom Activities (DAC) 54
Table 18. Literacy Focus of Classrooom Activities (DAC) 55
Table 19. Group Composition for Classroom Activities (DAC)..... 56
Table 20. Child Outcome Scores by Assessment Period..... 68
Table 21. Child Outcome Scores by Risk Factor Levels..... 69
Table 22. Child Outcome Scores by English Proficiency Level 74
Table 23. Child Outcome Scores for Children with English and Spanish Assessments 84
Table 24. Child Outcome Scores of Spanish Subsample by English Proficiency Level..... 85
Table 25. Child Outcome Scores of Spanish Subsample by Spanish Proficiency Level 89
Table 26. Associations of Growth on English Assessments with Initial Skills and Growth on Spanish Assessments 93

List of Figures

Figure 1. Distribution of Children by Setting Type in Year 7 17
Figure 2. Classroom Practices Scores (ECERS-R Total Items) 33
Figure 3. Classroom Practices Mean Subscale Scores (ECERS-R) 34
Figure 4. Instructional Practices Scores (CLASS) Emotional Support Domain 37
Figure 5. Instructional Practices Scores (CLASS) Classroom Organization Domain 38
Figure 6. Instructional Practices Scores (CLASS) Instructional Support Domain 39
Figure 7. Classroom Observation Scale Scores (ELLCO) 42
Figure 8. Literacy Environment Checklist Scores (ELLCO) 43
Figure 9. Literacy Activities Rating Scale Scores (ELLCO) 44
Figure 10. Teacher-Child Interaction Scores (CIS Total) 47
Figure 11. Teacher-Child Interaction Mean Subscale Scores (CIS) 48
Figure 12. Growth in Receptive Language Skills (PPVT-4) by English Proficiency 79
Figure 13. Growth in Letter-Word Knowledge (WJ-III Letter Word Identification) by English Proficiency 79
Figure 14. Growth in Phonological Awareness (TOPEL) by English Proficiency 80
Figure 15. Growth in Math Skills (WJ-III Applied Problems) by English Proficiency 80
Figure 16. Effect of Literacy Practices on Print Knowledge 81
Figure 17. Effect of Literacy Practices on Social Skills Growth 81
Figure 18. Effect of Classroom Organization on Letter-Word Knowledge 81
Figure 19. Effect of Classroom Organization on Print Knowledge 82
Figure 20. Effect of Classroom Organization on Social Skills 82
Figure 21. Effect of Instructional Support on Print Knowledge 82
Figure 22. Effect of Instructional Support on Phonological Awareness 83
Figure 23. Effect of Emotional Support on Print Knowledge 83

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. The More at Four Program 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, classroom-based educational program for at-risk children during the year prior to kindergarten entry. The program first targets at-risk "unserved" children (those not already being served in a preschool program) and secondly, "underserved" children (those in a program but not receiving child care subsidies and/or those in lower quality settings). The More at Four Program was initiated in the 2001-2002 school year and has included programs in all 100 counties since the 2003-2004 school year. More at Four served 29,978 children in the 2007-2008 school year, and has served over 99,000 children during the first seven program years (2002-2008).

More at Four provides funding for serving eligible children in classroom-based educational programs at a variety of sites designated by the local administration within each county or region (typically, either the local public school system or the local Smart Start partnership[a]). The programs are administered at the county or region (multi-county groupings) level with oversight by the NC Office of School Readiness, and must include collaboration among the local school system(s), the local Smart Start partnership, and other interested members of the early childhood community (e.g., Head Start, child care providers, resource and referral agencies). Children are eligible for More at Four based on family income (at or below 75% of State median income or up to 300% of Federal poverty status with one or more other risk factors) and other risk factors (limited English proficiency, identified disability, chronic health condition, and developmental/ educational need). Priority for service is given first to at-risk children who are unserved in a preschool program at the time of enrollment, and second, to children who are underserved at enrollment. 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 also serving children funded through other sources such as Head Start or parent fees. The programs operate on a school-day and school calendar basis for 6 to 6-1/2 hours/day and 180 days/year. Local sites are expected to meet a variety of program guidelines and standards around curriculum, training and education levels for teachers and administrators, class size and student-teacher ratios, North Carolina child care licensing levels, and provision of other program services[1].

[a] 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 78 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/.

Overview of the More at Four Evaluation

Since its inception in 2002, the statewide evaluation of the North Carolina More at Four Pre-kindergarten Program has been conducted by the FPG Child Development Institute at the University of North Carolina-Chapel Hill. The current report describes findings on the quality of the program and the outcomes for children over the 2007-2008 More at Four school year. Previous reports are available with results from prior years (2002-2007), including longitudinal studies of both pre-k and kindergarten follow-up.[2,3,4,5,6,7]

The primary research questions addressed by this evaluation included:

- What were the key characteristics of the local More at Four programs and to what extent have they changed over time?
- What was the quality of the More at Four pre-k classrooms attended by children?
- What were the outcomes for children who attended the More at Four Program?
- What factors were associated with better outcomes for children?

To address these questions, we gathered information from multiple sources: monthly service reports, observations of classroom quality, teacher surveys, and individual child assessments. The monthly service report data from each local contractor provided information about characteristics of the program and demographic information about the children served. Observations were conducted in a random sample of More at Four classrooms using multiple measures to provide information about classroom quality, including global classroom practices, language/literacy practices, instructional practices, and teacher-child interactions. Information was gathered about the activities and materials provided, the interactions among teachers and children, the nature of instruction, the physical environment, and the daily organization and structure of the classroom. Individual assessments of children's skills in these randomly-selected classrooms were conducted near the beginning and end of the program year to provide information about their outcomes during pre-k. These measures included assessments of children's language and literacy skills, math skills, and general knowledge, and teacher ratings of children's behavioral skills, to provide information about their school readiness and growth across a broad range of developmental skills.

Methods

CLASSROOM QUALITY OBSERVATION METHODS

To address questions about the quality of More at Four classrooms, 50 classrooms operating in 2007-2008 were selected in a random sampling process. Observations were conducted on three occasions to gather information about the quality of global classroom practices, instructional practices, language/literacy environment, teacher-child interactions, and classroom activities. See Table 1 for an overview of these measures.

Participants
The classroom observation sample included 50 More at Four classrooms that were randomly selected from 1,687 classrooms that had begun serving children by the beginning of September of the study year to insure that children had the opportunity for a full program year. The 2007-2008 sample included 7 first-year classrooms, 12 second-year classrooms, 7 third-year classrooms, 4 fourth-year classrooms, 9 fifth-year classrooms, 8 sixth-year classrooms, and 3 seventh-year classrooms.

Procedures
Observations of classroom quality were conducted in the middle of the program year on three separate occasions. In the first classroom observation period (11/09/2007-1/18/2008), the Early Language and Literacy Classroom Observation[8] (ELLCO), and the Distribution of Activities in the Classroom[9] (DAC) were administered. In the second classroom observation period (1/30/2008-5/07/2008), the Early Childhood Environment Rating Scale-Revised[10] (ECERS-R) and the Caregiver Interaction Scale[11] (CIS) were administered. In the third classroom observation period (3/11/2008-5/14/2008), the Classroom Assessment Scoring System[12] (CLASS) was administered.

Data collectors were trained to an acceptable criterion of reliability prior to gathering data using each measure. Interrater reliability data were collected in the field for 20% of the observations for each measure. Reliability data for the classroom observation measures were acceptable. The ELLCO yielded a kappa of .41 for the Classroom Observation Scale, and exact agreement scores of 87% on the Literacy Environment Checklist and 86% on the Literacy Activities Rating Scale. The ECERS-R yielded a kappa of .82. Reliability data for the CIS yielded a kappa of .78. Finally, interrater reliability data from the CLASS measure resulted in a kappa of .61.

Measures
Global classroom quality was assessed using the ECERS-R[10], 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[a] 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, with higher scores indicating better 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)[10] and predictive validity[13].

The CLASS measures classroom quality based on interactions between children and adults. It includes ratings on 10 dimensions, scored on a 1-7 scale from low to high, which combine into scores on three overarching domains of classroom quality. The first domain, Emotional Support, encompasses four dimensions: Positive climate (the emotional connection among children and teachers); Negative climate (expressed negativity such as anger and hostility); Teacher sensitivity (responsiveness to children's concerns); and Regard for student perspectives (accommodations for children's points of view). The second domain, Classroom Organization, includes three dimensions: Behavior management (how effectively behavior is monitored or redirected); Productivity (how well time is organized to maximize learning activities); and Instructional learning formats (how well teachers facilitate children's engagement to maximize learning opportunities). The final domain, Instructional Support, incorporates three dimensions: Concept development (how teachers foster higher-order thinking skills); Quality of feedback (how well teachers extend learning in their responses to children); and Language modeling (facilitation of language). The scale has demonstrated good interrater reliability ranging from 78.8 % to 96.9% agreement within one point with an average across all items of 87.1% agreement within one point.

The ELLCO measures the extent to which classrooms provide optimal support for language and literacy development. This observational measure includes three scales: Classroom Observation Scale, Literacy Environment Checklist, and Literacy Activities Rating Scale, each scored on a different metric. The Classroom Observation Scale consists of 14 items across 2 subscales: General classroom environment and Language, literacy, and curriculum. Each item is scored on a 1-5 scale, where 1 = "deficient", 3 = "basic", and 5 = "exemplary". Mean item scores, ranging from 1.0-5.0, were used in the present study. The Literacy Environment Checklist has a total score ranging from 0-41, based on 5 subscales: Book area (0-3), Book selection (0-8), Book use (0-9), Writing materials (0-8), and Writing around the room (0-13). The Literacy Activities Rating Scale has a total score ranging from 0-13 and contains two subscales: Reading (0-8) and Writing (0-5). These scales have demonstrated good interrater reliability (Classroom Observation Scale=90%, Literacy Environment Checklist=88% within 1 point, and Literacy Activities Rating Scale=81%) and moderate to good internal consistency (Cronbach's alpha: Classroom Observation Scale=.90, Literacy Environment Checklist=.84, Literacy Activities Rating Scale=.66).[8]

The CIS measures the sensitivity of teachers' interactions with children. It includes 26 items divided into 4 subscales: Sensitivity, Harshness, Detachment, and Permissiveness. Each item is

[a] Current program guidelines for More at Four state that participating classrooms should score at least 5.0 on the ECERS-R. Classrooms scoring below the minimum standard are required to develop an Enhancement Plan and/or Intervention Plan.

scored on a 1-4 scale from "not at all" to "very much". Mean item scores ranging from 1.0 to 4.0 were calculated for each subscale. For the total score, scores on the three negative subscales (Harshness, Detachment, and Permissiveness) were reversed and a total mean item score was calculated whereby higher scores indicated more positive teacher-child interactions. The scale has demonstrated good interrater reliability of 80%.[11]

The DAC is an observational tool used to gather information about the activities of preschool children and teachers using time-sampling techniques. Observers record details about the classroom activities at five minute intervals. For the present study, we observed each classroom during center time. At each observation interval, observers indicate all of the different groupings in the classroom, including information about the types of activities occurring, the number of children and adults (lead teachers, assistant teachers, other adults) involved, the instructional leader of the activity (child or adult), and whether the activity has a literacy component as a primary or secondary focus (or none). The types of activities include both instructional and non-instructional activities. Instructional activities include creative activities (e.g., art, dramatic play, music) and more academically-focused activities (e.g., books, math, science), as well as social interactions. Non-instructional activities include caretaking activities (e.g., meals, toileting), behavior corrections, transition activities, and unengaged time (children off-task, teachers not engaged with children). Groups are defined as individuals engaged in an activity together. The composition of a group can range from a single individual (common during activities such as toileting) to the entire class (common during activities such as storybook reading during circle time).

Table 1. Classroom Observation Measures for More at Four Evaluation

Aspect of Classroom Quality	Measure	Scoring
Global classroom practices	Early Childhood Environment Rating Scale-Revised (ECERS-R)[10]	Range=1.0-7.0
Instructional practices	Classroom Assessment Scoring System (CLASS)[12]	
	Emotional Support Domain	Range=1.0-7.0
	Classroom Organization Domain	Range=1.0-7.0
	Instructional Support Domain	Range=1.0-7.0
Language/literacy environment	Early Language and Literacy Classroom Environment (ELLCO)[8]	
	Classroom Observation Scale	Range=1-5
	Literacy Environment Checklist	Range=0-41
	Literacy Activities Rating Scale	Range=0-13
Teacher-child interactions	Caregiver Interaction Scale (CIS)[11]	Range=1.0-4.0
Classroom activities	Distribution of Activities in the Classroom (DAC)[9]	Frequency data

CHILD OUTCOMES ASSESSMENT METHODS

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 321 children in 50 randomly selected More at Four classrooms. The individual assessments included measures of children's language and literacy skills, math skills, general knowledge, and behavioral skills.

Participants

The child sample included 321 children in the fall and 302 of the same children in the spring. Children were recruited from the 50 randomly selected More at Four classrooms participating in the classroom observations component of the study. We attempted to recruit all More at Four children enrolled in the selected classrooms and obtained an overall consent rate of 91% (432/476). Data collectors generally spent one day in each class and assessed all children with parental consent who were present on that day, as time allowed. This resulted in a sample of 321 participating children. The average child age was 4.6 years at the time of fall assessments and 5.1 years at the time of spring assessments. At the time of study enrollment, slightly less than half (46%) of the children were female and slightly more than half (54%) were male; 36% were African-American, 29% Caucasian, 25% Latino, and 10% were from other ethnic/racial or multiracial groups. As seen in Table 2, comparisons of assessed children to all other More at Four children indicated that the two groups were similar on most demographic characteristics, including age, gender, poverty status, risk factor total, limited English proficiency, health condition, and family size. There were some differences in terms of identified disability, developmental/educational need, service priority status, and attendance. The assessed group had fewer children with an identified disability or developmental/educational need, a slightly higher average service priority level, and more days of attendance.

Procedures

Two sources of child outcomes data were gathered: Individual assessments of children's language and cognitive skills and teacher ratings of children's behavioral skills. Individual assessments of children were conducted in the fall (10/15/2007-12/14/2007) and spring (4/28/2008- 6/5/2008) of the program year. Child assessments were conducted on-site at each school or child care center by trained data collectors, and lead teachers were asked to complete rating scales following the assessments.

Children were administered the child assessment measures in English and children who spoke Spanish (N=81) were also administered the same measures in Spanish (except two that were not available in Spanish) in separate sessions at each assessment period.

Measures

The outcome areas measured were consistent with the recommendations of the National Education Goals Panel[14] for defining school readiness. The child assessment battery consisted of seven measures focusing on language and literacy skills (receptive language, letter-word identification, print knowledge, phonological awareness), math skills (applied problems, counting) and general knowledge (social awareness), which are appropriate for pre-k age

children. Lead teachers also rated each child's behavioral skills (social skills, problem behaviors) in the classroom. (See Table 3 for an overview of these measures.) In addition, children were administered three subscales of the PreLAS 2000[15] (Simon Says, Art Show, and The Human Body), an individual assessment designed to measure young children's oral language proficiency in English, including both receptive and expressive language ability. This measure was used 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. Fluency scores ranging from 1-5 were calculated, where 1=Non-English speaker, 2-3=Limited English speaker, and 4-5=Fluent English speaker.

The Spanish assessment battery administered to bilingual children replicated the English assessment battery with the exception of the TOPEL which is not available in Spanish. The Spanish version of the PreLAS was used to measure bilingual children's language proficiency in Spanish. Fluency scores on this measure are analogous to scores on the English PreLAS. It is important to note that for the standardized measures (receptive language, letter-word identification, applied problems), the English and Spanish versions differed somewhat in content, while for the remaining measures, the items on the English and Spanish versions were direct translations of one another. Spanish versions of the print knowledge and phonological awareness measures were not available.

Table 2. Characteristics of Assessed and Non-Assessed Children in Evaluation Sample

Factor[a]		Year 7 2007-2008 N=29,978	
		Assessed n=321	**Non-Assessed** n=29,657
Child age on 10/16 (Mean)		4.5	4.5
Gender (% female)		46.1%	48.7%
Ethnicity (%)	Black/African-American	35.8%	36.1%
	White/European-American	29.3%	32.8%
	Hispanic/Latino	24.9%	22.1%
	Other/Multiracial	8.4%	7.3%
	Asian	1.6%	1.7%
Poverty Status (%)	Free Lunch Eligible	70.1%	74.5%
	Reduced Price Eligible	18.7%	15.4%
Risk Total (Mean)		1.9	1.9
Individual Risk Factors (%)	Limited English Proficiency	20.6%	18.2%
	Identified Disability	2.8%	5.6%*
	Chronic Health Condition	5.0%	4.9%
	Developmental/Educational Need	15.0%	21.2%**
Service Priority Status[b] (Mean)		2.8	3.1*
Total Days of Attendance (Mean)		151.2	132.1***
Family Size (Mean)		3.9	4.0

[a] Significant comparisons reported represent differences between the two groups based on t-tests or chi-square tests with a Bonferroni correction for multiple comparisons. Significance levels are *$p < .05$, **$p < .01$, ***$p < .001$.
[b] Note that lower values represent higher service priority.

Table 3. Child Outcome Measures for More at Four Evaluation

Domain	Measure	Skills Assessed	Scoring
Language and literacy	Peabody Picture Vocabulary Test-4 (PPVT-4)[16] Test de Vocabulario en Imagenes Peabody (TVIP)[17]	Receptive vocabulary English and Spanish	Standardized measure, Mean=100, SD=15
	Woodcock Johnson-III Tests of Achievement (WJ-III)[18] Letter Word Identification (Subtest 1) Batería III Pruebas de Aprovechamiento[19] Rima (Prueba 21A, Discernimiento de sonidos)	Ability to identify letters and words English and Spanish	Standardized measure, Mean=100, SD=15
	Test of Preschool Early Literacy[20](TOPEL) Print Knowledge (Subtest 1)	Knowledge about written language conventions and form and alphabet knowledge English only	Standardized measure, Mean=100, SD=15
	Test of Preschool Early Literacy[20] (TOPEL) Phonological Awareness (Subtest 3)	Ability to blend sounds to form words, and to delete sounds to make other words English only	Standardized measure, Mean=100, SD=15
Math	Woodcock Johnson-III Tests of Achievement[18] Applied Problems Test (Test 10) Batería III Pruebas de Aprovechamiento[19] Problemas Aplicados (Prueba 10)	Ability to solve practical math problems including counting, simple addition, and subtraction English and Spanish	Standardized measure, Mean=100, SD=15
	Counting Bears Task[21]	Ability to count in one-to-one correspondence English and Spanish	Range=0–40
General knowledge	Social Awareness Task[22]	Knowledge of child's full name, age and birth date English and Spanish	Range=0–6
Classroom behavior	Social Skills Rating System (SSRS) Social Skills subscale[23]	Social skills (e.g., "follows your directions")	Standardized measure, Mean=100, SD=15
	Social Skills Rating System (SSRS) Problem Behaviors subscale[23]	Problem behaviors (e.g., "argues with others")	Standardized measure, Mean=100, SD=15

Program Characteristics

Information about the characteristics of the More at Four Program, including the local sites, the classrooms, and the children served in 2007-2008, along with comparisons to previous years, is described below.

The More at Four Program has grown substantially each year since its inception in the 2001-2002 school year when it served 1,244 children. The number of children served has continued to increase over the past five years, from 10,891 (in 2003-2004) to 29,978 in the most recent year (2007-2008). Table 4 describes various program characteristics for the five most recent years of operation. The number of sites, classrooms, and children served has increased considerably each year, yet the average class size, number of More at Four children per class, and proportion of More at Four children have remained similar. The median class size each year has been below 18, the maximum class size allowable under the More at Four program guidelines. The proportion of More at Four children in each classroom has remained high (70%-80%), representing the vast majority of children. The program targets "unserved" children (both those never served and those currently unserved in a pre-k program at the time of enrollment), with 70% or more of the children entering the program each year being unserved at the time of their enrollment.

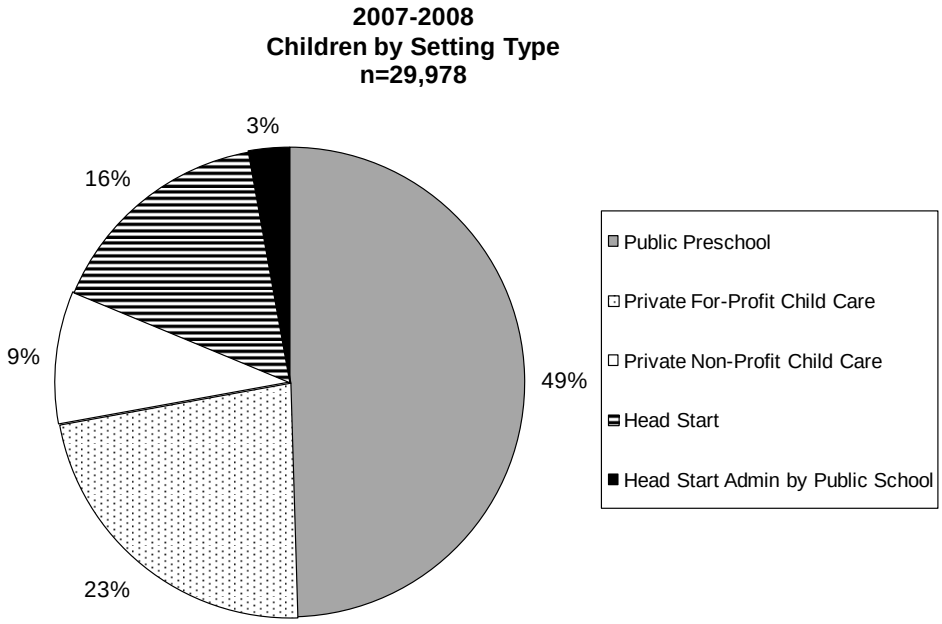
The distribution of children by setting type is shown in Figure 1. This distribution of site types has remained similar over the past five years of program operations, with approximately half the children being served in public preschool sites (48%-52%) and half in private sites (48%-52%). The majority of private sites have been private for-profit child care settings (23%-32%), with smaller proportions served each year in private nonprofit child care settings (9%-12%) or Head Start sites, including those administered by public schools (10%-19%).

Table 4. More at Four Program Charateristics for Years 3–7

Program Characteristic	Year 3 2003-2004	Year 4 2004-2005	Year 5 2005-2006	Year 6 2006-2007	Year 7 2007-2008
Total More at Four Local Contractors	91	91	91	91	91
Total More at Four Counties	100	100	100	100	100
Total More at Four Sites (Centers/Schools)	628	689	790	909	1,178
Total More at Four Classrooms	883	1,027	1,218	1,439	2,148
Total Children Served	10,891	13,515	17,251	20,468	29,978
Total Children Not Served at Time of Enrollment[a]	9,070 (83%)	10,583 (78%)	13,617 (79%)	15,558 (76%)	21,452 (72%)
Total Children Never Previously Served[a]	6,788 (62%)	8,165 (60%)	10,325 (60%)	12,033 (59%)	16,353 (55%)
Average Class Size[b]					
Mean	16.3	16.1	16.2	16.0	15.8
Median	17.6	17.7	17.6	17.6	17.2
SD	2.6	3.0	2.7	3.0	3.4
Average Number of More at Four Children per Class[c]					
Mean	10.7	11.5	12.3	12.6	12.8
Median	10.6	11.7	13.6	13.7	14.0
SD	5.8	5.5	4.9	4.7	4.4
Average Proportion of More at Four Children per Class[d]					
Mean	0.67	0.71	0.76	0.79	0.82
Median	0.78	0.89	0.91	0.93	0.93
SD	0.3	0.3	0.2	0.3	0.2

[a] These data are based on reported service priority status.
[b] These data are based on the monthly reported total class size, including both More at Four and non-More at Four children. The More at Four program guidelines indicate a maximum class size of 18. Classes are occasionally granted exceptions to exceed this class size.
[c] These data are based on the monthly reported number of More at Four children for each classroom.
[d] These data are based on the proportion of the monthly reported number of More at Four children and class size for each classroom.

Figure 1. Distribution of Children by Setting Type in Year 7[a]



[a] Children who attended more than one More at Four site (in 2007-2008, 367 children attended 2 or more sites) are represented by the setting type in which they were enrolled the longest.

The characteristics of the More at Four classrooms have remained fairly similar over time as well. More at Four program guidelines recommend that classrooms use a research-based curriculum. As seen in Table 5, most classrooms each year reported using Creative Curriculum[24] as their primary curriculum with smaller numbers reporting using OWL[25] or Bright Beginnings[26], High/Scope[27], or Montessori[28].

Table 5. Primary Curriculum Type of More at Four Classrooms for Years 3–7

Curriculum Type[a]	**Year 3 2003-2004** n=871[b]	**Year 4 2004-2005** n=1,027[c]	**Year 5 2005-2006** n=1,218	**Year 6 2006-2007** n=1,439	**Year 7 2007-2008** n=2,148
Creative Curriculum	76.5% (666)	79.0% (811)	77.9% (949)	79.7% (1147)	84.2% (1,809)
OWL/ Bright Beginnings[d]	13.9% (121)	14.0% (144)	14.7% (179)	13.5% (194)	10.3% (221)
High/Scope	7.7% (67)	6.8% (70)	6.7% (82)	6.3% (90)	4.7% (101)
Montessori	0.5% (4)	0.4% (4)	0.3% (4)	0.1% (2)	0.1% (2)
Other	1.5% (13)	--	0.3% (4)	0.4% (5)	0.7% (15)

[a] The Bank Street curriculum was also included in the guideline recommendations, but no classrooms reported it as the primary curriculum.
[b] In 2003-2004, curriculum was not reported for 12 classrooms.
[c] In 2004-2005, 2 classes reported using two primary curricula, with 1 using Bright Beginnings and Creative Curriculum, and 1 using High/Scope and Creative Curriculum.
[d] The Bright Beginnings curriculum was changed to the OWL curriculum (Opening the World of Learning) in the 2004 edition. In 2005-2006, 132 (10.8%) of the programs reported using Bright Beginnings and 47 (3.9%) reported using OWL. In 2006-2007, 76 (5.3%) of the programs reported using Bright Beginnings and 118 (8.2%) reported using OWL.

