

**THE JACKSONVILLE URBAN LEAGUE HEAD START PROGRAM
REPORT
2003-2004**

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JACKSONVILLE URBAN LEAGUE HEAD START PROGRAM
Early Literacy and Learning Model (ELLM) Evaluation Report
2003/2004

Improving the achievement of all children, particularly those considered at high risk of future academic failure, continues to be a local, state, and national priority. We know when children come to school healthy, eager, and ready to learn, they are much more likely to succeed in school and become responsible, productive citizens. We also know that if children are to be *ready learners*, they must acquire the knowledge and skills needed to become successful readers long before they begin kindergarten. The Jacksonville Urban League (JUL) and its Head Start Program (hereafter, JUL Head Start) have accepted this challenge in the Duval County.

Jacksonville Urban League

Founded in 1947, JUL provides eight main program services to the community from 27 facilities across Duval County and the Urban League building located in LaVilla in downtown Jacksonville. These services include: JUL Head Start, Youth Crime Prevention, Black-on-Black Crime Prevention, Center of Excellence, Community Partnership Program, Comprehensive Housing Counseling, Housing Education and Counseling, and the Housing Repair Program.

JUL Head Start

Head Start is a federally funded comprehensive preschool program for children whose families are economically disadvantaged. JUL Head Start serves approximately 2020 children, age three to five, and their families in Duval County. The program is free to these families, offering comprehensive services for all children (including children with disabilities), and many parent involvement activities, including fatherhood and healthy marriage programming, and healthy families activities. JUL Head Start further provides extended day/extended year services to 100 children and their families.

The mission of the JUL Head Start is to partner with preschool-age children and their families to move the children toward their dreams by employing and collaborating with "dream-makers" to assist them in realizing their full potential. To achieve this mission, JUL Head Start provides direct, center-based classroom services 6.5 hours a day,

Monday through Friday, for 180 days per year in licensed facilities throughout Duval County. JUL Head Start classrooms maintain a low child-staff ratio. The JUL Head Start's credentialed teaching staff hold CDAs and/or, two-year, four-year, and graduate-level degrees in early childhood education and participate in ongoing training activities throughout the course of the school year. JUL Head Start's focus includes, but is not limited to, early childhood and health services, family and community partnerships.

JUL Head Start's Commitment to Quality

The JUL Head Start Program recognizes the importance of high-quality early care and learning services to the future success of the children it serves. Central to providing high-quality preschool experiences is providing high-quality early literacy opportunities. *Emergent* or *early literacy* refers to acquiring and using these foundation skills to build formal reading and writing proficiency. Literacy development begins at birth, in children's play and fantasy, in scribbling, in drawing, in pretend reading and writing, and in conversations and interactions with care-giving adults and other children.

Why Early Literacy is Important

- ◆ Learning to read is a key milestone for children to be successful in school and in a knowledge-based society.
- ◆ Learning to read begins long before children enter school. Children who read well will read more and, as a result, acquire more content knowledge across many domains as they move through school.
- ◆ Children who experience early difficulties in learning to read are unlikely to catch up to their peers. Research findings indicate that the correlation between reading achievement at the end of the fourth grade and the end of the first grade is .88.¹
- ◆ Learning to read is affected by the foundation skills of phonological processing, print awareness, oral language, and letter and sound knowledge. Children with more of these skills profit more from reading instruction, learn to read sooner, and read better than children with fewer of these skills.²

¹ Francis, D.J., Shaywitz, S.E., et al. (1996). Development lag versus deficit model of reading disability: A longitudinal individual growth curve analysis. *Journal of Educational Psychology*, 88, 3-17; and Juel, C. (1988). Learning to read and write: A longitudinal study of 54 children from first through fourth grades. *Journal of Educational Psychology*, 80, 437-447.

² Whitehurst, G.J., & Lonigan, C.J., (1998). Child development and emergent literacy. *Child Development*, 68, 848-872.

Factors that Influence Becoming a Successful Reader

- ◆ Wide-ranging and extensive set of literacy-related experiences beginning at birth
- ◆ Highly trained teachers who understand the skills and knowledge children need to become successful readers, who are proficient at providing those literacy-related experiences for children, and who can assess children's progress along the literacy developmental continuum
- ◆ Ongoing teacher support system (e.g. initial training, job-embedded coaching, and continuing professional development)
- ◆ Families' meaningful involvement in their children's learning
- ◆ Access to literacy- and learning-rich environments
- ◆ Children's positive and nurturing relationships with significant adults in their lives
- ◆ Opportunities for children to:
 - ◆ Hear stories read aloud and to talk about what they have heard
 - ◆ Engage in *pretend* reading and gain practice handling books
 - ◆ Develop oral language skills
 - ◆ Develop sufficient background knowledge, vocabulary and understanding of the related concepts to construct meaning from print
 - ◆ Develop concepts of print and emergent writing skills
 - ◆ Develop letter and sound knowledge
 - ◆ Develop phonological awareness and phonics connections

Recognizing the importance of providing all children with the experiences they need to acquire emergent literacy skills and knowledge, JUL Head Start established a collaborative partnership with the Florida Institute of Education at the University of North Florida to improve the emergent literacy achievement of the children it serves by implementing the *Early Literacy and Learning Model* (ELLM).

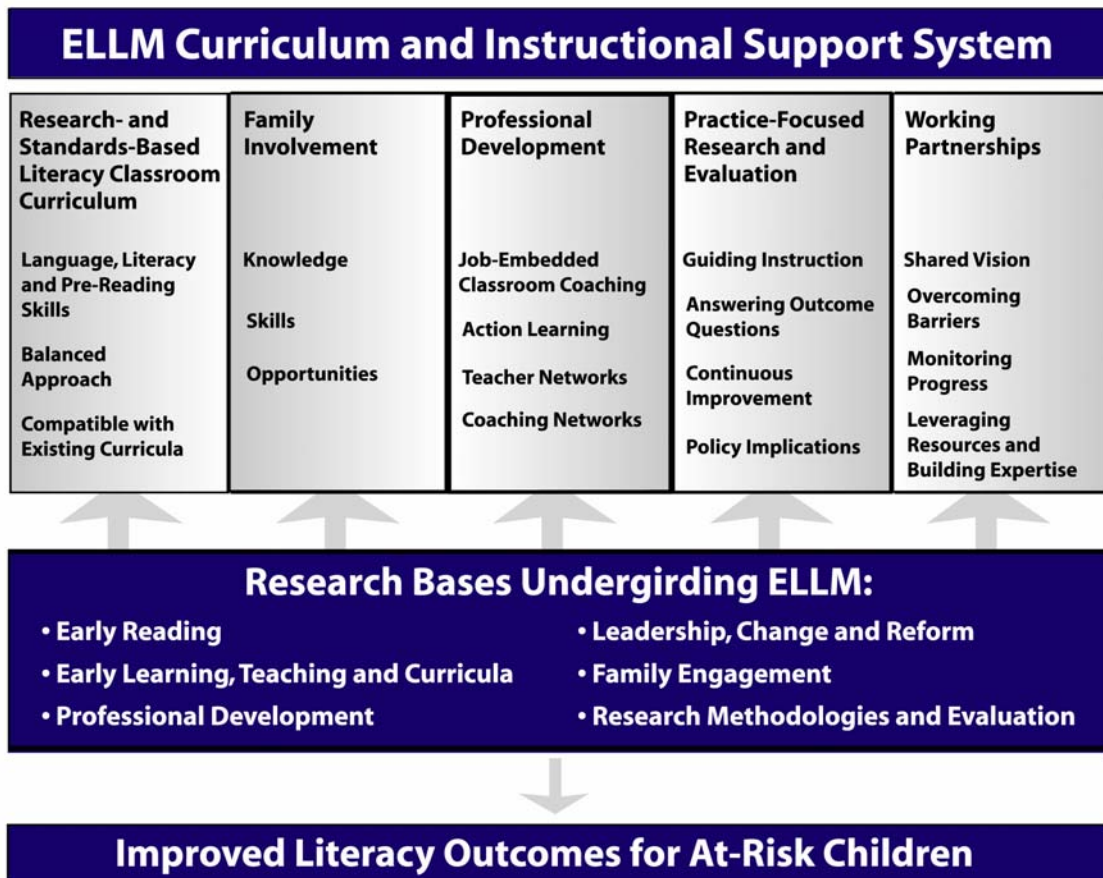
ELLM Overview

The ELLM literacy curriculum and instructional support system is designed to directly address the factors we know influence children's ability to learn to read. Based on a long, rich history of implementing successful collaborative educational reform efforts that link teacher preparation and urban public school practices, ELLM was

developed in 1996 to decrease readiness gaps and improve literacy achievement among young children at risk of future academic failure.

Undergirded by scientific and evidence-based research, ELLM is a standards-based program designed to improve the language and emergent literacy skills and knowledge of at-risk children coming to school underprepared for school success. Five ELLM components help focus instruction and increase the emergent literacy opportunities young children experience. Those five components are: 1) a research- and standards-based literacy curriculum for classrooms, 2) family involvement, 3) professional development, 4) practice-focused research and evaluation, and 5) working partnerships.

Five ELLM Components



ELLM Goals

- ◆ Design, implement, and evaluate promising strategies to help at-risk 3- and 4-year-old preschoolers and kindergarteners acquire and use the emergent literacy skills needed to become eager and proficient readers.
- ◆ Articulate a robust emergent literacy and learning continuum that links child care/preschool and kindergarten classrooms and uses inquiry and data to fuel continuous improvement of children's literacy outcomes.
- ◆ Transform research findings into easy-to-use tools for families, educators, and other stakeholders involved in the care and learning of young children.
- ◆ Establish literacy and learning networks to share best practices, build teacher instructional expertise, and encourage community collaboration to address barriers to literacy and learning.
- ◆ Increase policymakers' understanding of and support for the structures needed to improve at-risk children's emergent literacy skills and readiness for school.

Evaluation of ELLM in JUL Head Start Classrooms

JUL Head Start, in collaboration with the Florida Institute of Education at the University of North Florida, implemented ELLM in 42 JUL Head Start classrooms during the 2003/2004 school year. The implementation was achieved using two JUL Head Start Literacy Coaches. This report shares the findings from this evaluation study.

Measurement

Two instruments were used to measure children's reading readiness, the *Test of Early Reading Ability-3* (TERA-3) and the Alphabet Letter Recognition Inventory (ALRI). Trained assessors using scannable forms administered the TERA-3 to approximately 380 sampled children in one-on-one settings. Classroom teachers using scannable forms collected ALRI pretest and posttest scores from all children. Both TERA-3 and ALRI tests were electronically scored.

TERA-3

The TERA-3 is a norm-referenced test that assesses components of early developing reading skills, including familiarity with the letters of the alphabet and numerals, discovery of the arbitrary conventions used in reading and writing English, and recognizing that print conveys information, ideas, and thought. The test is composed of three subtests: the Alphabet subtest, the Conventions of Print subtest, and the Meaning subtest, each measuring one of the three components. A composite score, the Reading Quotient, is the unweighted sum of the three subtest scores.

- ◆ The *Alphabet Subtest* measures whether children can differentiate alphabet letters from numbers or designs; recognize names of letters; and isolate beginning, middle, or ending sounds.
- ◆ The *Conventions of Print Subtest* measures whether children can differentiate upper- and lowercase letters and can understand book orientation and parts of books.
- ◆ The *Meaning Subtest* measures whether children can use labels, figures, or logos as early or proto-reading activities and can identify correct use of relational vocabulary.

TERA-3 can be administered to children as young as three years, six months and as old as eight years, six months. Because children undergo rapid development over the age span of the TERA-3, there are 14 different norming populations that cover the age range of the test. Depending upon the time between pretest and posttest and the age of the child at pretest, a posttest score may be ranked relative to a norming population that is between one and four age increments older than the pretest norming population. This process adjusts the standardized scores for the maturation of the children between the pretest and posttest and allows gains resulting from normal maturation to be separated from gains resulting from program effectiveness.

TERA-3 Reading Quotient scores are reported as norm-referenced, standardized scores with a mean of 100 and a standard deviation of 15. The TERA-3 subtest scores are reported as norm-referenced, standardized scores with a mean of 10 and a standard deviation of three. Because the scores represent the ranking of scores relative to a national norming population, a change in scores represents a change in ranking relative to a norming population. It does not represent an absolute gain in knowledge.

Table 1 provides categories delimiting the lower, middle two, and upper quartiles of the TERA-3 Reading Quotient and TERA-3 subtest scores of the norming populations.

These categories are used in this report to indicate the range of early reading ability of the JUL Head Start ELLM children.

Table 1
Scale of TERA-3 Reading Quotient and TERA-3 Subtests by Ability Categories

	Categories						
	<i>Very Poor</i>	<i>Poor</i>	<i>Below Average</i>	<i>Average</i>	<i>Above Average</i>	<i>Superior</i>	<i>Very Superior</i>
Reading Quotient Score Intervals	Below 70	70-79	80-89	90-110	111-120	121-130	Above 130
Subtests Score Intervals	Below 4	4-5	6-7	8-12	13-14	15-16	17-20
Percentiles	2 nd or lower	2 nd to 9 th	9 th to 25 th	25 th to 75 th	75 th to 91 st	91 st to 98 th	98 th or higher
Percent of Scores	2.3	6.9	16.1	49.5	16.1	6.9	2.3

ALRI

The ALRI is a locally developed test measuring children’s ability to recognize the upper- and lowercase letters of the alphabet when arranged in non-alphabetic order. The children’s classroom teachers used alphabet letter flashcards to administer the test one-on-one to the children. The uppercase letters were presented first, followed by the lowercase letters.

ALRI scores are reported in four recognition categories, 0 to 13 letters, 14 to 26 letters, 27 to 39 letters, and 40 to 52 letters. The *Early Childhood Longitudinal Study-Kindergarten* (ECLS-K) provided national benchmarks for alphabet letter recognition. Using a random sample of upper- and lowercase letters, scores were categorized as *proficient* if children recognized at least 75% of the sampled letters.³ Reports from the ECLS-K data also stated 66% of all children (39% of children living in poor families) entering kindergarten for the first time were *proficient* at letter recognition.⁴ In this report, ALRI posttest scores are compared to these national benchmarks.

³ U. S. Department of Education, National Center for Education Statistics. *Early childhood longitudinal study, kindergarten class of 1998-1999: Data files and electronic codebook*. NCES2001-028 {CD ROM} On-line ordering at <http://www.ed.gov?pubs/edpubs.html>

⁴ Coley, Richard J. (2002). *An uneven start: Indicators of inequality in school readiness*. Educational Testing Service: Princeton, NJ. Available at <http://www.ets.org/research/dload/Unevenstart.pdf>.

Sampling the JUL Head Start ELLM Children

During the 2003/2004 school year, 13 sites, 42 teachers, and almost 800 children participated in JUL Head Start ELLM classes. A random sample from these children was selected to evaluate the emergent literacy achievement of children in JUL Head Start ELLM classes.

Four-year-old children eligible for public kindergarten in the 2004/2005 school year participated in the evaluation of ELLM in JUL Head Start classes. Student information was available for 442 children eligible for the sampling part of the evaluation. If a Head Start class had ten or fewer 4-year-old children, all children were selected. If a class had more than ten children, a random sample of ten children was selected. The sampling resulted in the selection of 272 children. Additionally there were five classes in which all 4-year-old children were included in the evaluation. A total of 384 JUL Head Start ELLM children were assessed in fall 2003 using the TERA-3.

Phonemic Awareness Population of JUL Head Start ELLM Children

Researchers discovered over the history of ELLM that children with very low scores on the TERA-3 pretests showed little, if any, improvement on the posttest. Therefore, beginning in 1999/2000 and continuing through 2003/2004, children with very low TERA-3 pretest scores were selected for targeted instruction in phonological awareness. Based on low TERA-3 scores, 80 JUL Head Start ELLM children were selected to participate in targeted instruction in phonological awareness.

Attrition of Children

Table 2 presents the number of locations and children that contributed data to the evaluation of ELLM in JUL Head Start classes in the fall and spring.

Table 2
Attrition of JUL Head Start ELLM Children

Test	Number		
	Sites	Classes	Children
ALRI Pretest	13	37	542
ALRI Posttest	13	37	452
Both ALRI Pretest/Posttest	13	37	451
TERA-3 Pretest	13	37	384
TERA-3 Posttest	13	37	340

The discrepancy between the number of TERA-3 pretest and posttest scores represents the attrition of 11% of the children. To determine if attrition occurred at random, the TERA-3 pretest scores of the JUL Head Start children who were not administered the TERA-3 posttest were compared to pretest scores of children who were administered the TERA-3 posttest. Table 3 presents the results of the comparison.