One area of the More at Four program that has evidenced some change over the past five years is teacher qualifications. As seen in Table 6, nearly all teachers in public school settings have continued to have Bachelor's degrees or higher compared to less than two-thirds in community setting. Further, this percentage has decreased over time for the community settings, with a notable drop in 2007-2008. Program guidelines require that the lead teacher have a B-K license (or the equivalent) within four years. As shown in Table 7, the percentage of teachers with a B-K license (or equivalent) has been at its highest rate of about 86% in public school settings during the last two years, and has remained around 15-20% for community settings over this five-year period. In contrast the percentage of teachers with no credential has shown a consistent decline, especially in community settings.

Table 6. Education Levels of More at Four Lead Teachers for Years 3–7

Highest Degree Earned	Year 3 2003-2004			Year 4 2004-2005			Year 5 2005-2006			Year 6 2006-2007[a]			Year 7 2007-2008[a]		
	Public School Settings n=449[b]	Community Settings n= 535[c]	All Settings n=984	Public School Settings n=615	Community Settings n=518	All Settings n=1,133	Public School Settings n=725	Community Settings n=617	All Settings n=1,342	Public School Settings n=871	Community Settings n=680	All Settings n=1,555	Public School Settings n=1,193	Community Settings n=986	All Settings n=2,183
MA/MS or higher	17.2% (77)	4.1% (22)	10.1% (99)	15.1% (93)	4.2% (22)	10.2% (115)	13.8% (100)	3.4% (21)	9.0% (121)	15.1% (132)	4.4% (30)	10.4% (162)	13.8% (165)	3.9% (38)	9.3% (203)
BA/BS	77.1% (346)	62.6% (335)	69.2% (681)	83.6% (514)	61.2% (317)	73.3% (831)	84.6% (613)	60.9% (376)	73.7% (989)	84.0% (732)	57.8% (393)	72.5% (1,128)	84.5% (1,008)	49.8% (491)	68.9% (1,503)
AA/AAS	2.5% (11)	25.2% (135)	14.8% (146)	1.0% (6)	29.5% (153)	14.0% (159)	1.4% (10)	31.8% (196)	15.4% (206)	0.7% (6)	34.3% (233)	15.4% (240)	1.5% (18)	42.0% (414)	19.8% (432)
HS diploma/ GED	3.3% (15)	8.0% (43)	5.9% (58)	0.3% (2)	5.0% (26)	2.5% (28)	0.3% (2)	3.9% (24)	1.9% (26)	0.1% (1)	3.5% (24)	1.6% (25)	0.2% (2)	4.4% (43)	2.1% (45)

[a] In 2006-2007 and 2007-2008, four teachers reported working in both public and community settings; their data is reflected only in the column for all settings.
[b] In 2003-2004, these data were not reported for 4 public school lead teachers.
[c] In 2003-2004, these data were not reported for 1 community setting lead teacher.

Table 7. Licensure/Credential Levels of More at Four Lead Teachers for Years 3–7

Highest License/ Credential[a]	Year 3 2003-2004			Year 4 2004-2005			Year 5 2005-2006			Year 6 2006-2007[b]			Year 7 2007-2008[b]		
	Public School Settings n=453	Community Settings n= 536	All Settings n=989	Public School Settings n=615	Community Settings n=518	All Settings n=1,133	Public School Settings n=725	Community Settings n=617	All Settings n=1,342	Public School Settings n=871	Community Settings n=680	All Settings n=1,555	Public School Settings n=1,193	Community Settings n=986	All Settings n=2,183
B-K or Preschool add-on License	66.2% (300)	15.9% (85)	38.9% (385)	75.3% (463)	14.5% (75)	47.5% (538)	77.8% (564)	15.4% (95)	49.1% (659)	79.9% (696)	18.4% (125)	52.9% (823)	79.2% (945)	15.3% (151)	50.3% (1,098)
Provisional B-K License	1.8% (8)	0.8% (4)	1.2% (12)	0.0% (0)	0.6% (3)	0.3% (3)	5.1% (37)	1.1% (7)	3.3% (44)	6.3% (55)	2.2% (15)	4.5% (70)	6.5% (77)	1.8% (18)	4.4% (96)
Other Teacher's License	18.3% (83)	10.4% (56)	14.1% (139)	13.5% (83)	9.1% (47)	11.5% (130)	9.8% (71)	8.6% (53)	9.2% (124)	7.9% (69)	7.4% (50)	7.7% (120)	7.2% (86)	5.7% (56)	6.5% (142)
CDA Credential	0.0% (0)	3.9% (21)	2.1% (21)	0.7% (4)	9.7% (50)	4.8% (54)	0.5% (4)	6.5% (40)	3.3% (44)	0.6% (5)	5.6% (38)	2.8% (43)	0.9% (11)	6.5% (64)	3.4% (75)
NCECC	1.1% (5)	16.2% (87)	9.3% (92)	1.1% (7)	29.0% (150)	13.9% (157)	1.1% (8)	31.4% (194)	15.1% (202)	1.1% (10)	32.4% (220)	14.9% (231)	1.0% (12)	37.9% (374)	17.7% (387)
None	12.6% (57)	52.8% (283)	34.4% (340)	9.4% (58)	37.2% (193)	22.2% (251)	5.7% (41)	37.0% (228)	20.0% (269)	3.9% (34)	33.2% (226)	16.7% (260)	5.2% (62)	32.8% (323)	17.6% (385)

[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 and licenses from other states.
[b] Four teachers reported working in both public and community settings. Their data is reflected only in the all settings category.

The demographic characteristics of the children served in the More at Four Program have remained fairly constant over time, although the absolute numbers served have continued to increase each year (see Table 8). Approximately half the children served are boys and half are girls. The percentage of Latino children has increased slightly in recent years, while the percentage of African-American children has decreased. Median total household size remained at 4, and the vast majority of the children's primary caregivers were employed. The population of children participating in More at Four has continued to be at-risk and of high service priority status, as intended.

As shown in Table 9, the children served are from low-income families, with about three-quarters eligible for free lunch, and most of the rest eligible for reduced-price lunch. The percentage of children with limited English proficiency has remained fairly constant at about 18%, while the percentage with a defined developmental/educational need has increased substantially to 21% in the most recent year. Smaller percentages of children have been served each year with an identified disability (5%-7%) or a chronic health condition (3%-6%).

In terms of service priority status, unserved children are the primary target group each year. As shown in Table 10, more than 70% of the children participating in More at Four each year were classified as unserved at the time of enrollment, with more than half never having been served prior to enrollment in More at Four. While the percentages of unserved and never served children have declined over time as the program has grown, the total numbers served have increased.

Table 8. Characteristics of All More at Four Children for Years 3–7

Characteristic		Year 3 2003-2004 n=10,891[a]	Year 4 2004-2005 n=13,515[b]	Year 5 2005-2006 n=17,251[c]	Year 6 2006-2007 n=20,468[d]	Year 7 2007-2008 n=29,978[e]
Gender	Male	51.5% (5,588)	51.1% (6,904)	51.0% (8,803)	50.9% (10,425)	51.3% (15,374)
	Female	48.5% (5,254)	48.9% (6,611)	49.0% (8,448)	49.1% (10,043)	48.7% (14,604)
Ethnicity	Black/ African American	42.8% (4,658)	40.0% (5,403)	36.4% (6,277)	34.6% (7,085)	36.1% (10,818)
	White/ European American	31.3% (3,404)	33.2% (4,480)	34.1% (5,890)	35.0% (7,166)	32.8% (9,826)
	Hispanic/Latino	17.8% (1,934)	18.9% (2,543)	21.8% (3,765)	22.7% (4,652)	22.2% (6,641)
	Multiracial	3.4% (369)	3.6% (488)	3.5% (604)	3.9% (800)	4.5% (1,355)
	Native American/ Alaskan Native	3.0% (328)	2.8% (375)	2.4% (407)	2.0% (406)	2.6% (764)
	Asian	1.6% (176)	1.4% (195)	1.5% (263)	1.6% (318)	1.7% (498)
	Native Hawaiian/ Pacific Islander	0.2% (22)	0.2% (31)	0.3% (45)	0.2% (41)	0.3% (76)
Median Total Household Size		4	4	4	4	4
Percent of Primary Caregivers Employed		69.3% (7,535)	76.4% (10,101)	79.3% (13,385)	81.5% (16,366)	81.9% (23,338)

[a] In 2003-2004, gender was not reported for 49 children, household size was not reported for 105 families and primary caregiver's employment was not reported for 14 families.
[b] In 2004-2005, primary caregiver's employment was not reported for 294 families.
[c] In 2005-2006, primary caregiver's employment was not reported for 369 families.
[d] In 2006-2007, primary caregiver's employment was not reported for 378 families.
[e] In 2007-2008, primary caregiver's employment was not reported for 1,485 families.

Table 9. Risk Factor Status of All More at Four Children for Years 3–7

Type of Risk Factor[a]	Risk Factor Description	Year 3 2003-2004 n=10,833[b]	Year 4 2004-2005 n=13,515	Year 5 2005-2006 n=17,251	Year 6 2006-2007 n=20,468	Year 7 2007-2008 n=29,978
Family Income[c]	Below 130% of poverty (eligible for free lunch)	74.3% (8,051)	74.4% (10,052)	73.6% (12,694)	75.4% (15,439)	74.5% (22,323)
	131-185% of poverty (eligible for reduced-price lunch)	15.3% (1,653)	16.4% (2,215)	16.4% (2,820)	15.4% (3,157)	15.4% (4,626)
	186-200% of poverty	10.4% (1,129)	3.2% (435)	3.6% (615)	3.1% (639)	3.0% (900)
	201-250% of poverty		4.8% (642)	4.8% (827)	4.0% (812)	4.5% (1,346)
	>251% of poverty		1.1% (150)	1.7% (295)	2.1% (421)	2.6% (783)
Limited English Proficiency	Family and/or child speak limited or no English in the home	18.1% (1,958)	17.1% (2,317)	18.6% (3,209)	17.5% (3,573)	18.2% (5,461)
Developmental/ Educational Need[d]	Developmental/educational need indicated by performance on a developmental screen	---	10.8% (1,459)	15.6% (2,694)	16.6% (3,395)	21.2% (6,339)
Identified Disability	Child has an IEP	7.0% (762)	5.7% (765)	4.8% (831)	4.5% (914)	5.6% (1,674)
Chronic Health Condition(s)	Child is chronically ill/ medically fragile	3.3% (361)	5.5% (746)	4.7% (818)	4.2% (867)	4.9% (1,460)

[a] In 2003-2004, sites could choose to use either Model I or Model II guidelines for determining risk levels; 75% used Model I and 25% used Model II. Only Model I was available in previous years and only Model II was available in subsequent years. For more information, see the 2003-2004 evaluation report.[4]
[b] In 2003-2004, risk factor data were not reported for 58 children.
[c] In 2003-2004, only one category for family income levels at or above 186% of poverty was distinguished under Model I.
[d] In 2003-2004, developmental/educational need was an additional risk factor only for Model II guidelines and only for children whose family incomes were 251-300% of poverty. In 2003-2004, 6 children in this category were identified as having a developmental/educational need. In 2004-2005, developmental/educational need was included as a risk factor for children in all income categories.

Table 10. Service Priority Status at Time of Enrollment for All More at Four Children for Years 3–7

Service Priority Status[a]		Year 3 2003-2004 n=10,891	Year 4 2004-2005 n=13,515	Year 5 2005-2006 n=17,251	Year 6 2006-2007 n=20,468	Year 7 2007-2008 n=29,978
Unserved	Children who have never been served in any preschool or child care setting.	62.3% (6,788)	60.4% (8,165)	59.9% (10,325)	58.8% (12,033)	54.6% (16,353)
	Children who are currently unserved (at home now but may previously have been in child care or some other preschool program) and meet eligibility requirements.[b]	20.9% (2,282)	17.9% (2,418)	13.2% (2,270)	13.1% (2,676)	13.1% (3,938)
	Children who are in a child care situation and served for 5 months or less in the year prior to More at Four.	--[c]	3.2% (436)	5.9% (1,022)	4.1% (849)	3.9% (1,161)
Underserved	Children who are not receiving subsidy but are in some kind of regulated child care or preschool program and meet eligibility requirements.	5.6% (606)	3.4% (463)	2.1% (364)	2.4% (497)	3.6% (1,072)
	Children who are in unregulated child care that does not meet the More at Four Pre-K standards.	--[c]	4.5% (608)	4.2% (716)	4.0% (814)	5.3% (1,592)
	Children who meet eligibility and are in pre-kindergarten or child care that does not meet More at Four standards.	11.2% (1,215)	10.5% (1,425)	7.2% (1,236)	7.2% (1,474)	8.5% (2,556)
	Children served by this site as 3-year-olds.	--[c]	--[c]	7.6% (1,318)	10.4% (2,125)	11.0% (3,306)

[a] Note that all children served must first meet the eligibility requirements as defined in the More at Four Program Guidelines.
[b] This category was represented by two separate categories in previous years, based on whether or not children were receiving subsidy.
[c] The program guidelines for service priority status did not distinguish this category in this year.

Results

CLASSROOM QUALITY

The quality of educational practices in a random sample of 50 More at Four classrooms was examined during the 2007-2008 school year (Year 7 of the More at Four Program). Child outcomes data were also gathered in each of these classrooms (see next section for these results). Each classroom was observed three times, with different information gathered during each visit. Some of this information was also available for two previous random samples of 57 classroms operating in 2005-2006 (Year 5) and 99 classrooms operating in 2003-2004 (Year 3), and comparisons to previous cohorts are included where possible.

Data were gathered about multiple dimensions of educational practices in each classroom. The developmental appropriateness of classroom practices was measured using the ECERS-R[10], including the activities and materials provided, the interactions among teachers and children, the physical environment, and the daily organization of the program. Information about the quality of instructional practices, including emotional support, instructional support, and classroom organization, was gathered using the CLASS[12]. Observational data were also gathered about the quality of the literacy environment of the classroom using the ELLCO[8]. The sensitivity of teacher-child interactions was measured using the CIS[11]. Descriptive information about the groupings of teachers and children and types of activities in the classroom were gathered using the DAC.[9] (See Methods Section for more information about the classroom quality data collection.)

Classroom Practices

Information on the global quality of classroom practices was gathered using the ECERS-R for all three cohorts (2007-2008, 2005-2006, 2003-2004). The ECERS-R is scored on a 1-7 scale from inadequate to excellent, with scores from 1.0-2.9 considered low quality, 3.0-4.9 considered medium quality, and 5.0-7.0 considered in the good quality range. The average ECERS-R total, subscale, and item scores for all three cohorts are presented in Table 11. The mean total child items score (items 1-37) in the 2007-2008 sample of More at Four pre-k classrooms was 4.4 and the mean total score (items 1-43) was 4.6, which represent scores in the medium quality (but close to good) range. In comparison to previous cohorts, the child items scores for the most recent 2007-2008 cohort were significantly higher than those for 2005-2006, which were also in the medium quality range, but lower than those for 2003-2004, which were in the good quality range. For the total items score, the 2003-2004 cohort scored significantly higher than the two later cohorts, in the good quality range compared to the medium quality range.

Similar patterns were found at the subscale level as well (as seen in Table 11). The 2007-2008 cohort scored significantly higher than the 2005-2006 cohort but lower than the 2003-2004 cohort on Space/Furnishings, Language-Reasoning, and Program Structure. The 2003-2004 cohort scored higher than both later cohorts on Personal Care Routines and Interactions, and higher than the 2005-2006 cohort only on Activities. There were no differences on the Parents and Staff subscale.

As seen in Figure 2, for the 2007-2008 sample, few classrooms had ECERS-R total scores in the low quality range, with about two-thirds in the medium quality range and almost one-third in the high quality range (Low=4%, Medium=66%, High=30%). In comparison, the 2005-2006 cohort had more classrooms scoring in the medium quality range and fewer in the high quality range (Low=2%, Medium=86%, High=12%). The opposite was found for the 2003-2004 cohort, which had more classrooms in high quality range and fewer in the medium and none in the low quality ranges (Low=0%, Medium=24%, High=76%).

A similar pattern was found at the subscale level, as seen in Figure 3. The average scores for the 2007-2008 classrooms were in the high quality range for two subscales (Language-Reasoning, Parents/Staff) and in the medium quality range for five (Space/Furnishings, Personal Care Routines, Activities, Interaction, Program Structure). A similar distribution was found for the 2005-2006 classrooms, although average scores were in the high quality range for only one subscale (Parents/Staff), in the medium quality range for five subscales (Space/Furnishings, Language-Reasoning, Activities, Interaction, Program Structure), and in the low quality range for one subscale (Personal Care Routines). In comparison, the average scores for the 2003-2004 classrooms were in the high quality range for five subscales (Space/Furnishings, Language-Reasoning, Interaction, Program Structure, Parents/Staff) and in the medium quality range for two (Personal Care Routines, Activities).

In general, across cohorts, scores tended to be relatively higher for aspects of quality related to Language-Reasoning, Interaction, Program Structure, and Parents/Staff. Scores tended to be relatively lower for aspects of the classroom environment related to Space/Furnishings, Personal Care Routines, and Activities.

Table 11. Quality of Classroom Practices (ECERS-R) in More at Four

Item Description[a]	Year 3 2003-2004 n=99 Mean (SD) Range	Year 5 2005-2006 n=57 Mean (SD) Range	Year 7 2007-2008 n=50 Mean (SD) Range	Significant Cohort Differences
Total Score[b]	**5.3 (0.6) 3.4-6.4**	**4.4 (0.7) 2.8-5.8**	**4.6 (0.9) 2.8-6.4**	**3>5,7[c]**
Total Child Items Score[d]	**5.3 (0.7) 3.0-6.6**	**4.2 (0.7) 2.7-5.8**	**4.4 (1.0) 2.5-6.4**	**3>7>5[c]**
Space and Furnishings Subscale	**5.0 (0.9) 3.0-6.8**	**3.9 (0.7) 2.6-5.8**	**4.5 (1.1) 2.4-6.4**	**3>7>5[c]**
Indoor space	5.0 (1.9) 1-7	4.6 (1.6) 2-7	4.5 (1.8) 1-7	
Furniture for routine care, play, and learning	6.4 (1.2) 2-7	5.1 (1.5) 2-7	5.9 (1.7) 2-7	
Furnishings for relaxation and comfort	5.5 (1.6) 3-7	5.0 (1.8) 1-7	5.3 (1.7) 1-7	
Room arrangement for play	5.6 (1.7) 1-7	3.3 (1.7) 2-7	5.3 (2.1) 2-7	
Space for privacy	5.2 (1.9) 2-7	3.5 (1.9) 2-7	5.0 (2.0) 2-7	
Child-related display	4.9 (1.5) 3-7	4.6 (1.5) 2-7	5.1 (1.5) 1-7	
Space for gross motor play	3.5 (2.0) 1-7	1.8 (1.3) 1-7	2.0 (1.3) 1-7	
Gross motor equipment	3.9 (2.3) 1-7	3.2 (2.0) 1-7	3.0 (2.0) 1-7	

[a] Total and subscale scores could range from 1.0-7.0; item scores could range from 1-7.
[b] The Total Score includes all items on the ECERS-R (items 1-43).
[c] Cohort differences were tested only for total scores and subscale scores.
[d] The Total Child Items Score includes items from all subscales on the ECERS-R but the Parents and Staff subscale (items 1-37).

Table 11. Quality of Classroom Practices (ECERS-R) in More at Four

Item Description[a]	Year 3 2003-2004 n=99 Mean (SD) Range	Year 5 2005-2006 n=57 Mean (SD) Range	Year 7 2007-2008 n=50 Mean (SD) Range	Significant Cohort Differences
Personal Care Routines Subscale	**4.9 (1.1) 2.3-7.0**	**2.8 (0.9) 1.3-5.7**	**3.1 (1.2) 1.5-6.2**	**3>5,7[b]**
Greeting/departing	6.6 (0.9) 4-7	5.5 (1.9) 1-7	5.9 (1.6) 1-7	
Meals/snacks[c]	4.0 (2.1) 1-7	1.8 (1.1) 1-6	1.9 (1.8) 1.0-7.0	
Nap/rest[d]	5.0 (2.0) 2-7	2.8 (2.0) 1-7	3.7 (2.3) 1.0-7.0	
Toileting/diapering	5.1 (2.5) 1-7	2.4 (1.6) 1-7	2.1 (1.9) 1.0-7.0	
Health practices	5.2 (2.0) 1-7	2.7 (1.7) 1-7	2.6 (1.6) 1.0-7.0	
Safety practices	3.9 (2.5) 1-7	1.4 (0.6) 1-4	2.1 (1.8) 1.0-7.0	
Language-Reasoning Subscale	**5.8 (0.9) 3.3-7.0**	**4.8 (0.8) 3.3-7.0**	**5.2 (1.3) 1.8-7.0**	**3>7>5[b]**
Books and pictures	5.5 (1.6) 2-7	4.3 (1.3) 1-7	4.6 (1.5) 1.0-7.0	
Encouraging children to communicate	6.6 (0.8) 4-7	6.3 (1.0) 4-7	6.1 (1.5) 1.0-7.0	
Using language to develop reasoning skills	4.9 (1.5) 2-7	4.1 (1.2) 2-7	4.8 (1.7) 1.0-7.0	

[a] Total and subscale scores could range from 1.0-7.0; item scores could range from 1-7.
[b] Cohort differences were tested only for total scores and subscale scores.
[c] For this item in 2005-2006, n=56.
[d] For this item in 2003-2004, n=91 and in 2005-2006, n=56.
[e] Total and subscale scores could range from 1.0-7.0; item scores could range from 1-7.