Table 3
Summary Statistics and ANOVA Results: JUL Head Start TERA-3 Reading Quotient and TERA-3 Subtest Pretest Scores by Attrition Category

TERA-3 Test	Mean Pretest Scores Incomplete (n=44)	Mean Pretest Scores Complete (n=340)	Probability
Reading Quotient	85.3	86.5	.5323
Alphabet Subtest	7.9	8.7	.1188
Conventions Subtest	7.1	7.3	.5323
Meaning Subtest	8.1	7.7	.2052

There was no evidence suggesting that the attrition of JUL Head Start ELLM children did not occur at random.

Evaluation Questions

The evaluation of ELLM in JUL Head Start classes involves answering four evaluation questions:

- **Question 1: Who were the 2003/2004 JUL Head Start ELLM children?**
- **Question 2: Was ELLM effective in improving the reading readiness of the JUL Head Start children based on improved TERA-3 Reading Quotient and TERA-3 subtest scores?**
- **Question 3: How did JUL Head Start ELLM children compare to existing national benchmarks in the recognition of the upper- and lowercase letters of the alphabet at the end of the school year?**
- **Question 4: Who were the JUL Head Start ELLM children selected for targeted instruction in phonological awareness, and was ELLM effective in improving the reading readiness of this group of children based on improved TERA-3 and ALRI scores?**

The answers to these questions primarily come from data obtained from the sample of Head Start ELLM children assessed using the TERA-3. Summary statistics and statistical testing of pretest and posttest means provide the answers. To determine the importance of all statistically significant differences, effect sizes are reported. Cohen classified effect sizes of 20 to 49 percent of a standard deviation as small, between 50 and 79 percent of a standard deviation as medium, and 80 percent or more of a standard deviation as large.⁵ Small, medium, and large effect sizes indicate meaningful differences.

Moreover, Whitehurst and Massetti, in a critique of Head Start, noted when evaluation designs lack control or comparison groups, small effect sizes of 20 to 25 percent should not be attributed to programs. Small effects could easily be associated with regression toward the mean, increased familiarity with tests and assessment procedures in general, or ordinary maturation and experiences.⁶ Because the evaluation of ELLM in JUL Head Start classes does not involve a comparison or control group, only effects

⁵ Cohen, J. (1988). *Statistical power analysis for behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

⁶ Whitehurst, G. J. & Massetti, G. M. (2004). How well does Head Start prepare children to learn to read? In Edward Zigler & Sally J. Styfco (Eds.), *The Head Start debates*. Baltimore, MD: Paul H. Brooks Publishing.

larger than one third of a standard deviation are attributed to the children's participation in JUL Head Start ELLM classes.

Question 1: Who were the 2003/2004 JUL Head Start ELLM children?

The answer to this evaluation question involves a description of the children by age, gender, and ethnicity.

Age

The categorization of the children as four years old does not indicate the age of the children. Because of the September 1 birthday cut-off for children attending public kindergarten in Florida, the typical 4-year-old preschool child is between 48 and 60 months old on September 1 of the school year. Figure 1 displays the ages in months, on September 1, 2003, of the JUL Head Start ELLM children who have both TERA-3 pretest and posttest scores.

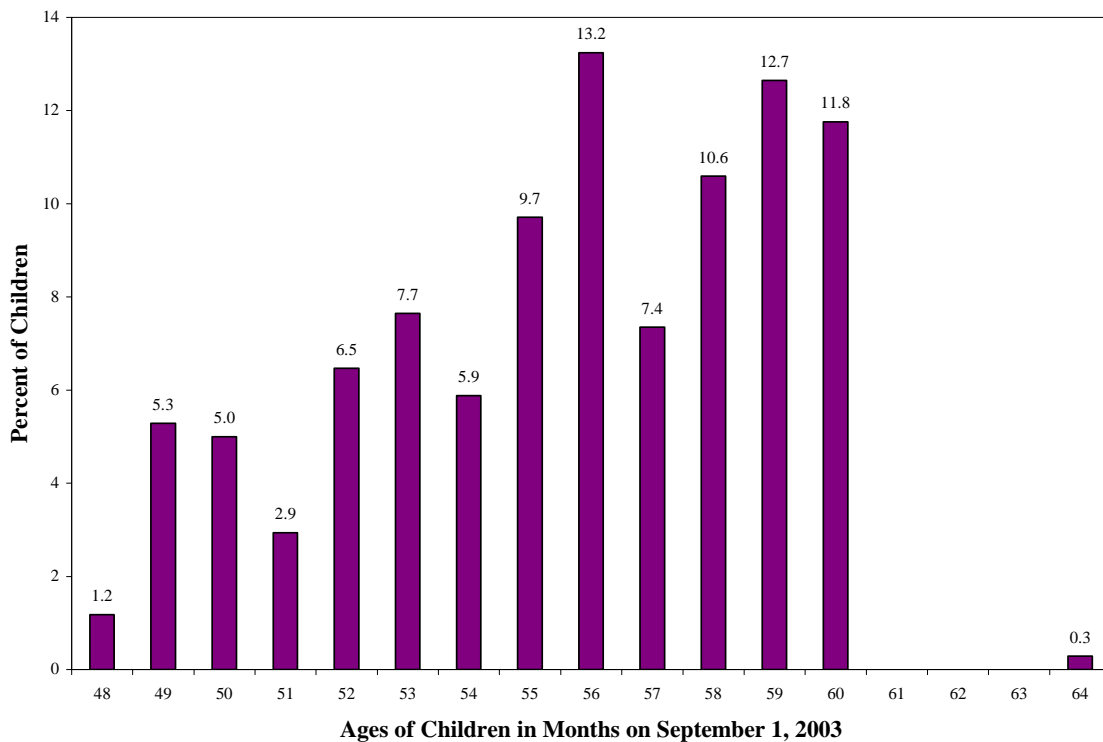


Figure 1.
Ages of the JUL Head Start ELLM children on September 1, 2003 (n=340).

The ages of the JUL Head Start ELLM children with both TERA-3 pretest and posttest scores were older than the median age of the typical range, with 66% being more than 54 months old on September 1, 2003.

Gender

Boys made up 47% and girls made up 53% of the JUL Head Start ELLM children with both TERA-3 pretest and posttest scores.

Ethnicity

Ethnicity of the children was reported in six categories: *Black*, *White*, *Hispanic*, *Asian*, *Native American*, and *Other*. Figure 2 displays the ethnic backgrounds of the JUL Head Start ELLM children.

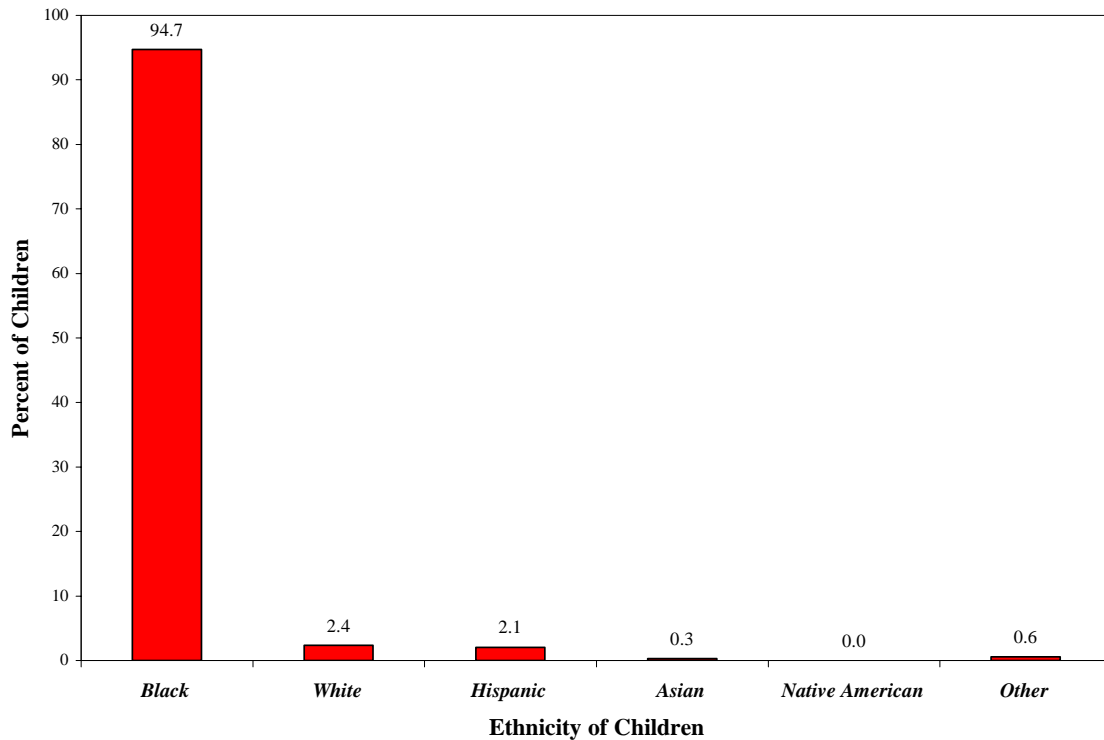


Figure 2.
Ethnic backgrounds of the JUL Head Start ELLM children (n=340).

Almost all of the JUL Head Start ELLM children were *Black*.

Question 2: Was ELLM effective in improving the reading readiness of the JUL Head Start children based on improved TERA-3 Reading Quotient and TERA-3 subtest scores?

Table 4 presents summary statistics and ANOVA results of the TERA-3 pretest and posttest scores of the JUL Head Start ELLM children.

Table 4
Summary Statistics and ANOVA Results: JUL Head Start ELLM Children’s TERA-3 Reading Quotient and Subtests Scores

TERA-3 Test (n=340)	Pretest Mean	Posttest Mean	Probability Means Differ	Effect Size
Reading Quotient	86.5	90.5	<.0001*	.265
Alphabet Subtest	8.7	10.3	<.0001*	.556 ^φ
Conventions Subtest	7.3	7.5	.2909	
Meaning Subtest	7.7	7.6	.7915	

- Note. * Denotes there was a significant difference in the pretest and posttest mean scores, $\alpha = .05$.
^φ Denotes an improvement that can be attributed to the children’s participation in JUL Head Start ELLM classes.
 Denotes both significant and meaningful differences between the pretest and posttest mean scores.

The Reading Quotient, Alphabet, Conventions, and Meaning subtests mean pretest scores ranked at the 18th, 33rd, 18th, and 22nd percentiles, respectively. (See Table 1, page 7 for TERA-3 Reading Quotient and subtest ability categories and percentiles.) In the fall, only the mean TERA-3 Alphabet subtest score of the JUL Head Start ELLM children ranked in the broad *Average* ability category, which spans the middle two quartiles. At the end of the year, the mean Reading Quotient, Alphabet, Conventions, and Meaning subtests scores ranked at the 26th, 54th, 20th, and 21st percentiles, respectively.

Therefore, in the spring, the mean Alphabet subtest score of the JUL Head Start ELLM children ranked four percentiles higher than the national average ranking at the 50th percentile. The improvement in the Alphabet subtest scores can be attributed to the children’s participation in JUL Head Start ELLM classes.

Data were analyzed to determine if there were significant differences in the pretest and posttest means (meaning average scores improved in percentile ranking compared to a nationally norming population). The analyses indicated JUL Head Start ELLM children made significant and meaningful improvement in the TERA-3 Reading Quotient and Alphabet subtest scores but did not make significant improvement in the TERA-3 Conventions of Print and Meaning subtest scores. (See Table 4 on the previous page.)

To better understand where the improvements in reading readiness scores occurred, the TERA-3 Reading Quotient and Alphabet subtest scores are displayed in seven ability categories: three categories representing the lowest 25 percentiles, one category representing the middle 50 percentiles, and three categories representing the highest 25 percentiles. Figures 3-5, pages 15-17, display this information for the Reading Quotient scores, and Figures 6-8, pages 18-20, display this information for the Alphabet subtest scores.

TERA-3 Reading Quotient Scores: Bottom Quartile

Figure 3 shows the percentage of pretest, posttest, and national norming population TERA-3 Reading Quotient scores in the three categories of the bottom quartile. While the percentage of posttest scores in these categories (red bars) remains higher than in the national norming population (yellow bars), there are 19% fewer JUL Head Start ELLM scores in these categories in the spring than in the fall (striped bars), and the percentage of scores in the bottom two categories (the *Very Poor* and *Poor* categories), representing scores at or below the 9th percentile, is about 11% more than in the national norming population.

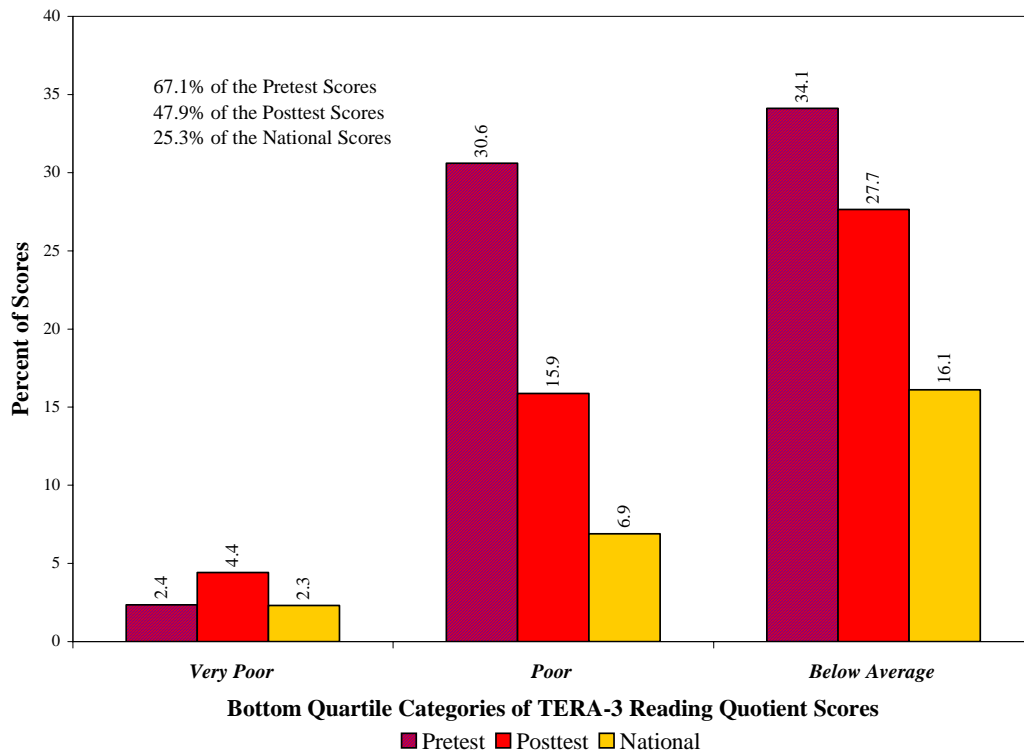


Figure 3.

The percentage of TERA-3 Reading Quotient pretest, posttest, and national norming population scores in the three categories of the bottom quartile (n=340).

TERA-3 Reading Quotient Scores: Top Quartile

Figure 4 shows the percentage of pretest, posttest, and national norming population TERA-3 Reading Quotient scores in the three categories of the top quartile. The percentage of scores in these categories (red bars) remains less than in the national norming population (yellow bars); however, there are 1% more scores in these categories in the spring than in the fall (striped bars).

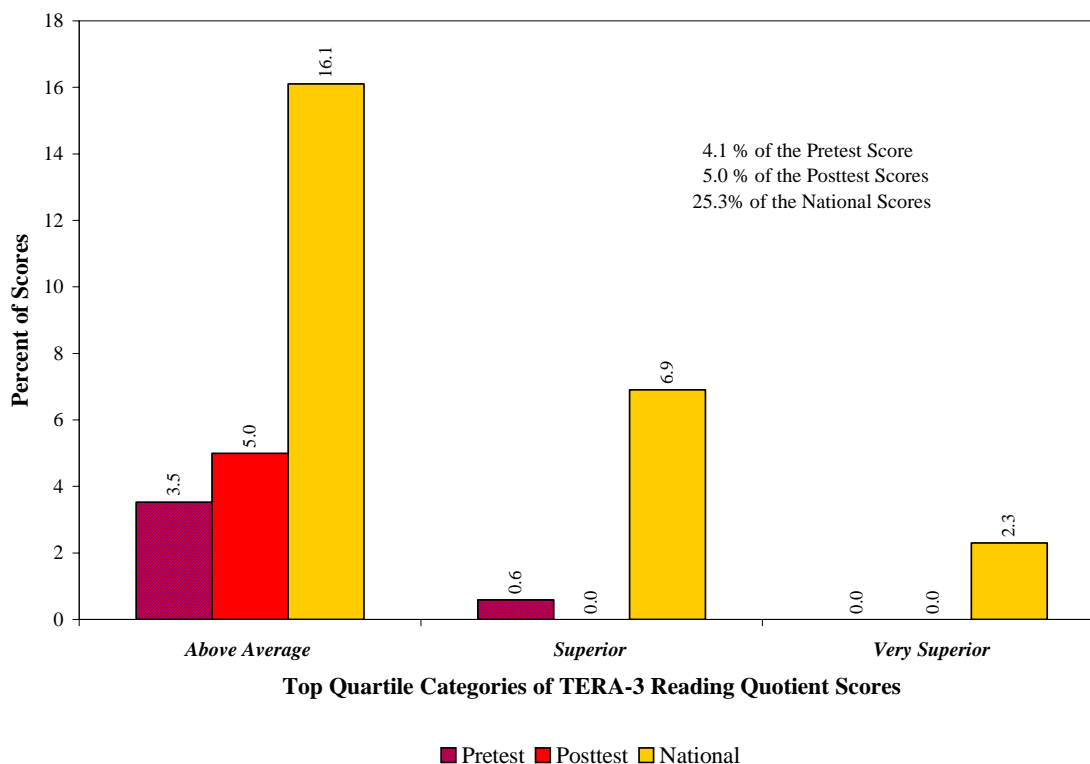


Figure 4.