Table 11. Quality of Classroom Practices (ECERS-R) in More at Four

Item Description[a]	Year 3 2003-2004 n=99 Mean (SD) Range	Year 5 2005-2006 n=57 Mean (SD) Range	Year 7 2007-2008 n=50 Mean (SD) Range	Significant Cohort Differences
Informal use of language	5.9 (1.4) 2-7	4.4 (1.1) 3-7	5.5 (1.5) 2.0-7.0	
Activities Subscale	**4.9 (0.8) 2.8-6.6**	**4.5 (0.9) 2.2-6.9**	**4.6 (1.1) 2.3-7.0**	**3>5[a]**
Fine motor	5.6 (1.5) 3-7	5.2 (1.4) 2-7	5.3 (1.6) 2.0-7.0	
Art	5.0 (1.7) 1-7	4.4 (1.5) 2-7	4.8 (1.7) 2-7	
Music/ movement	4.3 (1.6) 2-7	4.7 (1.5) 2-7	4.0 (1.6) 1-7	
Blocks	4.5 (1.1) 3-7	4.3 (1.2) 1-7	4.7 (1.5) 1-7	
Sand/water	4.8 (1.4) 1-7	5.4 (1.6) 1-7	5.2 (1.5) 1-7	
Dramatic play	5.0 (1.4) 2-7	4.6 (1.1) 2-7	4.5 (1.2) 2-7	
Nature/science	4.5 (1.7) 2-7	4.3 (1.4) 2-7	4.3 (1.6) 2-7	
Math/number	4.9 (1.5) 1-7	4.5 (1.4) 1-7	4.9 (1.7) 1-7	
Use of TV, video, and/or computers[c]	5.2 (2.0) 1-7	3.7 (2.0) 1-7	4.0 (2.5) 1-7	
Promoting acceptance of diversity	5.1 (1.4) 2-7	4.2 (1.8) 2-7	4.2 (1.4) 2-7	

[a] Cohort differences were tested only for total scores and subscale scores.
[b] Total and subscale scores could range from 1.0-7.0; item scores could range from 1-7.
[c] For this item in 2003-2004, n=90; in 2005-2006, n=55; and in 2007-2008, n=43

Table 11. Quality of Classroom Practices (ECERS-R) in More at Four

Item Description[a]	Year 3 2003-2004 n=99 Mean (SD) Range	Year 5 2005-2006 n=57 Mean (SD) Range	Year 7 2007-2008 n=50 Mean (SD) Range	Significant Cohort Differences
Interaction Subscale	**6.2 (1.0) 1.4-7.0**	**4.8 (1.2) 2.0-7.0**	**4.7 (1.7) 1.6-7.0**	**3>5,7[a]**
Supervision of gross motor activities[b]	5.1 (1.7) 1-7	4.2 (1.4) 2-7	4.2 (2.0) 1-7	
General supervision of children	6.3 (1.4) 1-7	4.6 (2.0) 1-7	4.2 (2.5) 1-7	
Discipline	6.2 (1.2) 1-7	4.6 (1.6) 1-7	4.6 (2.1) 1-7	
Staff-child interactions	6.6 (1.2) 1-7	5.3 (2.0) 1-7	5.2 (2.4) 1-7	
Interactions among children	6.6 (1.0) 1-7	5.4 (1.7) 2-7	5.5 (1.9) 1-7	
Program Structure Subscale	**6.2 (0.9) 3.8-7.0**	**4.4 (1.4) 1.7-7.0**	**4.9 (1.2) 2.3-7.0**	**3>7>5[d]**
Schedule	6.0 (1.6) 2-7	2.9 (1.5) 2-7	3.7 (1.7) 1-7	
Free play	6.3 (1.3) 1-7	4.8 (2.3) 2-7	4.9 (2.1) 2-7	
Group time	6.3 (1.2) 3-7	4.9 (1.9) 1-7	5.9 (1.4) 3-7	
Provisions for children with disabilities[e]	6.1 (1.2) 1-7	5.8 (1.5) 2-7	5.3 (1.8) 1-7	

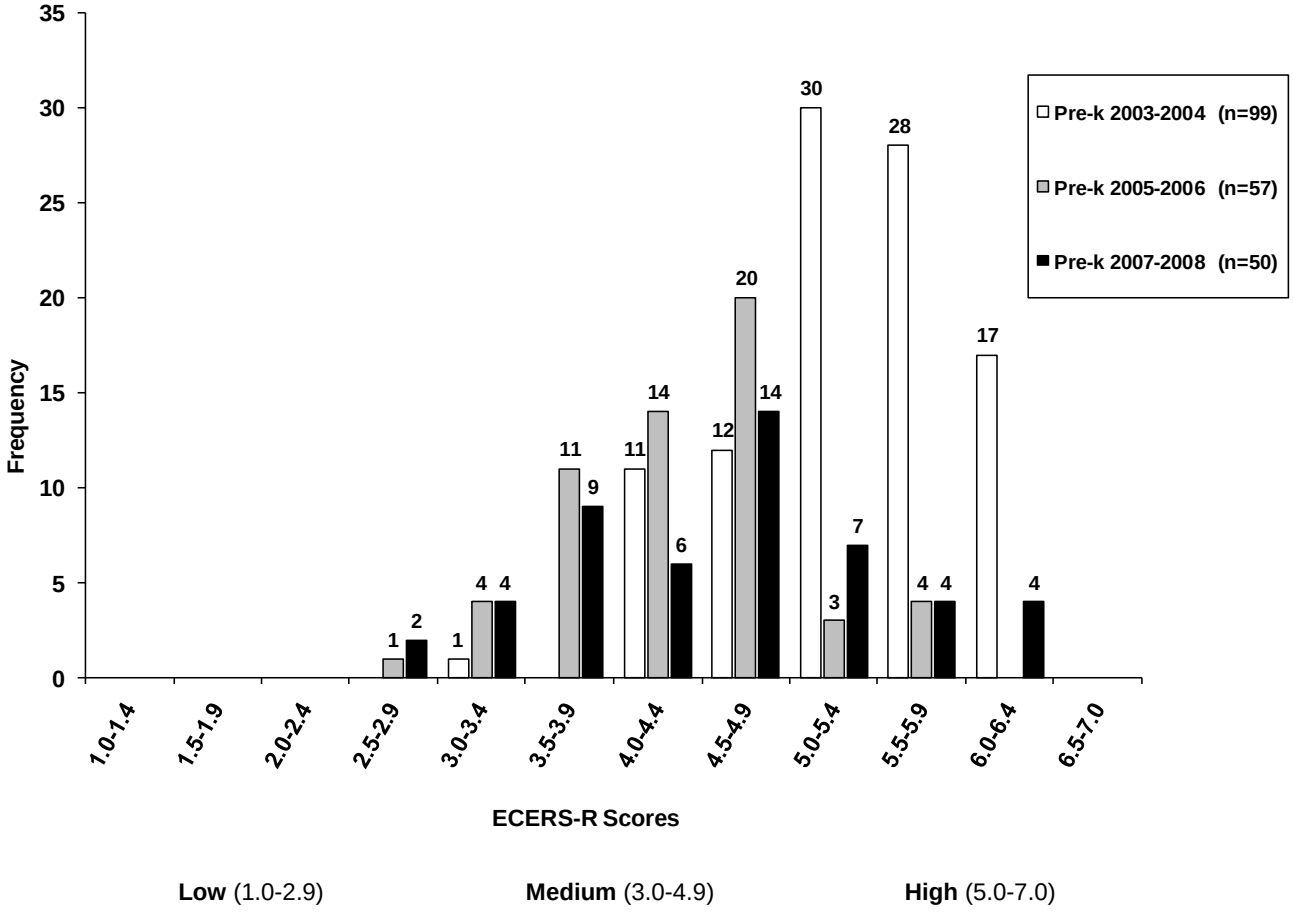
[a] Cohort differences were tested only for total scores and subscale scores.
[b] For this item in 2003-2004, n=98.
[c] Total and subscale scores could range from 1.0-7.0; item scores could range from 1-7.
[d] Cohort differences were tested only for total scores and subscale scores.
[e] For this item in 2003-2004, n=70; in 2005-2006, n=40; and in 2007-2008, n=35.

Table 11. Quality of Classroom Practices (ECERS-R) in More at Four

Item Description[a]	Year 3 2003-2004 n=99 Mean (SD) Range	Year 5 2005-2006 n=57 Mean (SD) Range	Year 7 2007-2008 n=50 Mean (SD) Range	Significant Cohort Differences
Parents and Staff Subscale	**5.3 (0.9) 2.5-7.0**	**5.6 (0.8) 3.0-7.0**	**5.3 (0.9) 3.5-6.7**	**NS[b]**
Parent provisions	5.9 (1.1) 1-7	5.9 (1.1) 3-7	5.6 (1.1) 4-7	
Staff personal needs, provisions	3.4 (1.6) 1-7	3.4 (1.7) 1-7	3.4 (1.5) 1-7	
Staff professional needs, provisions	4.8 (2.1) 1-7	5.3 (2.3) 1-7	4.7 (2.3) 1-7	
Staff interaction[a]	6.6 (1.1) 1-7	6.4 (1.1) 2-7	5.9 (1.5) 2-7	
Supervision/evaluation of staff	5.9 (1.5) 1-7	6.3 (1.3) 2-7	6.4 (1.0) 4-7	
Professional growth opportunities	5.3 (1.6) 1-7	6.1 (1.3) 2-7	5.8 (1.4) 2-7	

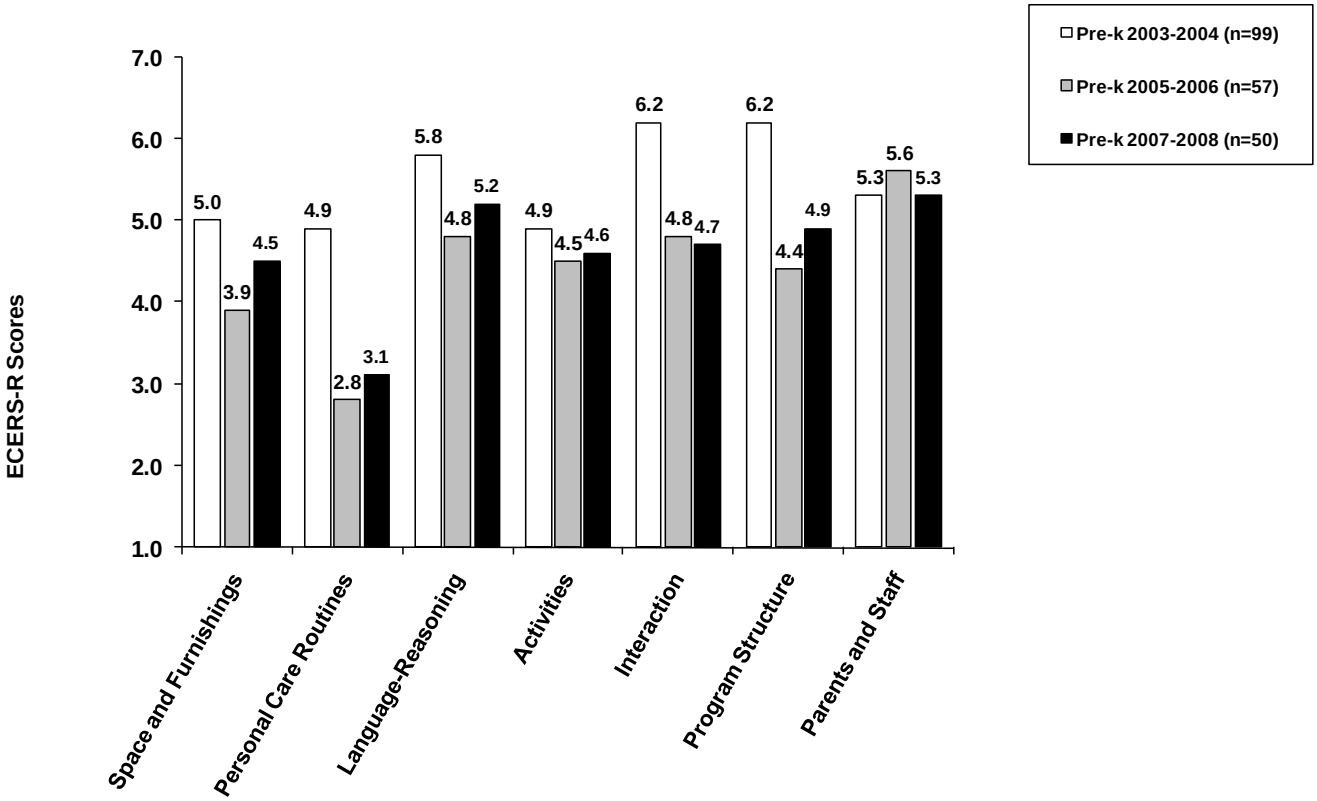
[a] For this item in 2007-2008, n=49.
[b] Total and subscale scores could range from 1.0-7.0; item scores could range from 1-7.

Figure 2. Classroom Practices Scores (ECERS-R Total Items)



Low (1.0-2.9) **Medium** (3.0-4.9) **High** (5.0-7.0)

Figure 3. Classroom Practices Mean Subscale Scores (ECERS-R)



Instructional Practices

Information was gathered about the quality of instructional practices for the 2007-2008 cohort using the CLASS, which is based on observations of the instructional interactions among teachers and children. The CLASS, which is scored on a 7-point scale from low (1-2) to middle (3-5) to high (6-7), includes three domains—Emotional Support (teachers' abilities to support social and emotional functioning in the classroom), Classroom Organization (classroom processes related to organizing and managing children's behavior, time, and attention), and Instructional Support (ways in which curriculum is implemented to support cognitive and language development). As seen in Table 12, Figure 4, Figure 5, and Figure 6, scores were higher on Emotional Support and Classroom Organization than on Instructional Support. The average score was near the high quality range on Emotional Support (5.8), with 82% of the classrooms scoring at 5.5 or above; in the upper end of the middle range on Classroom Organization (5.3), with 50% of classrooms scoring at 5.5 or above; and at the low end of the middle range on Instructional Support (3.0), with no classrooms scoring at 5.5 or above. In looking at the dimensions within each domain, scores were consistently high across items in Emotional Support, including the provision of a Positive climate and absence of a Negative climate (lower scores on Negative climate represent greater emotional support), as well as Teacher sensitivity and Regard for student perspectives. For Classroom Organization, the scores were higher for dimensions related to Behavior management (classroom management) and Productivity (maximizing learning time) than for the quality of Instructional learning formats (learning opportunities). Scores were consistently lower (in the upper low to lower middle range) for the dimensions related to Instructional Support, including the quality of Concept development, Quality of feedback, and Language modeling.

Table 12. Quality of Instructional Practices (CLASS) in More at Four

Item Description[a]	Year 7 2007-2008 n=50	
	Mean (SD)	**Range**
Emotional Support Domain[b]	**5.8 (0.9)**	**2.8-7.0**
Positive climate	5.7 (1.1)	2.5-7.0
Negative climate	1.5 (0.7)	1.0-4.8
Teacher sensitivity	5.5 (1.0)	2.4-7.0
Regard for student perspectives	5.3 (0.9)	2.5-7.0
Classroom Organization Domain	**5.3 (0.8)**	**2.9-6.7**
Behavior management	5.4 (1.0)	2.5-6.8
Productivity	5.6 (0.8)	3.2-7.0
Instructional learning formats	4.9 (0.8)	2.6-6.4
Instructional Support Domain	**3.0 (0.9)**	**1.4-5.3**
Concept development	2.8 (1.0)	1.2-5.0
Quality of feedback	3.3 (1.1)	1.2-6.3
Language modeling	3.0 (0.9)	1.2-5.5

[a] Domain and dimension mean scores could range from 1.0-7.0.
[b] Scoring is reversed for the Negative Climate Dimension before it is averaged into the Emotional Support Domain.

Figure 4. Instructional Practices Scores (CLASS) Emotional Support Domain

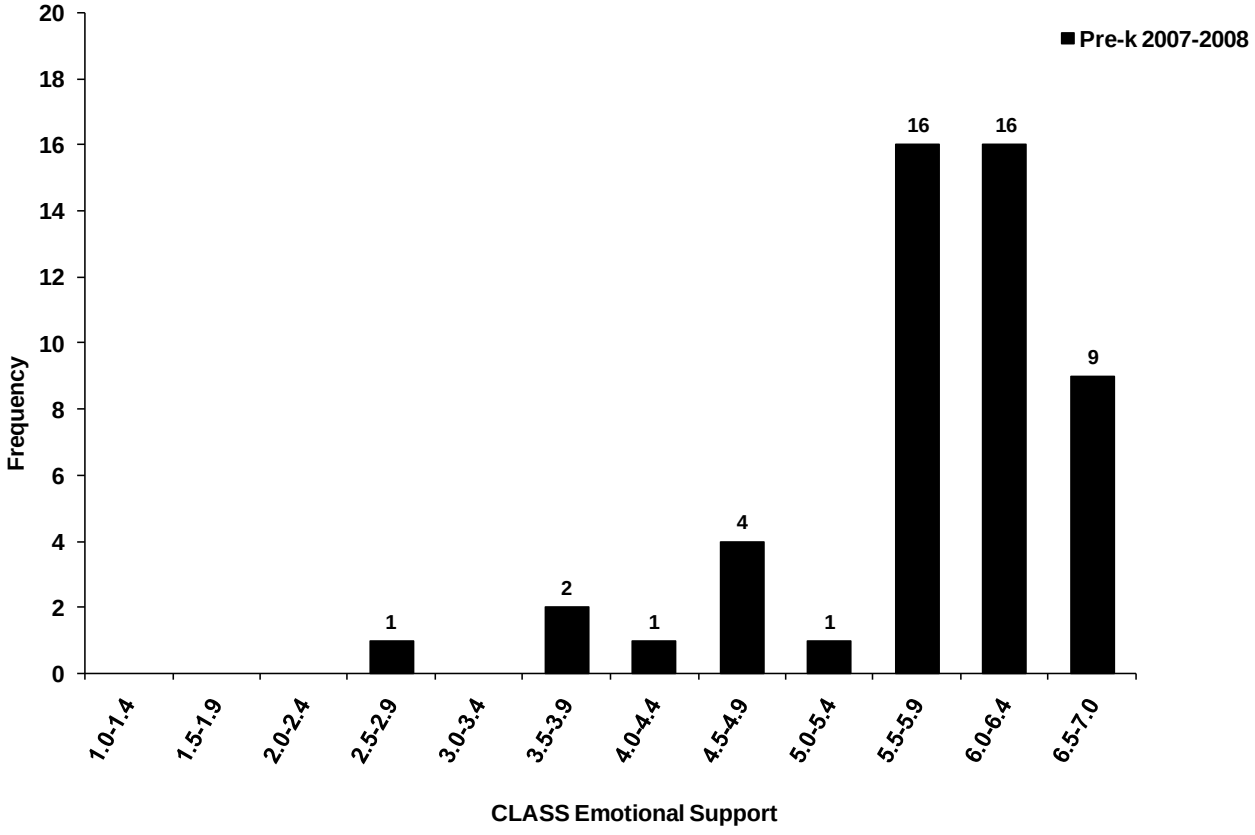


Figure 5. Instructional Practices Scores (CLASS) Classroom Organization Domain

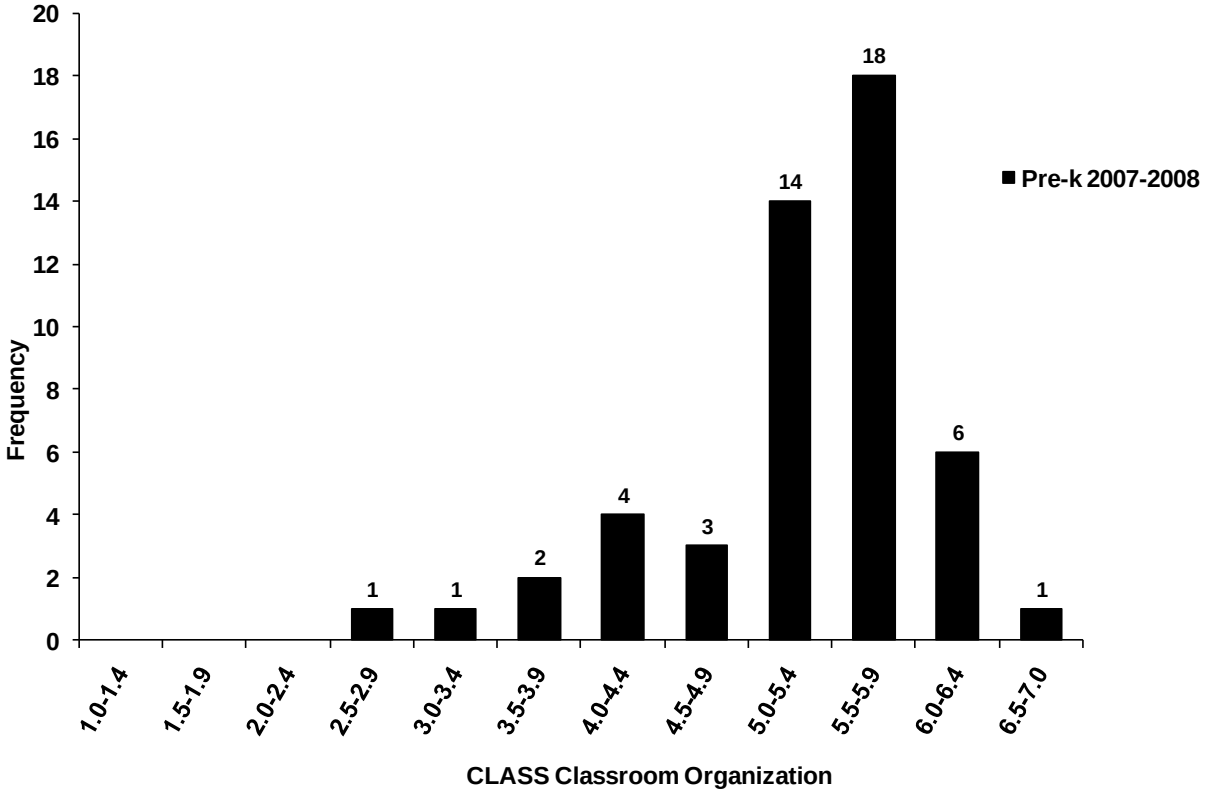
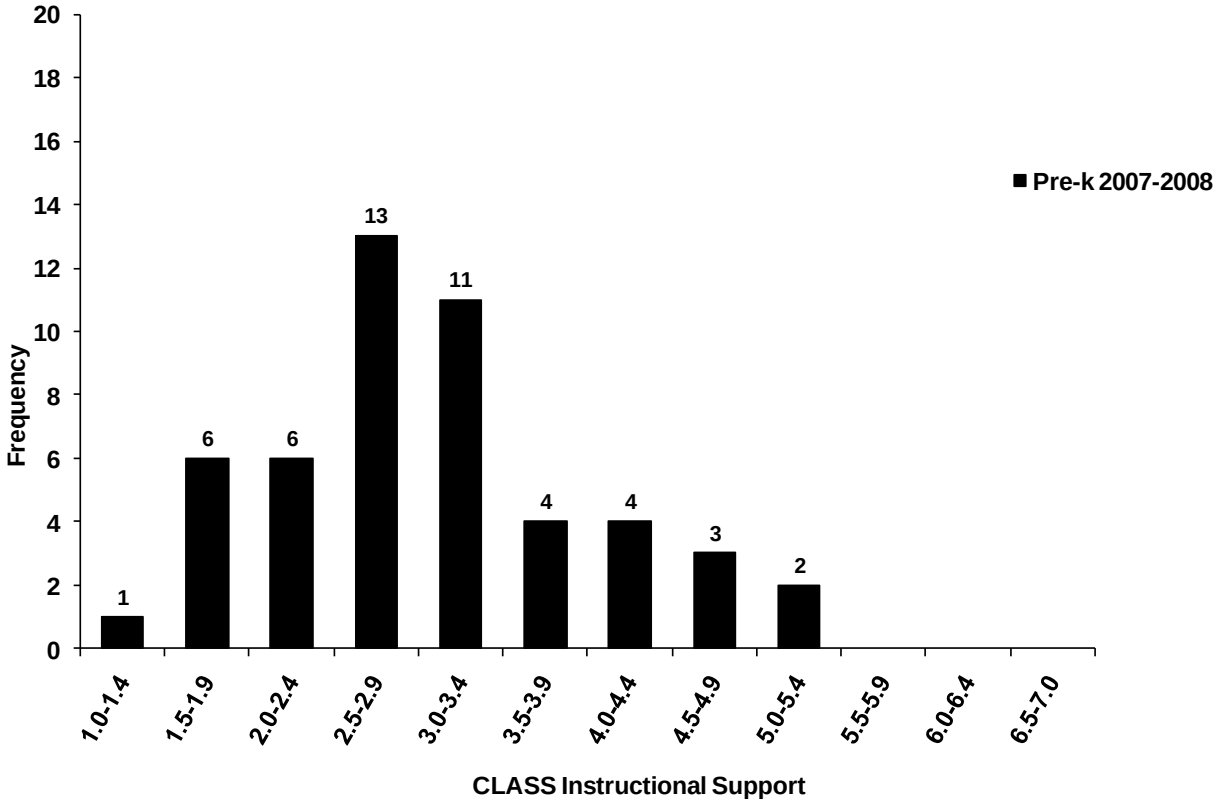


Figure 6. Instructional Practices Scores (CLASS) Instructional Support Domain



Literacy Environment

Observations of the quality of the literacy environment were conducted for the 2007-2008 and 2005-2006 cohorts using the ELLCO. As seen in Table 13, the scores remained fairly stable over time across these two samples. The Classroom Observation Scale, which includes subscales measuring both General Classroom Environment and Language, Literacy and Curriculum, is the primary quality indicator on the ELLCO. Items on this scale are scored from 1-5, representing quality levels from deficient (1) to basic (3) to exemplary (5). There were no significant differences between the two cohorts on the overall mean item score or the two subscale scores on the Classroom Observation Scale. The overall scores tended to be in the basic to exemplary range, with an average score of 3.6 in 2007-2008 and 3.7 in 2005-2006. As seen in Figure 7, for the 2007-2008 cohort, 24% scored 4.0 or above on the Classroom Observation Scale and 62% scored 3.5 or above, compared to 35% and 70% for the 2005-2006 cohort. Scores were somewhat higher on the General Classroom Environment subscale (3.9 and 4.0) than on the Language, Literacy and Curriculum subscale (3.5 and 3.6). Similarly, there were no significant differences between the two samples in total scores on the Literacy Environment Checklist (nor any of the subscale areas), which measures the presence of literacy materials (see Table 13 and Figure 8). In contrast, total scores on the Literacy Activities Rating Scale, which measures the frequency of literacy activities, were lower in the 2007-2008 cohort (mean=7.1) than the earlier 2005-2006 cohort (mean=8.2) (see Table 13 and Figure 9). These differences were primarily due to scores on the Book Reading subscale, while scores on the Writing subscale were not significantly different between the two samples.

Comparisons across the different scales on the ELLCO indicate that scores were relatively higher for both the 2007-2008 and 2005-2006 cohorts for classroom quality (Classroom Observation Scale; 72% and 74% of the total possible, respectively) and the presence of literacy materials (Literacy Environment Checklist; 69% and 71%) than for the frequency of literacy activities (Literacy Activities Rating Scale; 55% and 63%). Across both cohorts, the More at Four classrooms did a somewhat better job of setting up a literacy-rich environment than actually carrying out literacy-related activities.