The percentage of TERA-3 Reading Quotient pretest, posttest, and national norming population scores in the three categories of the top quartile (n=340).

The Distribution of TERA-3 Reading Quotient Scores

Figure 5 shows all seven ability categories of the TERA-3 Reading Quotient scores at once. While the distribution of the posttest scores (red bars) remains shifted toward the low side of the scale, it has shifted closer to the national norming population (yellow bars) than the pretest distribution (striped bars). This indicates the JUL Head Start ELLM children were closing the gap in achievement measured by the TERA-3 Reading Quotient.

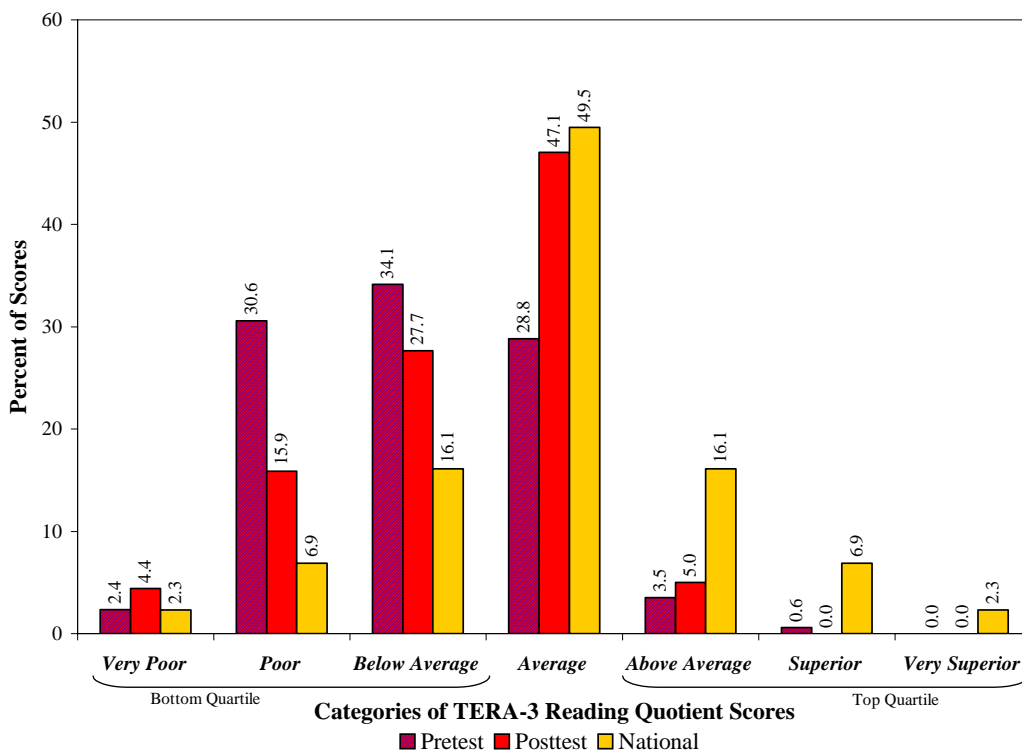


Figure 5. The percentage of TERA-3 Reading Quotient pretest, posttest, and national norming population scores in the seven categories of the ability scale (n=340).

- ▶ JUL Head Start ELLM children were closing the gap in achievement measured by the TERA-3 Reading Quotient.

TERA-3 Alphabet Subtest Scores: Bottom Quartile

Figure 6 shows the percentage of TERA-3 Alphabet subtest pretest, posttest, and national norming population scores in the three categories of the bottom quartile. There are almost 21% fewer JUL Head Start ELLM scores in these categories in the spring (red bars) than in the fall (striped bars). There are 2% fewer posttest scores in the bottom quartile than in the national norming population (yellow bars). Additionally, the percentage of scores in the bottom two categories (the *Very Poor* and *Poor* categories), representing scores at or below the 9th percentile, is also 1% less than in the national norming population.

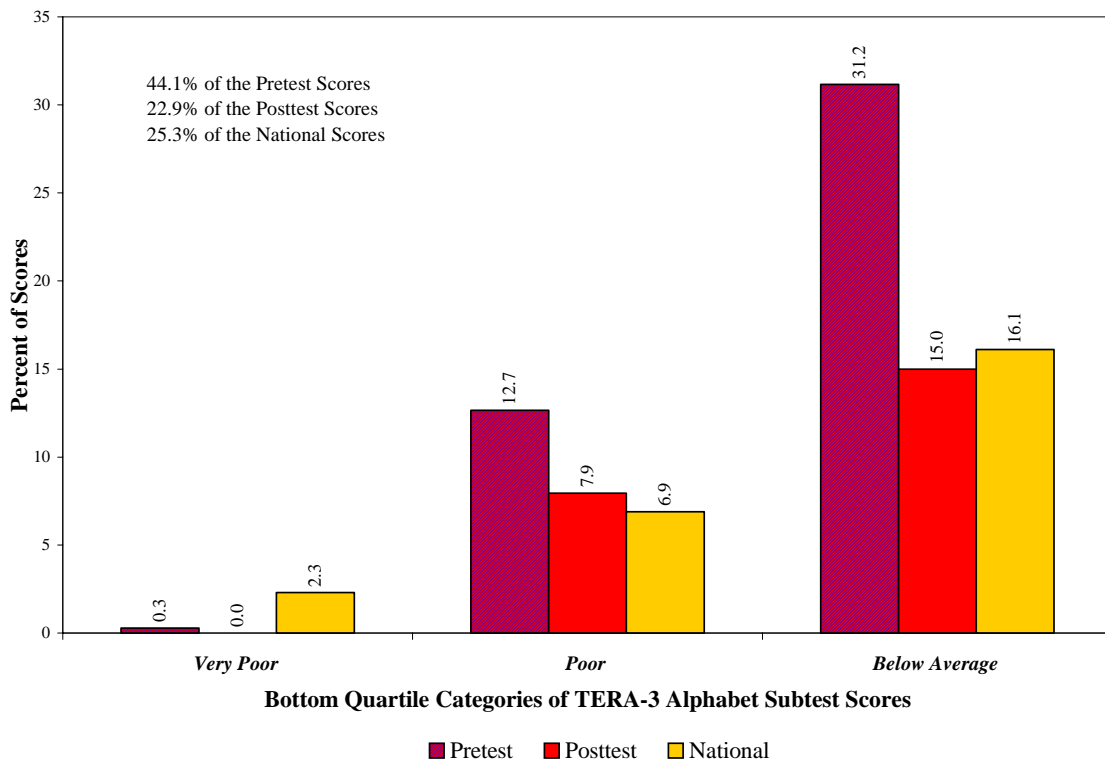


Figure 6.

The percentage of TERA-3 Alphabet subtest pretest, posttest, and national norming population scores in the three categories of the bottom quartile (n=340).

- ▶ There are 2% fewer TERA-3 Alphabet subtest posttest scores in the bottom quartile than in the national norming population.

TERA-3 Alphabet Subtest Scores: Top Quartile

Figure 7 shows the percentage of pretest, posttest, and national norming population TERA-3 Alphabet subtest scores in the three categories of the top quartile. There are almost 4% more posttest scores (red bars) in the top quartile than in the national norming population (yellow bars). Additionally, the scores of almost 10% of the JUL Head Start ELLM children are at or above the 90th percentile (the *Superior* and *Very Superior* categories).

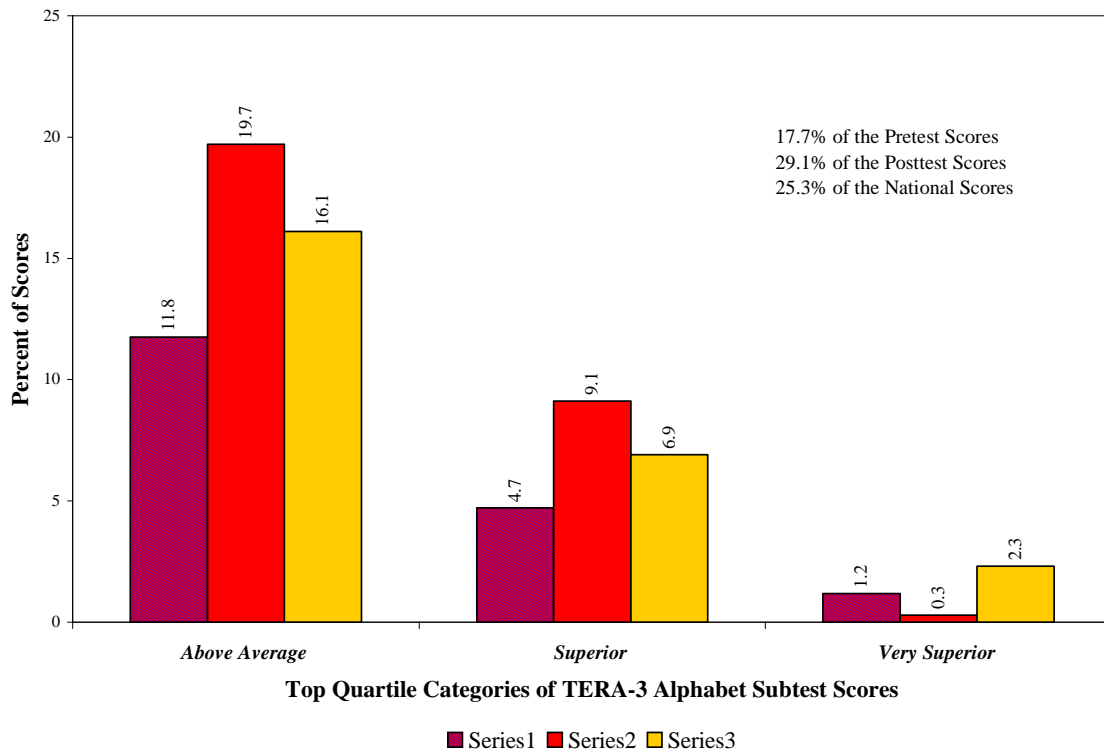


Figure 7.

The percentage of TERA-3 Alphabet subtest pretest, posttest, and national norming population scores in the three categories of the top quartile (n=340).

- ▶ There are almost 4% more TERA-3 Alphabet subtest posttest scores in the top quartile than in the national norming population.

The Distribution of TERA-3 Alphabet Subtest Scores

Figure 8 shows all seven ability categories of the TERA-3 Alphabet subtest scores at once. The distribution of the posttest scores (red bars) is shifted to the high side of the scale, indicating the JUL Head Start ELLM children closed the gap in achievement measured by the TERA-3 Alphabet subtest. In fact, the percentage of scores in all categories except the *Very Superior* category matches or is better than the percentage in the distribution of scores of the national norming population (yellow bars).

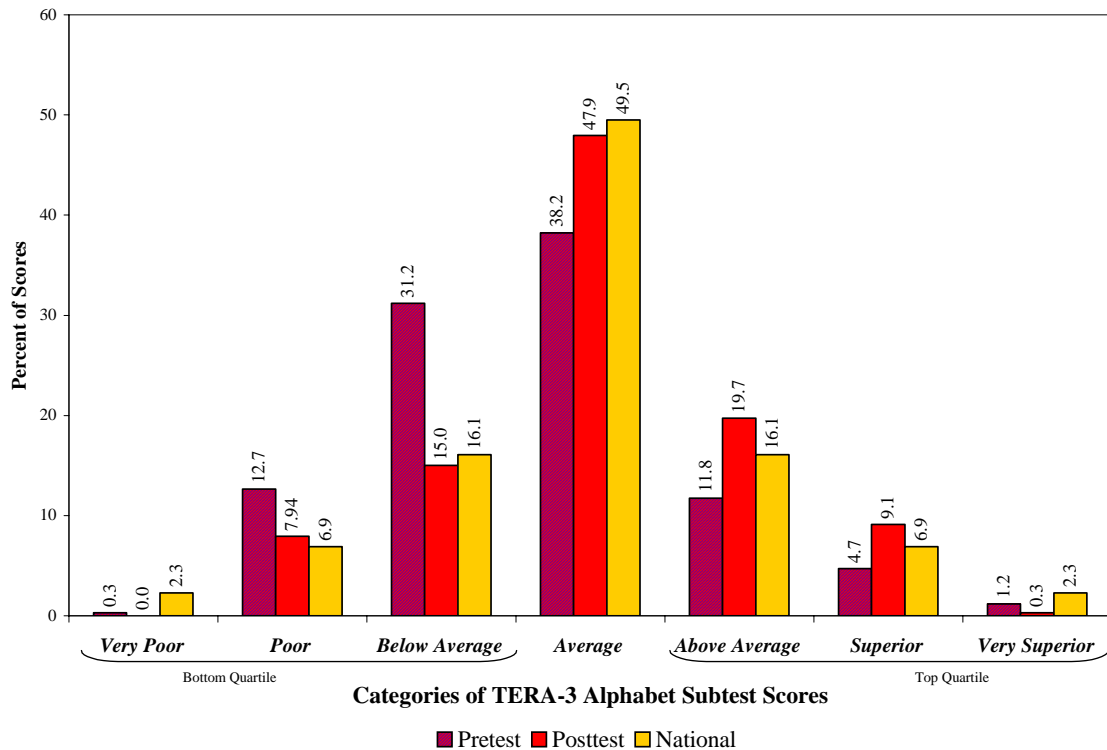


Figure 8.

The percentage of TERA-3 Alphabet subtest pretest, posttest, and national norming population scores in the seven categories of the ability scale (n=340).

- ▶ JUL Head Start ELLM children closed the gap in achievement measured by the TERA-3 Alphabet subtest.

Question 3: How did JUL Head Start ELLM children compare to existing national benchmarks in the recognition of the upper- and lowercase letters of the alphabet at the end of the school year?

In 2003/2004, 451 4-year-old preschool children from JUL Head Start ELLM classes had Alphabet Letter Recognition Inventory (ALRI) pretest and posttest scores. The ALRI pretest mean score indicates the typical child recognized about 34% of the letters. The ALRI posttest score indicates the typical JUL Head Start child recognized 77% of the letters. The *Early Childhood Longitudinal Study-Kindergarten* (ECLS-K) defined *proficient* as recognizing 75% of the sampled letters; therefore, at the end of the school year, the typical JUL Head Start ELLM child was *proficient* in letter recognition.

To determine the range of alphabet letter recognition ability of the JUL Head Start ELLM children, ALRI scores are displayed in Figure 9 on the next page using four recognition categories: 0-13 letters, 14-26 letters, 27-39 letters, and 40-52 letters. Inspection of Figure 9 indicates 67% of the posttest scores (red bars) are in the 40-to-52 letters recognized category (recognizing at least 75% of the letters; therefore, *proficient*). The end of the 4-year-old preschool year is somewhat similar to entering kindergarten for the first time, and ECLS-K researchers reported 66% of children (39% of children living in poor families) entering kindergarten for the first time were *proficient*. JUL Head Start ELLM children more than match the ECLS-K national sample of all children. Additionally, almost 13% of the JUL Head Start ELLM children recognized all 52 letters. Less than 8% of the children recognized fewer than 10 letters.