Table 13. Quality of the Literacy Environment (ELLCO) in More at Four Classrooms

Item Description	Total Possible Range	Year 5 2005-2006 n=57 Mean (SD)	Year 7 2007-2008 n=50 Mean (SD)	Significant Cohort Differences
Classroom Observation Scale (Mean Item Score)	**1-5**	**3.7 (0.6)**	**3.6 (0.5)**	**NS**
General Classroom Environment	1-5	4.0 (0.7)	3.9 (0.6)	NS
Language, Literacy and Curriculum	1-5	3.6 (0.7)	3.5 (0.5)	NS
Literacy Environment Checklist (Total Score)	**0-41**	**29.2 (5.8)**	**28.4 (6.3)**	**NS**
Book Area	0-3	2.3 (0.7)	2.4 (0.8)	NS
Book Selection	0-8	7.5 (0.7)	7.5 (0.9)	NS
Book Use	0-9	5.2 (2.7)	5.2 (2.5)	NS
Writing Materials	0-8	6.2 (1.1)	6.3 (1.5)	NS
Writing Around the Room	0-13	8.0 (2.9)	7.0 (2.8)	NS
Literacy Activities Rating Scale (Total Score)	**0-13**	**8.2 (2.3)**	**7.1 (2.2)**	**5>7**
Book Reading	0-8	5.3 (1.8)	3.9 (1.7)	5>7
Writing	0-5	2.9 (1.6)	3.2 (1.3)	NS

Figure 7. Classroom Observation Scale Scores (ELLCO)

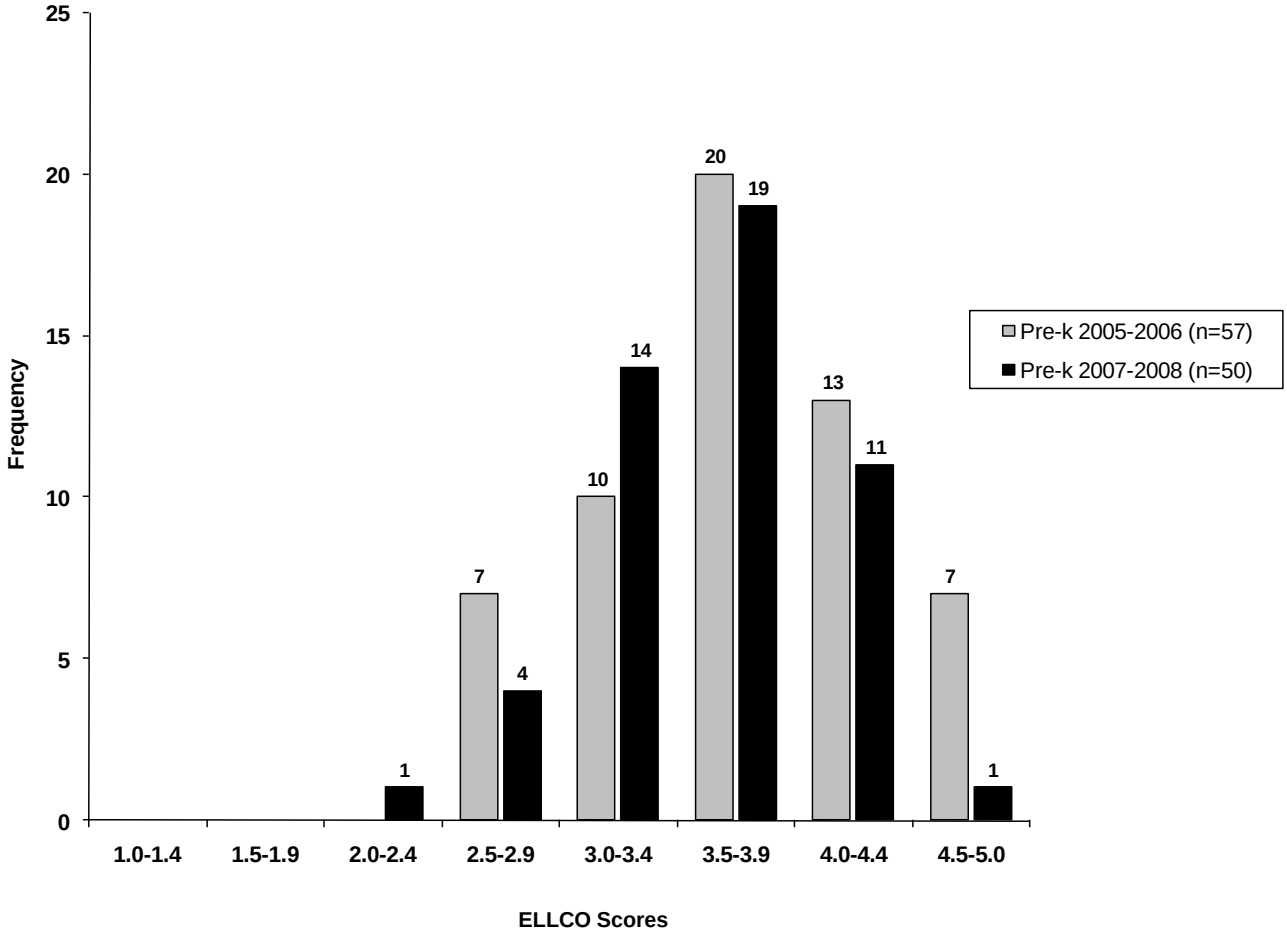


Figure 8. Literacy Environment Checklist Scores (ELLCO)

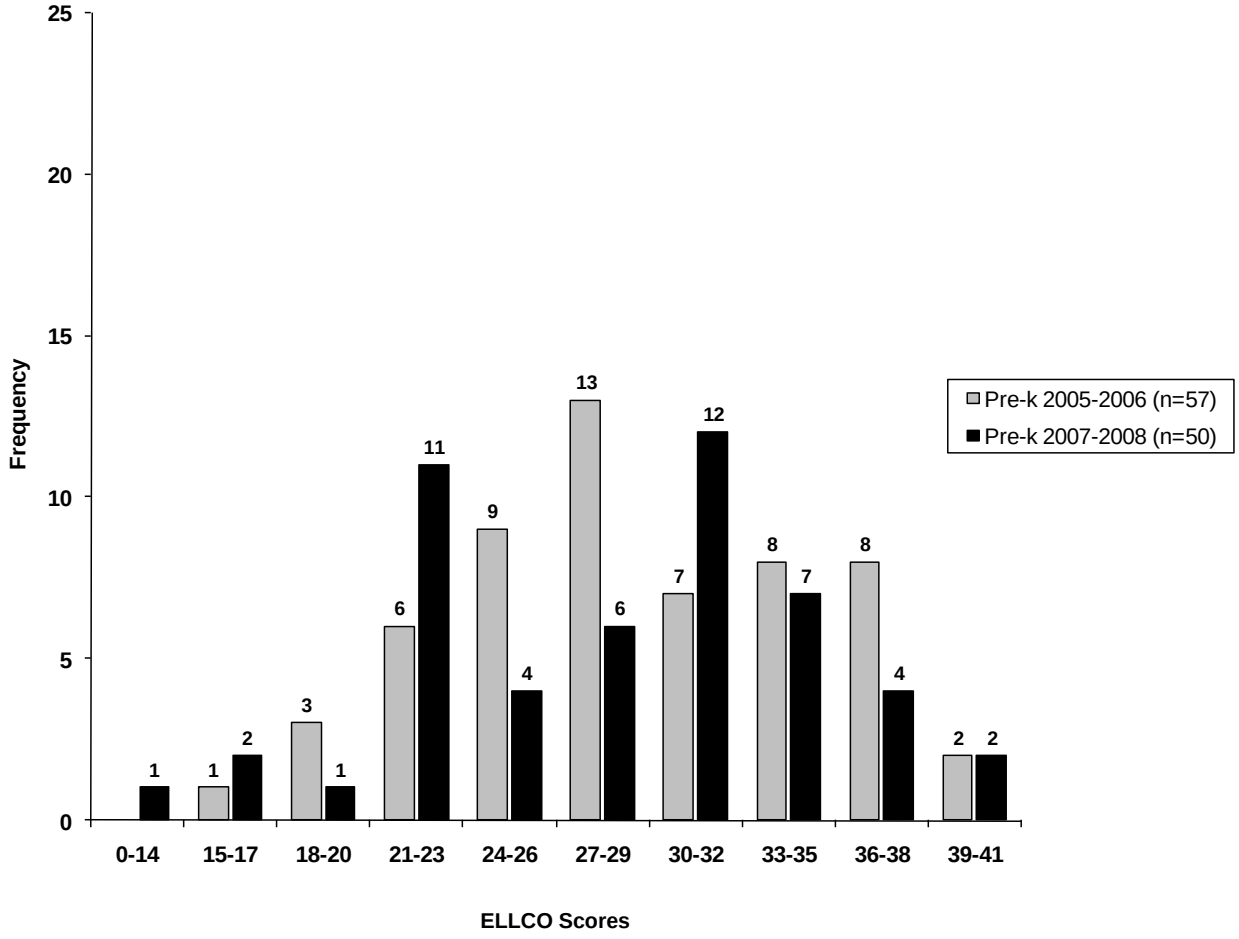
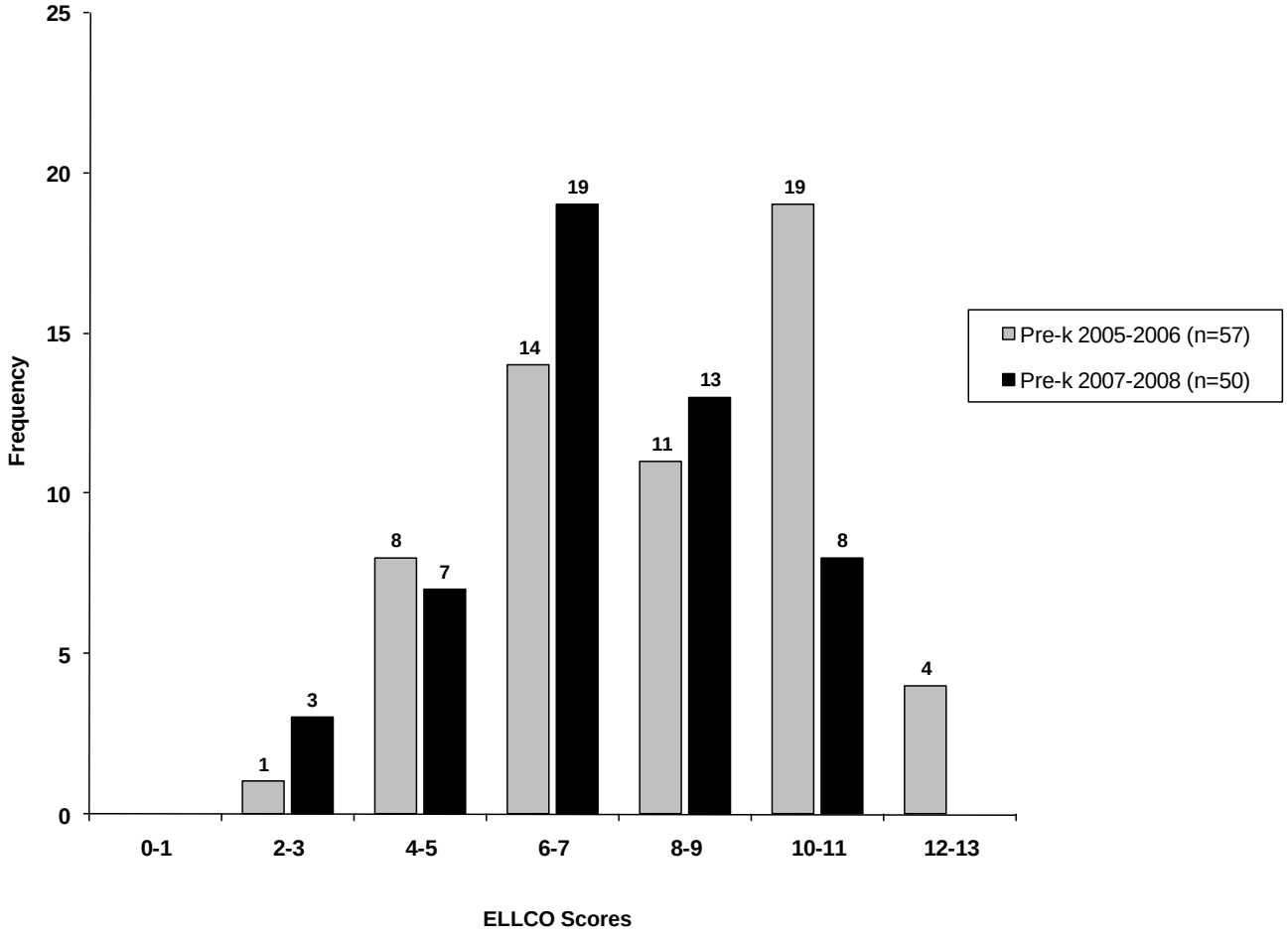


Figure 9. Literacy Activities Rating Scale Scores (ELLCO)



Teacher-Child Interactions

Observations of the quality of teacher-child interactions were conducted for both the 2007-2008 and 2005-2006 cohorts using the CIS. As seen in Table 14, the scores remained fairly constant across the two cohorts. Average total scores on the CIS indicate that teachers were fairly sensitive in their interactions with children in both 2007-2008 (mean=3.5) and 2005-2006 (mean=3.4). As seen in Figure 10, the majority of the More at Four pre-k classrooms in both the more recent and the earlier cohort scored 3.0 or above on the CIS total score, with higher scores representing more positive interactions (84% and 88%, respectively). As seen in Table 14 and Figure 11, scores on the Sensitivity subscale, which indicates positive interactions with children, were generally higher, while scores on the Harshness, Detachment, and Permissiveness subscales, which indicate negative interactions, were lower (i.e., fewer negative interactions occurred). Although significant, the differences between the cohorts on the Detachment subscale (slightly higher scores in 2007-2008) and the Permissiveness subscale (slightly lower scores in 2007-2008) were fairly minor.

On the Sensitivity subscale, 68% of the 2007-2008 cohort and 58% of the 2005-2006 cohort scored 3.0 or above, where higher scores represent more positive interactions. For the three negative subscales, where lower scores represent more positive interactions, scores were below 2.0 for most of the classrooms in both 2007-2008 (Harshness=78%, Detachment=94%, Permissiveness=90%) and 2005-2006 (Harshness=84%, Detachment=96%, Permissiveness=88%). A substantial number of the pre-k classes had scores of 1.0 (indicating the least negative interactions) on each of these three subscales in both the later and earlier cohorts (Harshness=32%, 23%, Detachment=48%, 63%, Permissiveness=66%, 35%).

Table 14. Quality of Teacher-Child Interactions (CIS) in More at Four

Item Description[a]	**Year 5 2005-2006** n=57	**Year 7 2007-2008** n=50	**Significant Cohort Differences**
	Mean (SD) Range[b]	**Mean** (SD) Range[b]	
Total Items Score	**3.4 (0.4) 2.4-3.9**	**3.5 (0.4) 2.4-4.0**	**NS**
Sensitivity Subscale	3.1 (0.4) 2.2-3.8	3.2 (0.6) 1.9-4.0	NS
Harshness Subscale	1.5 (0.5) 1.0-3.3	1.5 (0.6) 1.0-3.3	NS
Detachment Subscale	1.2 (0.3) 1.0-2.3	1.3 (0.4) 1.0-2.5	5<7
Permissiveness Subscale	1.4 (0.4) 1.0-2.3	1.2 (0.3) 1.0-2.0	7<5

[a] For the total score calculation, scoring is reversed on the Harshness, Detachment, and Permissiveness subscales so that higher total scores represent more positive interactions. For the individual scores on these three subscales, lower scores represent more positive interactions, while for the Sensitivity subscale, higher scores represent more positive interactions.
[b] Possible range=1.0-4.0.

Figure 10. Teacher-Child Interaction Scores (CIS Total)

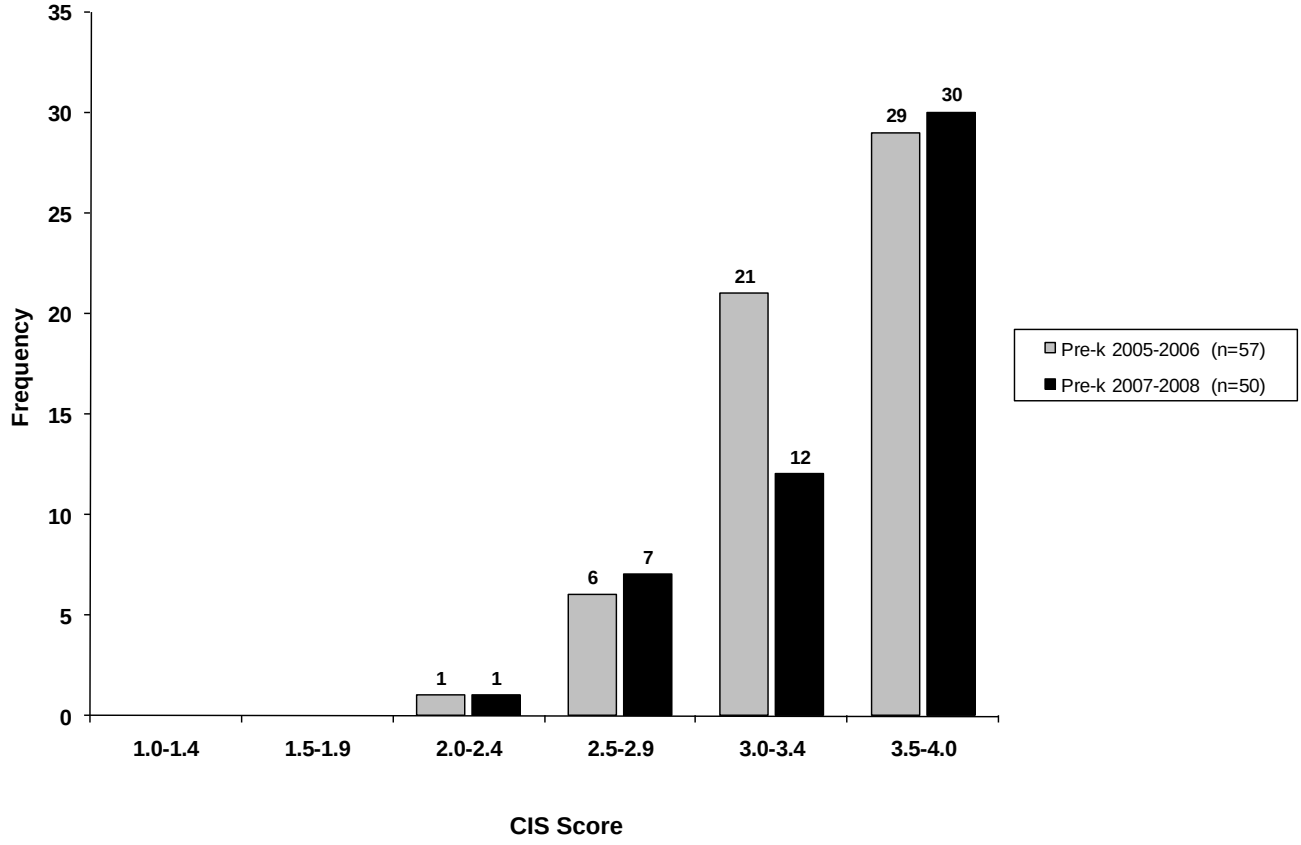
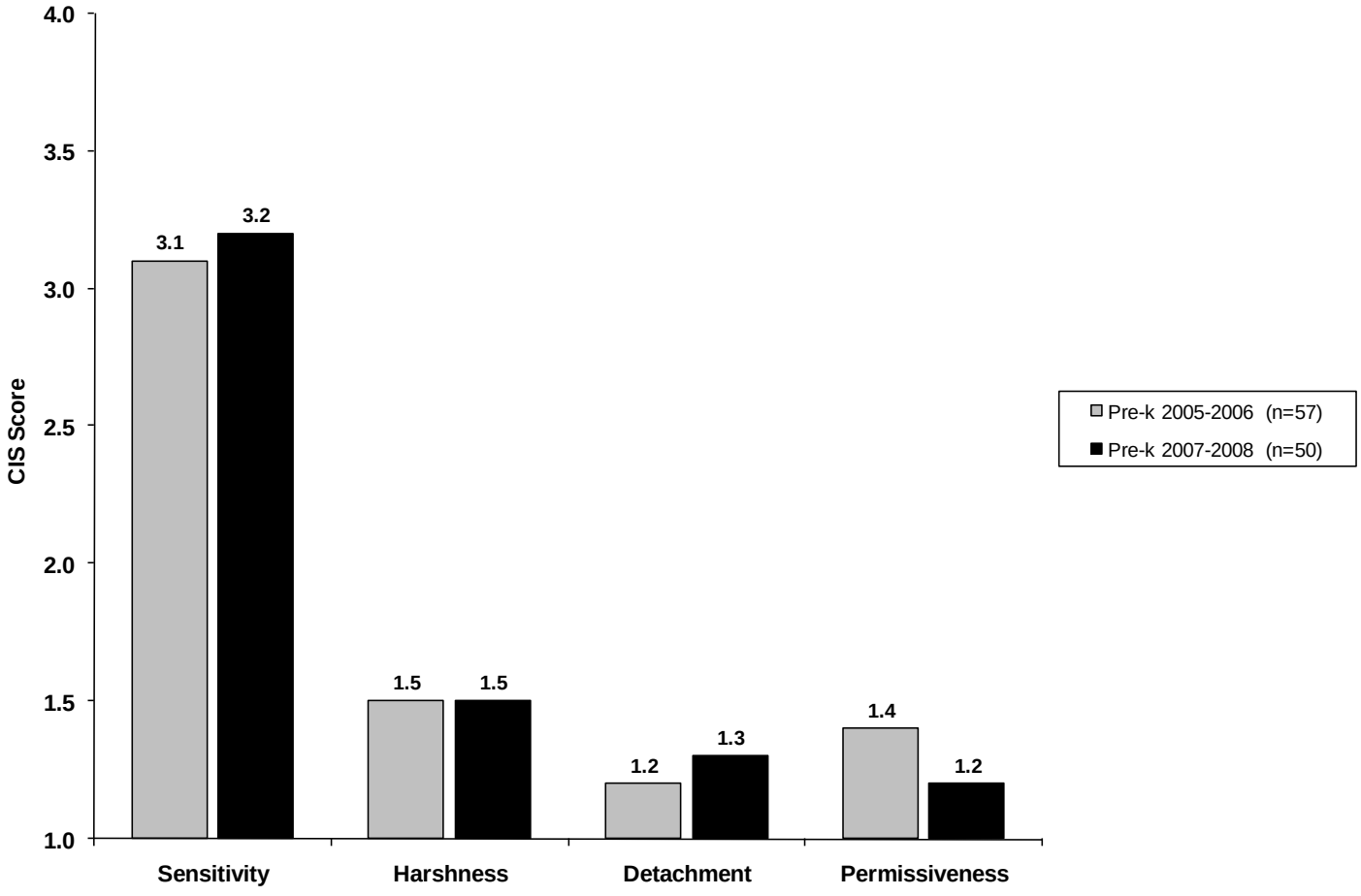


Figure 11. Teacher-Child Interaction Mean Subscale Scores (CIS)



Classroom Activities

Descriptive information was gathered about the groupings of children and teachers and activities during center time, which provides a key educational component and instructional opportunity for pre-k classrooms. Observations were conducted in the 2007-2008 classroom sample using the DAC, a time-sampling tool designed to record the number of children and adults in each group, the types of activities engaged in, the instructional leader for the activity, and the extent to which a literacy component is involved.

The proportion of observation periods that included each given type of activity (both instructional and non-instructional) is shown in Table 15. (Note that multiple activities could, and generally did, occur simultaneously within each observation block, since different individuals and groups of children and teachers may be engaged in different activities at any given time.) In general, a variety of activities occurred during center time, although there were some differences in the proportion of time spent for different types of activities. More time was spent during centers in creative activities (art, blocks, dramatic play, manipulatives, sand/water) than in more traditional academically-focused activities (books, math, science, writing,), with computer time somewhere in between. There was little time spent, on average, on some creative activities (cooking, games, listening center, music, woodworking). Relatively little time was also spent in gross motor activities (which is not surprising during center time) or in purely social interactions. There was also a wide range in the time spent in each classroom on non-instructional activities, such as behavior corrections, transitions, children off-task, and teachers not engaged with children. For most of these non-instructional activities, there were a few classrooms with high proportions of time spent in these types of activities, but for the majority of classrooms they reflected relatively small proportions of time. The one exception was transitions (which are defined as the activity focusing on transition itself rather than some other learning opportunity). For half the classrooms, one-third or more of the observation periods included time spent in transitions.

Looked at another way, Table 16 indicates the average child experience (i.e., the proportion of time spent across the various activities at the child level averaged over all the observations in these classrooms). In other words, a child would spend almost two-thirds of their center time in creative activities—dramatic play (17%), art (14%), blocks (13%), manipulatives (12%), and sand/water play (7%). Less than 20% of their time would be spent in more academically-focused activities—computers (5%), writing (4%), science (3%), books (3%), and math (1%). A substantial portion of time would be spent in transitions (8%), as well as some time in routine care (3%) and some time off-task (2%). Very little time would be spent on the remaining instructional and non-instructional activities (2% or less).

As seen in Table 17, most occurrences of instructional activities were child-led (91% overall). This was also true across the various types of instructional activities, where the vast majority were child-led rather than teacher-led (ranging from 71%-100% of occurrences). The one exception was social interactions, which were split nearly evenly between child-led and teacher-led. When this was further examined only for observed groupings in which a teacher was present, the majority of activities were still primarily child-led (66%). However, there were some activities which were primarily teacher-led (books, gross motor, math, social interactions), as well as some that were relatively evenly split between child-led and teacher-led (games,

listening center, music, writing), with many of the more academically-focused activities included here. Given that these observations were conducted during center time, these distributions are not surprising, and reflect both a freedom of choice about learning on the part of children but perhaps also some additional opportunities that could be utilized for teacher guidance and instruction.

Information about the literacy focus of the various types of instructional activities is included in Table 18. As expected, a primary literacy focus was predominant for activities that are inherently literacy-related—books, listening center, and writing. Similarly, all the computer activities had either a primary or secondary literacy focus. For most other activities, there were still a substantial number of occurrences with a primary or secondary literacy focus, suggesting that classrooms are integrating literacy content into a variety of different learning activities.

In looking at the groupings of children and adults as seen in Table 19, most activities involved an average group size of two or three children, although they ranged as high as fourteen. Most activities occurred without a teacher or other adult involved, which is expected given that multiple activities typically were occurring during each observation period, while there are usually only two teachers (a lead and an assistant) present. However, when teachers were involved, they were more likely to be engaged in certain creative activities (art, games, music) and academically-oriented activities (books, math, science, writing), as well social interactions and gross motor activities (although the latter occurred infrequently overall). They were somewhat less often engaged in other activities (blocks, computers, dramatic play, manipulatives, woodworking). They were even less frequently involved in other instructional activities (listening center, sand/water play). Teachers were also likely to be involved in non-instructional activities (behavior correction, meals, routine care activities, transitions), as expected, given their function as classroom managers.