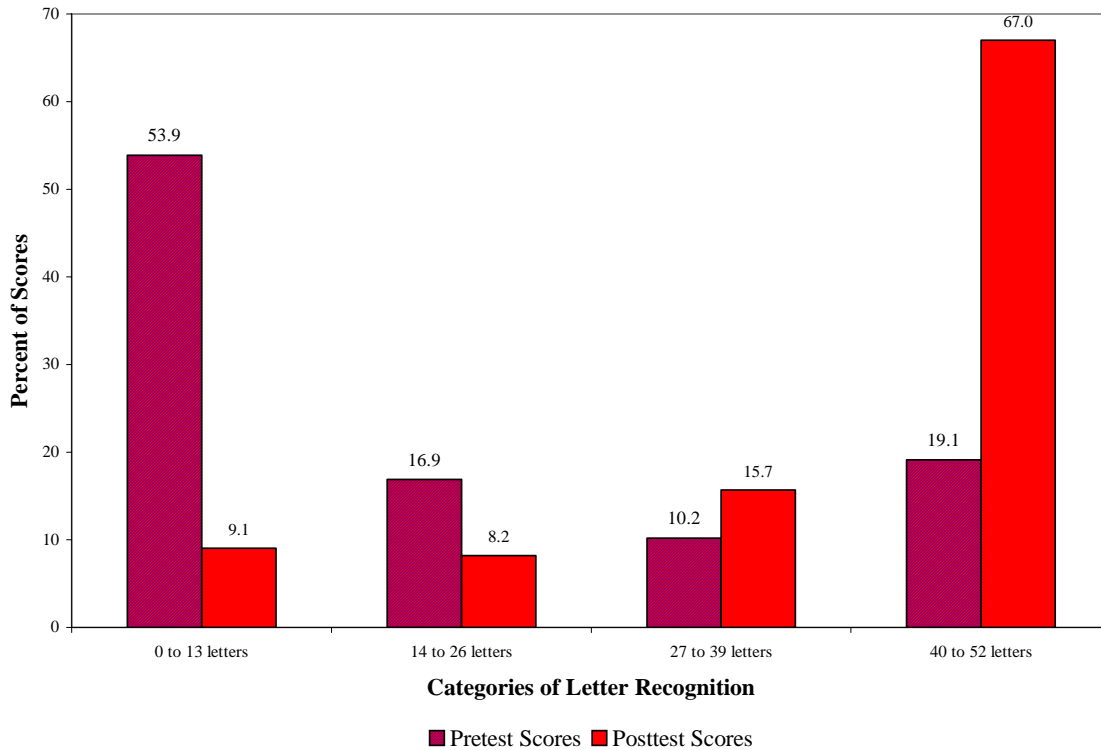


Figure 9. The Alphabet Letter Recognition Inventory pretest and posttest scores of the 451 JUL Head Start ELLM children.

At the end of the school year:

- ▶ 67% of the JUL Head Start ELLM children were *proficient* (recognizing at least 75% of the sampled letters).
- ▶ 13% of the JUL Head Start ELLM children recognized all 52 letters.
- ▶ Less than 8% of the JUL Head Start ELLM children recognized less than 10 letters.

Question 4: Who were the JUL Head Start ELLM children selected for targeted instruction in phonological awareness, and was ELLM effective in improving the reading readiness of this group of children based on improved TERA-3 and ALRI scores?

Ethnicity, Gender, and Age of the Children Selected for Targeted Instruction in Phonological Awareness

There were 80 JUL Head Start ELLM children selected for targeted instruction in phonological awareness. Attrition of the children reduced this number to 73 children with both pretest and posttest TERA-3 scores. The ethnicity of the children selected mirrors the complete sample of JUL Head Start ELLM children. Additionally, 60% of the children were boys. Figure 10 shows the ages of these children on September 1, 2003.

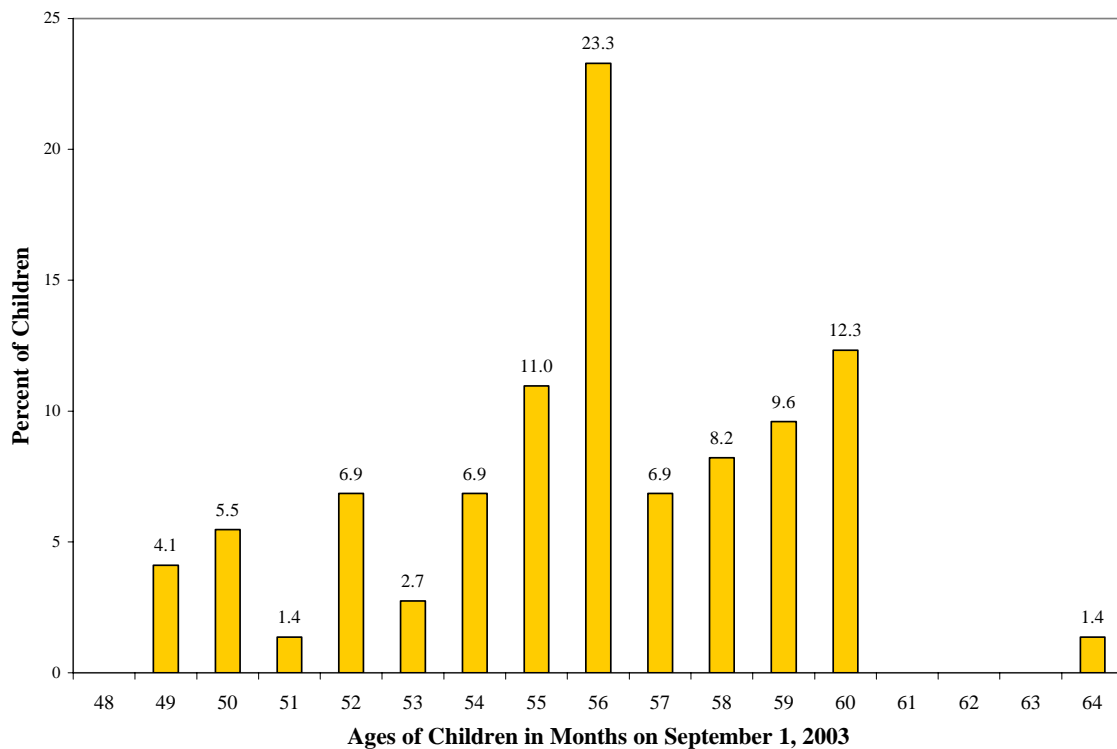


Figure 10. Ages on September 1, 2003 of the JUL Head Start ELLM children selected for targeted instruction in phonological awareness (n=73).

The ages of the children selected for targeted instruction were older than the median age (54 months) of the 4-year-old preschool age range of children in Florida. However, the complete sample of JUL Head Start ELLM children was also slightly older than typical.

TERA-3 Results of the Children Selected for Targeted Instruction in Phonological Awareness

Table 5 provides summary statistics and ANOVA results for the TERA-3 pretest and posttest scores of the JUL Head Start ELLM children selected for targeted instruction in phonological awareness. The data were analyzed as a repeated-measures ANOVA design to determine if there were statistically significant differences in the TERA-3 Reading Quotient and TERA-3 subtests pretest and posttest means. Effect sizes are provided when the mean scores represent significant differences (see page 10). The mean TERA-3 Reading Quotient, Alphabet, and Meaning subtests pretest and posttest scores were significantly and meaningfully different. The mean Conventions of Print subtest pretest and posttest scores were not significantly different.

Table 5

Summary Statistics and ANOVA Results: TERA-3 Reading Quotient and TERA-3 Subtests (Phonological Awareness Population of JUL Head Start ELLM Children)

TERA-3 Test (n=73)	Pretest Mean	Posttest Mean	Probability Means Differ	Effect Size
Reading Quotient	72.7	79.8	<.0001*	0.475 ^φ
Alphabet Subtest	5.6	7.9	<.0001*	0.772 ^φ
Conventions Subtest	5.8	6.0	.2175	
Meaning Subtest	6.0	6.6	.0094*	0.223

Note. * Denotes there was a difference in the pretest and posttest means, $\alpha = .05$.

□ Denotes both significant and meaningful differences between the pretest and posttest means.

^φ Denotes an improvement that can be attributed to the children's participation in JUL Head Start ELLM classes.

It is reasonable to conclude the large effect sizes shown in the TERA-3 Reading Quotient and Alphabet subtest scores can be attributed to the children's participation in ELLM and targeted instruction in phonological awareness. The targeted instruction mainly addresses concepts measured by the TERA-3 Alphabet subtest; therefore, this effect is not surprising. To better understand where the improvement in the Alphabet subtest scores occurred, the scores of the children selected for targeted instruction in phonological awareness are displayed in seven ability categories: three categories representing the lowest 25 percentiles, one category representing the middle 50 percentiles, and three categories representing the highest 25 percentiles (See Table 1,

page 7 for the TERA-3 Reading Quotient and subtest ability categories and percentiles). Figures 11 and 12 display this information for the TERA-3 Alphabet subtest scores.