Table 15. Proportion of Classroom Activities (DAC) in More at Four

Activity	Proportion of Observations Present	
	Mean (SD)	**Range**
Instructional Activities		
Art	0.64 (0.3)	0.0-1.0
Books	0.19 (0.2)	0.0-0.9
Blocks	0.68 (0.3)	0.0-1.0
Cooking	0.00 (0.0)	0.0-0.0
Computers	0.43 (0.4)	0.0-1.0
Dramatic play	0.74 (0.3)	0.2-1.0
Games	0.08 (0.2)	0.0-0.7
Gross motor	0.07 (0.2)	0.0-0.7
Listening	0.03 (0.1)	0.0-0.7
Manipulatives	0.59 (0.3)	0.0-1.0
Mathematics	0.06 (0.1)	0.0-0.6
Music	0.06 (0.2)	0.0-0.9
Science	0.26 (0.3)	0.0-0.9
Social	0.11 (0.1)	0.0-0.4
Sand/Water	0.51 (0.4)	0.0-1.0
Writing	0.30 (0.3)	0.0-1.0
Woodworking	0.01 (0.1)	0.0-0.3

Table 15. Proportion of Classroom Activities (DAC) in More at Four

Activity	Proportion of Observations Present	
	Mean (SD)	**Range**
Non-Instructional Activities		
Behavior correction	0.05 (0.1)	0.0-0.5
Meal	0.03 (0.1)	0.0-0.3
Other care	0.03 (0.1)	0.0-0.2
Toilet	0.21 (0.2)	0.0-0.6
Transition	0.35 (0.2)	0.0-0.7
Off-task	0.22 (0.2)	0.0-0.9
Not with child	0.23 (0.1)	0.1-0.6

Table 16. Children's Average Percentage of Time in Activities (DAC)

Activity	Percentage of Time
Instructional Activities	
Art	14.3%
Books	2.9%
Blocks	12.9%
Computers	4.9%
Dramatic play	16.6%
Games	1.4%
Gross motor	1.5%
Listening	0.5%
Manipulatives	12.0%
Mathematics	1.2%
Music	1.0%
Science	3.4%
Social	2.0%
Sand/water	7.2%
Writing	4.3%
Woodworking	0.1%
Non-Instructional Activities	
Behavior correction	0.6%
Meal	0.9%
Other care	0.3%
Toileting	2.5%
Transition	7.5%
Off-task	2.0%

Table 17. Frequency of Child-led Classroom Activities (DAC)

Activity	All Groups	Groups with an Adult
All Activities	**90.5%**	**66.4%**
Art	84.2%	65.8%
Books	74.2%	26.2%
Blocks	97.2%	87.9%
Computers	96.3%	71.4%
Dramatic play	96.6%	84.3%
Games	71.7%	43.5%
Gross motor	73.3%	40.0%
Listening	95.5%	50.0%
Manipulatives	94.5%	79.4%
Mathematics	79.6%	40.0%
Music	79.0%	42.9%
Science	90.5%	64.3%
Social	47.8%	33.3%
Sand/water	98.8%	86.2%
Writing	82.3%	54.2%
Woodworking	100.0%	100.0%

Table 18. Literacy Focus of Classrooom Activities (DAC)

Activity	Literacy Focus		
	Primary	Secondary	None
Art	9.2%	29.4%	61.5%
Books	92.5%	2.5%	5.0%
Blocks	1.6%	19.4%	79.0%
Computers	29.2%	70.9%	0.0%
Dramatic play	6.0%	25.0%	69.1%
Games	15.2%	37.0%	48.0%
Gross motor	15.6%	22.2%	62.2%
Listening	95.5%	0.0%	4.6%
Manipulatives	5.3%	25.4%	69.4%
Mathematics	0.0%	34.1%	65.9%
Music	10.5%	5.3%	84.2%
Science	3.8%	15.2%	81.0%
Social	11.6%	15.9%	72.5%
Sand/water	0.0%	9.7%	90.3%
Writing	88.4%	8.8%	2.8%
Woodworking	0.0%	20.0%	80.0%

Table 19. Group Composition for Classroom Activities (DAC)

Activity	Number of Children Mean (SD) Range	Number of Lead Teachers Mean (SD) Range	Number of Assistant Teachers Mean (SD) Range	Number of Other Adults Mean (SD) Range
All	**2.1** **(1.5)** **0-14**	**0.2** **(0.4)** **0-1**	**0.1** **(0.4)** **0-1**	**0.0** **(0.2)** **0-2**
Instructional Activities				
Art	2.5 (1.6) 1-12	0.2 (0.4) 0-1	0.2 (0.4) 0-1	0.1 (0.3) 0-1
Books	2.1 (1.8) 1-12	0.1 (0.3) 0-1	0.2 (0.4) 0-1	0.1 (0.3) 0-1
Blocks	2.6 (1.1) 1-7	0.1 (0.3) 0-1	0.1 (0.3) 0-1	0.0 (0.2) 0-1
Computers	1.6 (0.6) 1-4	0.1 (0.3) 0-1	0.1 (0.2) 0-1	0.0 (0.1) 0-1
Dramatic Play	2.8 (1.1) 1-9	0.1 (0.3) 0-1	0.1 (0.3) 0-1	0.0 (0.1) 0-1
Games	2.5 (1.7) 1-9	0.3 (0.4) 0-1	0.2 (0.4) 0-1	0.0 (0.2) 0-1
Gross Motor	2.8 (2.5) 1-13	0.1 (0.3) 0-1	0.4 (0.5) 0-1	0.0 (0.2) 0-1
Listening	2.1 (1.2) 1-4	0.0 (0.0) 0-0	0.1 (0.3) 0-1	0.0 (0.0) 0-0
Manipulatives	2.1 (1.2) 1-7	0.1 (0.3) 0-1	0.1 (0.4) 0-1	0.1 (0.2) 0-1
Mathematics	2.3 (2.0) 1-13	0.1 (0.4) 0-1	0.2 (0.4) 0-1	0.0 (0.0) 0-0
Music	2.3 (2.3) 1-13	0.3 (0.5) 0-1	0.1 (0.3) 0-1	0.0 (0.2) 0-1

Table 19. Group Composition for Classroom Activities (DAC)

Activity	Number of Children Mean (SD) Range	Number of Lead Teachers Mean (SD) Range	Number of Assistant Teachers Mean (SD) Range	Number of Other Adults Mean (SD) Range
Science	1.8 (1.0) 1-7	0.2 (0.4) 0-1	0.1 (0.3) 0-1	0.0 (0.2) 0-1
Social	2.5 (2.6) 1-14	0.5 (0.5) 0-1	0.3 (0.4) 0-1	0.1 (0.3) 0-1
Sand/Water	1.9 (0.8) 1-5	0.1 (0.2) 0-1	0.0 (0.2) 0-1	0.0 (0.1) 0-1
Writing	1.7 (0.9) 1-5	0.2 (0.4) 0-1	0.1 (0.4) 0-1	0.0 (0.2) 0-1
Woodworking	1.4 (0.6) 1-2	0.2 (0.5) 0-1	0.0 (0.0) 0-0	0.0 (0.0) 0-0
Non-Instructional Activities				
Behavior Correction	1.5 (1.0) 1-4	0.6 (0.5) 0-1	0.3 (0.5) 0-1	0.1 (0.3) 0-1
Meal	3.6 (1.9) 1-7	0.2 (0.4) 0-1	0.5 (0.5) 0-1	0.0 (0.0) 0-0
Other Care	1.6 (1.4) 1-6	0.6 (0.5) 0-1	0.1 (0.2) 0-1	0.0 (0.0) 0-0
Toilet, etc.	1.5 (1.2) 1-7	0.2 (0.4) 0-1	0.1 (0.3) 0-1	0.0 (0.2) 0-1
Transition	2.5 (2.4) 1-14	0.3 (0.5) 0-1	0.1 (0.3) 0-1	0.0 (0.2) 0-1
Off Task	1.2 (0.6) 1-5	0.0 (0.0) 0-0	0.0 (0.0) 0-0	0.0 (0.0) 0-0
Not with Child	0.0 (0.0) 0-0	0.5 (0.5) 0-1	0.5 (0.5) 0-1	0.2 (0.5) 0-2

Factors Predicting Classroom Quality

We examined whether various teacher and classroom characteristics were related to higher quality More at Four classrooms for the 2007-2008 sample. Four dimensions of classroom quality were examined in separate analyses: 1) Classroom practices as measured by the total score on the ECERS-R; 2) Instructional practices as measured by the CLASS Emotional Support, Classroom Organization, and Instructional Support domains; 3) Literacy environment as measured by the ELLCO Classroom Observation Score, Literacy Environment Checklist, and Literacy Activities Rating Scale, and 4) Sensitivity of teacher-child interactions as measured by the CIS total score. Teacher characteristics included lead teacher licensure (whether or not the teacher had a B-K license or the equivalent) and educational qualifications (highest earned degree). Classroom characteristics included total class size and proportion of More at Four children in the classroom, as well as characteristics of the More at Four children in the classrooms, including proportion of Spanish-speaking English language learners, average cumulative risk score, and average service priority status.[a]

The overall models were not significant for any of the classroom quality measures, indicating that as a set, these teacher and classroom factors did not predict the quality of the More at Four classrooms. However, there were some indications for two of the measures that certain characteristics may be associated with higher quality. Because the overall models were not significant, these results should be interpreted cautiously, but do offer some suggestion of areas that may be worth further exploration in relation to pre-k classroom quality.

Higher quality classroom practices (ECERS-R total score) were related to two classroom characteristics, smaller class size [$F(1, 43)=8.28$, $p<.007$] and lower average risk scores [$F(1, 43)=5.40$, $p<.03$]. The quality of classroom practices was not related to teacher qualifications.

More frequent literacy activities (ELLCO Literacy Activities Rating Scale) were found in classrooms where teachers had a B-K license or the equivalent [$F(1, 43)=6.46$, $p<.02$]. None of the other aspects of the quality of the literacy environment were related to characteristics of the classroom or teacher education levels.

Neither teacher qualifications nor classroom characteristics were related to measures of the quality of instructional practices (CLASS domains) or teacher sensitivity (CIS).

Analysis Strategies

Cohort Differences

To examine whether there were differences among cohorts on each of the classroom quality measures (ECERS-R total score; ELLCO Classroom Observation Scale total score, Literacy Environment Checklist total score, Literacy Activities Rating Scale total score; CIS total score), separate analyses of variance were conducted for each quality score. Information was gathered across three cohorts for the ECERS-R, and across two cohorts for the ELLCO and CIS. Omnibus tests of cohort effects were conducted, followed by pairwise comparisons of the mean differences by cohort when significant.

[a] Information on these characteristics was not available for non-More at Four children.

Factors Predicting Classroom Quality

To examine whether teacher or classroom factors predict classroom quality, we conducted a series of regression models using a general linear models approach. The teacher characteristics examined included lead teacher licensure (whether or not the teacher had a B-K license or the equivalent) and educational qualifications (highest earned degree). The classroom characteristics examined included total class size and proportion of More at Four children in the classroom, as well as characteristics of the More at Four children in the classrooms, including proportion of Spanish-speaking English language learners, average cumulative risk score, and average service priority status. Teacher licensure was a dichotomous variable; all other predictors were continuous.

CHILD OUTCOMES

Children's growth in key areas for school readiness, including language/literacy, math, general knowledge, and behavioral skills, as well as factors associated with greater growth, were examined during their participation in More at Four. Individual child assessments were conducted near the beginning and end of the school year in each of these domains to provide information about children's skills at entry into the pre-k program and their outcomes at the end of the program year. The sample was comprised of 321 children attending 50 randomly-selected More at Four classrooms across the state during the 2007-2008 school year, including 81 Spanish-speaking English language learners. Data on the quality of classroom practices were also gathered in each of these classrooms, as described in the previous section.

The child assessments included measures of children's Language and literacy skills (receptive language, letter/word knowledge, print knowledge, phonological awareness), Math skills (applied problems, counting), General knowledge (social awareness), and Behavioral skills (social skills, problem behaviors). Trained assessors administered individual measures of children's language/literacy skills, math skills, and general knowledge; teachers completed ratings of children's behavioral skills. For Spanish-speaking children, most of these assessments were administered in both English and Spanish (the measures of print knowledge and phonological awareness were not available in Spanish). (See Methods section for further information about the sample and measures.)

Longitudinal analyses examined children's developmental growth from entry into the More at Four pre-k program through the end of the school year. In addition, we examined the influence of factors that might be associated with differences in children's outcomes, including the quality of key aspects of pre-k classroom practices (global classroom practices, language/literacy practices, instructional practices) and individual child characteristics of cumulative risk level and English proficiency level.

A separate set of analyses examined growth for Spanish-speaking children when assessed in both Spanish and English, as well as the influence of children's levels of Spanish and English proficiency on their skills measured in each language. A further set of analyses examined the associations of skills in Spanish with the same skills in English for this subset of children.

Changes over Time in Child Outcomes

We conducted a set of longitudinal analyses to examine children's growth over time on the various outcome measures from the beginning to the end of the More at Four program year (see analysis strategies section for further details). As seen in Table 20, these results indicated that children exhibited significant growth during their pre-k year across all of the domains: Language and literacy skills (receptive language, letter-word knowledge, print knowledge, phonological awareness), Math skills (applied problems, counting), General knowledge (social awareness), and Behavioral skills (social skills). The one area that showed no changes was problem

behaviors, which remained just below the average expected score for children in these age ranges. For some of these skills (receptive language, counting, social awareness, social skills), while children still exhibited growth, it was not significant after adjusting for classroom quality and other child factors (cumulative risk and English proficiency levels).

Factors Associated with Differences in Child Outcomes

We also examined whether different factors, including individual child characteristics and various aspects of classroom quality, were associated with differences in children's growth in developmental skills during the More at Four year, after adjusting for other variables in the model (age at entry into More at Four, amount of More at Four attendance, gender, time elapsed between assessments, classroom). At the individual child level, children's cumulative risk levels and English proficiency levels were examined as moderating factors. We first examined whether risk levels were associated with different levels and rates of growth for children, after adjusting for classroom quality and controlling for other variables. The second set of analyses examined whether English proficiency levels differentially predicted children's levels and rates of growth, after adjusting for risk level and classroom quality and controlling for other variables. Finally, various aspects of classroom quality were also examined as moderating factors, including global classroom practices, language/literacy practices, and instructional practices (emotional support, classroom organization, instructional support), after adjusting for child risk levels and other variables. (See analysis strategies section for further details.)

Cumulative Risk Level

Children were categorized according to four levels of cumulative risk (0-3 from low risk to high risk) based on poverty level and presence or absence of additional risk factors (identified special need, limited English proficiency, chronic health condition, and developmental/educational need).[a] As seen in Table 21, children in the highest risk group (risk level=3) scored lower than other children in both the fall and spring for most outcomes: Language and literacy skills (receptive language, letter-word knowledge, phonological awareness), Math skills (applied problems, counting), and General knowledge (social awareness). For one measure (print knowledge), there were no differences in scores at the start of pre-k, but by the end, children in the highest risk group scored lower than children at less risk. There were little or no differences in behavioral skills (social skills, problem behaviors) for children at different risk levels. There were also no differences in children's rates of growth across the various domains, suggesting that the highest risk children were gaining skills at the same rate as other children.

[a] A total risk factor score was constructed based on the 2007-2008 More at Four eligibility guidelines, using income (5=below 130% poverty, 4=131%-185% poverty, 3=186%-200% poverty, 2=201%-250% poverty, 1=251%-300% poverty, 0=above 300% poverty) and additional risk factors (1 point each for limited English proficiency, identified disability, chronic health condition, and developmental/ educational need). The total risk factor score could range from 0-9. Based on the distribution of these scores, a four-level categorical variable (0-3) was constructed for analysis purposes, representing total risk factor scores of 0-3 (categorical risk score=0), 4 (categorical risk score=1), 5 (categorical risk score=2), and 6-9 (categorical risk score=3).

English Proficiency

We examined whether there were significant differences in skill development for children entering the program at different levels of English proficiency, based on individual assessments of oral language proficiency. Children were categorized according to five proficiency levels ranging from Non-English speaker (1) to Limited English speaker (2-3) to Fluent English speaker (4-5).

As seen in Table 22, children with lower English proficiency levels, especially those at the lowest level, scored lower than children with higher proficiency levels in both the fall and spring in nearly all areas: Language and literacy skills (receptive language, letter-word knowledge, print knowledge, phonological awareness), Math skills (applied problems, counting), General knowledge (social awareness), and Behavioral skills (social skills). There was no difference in ratings for problem behaviors on the basis of English proficiency levels.

However, children at lower English proficiency levels, especially those at the lowest level, made greater progress over time (i.e., exhibited steeper growth curves) in many areas of Language and literacy skills, including receptive language [$t(271.2)=-2.90$, $p<.004$], letter-word knowledge [$t(281.3)=-2.33$, $p<.03$], and phonological awareness [$t(281.6)=-2.70$, $p<.008$], as seen in Figure 12, Figure 13, and Figure 14; and Math skills, including applied problems [$t(281.5)=-5.67$, $p<.0001$], as seen in Figure 15. For one skill in the area of Math, counting, children at higher proficiency gained more than children at lower proficiency [$t(282.0)=2.73$, $p<.007$], although these differences were not clearly delineated by particular proficiency levels. In contrast, there were no differences in rates of growth for a few skills in the areas of Language/literacy (print knowledge), General knowledge (social awareness), and Behavioral skills (social skills, problem behaviors).

Further, the effects of English proficiency were stronger than those for cumulative risk. When differences in children's outcomes by risk levels were examined after accounting for children's English proficiency levels, the effects of risk were lessened. There was a decreased effect of risk for receptive language; the differences by risk level were no longer significant in other areas of Language/literacy skills (letter-word knowledge, print knowledge, phonological awareness), Math skills (applied problems, counting), and General knowledge (social awareness); and there were still no differences for Behavioral skills (social skills, problem behaviors).

Classroom Quality

We examined whether differences in the quality of classroom practices during More at Four predicted differences in children's growth over the pre-k year. Three aspects of classroom quality were examined separately: Global classroom practices (ECERS-R total child items score), Language and literacy practices (ELLCO Classroom Observation Scale score), and Instructional practices (CLASS Emotional support, Classroom organization, and Instructional support domain scores).

There were no differences in the amount of growth children exhibited in all domains of learning on the basis of the global quality of classroom practices. There were differences in two areas in relation to the quality of language/literacy practices, with children in higher quality classrooms exhibiting greater growth in print knowledge [$t(283.4)=2.92$, $p<.004$] and social skills [$t(265.3)=3.84$, $p<.0002$]. To illustrate these differences, comparisons are made for the amount

of growth exhibited from fall to spring in lower quality classrooms (1 standard deviation below the mean), average quality classrooms (at the mean), and higher quality classrooms (1 standard deviation above the mean). As seen in Figure 16, on print knowledge, children gained 4.7 points in classrooms with lower quality literacy practices, 6.5 points in those with average quality, and 8.2 points in those with high quality. Similarly, the gains on social skills were 0.6 points in lower quality classrooms, 3.7 points in average quality, and 6.7 points in classrooms with high quality practices (see Figure 17). There were also differences in children's growth in relation to the quality of instructional practices. Children in classrooms with higher levels of Classroom organization showed greater gains in letter-word knowledge [$t(279.1)=3.01$, $p<.003$] and print knowledge [$t(277.3)=2.63$, $p<.009$]. For example, children in classrooms with low quality classroom organization gained 3.4 points in letter-word knowledge, compared to 7.1 points for average quality, and 10.8 points for high quality (see Figure 18). A similar pattern was found for print knowledge, with gains of 3.8 points, 7.2 points, and 10.5 points for low, average, and high quality classrooms, respectively (see Figure 19). In contrast, teachers in classrooms with higher levels of classroom organization rated children's social skills lower in the fall and spring than teachers in classrooms with lower levels of Classroom organization [$t(50.0)=-2.79$, $p<.008$], although children's scores were generally close to the expected range (see Figure 20). Children in classrooms with higher levels of Instructional support also showed greater gains in print knowledge [$t(277.3)=3.07$, $p<.003$] as well as phonological awareness [$t(277.4)=4.18$, $p<.0001$]. Children's gains on print knowledge were 4.3 points for classrooms with lower quality instructional support, 7.2 points for average quality, and 10.0 points for those with higher quality practices (see Figure 21). The comparable gains on phonological awareness were 2.8 points, 7.3 points, and 11.8 points (see Figure 22). In contrast, children in classrooms with higher levels of Emotional support showed lower gains in print knowledge [$t(277.3)=-2.82$, $p<.006$], although children were still showing gains from fall to spring. In classrooms with lower quality emotional support, children gained 11.3 points on print knowledge, compared to 7.2 points for average quality, and 3.1 points for higher quality (see Figure 23). The different pattern of results on print knowledge for Emotional support may be related to the relatively high correlations among the three CLASS subscales. While children are still making gains in all cases, these results suggest that in terms of children's skill growth, it may be more beneficial to focus on the quality of instructional support and classroom organization than the quality of emotional support.

Growth in Developmental Skills for Spanish Subsample

Additional analyses were conducted for the subsample of children (n=81) administered measures in both English and Spanish. These analyses were designed to address three issues: 1) to examine whether children exhibited similar patterns of growth when assessed in English vs. Spanish, 2) to examine whether the amount of growth was associated with differences in children's level of English or Spanish proficiency, and 3) to examine the extent to which initial skill levels or growth in one language were related to the same skills in the other language. The assessments with both Spanish and English versions included some measures of Language/literacy skills (receptive language, letter-word knowledge), Math skills (applied problems, counting), and General knowledge (social awareness). It is important to note that for the standardized measures (receptive language, letter-word knowledge, applied problems), the English and Spanish versions differed somewhat in content, so the absolute scores may not be directly comparable. For the other two measures (counting, social awareness), the items on the English and Spanish versions were direct translations of one another.

Growth over Time

First, we examined the amount of growth the Spanish-speaking subsample of children exhibited over the More at Four program year for various skills assessed in both English and Spanish (see analysis strategies section for further details). As shown in Table 23, children exhibited significant growth on both English and Spanish measures in Math skills (applied problems, counting) and General knowledge (social awareness). For measures of Language/literacy skills available in both English and Spanish (receptive language, letter-word knowledge), children showed significant growth in English, but not in Spanish. For the two Language/literacy skills assessed only in English (print knowledge, phonological awareness), Spanish-speaking children exhibited significant growth on both.

Effects of English and Spanish Proficiency Levels

The second set of analyses examined whether Spanish-speaking children's levels of proficiency in English and Spanish were associated with their level of skills or rate of growth when assessed in both English and Spanish. In general, children's proficiency levels in one language were associated with skills assessed in that same language, but were not related to skills in the other language. Further, oral proficiency levels tended to be related to the level of skills in the fall and spring, but not to the rate of growth during the year.

As seen in Table 24, Spanish-speaking children at the lowest English proficiency level scored lower than other children in the fall and spring across all areas of Language/literacy skills (receptive language, letter-word knowledge, print knowledge, phonological awareness), Math skills (applied problems, counting), and General knowledge (social awareness) assessed in English, but there were no differences in the rates of growth. There was little difference in Spanish skills, except for fall scores on applied problems.

As seen in Table 25, children at the highest Spanish proficiency level had higher scores in the fall and spring than children at lower proficiency levels (especially in comparison to those at the lowest proficiency level) for most skills assessed in Spanish, including Language/Literacy (receptive language), Math (applied problems, counting), and General knowledge (social

awareness), but there were no differences in the rate of growth from fall to spring among these groups. There were no differences in skill levels or rates of growth for any skills assessed in English on the basis of Spanish oral proficiency.

For one math measure (applied problems), children's proficiency levels in one language were not only associated with skills in the same language but were also associated with skills in the other language. Children at higher Spanish proficiency levels exhibited greater growth in math skills assessed in English than children at lower levels [$t(70.3)=2.66$, $p<.01$], while children at the lowest English proficiency level scored lower in the fall on math skills assessed in Spanish.

Associations between English and Spanish Skill Levels

Given that the More at Four classrooms are conducted in English, we examined whether Spanish-speaking children's skills in Spanish were related to their skills in English for the corresponding outcomes (e.g., receptive language as measured by the PPVT-4 and the TVIP). Specifically, this third set of analyses tested whether Spanish-speaking children's initial Spanish skill levels at entry into More or Four were related to their initial skill levels or growth in English and/or whether their growth in Spanish skills during pre-k was related to their growth in English. These analyses provided information about the extent to which children were exhibiting general patterns of skill development regardless of the language in which they were assessed versus language-specific patterns of development.

As seen in Table 26, the results of these analyses indicated that children's initial skills in one language tended to be positively associated with their initial skill levels in the other language. Children who had higher initial scores when assessed in Spanish also had higher initial scores in English for both measures of Language/literacy skills (receptive language, letter-word knowledge) and one measure of Math skills (applied problems). There were no differences for the two other measures (counting, social awareness). There was only one association between skill levels and growth, however, with children's initial skill levels in Spanish related to greater growth in English for one area of Math skills (applied problems). There were no associations between children's rate of growth during the pre-k year for corresponding skills assessed in Spanish and in English.

Analysis Strategies

For the analyses of children's outcomes, several series of hierarchical linear models were conducted. Separate analyses were conducted for each outcome measure using a mixed models approach to account for repeated measures across each child and multiple children clustered within each classroom.[29] All model parameters were estimated using Restricted Maximum Likelihood (REML) as implemented in SAS proc mixed. Specific results of interest were estimated using effect statements to allow for proper standard error and test statistic calculations. As a precaution against Type I error, all analyses included adjustments to the p-values using the Benjamini-Hochberg correction for multiple comparisons.[30]

Changes over Time

To investigate whether significant levels of growth occurred in children's outcomes during the More at Four year, we estimated a series of hierarchical linear models. We included children's scores at two time points (fall pre-k and spring pre-k) as the dependent variables.

Factors Associated with Differences in Child Outcomes

To examine whether classroom or child factors affected children's rate of growth from fall to spring during their pre-k year, effects were estimated based on a series of hierarchical linear models, adjusting for all other variables in the model. The factors examined included children's cumulative risk factor score at entry into pre-k (four levels scored 0-3 from less to more at risk), children's English proficiency level (five levels scored 1-5 from less to more proficient), and three measures of the quality of pre-k classroom practices, each examined in separate models (ECERS-R total child items scores, ELLCO Classroom Observation Scale scores, and CLASS Emotional Support, Classroom Organization, and Instructional Support domain scores). A series of estimate statements following the overall growth models allowed for the calculation of adjusted performance and gains by time point and sample characteristics.

All of these models included the following covariates: time (0, 1), age at first assessment, days elapsed since previous assessment (time elapsed since enrollment for the first assessment), days of attendance at More at Four, and gender. The primary models testing the effects of cumulative risk levels also adjusted for classroom quality (as measured by the ECERS-R, with separate comparison models run using the ELLCO and CLASS. The primary models testing the effects of English proficiency also adjusted for risk level, the interaction between English proficiency and risk, and classroom quality as measured by the ECERS-R, with separate comparison models run using the ELLCO and CLASS. The models testing each of the three classroom quality measures also adjusted for risk levels. Note that unless otherwise specified, results reported in the text are based on the primary model.

Growth over Time for Spanish Subsample

To investigate whether significant levels of growth occurred in child outcomes assessed in English and Spanish for the Spanish-speaking subsample, a series of hierarchical linear models were estimated for this subsample. These analyses examined the amount of growth this subsample of children exhibited on the various Spanish and English outcome measures during the More at Four pre-k year. Similarly to the analyses conducted for the full sample, children's scores at two time points (fall pre-k and spring pre-k) were included as the dependent variables,

using models that accounted for repeated measures across each child and multiple children within each classroom.

Effects of English and Spanish Proficiency Levels

To examine whether children's proficiency levels in English or Spanish affected their rate of growth from fall to spring during pre-k, effects were estimated based on a series of hierarchical linear models, adjusting for all other variables in the model. English proficiency was examined as a four-level categorical variable (scored 1-4 from less to more proficient), given that none of these children scored at the most proficient level (5). Spanish proficiency was examined as a five-level categorical variable (scored 1-5 from less to more proficient). These models also included the interaction between English and Spanish proficiency, as well as time (coded 0, 1).

Associations between English and Spanish Skill Levels

A series of hierarchical linear models were calculated to test whether children's skills in Spanish predicted their skills in English for the same outcomes (e.g., receptive language as measured by the PPVT-4 and the TVIP). These models examined whether children's initial scores in Spanish at entry into pre-k (fall pre-k scores) predicted children's initial skills in English at entry into pre-k (fall pre-k scores) or growth on the English measures during pre-k, and/or whether children's gains on the Spanish measures during pre-k predicted their gains in English on the same measures during pre-k. These models accounted for repeated measures across each child and multiple children within each classroom, and included the interaction between initial Spanish scores and growth in Spanish.

Table 20. Child Outcome Scores by Assessment Period

Domain	Outcome	Year 7 2007-2008		Significance of Growth[a,b]
		Fall n=309-320	**Spring** n=290-295	
		Mean (SD) Range	**Mean** (SD) Range	
Language and Literacy	Receptive Language (PPVT-4[c])	88.1 (17.9) 33-131	91.0 (17.2) 23-129	***
	Letter-Word Identification (WJ-III[c])	93.4 (12.2) 62-136	96.5 (12.3) 61-151	***
	Print Knowledge (TOPEL[c])	89.9 (11.8) 71-131	95.8 (14.1) 66-124	***
	Phonological Awareness (TOPEL[c])	83.0 (14.5) 54-120	85.3 (15.2) 54-124	**
Math	Applied Problems (WJ-III[c])	93.7 (14.8) 58-129	98.2 (12.3) 53-140	***
	Counting Task[d]	11.6 (8.1) 0-40	18.0 (11.0) 0-40	***
General Knowledge	Social Awareness[e]	3.5 (1.8) 0-6	4.2 (1.6) 0-6	***
Behavioral Skills	Social Skills (SSRS[c])	101.0 (16.1) 54-130	109.4 (14.6) 57-130	***
	Problem Behaviors (SSRS[c])	99.8 (13.1) 85-140	99.5 (13.2) 85-145	NS

[a] *p < .05, **p<.01, ***p<.001, NS=nonsignificant.
[b] Significance levels indicate results of testing of the parameter estimates for the adjusted gains over time based on longitudinal growth model estimations.
[c] Indicates standardized, norm-referenced measure with mean=100, SD=15.
[d] Possible range=0-40.
[e] Possible range=0-6.

Table 21. Child Outcome Scores by Risk Factor Levels

Domain	Outcome	Risk Total Group[a]	Year 7 2007-2008 Fall Mean (SD) Range	Year 7 2007-2008 Spring Mean (SD) Range
Language and Literacy	Receptive Language (PPVT-4[b])	**0** n=26-27	97.4 (18.8) 54-127	97.5 (16.9) 64-120
		1 n=39-40	95.4 (14.9) 62-131	96.0 (17.1) 43-129
		2 n=151-170	89.1 (16.4) 33-124	93.8 (14.2) 49-128
		3 n=73	78.5 (18.4) 39-116	80.2 (18.6) 23-114
		Significant group differences[c]	3<0,1,2	3<0,1,2
	Letter-Word Identification (WJ-III[b])	**0** n=26-27	95.9 (11.2) 75-115	100.0 (8.7) 77-116
		1 n=41	95.0 (13.4) 62-118	97.4 (12.1) 69-116
		2 n=151-170	95.0 (11.3) 62-136	97.6 (12.6) 61-151
		3 n=73-82	88.5 (12.5) 66-114	92.5 (12.3) 62-117
		Significant group differences[c]	3<0,1,2[d]	3<0,2

[a] A total risk factor score was constructed based on the 2007-2008 More at Four eligibility guidelines, using income (5=below 130% poverty, 4=131%-185% poverty, 3=186%-200% poverty, 2=201%-250% poverty, 1=251%-300% poverty, 0=above 300% poverty) and additional risk factors (1 point each for limited English proficiency, identified disability, chronic health condition, and developmental/ educational need). The total risk factor score could range from 0-9. Based on the distribution of these scores, a four-level categorical variable (0-3) was constructed for analysis purposes, representing total risk factor scores of 0-3 (categorical risk score=0), 4 (categorical risk score=1), 5 (categorical risk score=2), and 6-9 (categorical risk score=3).
[b] Indicates standardized, norm-referenced measure with mean=100, SD=15.
[c] Significance levels indicate results of post-hoc comparisons of the parameter estimates for each risk category based on longitudinal growth model estimations that corrected for classroom quality. Separate models were run for each classroom quality measure. Unless otherwise noted, the pattern of results was identical for all classroom quality measures.
[d]This result reflects ECERS or ELLCO being used as the classroom quality measure. The pattern was slightly different when the CLASS was used instead: 3<1,2.

Table 21. Child Outcome Scores by Risk Factor Levels

Domain	Outcome	Risk Total Group[a]	Year 7 2007-2008 Fall Mean (SD) Range	Year 7 2007-2008 Spring Mean (SD) Range
Language and Literacy	Print Knowledge (TOPEL[b])	**0** n=26-27	93.4 (13.0) 77-120	98.0 (10.7) 74-118
		1 n=41	90.9 (13.2) 73-124	98.3 (14.8) 66-119
		2 n=153-170	90.9 (11.7) 75-131	97.2 (14.1) 67-124
		3 n=72-82	86.0 (9.8) 71-116	90.6 (13.6) 67-119
		Significant group differences[c]	NS[d]	3<0,1,2[e]
	Phonological Awareness (TOPEL[b])	**0** n=26-27	86.2 (13.8) 57-109	92.3 (12.1) 54-115
		1 n=41	86.2 (13.5) 54-113	87.3 (16.0) 54-118
		2 n=153-170	85.8 (13.9) 55-120	87.3 (14.5) 54-124
		3 n=72-82	74.1 (13.0) 54-107	77.3 (14.6) 54-110
		Significant group differences[c]	3<0,1,2	3<0,1,2

[a] A total risk factor score was constructed based on the 2007-2008 More at Four eligibility guidelines, using income (5=below 130% poverty, 4=131%-185% poverty, 3=186%-200% poverty, 2=201%-250% poverty, 1=251%-300% poverty, 0=above 300% poverty) and additional risk factors (1 point each for limited English proficiency, identified disability, chronic health condition, and developmental/ educational need). The total risk factor score could range from 0-9. Based on the distribution of these scores, a four-level categorical variable (0-3) was constructed for analysis purposes, representing total risk factor scores of 0-3 (categorical risk score=0), 4 (categorical risk score=1), 5 (categorical risk score=2), and 6-9 (categorical risk score=3).
[b] Indicates standardized, norm-referenced measure with mean=100, SD=15.
[c] Significance levels indicate results of post-hoc comparisons of the parameter estimates for each risk category based on longitudinal growth model estimations that corrected for classroom quality. Separate models were run for each classroom quality measure. Unless otherwise noted, the pattern of results was identical for all classroom quality measures.
[d] This result reflects ECERS or ELLCO being used as the classroom quality measure. The pattern was slightly different when the CLASS was used instead: 3<0.
[e] This result reflects ECERS or ELLCO being used as the classroom quality measure. The pattern was slightly different when the CLASS was used instead: 3<1,2.

Table 21. Child Outcome Scores by Risk Factor Levels

Domain	Outcome	Risk Total Group[a]	Year 7 2007-2008 Fall Mean (SD) Range	Year 7 2007-2008 Spring Mean (SD) Range
Math	Applied Problems (WJ-III[b])	**0** n=26-27	98.6 (15.1) 60-123	101.4 (13.1) 67-127
		1 n=41	97.2 (15.1) 59-129	100.3 (11.8) 65-123
		2 n=152-169	96.0 (13.2) 59-127	100.3 (10.2) 74-140
		3 n=73-82	85.4 (14.6) 58-112	91.5 (13.9) 53-118
		Significant group differences[c]	3<0,1,2	3<0,1,2
	Counting Task[d]	**0** n=26-27	14.4 (8.5) 0-39	20.1 (10.8) 3-40
		1 n=41	12.3 (8.7) 0-40	18.0 (10.8) 0-39
		2 n=152-170	12.7 (8.4) 0-40	19.6 (11.0) 3-40
		3 n=73-82	7.9 (5.7) 0-29	14.0 (10.3) 0-40
		Significant group differences[c]	3<2	3<2 [d]

[a] A total risk factor score was constructed based on the 2007-2008 More at Four eligibility guidelines, using income (5=below 130% poverty, 4=131%-185% poverty, 3=186%-200% poverty, 2=201%-250% poverty, 1=251%-300% poverty, 0=above 300% poverty) and additional risk factors (1 point each for limited English proficiency, identified disability, chronic health condition, and developmental/ educational need). The total risk factor score could range from 0-9. Based on the distribution of these scores, a four-level categorical variable (0-3) was constructed for analysis purposes, representing total risk factor scores of 0-3 (categorical risk score=0), 4 (categorical risk score=1), 5 (categorical risk score=2), and 6-9 (categorical risk score=3).
[b] Indicates standardized, norm-referenced measure with mean=100, SD=15.
[c] Significant differences indicate results of post-hoc pairwise comparisons of the parameter estimates for each risk category based on longitudinal growth model estimations that corrected for classroom quality. Separate models were run for each classroom quality measure. Unless otherwise noted, the pattern of results was identical for all classroom quality measures.
[d] Possible range=0-40.

Table 21. Child Outcome Scores by Risk Factor Levels

Domain	Outcome	Risk Total Group[a]	Year 7 2007-2008 Fall Mean (SD) Range	Year 7 2007-2008 Spring Mean (SD) Range
General Knowledge	Social Awareness[b]	**0** n=26-27	3.8 (1.4) 1-6	4.6 (1.5) 1-6
		1 n=40-41	3.8 (1.8) 0-6	4.5 (1.5) 1-6
		2 n=152-169	3.9 (1.7) 0-6	4.5 (1.4) 1-6
		3 n=73-82	2.4 (1.8) 0-6	3.2 (1.7) 0-6
		Significant group differences[c]	3<0,1,2	3<0,1,2
Behavioral Skills	Social Skills (SSRS[d])	**0** n=23-24	106.7 (14.9) 85-130	112.0 (14.4) 80-130
		1 n=38-39	103.1 (16.7) 66-126	111.0 (13.3) 71-130
		2 n=154-160	100.8 (15.9) 57-130	108.4 (14.6) 71-130
		3 n=75-79	98.8 (16.4) 54-128	109.8 (15.2) 57-130
		Significant group differences[c]	NS	NS

[a] A total risk factor score was constructed based on the 2007-2008 More at Four eligibility guidelines, using income (5=below 130% poverty, 4=131%-185% poverty, 3=186%-200% poverty, 2=201%-250% poverty, 1=251%-300% poverty, 0=above 300% poverty) and additional risk factors (1 point each for limited English proficiency, identified disability, chronic health condition, and developmental/ educational need). The total risk factor score could range from 0-9. Based on the distribution of these scores, a four-level categorical variable (0-3) was constructed for analysis purposes, representing total risk factor scores of 0-3 (categorical risk score=0), 4 (categorical risk score=1), 5 (categorical risk score=2), and 6-9 (categorical risk score=3).
[b] Possible range=0-6.
[c] Significant differences indicate results of post-hoc pairwise comparisons of the parameter estimates for each risk category based on longitudinal growth model estimations that corrected for classroom quality. Separate models were run for each classroom quality measure. Unless otherwise noted, the pattern of results was identical for all classroom quality measures.
[d] Indicates standardized, norm-referenced measure with mean=100, SD=15.

Table 21. Child Outcome Scores by Risk Factor Levels

Domain	Outcome	Risk Total Group[a]	Year 7 2007-2008	
			Fall	Spring
			Mean (SD) Range	**Mean** (SD) Range
Behavioral Skills	Problem Behaviors (SSRS[b])	**0** n=24	97.7 (12.2) 85-118	95.8 (10.4) 85-118
		1 n=39-41	98.7 (12.8) 85-124	99.6 (14.5) 85-137
		2 n=156-161	100.5 (13.9) 85-140	101.2 (13.3) 85-145
		3 n=74-82	99.3 (12.0) 85-134	96.9 (12.3) 85-135
		Significant group differences[c]	NS	NS

[a] A total risk factor score was constructed based on the 2007-2008 More at Four eligibility guidelines, using income (5=below 130% poverty, 4=131%-185% poverty, 3=186%-200% poverty, 2=201%-250% poverty, 1=251%-300% poverty, 0=above 300% poverty) and additional risk factors (1 point each for limited English proficiency, identified disability, chronic health condition, and developmental/ educational need). The total risk factor score could range from 0-9. Based on the distribution of these scores, a four-level categorical variable (0-3) was constructed for analysis purposes, representing total risk factor scores of 0-3 (categorical risk score=0), 4 (categorical risk score=1), 5 (categorical risk score=2), and 6-9 (categorical risk score=3).
[b] Indicates standardized, norm-referenced measure with mean=100, SD=15.
[c] Significant differences indicate results of post-hoc pairwise comparisons of the parameter estimates for each risk category based on longitudinal growth model estimations that corrected for classroom quality. Separate models were run for each classroom quality measure. Unless otherwise noted, the pattern of results was identical for all classroom quality measures.

Table 22. Child Outcome Scores by English Proficiency Level

Domain	Outcome	Language Proficiency Level[a]	Year 7 2007-2008 Fall Mean (SD) Range	Year 7 2007-2008 Spring Mean (SD) Range
Language and Literacy	Receptive Language (PPVT-4[b])	**1** n=69-71	67.4 (16.3) 33-108	70.8 (14.6) 23-100
		2 n=17-20	83.0 (9.5) 69-100	89.1 (10.1) 70-108
		3 n=54-57	86.3 (10.6) 66-123	90.1 (10.9) 64-120
		4 n=80-85	95.3 (11.7) 68-118	98.4 (12.1) 71-120
		5 n=69-76	102.2 (11.5) 80-131	103.8 (10.5) 77-129
		Significant group differences[c]	1<2,3<4<5	1<2,3<4<5
	Letter-Word Identification (WJ-III[b])	**1** n=70-82	85.2 (12.4) 62-114	90.4 (13.7) 61-112
		2 n=17-20	91.6 (11.3) 66-108	94.7 (12.3) 66-116
		3 n=53-57	93.2 (10.3) 62-112	97.0 (11.5) 69-121
		4 n=80-85	96.2 (11.3) 68-136	97.1 (12.0) 70-151
		5 n=70-76	99.7 (9.2) 73-119	101.9 (9.1) 70-125
		Significant group differences[c]	1<2,3,4,5 3<4,5	1<3,4,5 3<4,5[d]

[a] These categories represent fluency scores on the PreLAS 2000, an individual assessment of English language oral proficiency. Fluency level 1=non-English speaker, 2 & 3=limited English speaker, 4 & 5=fluent English speaker.
[b] Indicates standardized, norm-referenced measure with mean=100, SD=15.
[c] Significant differences indicate results of pairwise post-hoc comparisons of the parameter estimates for each English proficiency level category based on longitudinal growth model estimations.
[d] Results reflect use of the ECERS or ELLCO as the classroom quality measure. The pattern was slightly different when ELLCO (1<3,4,5 and 3<4,5) or CLASS (1<4<5 and 2,3,4<5) was used instead.

Table 22. Child Outcome Scores by English Proficiency Level

Domain	Outcome	Language Proficiency Level[a]	Year 7 2007-2008 Fall Mean (SD) Range	Year 7 2007-2008 Spring Mean (SD) Range
Language and Literacy	Print Knowledge (TOPEL[b])	**1** n=70-82	83.0 (8.0) 71-116	87.4 (13.7) 66-120
		2 n=17-20	90.4 (10.9) 75-110	94.3 (15.0) 69-116
		3 n=54-57	86.4 (9.8) 75-117	95.7 (13.1) 73-123
		4 n=80-85	92.0 (10.7) 76-128	97.0 (13.1) 75-119
		5 n=70-76	97.3 (12.9) 75-131	103.4 (11.6) 71-124
		Significant group differences[c]	1<2,4,5 3<4<5	1<2,3,4<5[d]
	Phonological Awareness (TOPEL[b])	**1** n=70-82	68.5 (10.8) 54-98	71.9 (12.5) 54-104
		2 n=17-20	78.8 (12.7) 57-101	85.4 (15.0) 59-110
		3 n=54-57	81.7 (9.9) 62-101	84.0 (12.8) 54-113
		4 n=80-85	86.9 (10.7) 60-112	88.3 (11.3) 54-113
		5 n=70-76	95.9 (10.0) 76-120	96.0 (13.5) 65-124
		Significant group differences[c]	1<2,3<4<5	1<2,3,4<5 3<4[e]

[a] These categories represent fluency scores on the PreLAS 2000, an individual assessment of English language oral proficiency. Fluency level 1=non-English speaker, 2 & 3=limited English speaker, 4 & 5=fluent English speaker.
[b] Indicates standardized, norm-referenced measure with mean=100, SD=15.
[c] Significant differences indicate results of pairwise post-hoc comparisons of the parameter estimates for each English proficiency level category based on longitudinal growth model estimations.
[d] Results reflect use of the ECERS or ELLCO as the classroom quality measure. The pattern was slightly different when CLASS was used instead: 1<3,4,5 and 2,3,4<5.
[e] Results reflect use of the ECERS or ELLCO as the classroom quality measure. The pattern was slightly different when CLASS was used instead: 1<2,3,4<5 and 3<4.

Table 22. Child Outcome Scores by English Proficiency Level

Domain	Outcome	Language Proficiency Level[a]	Year 7 2007-2008 Fall Mean (SD) Range	Year 7 2007-2008 Spring Mean (SD) Range
Math	Applied Problems (WJ-III[b])	**1** n=70-82	77.5 (12.9) 58-101	87.6 (13.7) 53-115
		2 n=17-20	93.1 (9.6) 77-110	98.3 (11.6) 80-123
		3 n=54-56	93.9 (7.6) 71-107	98.0 (7.8) 80-121
		4 n=80-85	98.8 (10.7) 59-125	100.6 (9.2) 66-124
		5 n=70-76	105.3 (10.1) 82-129	106.3 (9.1) 90-140
		Significant group differences[c]	1<2,3,4<5 3<4	1<2,3,4<5
	Counting Task[d]	**1** n=70-82	6.7 (5.0) 0-19	11.0 (6.9) 0-39
		2 n=17-20	11.9 (9.9) 0-39	17.6 (8.9) 1-31
		3 n=54-57	10.7 (6.9) 2-40	16.2 (10.0) 0-40
		4 n=80-85	12.9 (8.1) 0-40	20.5 (11.3) 4-40
		5 n=70-76	15.9 (8.4) 6-40	23.5 (11.5) 3-40
		Significant group differences[c]	1<2,3,4,5 3<5[e]	1<2,3,4,5 3<4,5

[a] These categories represent fluency scores on the PreLAS 2000, an individual assessment of English language oral proficiency. Fluency level 1=non-English speaker, 2 & 3=limited English speaker, 4 & 5=fluent English speaker.
[b] Indicates standardized, norm-referenced measure with mean=100, SD=15.
[c] Significant differences indicate results of pairwise post-hoc comparisons of the parameter estimates for each English proficiency level category based on longitudinal growth model estimations.
[d] Possible range=0-40.
[e] Results reflect use of the ECERS or ELLCO as the classroom quality measure. The pattern was slightly different when CLASS was used instead: 1<2,4,5 and 3<5.

Table 22. Child Outcome Scores by English Proficiency Level

Domain	Outcome	Language Proficiency Level[a]	Year 7 2007-2008 Fall Mean (SD) Range	Year 7 2007-2008 Spring Mean (SD) Range
General Knowledge	Social Awareness[b]	**1** n=70-82	1.6 (1.4) 0-6	2.5 (1.4) 0-6
		2 n=17-20	3.6 (1.7) 1-6	4.2 (1.4) 1-6
		3 n=54-55	3.8 (1.6) 1-6	4.6 (1.2) 1-6
		4 n=80-85	4.3 (1.3) 1-6	4.7 (1.2) 2-6
		5 n=70-76	4.5 (1.4) 1-6	5.1 (1.1) 2-6
		Significant group differences[c]	1<2,3,4,5	1<2,3,4,5
Behavioral Skills	Social Skills (SSRS[d])	**1** n=74-79	97.0 (16.6) 57-130	108.4 (15.2) 71-130
		2 n=16-20	100.9 (15.7) 75-128	110.8 (16.0) 84-130
		3 n=55-56	98.2 (17.1) 54-129	107.1 (16.1) 57-130
		4 n=75-80	101.8 (15.2) 66-130	108.5 (13.8) 71-130
		5 n=67-70	107.1 (14.3) 80-130	113.1 (12.7) 85-130
		Significant group differences[c]	1<4,5 3,4<5	1,3<5[e]

[a] These categories represent fluency scores on the PreLAS 2000, an individual assessment of English language oral proficiency. Fluency level 1=non-English speaker, 2 & 3=limited English speaker, 4 & 5=fluent English speaker.
[b] Possible range=0-6.
[c] Significant differences indicate results of pairwise post-hoc comparisons of the parameter estimates for each English proficiency level category based on longitudinal growth model estimations.
[d] Indicates standardized, norm-referenced measure with mean=100, SD=15.
[e] Results reflect use of the ECERS or ELLCO as the classroom quality measure. The pattern was slightly different when CLASS was used instead: 1,3,4<5.

Table 22. Child Outcome Scores by English Proficiency Level

Domain	Outcome	Language Proficiency Level[a]	Year 7 2007-2008	
			Fall	Spring
			Mean (SD) Range	**Mean** (SD) Range
Behavioral Skills	Problem Behaviors (SSRS[b])	**1** n=74-81	97.7 (11.5) 85-130	96.8 (12.2) 85-139
		2 n=16-20	98.6 (12.7) 85-124	93.8 (10.3) 85-115
		3 n=54-56	103.0 (15.2) 85-137	102.1 (14.3) 85-135
		4 n=78-81	101.5 (13.6) 85-133	101.5 (13.6) 85-145
		5 n=70-71	97.9 (12.3) 85-140	99.1 (12.6) 85-137
		Significant group differences[c]	NS	NS

[a] These categories represent fluency scores on the PreLAS 2000, an individual assessment of English language oral proficiency. Fluency level 1=non-English speaker, 2 & 3=limited English speaker, 4 & 5=fluent English speaker.
[b] Indicates standardized, norm-referenced measure with mean=100, SD=15.
[c] Significant differences indicate results of pairwise post-hoc comparisons of the parameter estimates for each English proficiency level category based on longitudinal growth model estimations.

Figure 12. Growth in Receptive Language Skills (PPVT-4) by English Proficiency

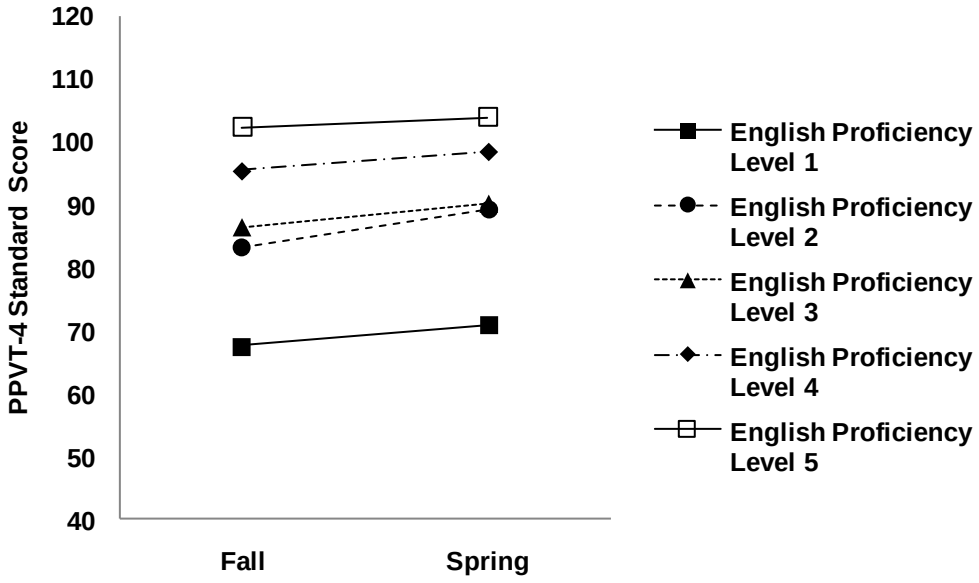


Figure 13. Growth in Letter-Word Knowledge (WJ-III Letter Word Identification) by English Proficiency

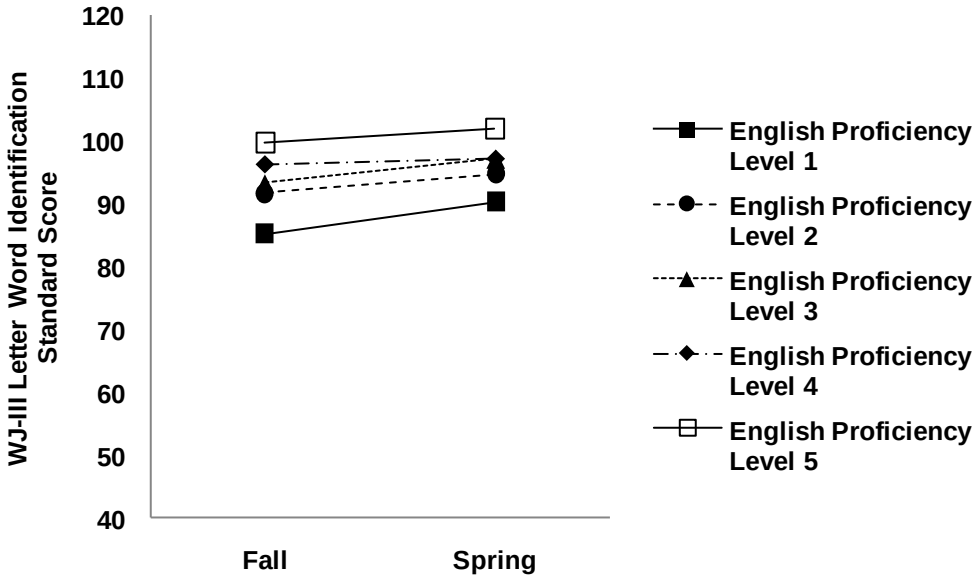


Figure 14. Growth in Phonological Awareness (TOPEL) by English Proficiency

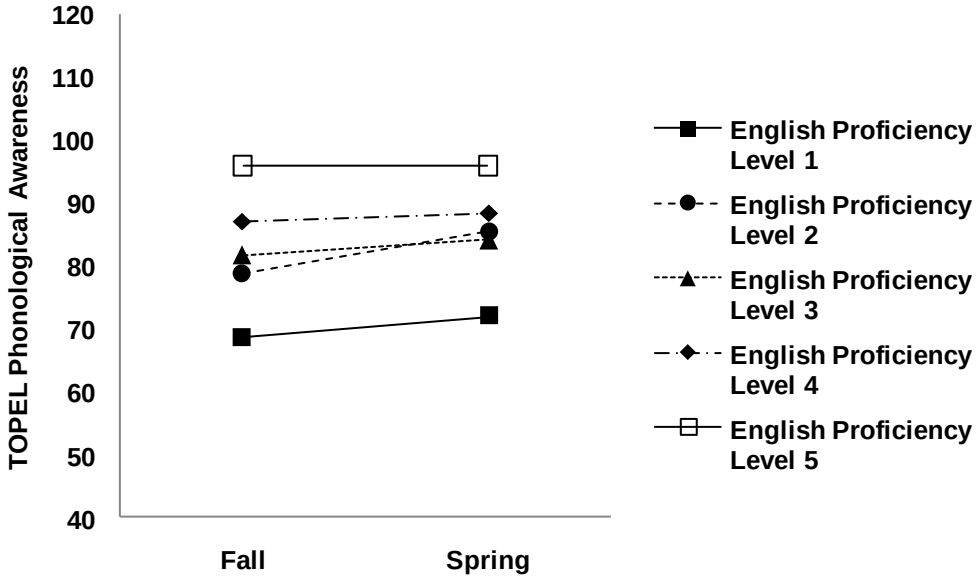


Figure 15. Growth in Math Skills (WJ-III Applied Problems) by English Proficiency

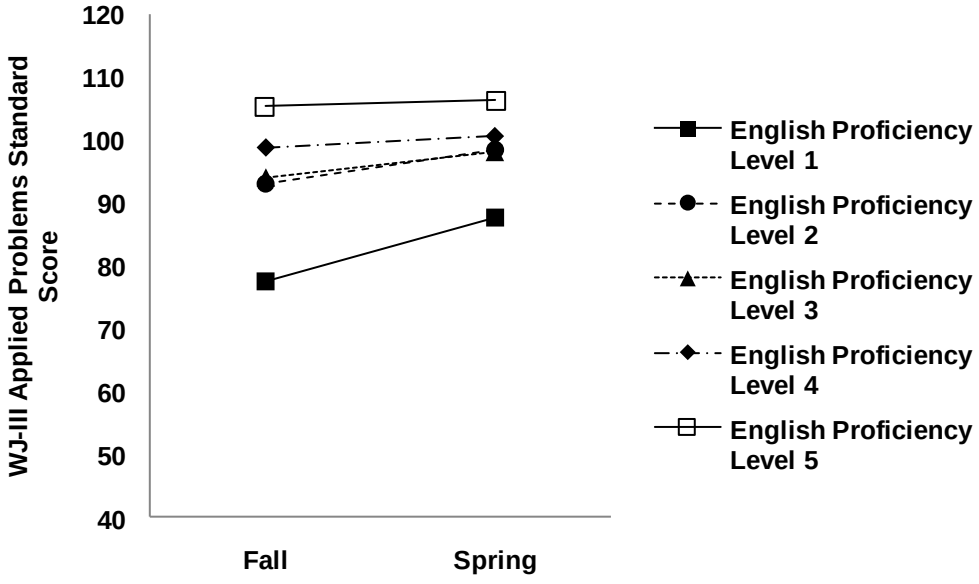


Figure 16. Effect of Literacy Practices on Print Knowledge

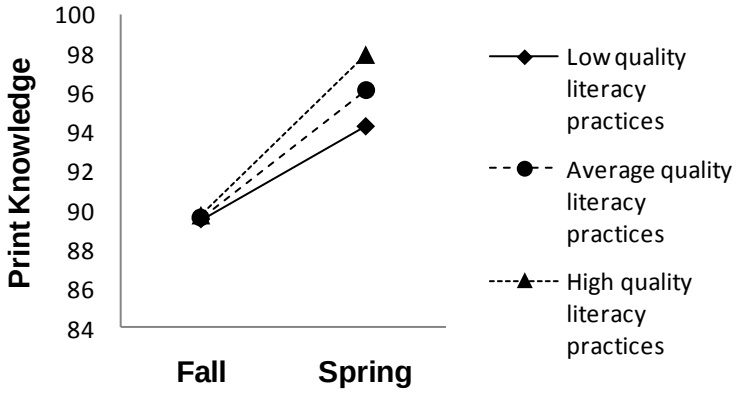


Figure 17. Effect of Literacy Practices on Social Skills Growth

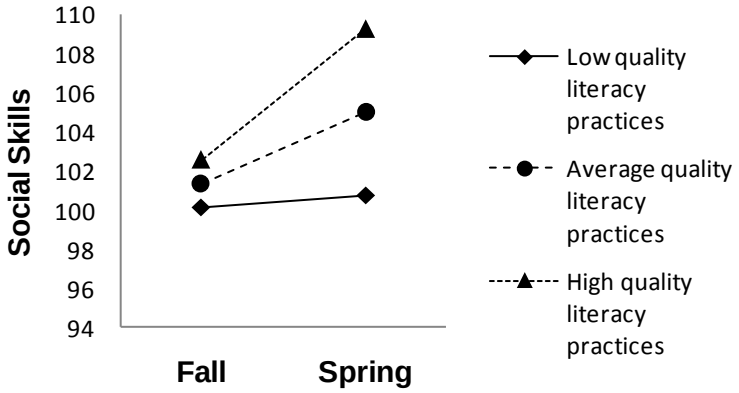


Figure 18. Effect of Classroom Organization on Letter-Word Knowledge

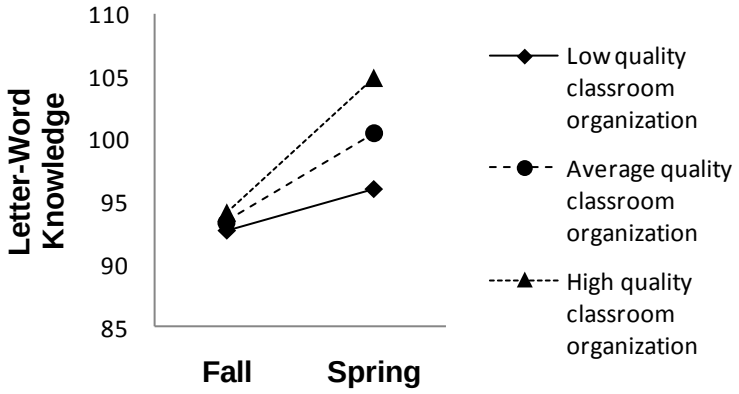


Figure 19. Effect of Classroom Organization on Print Knowledge

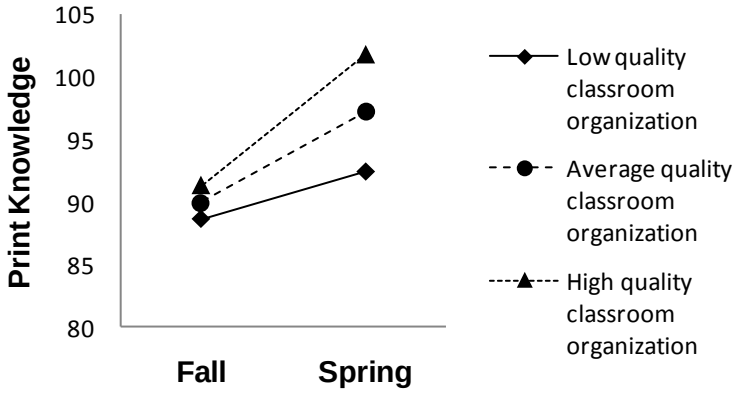


Figure 20. Effect of Classroom Organization on Social Skills

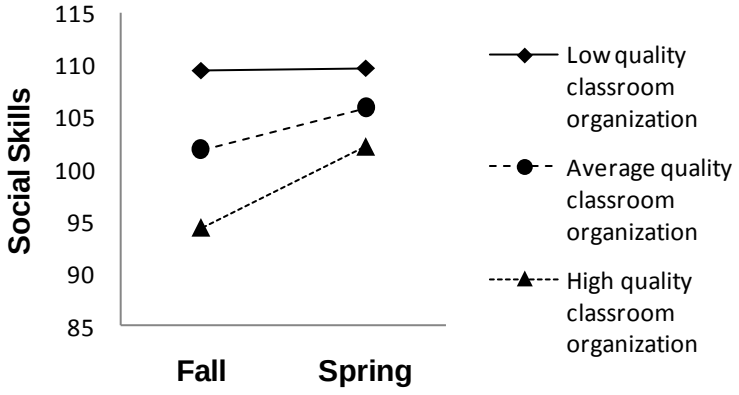


Figure 21. Effect of Instructional Support on Print Knowledge

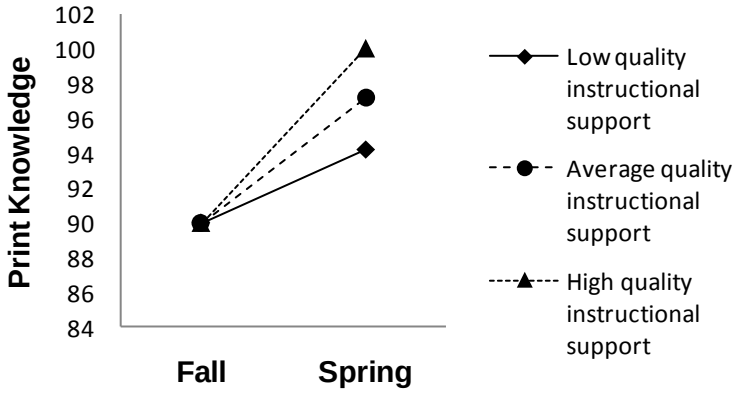


Figure 22. Effect of Instructional Support on Phonological Awareness

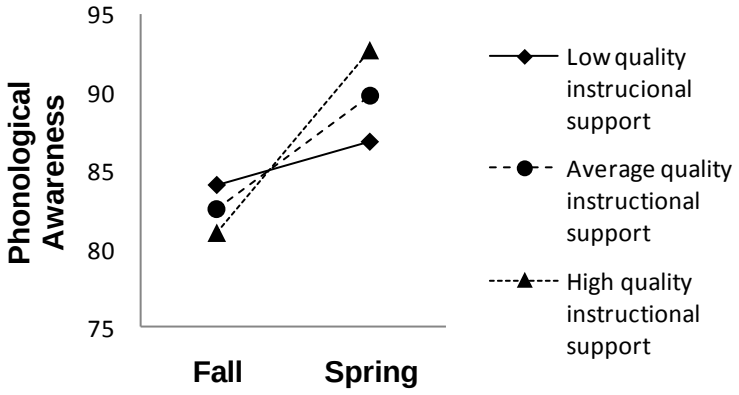


Figure 23. Effect of Emotional Support on Print Knowledge

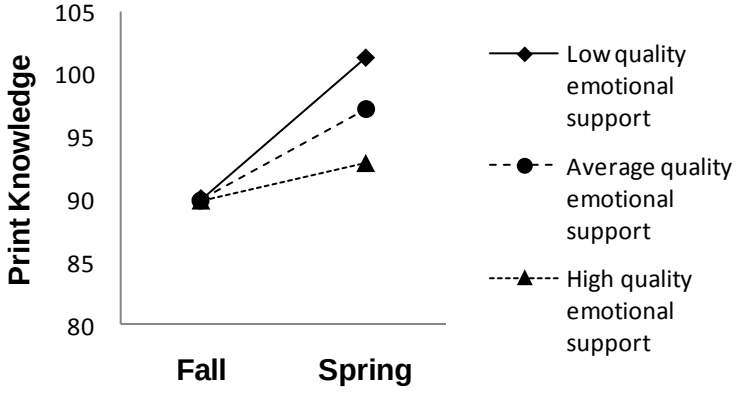


Table 23. Child Outcome Scores for Children with English and Spanish Assessments

		Year 7 2007-2008			
		English		Spanish	
		Fall n=70-80	**Spring**[a,b] n=73-74	**Fall** n=77-81	**Spring**[a,b] n=73-74
Domain	**Outcome**	**Mean** (SD) Range	**Mean** (SD) Range	**Mean** (SD) Range	**Mean** (SD) Range
Language and Literacy	Receptive Language (PPVT-4/TVIP[c])	68.9 (16.7) 33-110	74.9*** (18.0) 23-117	81.1 (16.1) 59-119	80.4[NS] (17.8) 55-120
	Letter Word Identification (WJ-III/Batería[c])	88.5 (13.1) 62-114	93.5*** (13.7) 61-116	90.3 (9.5) 74-116	89.5 [NS] (10.0) 68-119
	Print Knowledge (TOPEL[c])	86.1 (10.6) 71-116	92.2*** (14.7) 66-120	NA	NA
	Phonological Awareness (TOPEL[c])	70.8 (13.2) 54-104	75.5*** (14.9) 54-110	NA	NA
Math	Applied Problems (WJ-III/Batería[c])	81.6 (15.1) 58-110	92.7*** (15.5) 53-123	85.5 (14.0) 56-123	89.3** (14.6) 49-117
	Counting Task[d]	8.8 (7.1) 0-39	14.2*** (8.9) 0-40	6.4 (4.6) 0-29	8.8*** (4.9) 2-39
General Knowledge	Social Awareness[e]	1.6 (1.3) 0-5	2.7*** (1.5) 0-6	2.4 (1.3) 0-6	3.0*** (1.2) 0-5

[a] Significance levels indicate results of t-tests of the parameter estimates for the adjusted gains from fall to spring over the program year based on longitudinal growth model estimations.
[b] *p < .05, **p < .01, ***p <.001, NS=nonsignificant.
[c] Indicates standardized, norm-referenced measure with mean=100, SD=15.
[d] Possible range=0-40.
[e] Possible range=0-6.

Table 24. Child Outcome Scores of Spanish Subsample by English Proficiency Level

Domain	Outcome	English Proficiency Level[a]	Year 7 2007-2008			
			English		Spanish	
			Fall	Spring	Fall	Spring
			Mean (SD) Range	**Mean** (SD) Range	**Mean** (SD) Range	**Mean** (SD) Range
Language and Literacy	Receptive Language (PPVT-4[b] / TVIP[b])	**1** n=47-54	61.1 (13.5) 33-84	66.6 (14.0) 23-93	77.8 (14.5) 59-112	77.0 (15.6) 55-120
		2 n=7-8	78.3 (7.7) 69-90	92.0 (9.3) 78-108	97.7 (19.7) 65-119	90.9 (24.8) 60-115
		3 n=9	84.7 (5.2) 77-95	87.8 (9.6) 73-103	84.6 (15.9) 63-105	82.3 (22.6) 55-114
		4 n=6	94.3 (9.4) 81-110	103.0 (10.9) 89-117	88.8 (12.6) 75-106	90.3 (14.0) 70-111
		Significant group differences[c]	1<2,3,4	1<2,3,4 3<4	NS	NS
	Letter-Word Identification (WJ-III[b]/ Batería[b])	**1** n=50-57	85.5 (13.0) 62-114	90.7 (14.2) 61-112	88.8 (9.3) 74-113	87.7 (9.7) 68-111
		2 n=7-8	93.5 (12.9) 69-108	98.0 (15.9) 66-116	94.9 (14.3) 78-116	98.1 (10.8) 85-119
		3 n=9	95.3 (8.1) 86-109	101.4 (6.3) 91-111	91.7 (6.9) 81-104	90.6 (9.5) 75-102
		4 n=6	100.2 (9.9) 82-111	99.2 (10.1) 85-111	95.5 (6.0) 90-107	93.7 (8.5) 86-109
		Significant group differences[c]	sig[d]	sig[d]	NS	NS

[a] These categories represent fluency scores on the PreLAS 2000, an individual assessment of English language oral proficiency. Fluency level 1=non-English speaker, 2 & 3=limited English speaker, 4 & 5=fluent English speaker.
[b] Indicates standardized, norm-referenced measure with mean=100, SD=15.
[c] Significant differences indicate results of post-hoc pairwise comparisons of the parameter estimates for each English proficiency level category based on longitudinal growth model estimations.
[d] There was a significant positive association between higher proficiency levels and higher outcome scores, but none of the pairwise comparisons were significant.

Table 24. Child Outcome Scores of Spanish Subsample by English Proficiency Level

Domain	Outcome	English Proficiency Level[a]	Year 7 2007-2008			
			English		Spanish	
			Fall	Spring	Fall	Spring
			Mean (SD) Range	Mean (SD) Range	Mean (SD) Range	Mean (SD) Range
Language and Literacy	Print Knowledge (TOPEL[b])	**1** n=50-57	83.3 (9.2) 71-116	88.1 (14.0) 66-120	NA	NA
		2 n=7-8	98.6 (8.7) 88-110	102.0 (12.2) 82-115		
		3 n=9	85.4 (8.5) 77-105	100.9 (11.3) 89-117		
		4 n=6	96.8 (11.9) 85-115	102.2 (15.1) 80-117		
		Significant group differences[c]	1<2	1<2,3		
	Phonological Awareness (TOPEL[b])	**1** n=50-57	65.7 (10.1) 54-93	69.2 (11.6) 54-98	NA	NA
		2 n=7-8	75.8 (11.4) 57-93	90.4 (11.9) 76-110		
		3 n=9	83.0 (5.5) 73-90	86.2 (12.8) 68-110		
		4 n=6	94.3 (9.8) 79-104	90.2 (9.9) 73-99		
		Significant group differences[c]	1<3,4	1<2,3		

[a] These categories represent fluency scores on the PreLAS 2000, an individual assessment of English language oral proficiency. Fluency level 1=non-English speaker, 2 & 3=limited English speaker, 4 & 5=fluent English speaker.
[b] Indicates standardized, norm-referenced measure with mean=100, SD=15.
[c] Significant differences indicate results of post-hoc pairwise comparisons of the parameter estimates for each English proficiency level category based on longitudinal growth model estimations.

Table 24. Child Outcome Scores of Spanish Subsample by English Proficiency Level

Domain	Outcome	English Proficiency Level[a]	Year 7 2007-2008			
			English		Spanish	
			Fall	Spring	Fall	Spring
			Mean (SD) Range	Mean (SD) Range	Mean (SD) Range	Mean (SD) Range
Math	Applied Problems (WJ-III[b]/ Batería[b])	**1** n=50-57	75.1 (12.1) 58-98	87.1 (14.7) 53-115	81.3 (12.1) 57-106	86.2 (14.0) 54-116
		2 n=7-8	98.4 (9.6) 79-110	107.9 (9.7) 94-123	106.6 (8.8) 96-123	100.1 (15.4) 75-117
		3 n=9	97.0 (5.7) 90-105	102.2 (9.7) 85-115	87.8 (14.5) 56-103	90.8 (16.9) 49-104
		4 n=6	98.8 (4.8) 94-105	106.8 (7.9) 99-118	96.7 (5.8) 85-100	98.8 (5.9) 91-105
		Significant group differences[c]	1<2,3,4	1<2,3	1<2	NS
	Counting Task[d]	**1** n=50-57	6.6 (4.8) 0-16	10.7 (5.8) 0-29	5.8 (4.1) 0-19	8.0 (3.5) 2-19
		2 n=7-8	18.3 (12.3) 6-39	19.4 (5.9) 14-29	11.0 (8.3) 5-29	14.1 (11.7) 6-39
		3 n=9	11.2 (3.8) 4-17	19.6 (8.7) 12-39	5.4 (3.5) 1-11	8.4 (3.3) 4-14
		4 n=6	13.5 (8.0) 7-29	26.8 (13.8) 6-40	7.2 (3.1) 3-11	9.0 (2.4) 6-11
		Significant group differences[c]	1<2	1<2,3,4	NS	NS

[a] These categories represent fluency scores on the PreLAS 2000, an individual assessment of English language oral proficiency. Fluency level 1=non-English speaker, 2 & 3=limited English speaker, 4 & 5=fluent English speaker.
[b] Indicates standardized, norm-referenced measure with mean=100, SD=15.
[c] Significant differences indicate results of post-hoc pairwise comparisons of the parameter estimates for each English proficiency level category based on longitudinal growth model estimations.
[d] Total possible range= 0-40.

Table 24. Child Outcome Scores of Spanish Subsample by English Proficiency Level

Domain	Outcome	English Proficiency Level[a]	Year 7 2007-2008			
			English		Spanish	
			Fall	Spring	Fall	Spring
			Mean (SD) Range	**Mean** (SD) Range	**Mean** (SD) Range	**Mean** (SD) Range
General Knowledge	Social Awareness[b]	**1** n=50-57	1.0 (0.8) 0-3	2.2 (1.2) 0-5	2.1 (1.0) 0-4	2.9 (1.1) 1-5
		2 n=7-8	2.6 (1.4) 1-5	3.1 (1.2) 1-4	3.1 (2.1) 1-6	2.1 (1.7) 0-4
		3 n=9	3.2 (1.1) 2-5	4.1 (1.6) 1-6	2.7 (1.7) 0-5	3.7 (1.2) 1-5
		4 n=6	3.2 (0.8) 2-4	3.8 (0.4) 3-4	3.0 (0.6) 2-4	3.3 (1.0) 2-4
		Significant group differences[c]	1<2,3,4	1<3,4	NS	NS

[a] These categories represent fluency scores on the PreLAS 2000, an individual assessment of English language oral proficiency. Fluency level 1=non-English speaker, 2 & 3=limited English speaker, 4 & 5=fluent English speaker.
[b] Total possible range=0-6.
[c] Significant differences indicate results of post-hoc pairwise comparisons of the parameter estimates for each English proficiency level category based on longitudinal growth model estimations.

Table 25. Child Outcome Scores of Spanish Subsample by Spanish Proficiency Level

Domain	Outcome	Spanish Proficiency Level[a]	Year 7 2007-2008			
			English		Spanish	
			Fall	Spring	Fall	Spring
			Mean (SD) Range	Mean (SD) Range	Mean (SD) Range	Mean (SD) Range
Language and Literacy	Receptive Language (PPVT-4[b]/ TVIP[b])	**1** n=23-25	68.0 (15.6) 41-86	72.1 (17.5) 23-101	72.4 (11.4) 59-104	67.8 (12.2) 55-101
		2 n=6	62.0 (15.9) 33-77	69.3 (13.0) 49-82	72.7 (6.7) 62-83	69.2 (13.1) 55-93
		3 n=11-14	74.3 (19.1) 53-110	84.5 (24.6) 43-117	80.1 (13.7) 61-105	84.7 (15.0) 67-111
		4 n=12-14	65.6 (20.3) 35-96	70.3 (21.0) 41-114	74.5 (10.0) 61-93	76.2 (9.5) 59-94
		5 n=17-20	71.2 (14.0) 46-96	78.1 (10.6) 61-94	98.9 (13.8) 65-119	102.2 (9.8) 83-120
		Significant group differences[c]	sig[d]	sig[d]	5>1,2,3,4	5>1,2,3,4 3>1
	Letter-Word Identification (WJ-III[b]/ Batería[b])	**1** n=25-27	87.8 (13.8) 65-113	92.0 (15.0) 62-111	89.6 (8.9) 76-107	87.0 (7.7) 73-99
		2 n=6	97.0 (11.7) 85-114	103.7 (8.1) 90-111	88.2 (8.0) 79-99	91.5 (15.3) 72-110
		3 n=11-14	89.0 (15.8) 62-111	96.0 (14.5) 70-112	89.2 (8.4) 77-107	91.5 (12.7) 71-111
		4 n=13-14	82.1 (10.8) 66-105	83.5 (13.6) 61-108	87.1 (10.1) 74-106	86.7 (9.5) 68-100
		5 n=18-20	91.2 (10.6) 73-108	97.8 (8.3) 82-116	94.5 (10.4) 77-116	93.1 (9.2) 77-119
		Significant group differences[c]	NS	NS	NS	NS

[a] These categories represent fluency scores on the PreLAS 2000, an individual assessment of Spanish language oral proficiency. Fluency level 1=non-Spanish speaker, 2 & 3=limited Spanish speaker, 4 & 5=fluent Spanish speaker.
[b] Indicates standardized, norm-referenced measure with mean=100, SD=15.
[c] Significant differences indicate results of post-hoc pairwise comparisons of the parameter estimates for each English proficiency level category based on longitudinal growth model estimations.
[d] There was a significant positive association between higher proficiency levels and higher outcome scores, but none of the pairwise comparisons were significant.

Table 25. Child Outcome Scores of Spanish Subsample by Spanish Proficiency Level

Domain	Outcome	Spanish Proficiency Level[a]	Year 7 2007-2008			
			English		Spanish	
			Fall	Spring	Fall	Spring
			Mean (SD) Range	Mean (SD) Range	Mean (SD) Range	Mean (SD) Range
Language and Literacy	Print Knowledge (TOPEL[b])	**1** n=25-27	86.9 (11.0) 73-116	91.8 (13.5) 70-117	NA	NA
		2 n=6	87.2 (11.5) 75-107	99.3 (9.9) 86-115		
		3 n=11-14	85.5 (10.3) 73-115	95.8 (21.0) 66-120		
		4 n=13-14	83.5 (10.4) 71-105	81.0 (12.0) 67-109		
		5 n=18-19	87.0 (11.0) 75-110	96.2 (11.0) 78-115		
		Significant group differences[c]	NS	NS		
	Phonological Awareness (TOPEL[b])	**1** n=25-27	68.9 (11.5) 55-90	71.7 (14.3) 54-110	NA	NA
		2 n=6	66.7 (10.7) 55-85	72.3 (12.0) 54-88		
		3 n=11-14	72.7 (16.4) 54-104	79.1 (16.6) 54-110		
		4 n=13-14	68.4 (15.3) 54-104	70.6 (13.5) 54-96		
		5 n=18-19	75.1 (11.7) 55-99	83.1 (14.2) 54-102		
		Significant group differences[c]	NS	NS		

[a] These categories represent fluency scores on the PreLAS 2000, an individual assessment of Spanish language oral proficiency. Fluency level 1=non- Spanish speaker, 2 & 3=limited Spanish speaker, 4 & 5=fluent Spanish speaker.
[b] Indicates standardized, norm-referenced measure with mean=100, SD=15.
[c] Significant differences indicate results of post-hoc pairwise comparisons of the parameter estimates for each English proficiency level category based on longitudinal growth model estimations.

Table 25. Child Outcome Scores of Spanish Subsample by Spanish Proficiency Level

Domain	Outcome	Spanish Proficiency Level[a]	Year 7 2007-2008			
			English		Spanish	
			Fall	Spring	Fall	Spring
			Mean (SD) Range	Mean (SD) Range	Mean (SD) Range	Mean (SD) Range
Math	Applied Problems (WJ-III[b]/ Batería[b])	**1** n=25-27	79.1 (13.6) 58-105	86.6 (16.3) 53-111	76.0 (13.9) 56-109	80.6 (14.9) 49-109
		2 n=6	88.3 (7.5) 76-97	91.7 (7.6) 80-102	83.3 (8.9) 72-96	86.2 (12.1) 73-100
		3 n=11-14	80.2 (16.0) 59-101	96.9 (15.7) 65-115	87.4 (10.3) 65-103	91.4 (17.1) 59-116
		4 n=13-14	80.4 (16.1) 60-109	88.1 (17.1) 55-115	84.6 (10.0) 69-99	90.3 (11.6) 70-112
		5 n=18-20	85.1 (17.3) 62-110	102.4 (9.7) 86-123	98.0 (10.4) 73-123	100.3 (6.6) 89-117
		Significant group differences[c]	NS	NS	5>1,3,4 3>1	5>1,3 4>1
	Counting Task[d]	**1** n=25-27	8.3 (5.1) 0-15	11.2 (6.4) 0-25	5.0 (3.8) 0-13	7.0 (2.7) 3-12
		2 n=6	7.5 (4.2) 3-14	17.8 (6.6) 11-29	4.3 (3.6) 0-10	7.8 (2.1) 6-11
		3 n=11-14	10.3 (9.1) 1-29	17.5 (11.5) 4-40	6.6 (3.4) 1-11	8.8 (2.4) 5-12
		4 n=13-14	7.8 (7.6) 0-29	10.8 (7.1) 3-29	5.9 (3.3) 0-13	7.6 (2.9) 2-12
		5 n=18-20	9.6 (8.4) 0-39	17.6 (10.2) 6-39	8.9 (6.4) 1-29	12.6 (7.8) 6-39
		Significant group differences[c]	NS	NS	5>1	5>1,4

[a] These categories represent fluency scores on the PreLAS 2000, an individual assessment of Spanish language oral proficiency. Fluency level 1=non- Spanish speaker, 2 & 3=limited Spanish speaker, 4 & 5=fluent Spanish speaker.
[b] Indicates standardized, norm-referenced measure with mean=100, SD=15.
[c] Significant differences indicate results of post-hoc pairwise comparisons of the parameter estimates for each English proficiency level category based on longitudinal growth model estimations.
[d] Total possible range= 0-40.

Table 25. Child Outcome Scores of Spanish Subsample by Spanish Proficiency Level

Domain	Outcome	Spanish Proficiency Level[a]	Year 7 2007-2008			
			English		Spanish	
			Fall	Spring	Fall	Spring
			Mean (SD) Range	**Mean** (SD) Range	**Mean** (SD) Range	**Mean** (SD) Range
General Knowledge	Social Awareness[b]	**1** n=25-27	1.4 (1.0) 0-4	2.3 (1.6) 0-6	1.7 (0.9) 0-3	2.4 (1.4) 0-4
		2 n=6	1.3 (1.9) 0-5	3.3 (1.2) 2-5	2.0 (0.6) 1-3	3.5 (1.4) 2-5
		3 n=11-14	2.0 (1.2) 0-4	2.6 (1.4) 1-4	2.5 (1.2) 1-4	2.9 (1.2) 1-4
		4 n=13-14	1.2 (1.1) 0-4	2.7 (1.3) 1-5	2.4 (1.0) 1-4	2.9 (1.0) 1-4
		5 n=18-20	1.9 (1.5) 0-5	3.0 (1.5) 1-5	3.3 (1.6) 1-6	3.6 (0.8) 2-5
		Significant group differences[c]	NS	NS	5>1	5>1

[a]These categories represent fluency scores on the PreLAS 2000, an individual assessment of Spanish language oral proficiency. Fluency level 1=non-Spanish speaker, 2 & 3=limited Spanish speaker, 4 & 5=fluent Spanish speaker.
[b]Total possible range=0-6.
[c] Significant differences indicate results of post-hoc pairwise comparisons of the parameter estimates for each English proficiency level category based on longitudinal growth model estimations.

Table 26. Associations of Growth on English Assessments with Initial Skills and Growth on Spanish Assessments

Domain	Assessment	Association with Initial English Skill Level[a]	Association with English Growth	
		Initial Spanish Skill Level[b]	Initial Spanish Skill Level[c]	Spanish Growth[d]
Language and Literacy	Receptive Language (PPVT-4/TVIP[e])	***	NS	NS
	Letter Word Identification (WJ-III/Batería[e])	***	NS	NS
Math	Applied Problems (WJ-III/Batería[e])	***	***	NS
	Counting Task[f]	NS	NS	NS
General Knowledge	Social Awareness[g]	NS	NS	NS

[a] *p < .05, **p < .01, ***p <.001, NS=nonsignificant.
[b] Represents fall scores on Spanish assessments. Significance levels indicate results of t-tests of the parameter estimates for English fall pre-k scores based on linear model estimations.
[c] Represents fall scores on Spanish assessments. Significance levels indicate results of t-tests of parameter estimates for the slope of English growth based on linear model estimations.
[d] Represents growth during pre-k from fall to spring on Spanish assessments. Significance levels indicate results of t-tests of the parameter estimates for slope of English growth based on linear model estimations.
[e] Indicates standardized, norm-referenced measure with mean=100, SD=15.
[f] Possible range=0-40.
[g] Possible range=0-6.

Summary and Discussion

Program Characteristics

The More at Four Program has grown substantially over time, serving nearly 30,000 children across all 100 counties in the 2007-2008 school year. Although the program has continued to scale up each year since it began in the 2001-2002 school year, many of the basic characteristics have not changed, in line with the program guidelines. Classrooms have continued to serve an average of 16 children, with most of those funded by More at Four. The majority of children served by the program have been in the targeted group of those unserved at the time of enrollment (more than 70% each year), including more than half who had never been served in a pre-k program. Most children are eligible for free or reduced-price lunch (about 90% each year), with a substantial proportion demonstrating other risk factors, including limited English proficiency (18% in 2007-2008) and developmental/educational need (21% in 2007-2008), and smaller proportions with an identified disability (6% in 2007-2008) or a chronic health condition (5% in 2007-2008). Children are served in a variety of settings, which have consistently included about half in public school sites and half in community sites. Nearly all of the classrooms report using one of the recommended curricula. In terms of teacher qualifications, there are some expected differences between public school and community settings. Nearly all teachers in public school settings have Bachelor's degrees or higher, while the percentage is closer to half in community settings, with some decline in the 2007-2008 year. The percentage of teachers with a B-K license (or equivalent) has been at its highest rate of about 85% in public school settings during the last two years, and has remained around 15-20% for community settings over this five-year period. One area that has shown a consistent improvement, especially in community settings, is the decline in the percentage of lead teachers with no credential.

Classroom Quality

An important consideration is whether there have been changes in the quality of the More at Four Pre-k Program over time. Quality ratings for the most recent 2007-2008 cohort were compared to earlier cohorts (2003-2004 and/or 2005-2006) across different dimensions of quality. Based on independent ratings of global classroom practices using the ECERS-R, the 2007-2008 sample displayed higher scores than the 2005-2006 sample, but lower scores than the 2003-2004 sample. Comparisons of the quality of the literacy environment were available for the two more recent cohorts, and indicate that practices in this domain have remained fairly constant. The one area that showed any differences was the frequency of literacy activities, specifically book reading activities, which occurred less often in the 2007-2008 sample. Comparisons of the quality of teacher-child interactions, also available for the two more recent cohorts, indicate little difference of any note. Taken as a whole, these findings suggest that while classroom quality for the most recent sample is not as high as in the early years of the program, there has <u>not</u> been a consistent decline in quality as the program has scaled up.

Examination of the different aspects of quality measured for the 2007-2008 sample of classrooms provides a current picture of the quality of practices, instruction, and interactions in the More at Four Program. The global quality of classroom practices (based on ECERS-R scores) was in the medium quality range (4.6), with about two-thirds of the classrooms scoring in the medium quality range and almost one-third in the high quality range. Similarly to the

patterns for previous years, scores were highest in the areas of language and reasoning activities, a key school readiness focus, as well as provisions for parents and staff. Scores were lower in areas related to the physical environment and activities for learning, with the lowest scores found for care routines.

Further examination of the literacy environment (based on the ELLCO) indicated that classrooms were relatively higher in terms of the general quality and the presence of literacy materials than the frequency of literacy activities. Consistent with the findings in previous years, classrooms did a better job of setting up a literacy-rich environment than actually carrying out literacy-related activities. However, information about the literacy focus of center-time activities (using the DAC) indicated that some literacy content was often being integrated into these activities, even for activities without an inherent literacy focus (e.g., art, games).

In terms of instructional practices (based on the CLASS), classrooms were higher (at the higher end of medium quality) in the provision of emotional support and classroom organization and management, while the scores were substantially lower (at the low end of medium) for supporting cognitive and language development. Within these domains, scores were higher for dimensions related to classroom climate and management and maximizing learning time than to the quality of learning opportunities. Further examination of teacher-child interactions (based on the CIS) similarly indicated that teachers were generally sensitive and positive in their interactions with children, which corresponds with the high scores on Emotional Support. Taken together, these findings suggest that the More at Four classrooms did a better job of providing a positive climate and managing and organizing classroom processes than of facilitating high quality learning opportunities.

Information about classroom activities (primarily gathered during center time using the DAC), indicated that a variety of activities were occurring, with more time spent in creative activities (art, blocks, dramatic play, manipulatives, sand/water) than in more traditional academically-focused activities (books, math, science, writing,). A substantial amount of time was also spent in non-instructional transitions for most classrooms, possibly representing some inefficiency in classroom processes and lost opportunities for learning. For example, in more than half the classrooms, more than one-third of the observation periods indicated that the primary activity for some or all children was transition. There were substantial variations among classrooms in the amount of time spent in other non-instructional activities (e.g., behavior corrections, children off-task, teachers not engaged with children). Not surprisingly, given that these observations took place during center time, the majority of activities were child-led rather than teacher-led and most activity groupings occurred without an adult involved. While this does reflect a freedom of choice about learning on the part of children, it may also indicate some additional opportunities that could be utilized for teacher guidance and instruction.

There was little clear association of the various measures of classroom quality with teacher qualifications (licensure or education) or classroom characteristics (class size, proportion of More at Four children, or risk status, service priority status, or language status of the More at Four children), suggesting that quality is fairly even across variations in these areas. While the overall models were not significant, there were some indications for two of the measures that certain characteristics may be associated with higher quality (higher quality classroom practices related to smaller class size and lower average risk scores, while more frequent literacy activities

related to teachers having a B-K license). These results should be interpreted cautiously, but do offer some suggestion of areas that may be worth further exploration in relation to pre-k classroom quality.

As a whole, the findings related to classroom quality suggest that some classrooms may benefit from additional support for balancing and improving both instructional and non-instructional activities. Further, it may be useful to focus on staff development activities in relation to areas of less strength, including practices related to basic care routines, literacy activities, and instructional support. Although there were few classrooms in the low range of quality, practices in general tended to be in the medium range, suggesting that this may be a worthwhile area for professional development. While classrooms seem to offer a range of developmentally appropriate materials and activities and to have good processes related to scheduling and organization, they may not be facilitating learning at the level to best optimize children's outcomes and school success. Children are making gains and benefiting from participation, but perhaps they could benefit even more with stronger facilitation of academic learning.

Child Outcomes

We examined children's growth in key school readiness areas over the More at Four program year, as well as factors associated with differences in the level of skills or rate of growth. Children made substantial gains over this time across all domains: Language and literacy skills (receptive language, letter-word knowledge, print knowledge, phonological awareness), Math skills (applied problems, counting), General knowledge (social awareness), and Behavioral skills (social skills). Most of these skills were measured using age-standardized scores (receptive language, letter-word knowledge, print knowledge, phonological awareness, applied math problems, social skills), indicating that children progressed at an even greater rate than would be expected for normal developmental growth. The one area that showed no changes was problem behaviors, which remained just below the average expected score for children in these age ranges (i.e., slightly fewer problem behaviors than expected).

We also examined whether different factors, including individual child characteristics (cumulative risk, English proficiency) and various aspects of classroom quality, were associated with differences in children's growth in developmental skills during the More at Four year. Children in the highest risk group scored lower than other children in the fall and spring for outcomes related to language and literacy skills, math skills, and general knowledge. There were little or no differences in behavioral skills for children at different risk levels. There were also no differences in children's rates of growth across the various domains, suggesting that the highest risk children were gaining skills at the same rate as other children.

Similarly, children entering the program with lower English proficiency levels, especially those at the lowest level, scored lower than children with higher proficiency levels in both the fall and spring in nearly all areas of language and literacy skills, math skills, general knowledge, and social skills. However, children at lower English proficiency levels, especially those at the lowest level, made greater progress over time (i.e., exhibited steeper growth curves) in most areas of language and literacy skills and math skills. Further, the effects of English proficiency were stronger than those for cumulative risk. When differences in children's outcomes by risk levels were examined after accounting for children's English proficiency levels, the effects of risk were lessened.

There were a few differences in children's growth related to various aspects of pre-k classroom quality. There were no differences in children's skills for any domains of learning on the basis of the global quality of classroom practices. Children attending classrooms with higher quality literacy practices and/or instructional practices had better language/literacy skills in some areas, especially print knowledge, but also phonological awareness and letter-word identification.

For Spanish-speaking children, the growth on both Spanish and English measures was examined to explore the extent to which their progress is similar or different across languages. In general, these children showed growth on math skills and general knowledge in both English and Spanish, but growth on language/literacy skills only in English. Given that the language of instruction in the More at Four programs is English, it is not surprising that there was more widespread growth in English skills, especially language/literacy. Further, children's English or Spanish proficiency levels tended to be positively associated with skill levels assessed in the same language, but not with skills in the other language. When the same skill was examined in both languages, however, children with higher initial skills in Spanish tended to also have higher initial skills in English for some language/literacy and math skills. These associations between skills in the two languages suggest that supporting children's home language during their classroom experiences may enhance their acquisition of the skills and knowledge being taught in pre-k.

Conclusions

Overall, these evaluation results indicate that the More at Four Program has continued to provide services in accord with its goals and program guidelines through the seventh year of operation. Even as it has expanded substantially, to nearly 30,000 children in the seventh year, the program has consistently focused on serving its target group of at-risk and unserved children. Such children are likely to benefit from this type of pre-k intervention, based not only on these evaluation findings but also on other unrelated studies of at-risk populations.[31,32,33,34,35,36] Children have continued to exhibit patterns of substantial growth across key school readiness skills in the areas of language/literacy, math, general knowledge, and social skills. While the children at greatest risk had lower scores in most skill areas both at entry into the program and at the end of the school year, they made gains at the same rate as other children. For children with lower levels of English proficiency, the program had even greater benefits. While they similarly exhibited lower scores in both the fall and spring, these children made even greater progress over the pre-k year than children at higher proficiency levels. Moreover, the associations found between skills in English and Spanish for Spanish-speaking English language learners in particular suggest that supporting children's home language in their pre-k classrooms may enhance their acquisition of school readiness skills. As the More at Four Program has continued to expand, one concern has been whether quality would be maintained. While the quality of classroom practices improved from the previous cohort, it is still not quite as high as in the early years of More at Four. However, there was generally little relation between classroom quality and children's outcomes, suggesting that children were benefiting across the range of classroom experiences provided, in ways that are likely to prepare them for greater success in school.

References

[1] NC Office of School Readiness (2007). More at Four Pre-kindergarten Program Guidelines and Requirements, August 2007.

[2] 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.

[3] Peisner-Feinberg, E. S., & Maris, C. L. (2005). Evaluation of the North Carolina More at Four Pre-kindergarten Program: Year 2 (July 1, 2002-June 30, 2003). Chapel Hill, NC: FPG Child Development Institute, University of North Carolina at Chapel Hill.

[4] Peisner-Feinberg, E. S., & Maris, C. L. (2005). Evaluation of the North Carolina More at Four Pre-kindergarten Program: Year 3 Report (July 1, 2003-June 30, 2004). Chapel Hill, NC: FPG Child Development Institute, University of North Carolina at Chapel Hill.

[5] Peisner-Feinberg, E. S., & Maris, C. L. (2006). Evaluation of the North Carolina More at Four Pre-kindergarten Program: Children's Longitudinal Outcomes and Classroom Quality in Kindergarten. Chapel Hill, NC: FPG Child Development Institute, University of North Carolina at Chapel Hill.

[6] Peisner-Feinberg, E. S., & Schaaf, J. M. (2007). Evaluation of the North Carolina More at Four Pre-kindergarten Program: Children's Outcomes and Program Quality in the Fifth Year. Chapel Hill, NC: FPG Child Development Institute, University of North Carolina at Chapel Hill.

[7] Peisner-Feinberg, E. S., & Schaaf, J. M. (2008). Evaluation of the North Carolina More at Four Pre-kindergarten Program: Children's Longitudinal Outcomes and Program Quality over Time (2003-2007). Chapel Hill, NC: FPG Child Development Institute, University of North Carolina at Chapel Hill.

[8] Smith, M. W., & Dickinson, D. K. (2002). Early Language Literacy Classroom Observation Toolkit, Research Edition. Baltimore, MD: Brookes Publishing.

[9] Peisner-Feinberg, E.S. (2003). Distribution of Activities in the Classroom. Unpublished instrument.

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

[11] Arnett, J. (1989). Caregivers in day-care centers: Does training matter? Journal of Applied Developmental Psychology, 10, 541-552.

[12] Pianta, R. C., La Paro, K. M., Hamre, B. K. (2008), Classroom Assessment Scoring System (CLASS) Manual, Pre-K. Baltimore: Paul H. Brookes.

[13] 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.

[14] 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.

[15] Duncan, S. E., & De Avila, E. A. (1998). PreLAS 2000. Monterey, CA: CTB/McGraw-Hill.

[16] Dunn, L. M., & Dunn, D. M. (2007). Peabody Picture Vocabulary Test Fourth Edition. Minneapolis, MN: NCS Person, Inc.

[17] Dunn, L. M., Padilla, E. R., Lugo, D. E., & Dunn, L. M. (1986). Test de Vocabulario en Imagenes Peabody. Circle Pines, MN: American Guidance Service.

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

[19] Muñoz-Sandoval, A. F., Woodcock, R. W., McGrew, K. S., & Mather, N. (2005). Batería III Pruebas de aprovechamiento. Itasca, IL: Riverside Publishing.

[20] Lonigan, C. J., Wagner, R. K., Torgesen, J. K., & Rashotte, C.A. (2007). Test of Preschool Early Literacy. Austin: Pro-Ed.

[21] National Center for Early Development and Learning (2001). Counting Numbers. Unpublished instrument.

[22] FACES Research Team, modified from the Social and Communicative Competence tasks in: Jana M. Mason and Janice Stewart (1989). The CAP Early Childhood Diagnostic Instrument (prepublication edition). Iowa City, IA: American Testronics.

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

[24] 3rd Edition: Dodge, D., & Colker, L. (1992). *The Creative Curriculum for Early Childhood Third Edition.* Washington, DC: Teaching Strategies Inc. 4th Edition: Dodge, D., Colker, L. & Heroman, C. (2002). *The Creative Curriculum for Preschool Fourth Edition.* Washington, DC: Teaching Strategies Inc.

[25] Schickedanz, J. A., Dickinson, D. K., & Charlotte-Mecklenberg Schools (2005). *Opening the World of Learning: A Comprehensive Early Literacy Program.* Parsippany, NJ: Pearson Early Learning Group.

[26] Smith, E. (2001). *Charlotte-Mecklenburg Schools Bright Beginnings Pre-Kindergarten Curriculum (Revised).* Charlotte, NC: Charlotte-Mecklenburg Schools.

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

[28] Montessori, M. (1909). *The Montessori Method*. NY: Frederick A. Stokes Co.

[29] Singer, J. D., (1998). Using SAS PROC MIXED to fit multilevel models, hierarchical models, and individual growth models. Journal of Educational and Behavioral Statistics, 24, 323-355.

[30] Benjamini Y. & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. Journal of the Royal Statistical Society, Series B (Methodological), 57, 289-300.

[31] Henry, G., Ponder, B., Rickman, D., Mashburn, A., Henderson, L., & Gordon, C. (2004). An Evaluation of the Implementation of Georgia's Pre-K Program: Report of the Findings from the Georgia Early Childhood Study (2002-03). Atlanta, GA: Georgia State University, Andrew Young School of Policy Studies.

[32] Magnuson, K. A., Meyers, M. K., Ruhm, C. J., & Waldfogel, J. (2004). Inequality in preschool education and school readiness. American Educational Research Journal, 41, 115-157.

[33] NICHD Early Child Care Network (2002). Early child care and children's development prior to school entry: Results from the NICHD Study of Child Care. American Educational Research Journal, 39, 133-164.

[34] NICHD Early Child Care Network (2005). Early child care and children's development in the primary grades: Follow-up results from the NICHD Study of Early Child Care. American Educational Research Journal, 42, 537-570.

[35] Peisner-Feinberg, E. S., Burchinal, M. R., Clifford, R. M., Culkin, M. L., Howes, C., Kagan, S. L., & Yazejian, N. (2001). The relation of preschool quality to children's cognitive and social developmental trajectories through second grade. Child Development, 72, 1534-1553.

[36] Zill, N., Resnick, G., Kim, K., O'Donnell, K., Sorongon, A., McKey, R., Pai-Samant, S., Clark,C., O'Brien, R., & D'Elio, A. (2003). Head Start FACES 2000: A Whole-Child Perspective on Program Performance. Washington, DC: Administration for Children and Families, US Department of Health and Human Services.