Phonological Awareness Population TERA-3 Alphabet Subtest Scores: Bottom Quartile

Figure 11 shows the percentage of pretest, posttest, and national norming population TERA-3 Alphabet subtest scores in the three ability categories of the bottom quartile. Because of the selection criteria for targeted instruction in phonological awareness, almost all of the pretest scores (striped bars) are in these categories. There are almost 48% fewer scores in these categories in the spring (violet bars); however, the posttest percentage remains almost 25% more than in the national norming population (yellow bars). However, there are 25% fewer posttest than pretest scores at or below the 9th percentile (*Very Poor* and *Poor* categories).

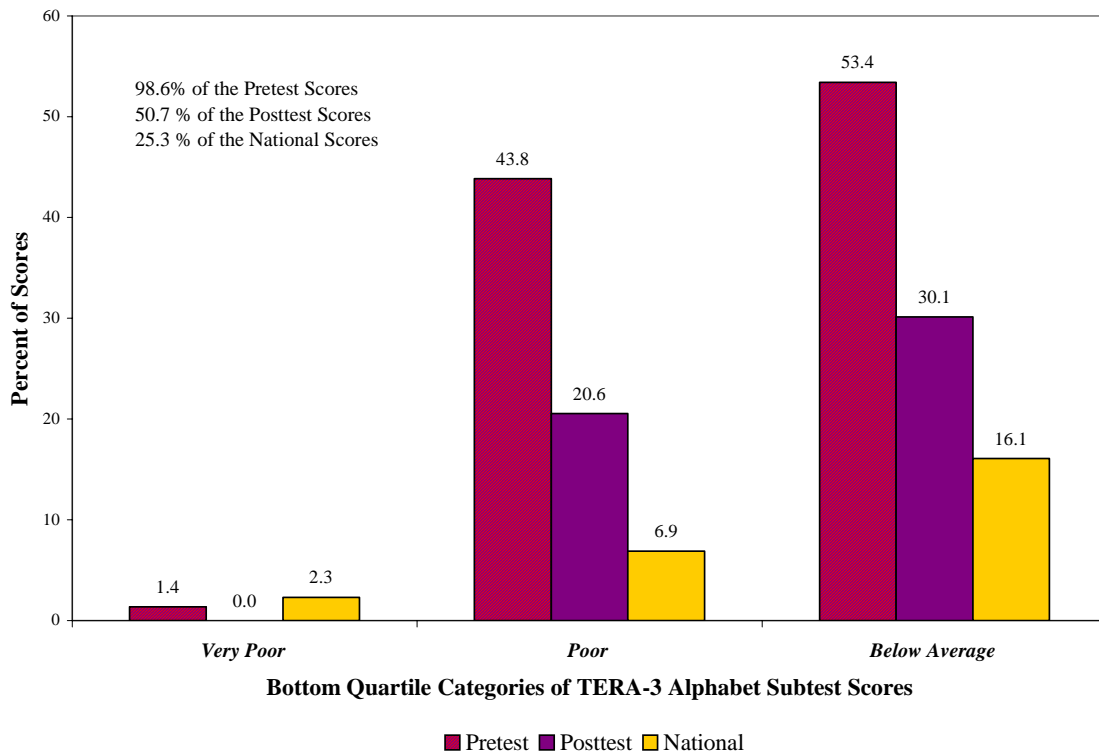


Figure 11. The percentage of TERA-3 Alphabet subtest pretest, posttest, and national norming population scores in the three categories of the bottom quartile (n=73 children selected for targeted instruction in phonological awareness).

Phonological Awareness Population The Distribution of TERA-3 Alphabet Subtest Scores

Figure 12 shows all seven ability categories of the TERA-3 Alphabet subtest scores at once. The distribution of the posttest scores (violet bars) is shifted more to the high side of the scale than the pretest scores (striped bars), indicating the JUL Head Start ELLM children selected for targeted instruction in phonological awareness began to close the gap in achievement measured by the TERA-3 Alphabet subtest. In fact, the percentage of posttest scores in the broad *Average* category (violet bars) almost matches the percentage in the national population (yellow bars). Additionally, more than 7% of the posttest scores (violet bars) are in the top quartile.

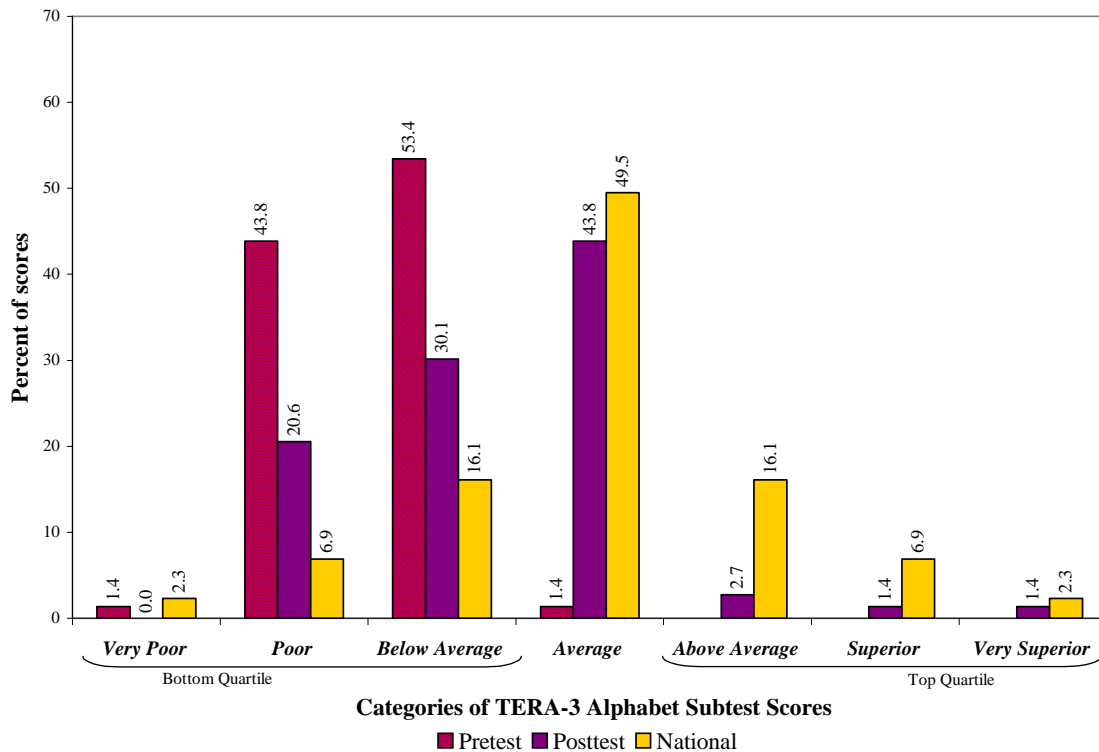


Figure 12. The percentage of TERA-3 Alphabet subtest pretest, posttest, and national norming population scores in the seven categories of the ability scale (n=73 children selected for targeted instruction in phonological awareness).

- ▶ JUL Head Start ELLM children selected for targeted instruction in phonological awareness began to close the gap in achievement measured by the TERA-3 Alphabet subtest.

ALRI Results of the Children Selected for Targeted Instruction in Phonological Awareness

In 2003/2004, 64 of the 4-year-old children in JUL Head Start ELLM classes who were selected for targeted instruction in phonological awareness had both TERA-3 and Alphabet Letter Recognition Inventory (ALRI) pretest and posttest scores. The ALRI pretest mean score indicates the typical JUL Head Start ELLM child selected for targeted instruction in phonological awareness recognized about 12% of the letters. The ALRI posttest mean score indicates the typical JUL Head Start ELLM child in this group of children recognized 58% of the letters. The *Early Childhood Longitudinal Study-Kindergarten* (ECLS-K) define *proficient* as recognizing 75% of the sampled letters; therefore, the typical JUL Head Start ELLM child selected for targeted instruction in phonological awareness made great strides toward *proficiency*.

To determine the range of letter recognition ability of JUL Head Start ELLM children selected for targeted instruction in phonological awareness, ALRI scores are displayed in Figure 13 on the next page using four recognition categories: 0-13 letters, 14-26 letters, 27-39 letters, and 40-52 letters. Inspection of Figure 13 indicates 42% of the posttest scores are in the 40-to-52 letters recognized category (recognizing at least 75% of the letters; therefore, *proficient*). The end of the 4-year-old preschool year is somewhat similar to entering kindergarten for the first time, and ECLS-K researchers reported 39% of children living in poor families and entering kindergarten for the first time were *proficient*. JUL Head Start ELLM children selected for targeted instruction in phonological awareness more than match the national ECLS-K sample of children living in poor families. Additionally, less than 19% of the JUL Head Start ELLM children selected for targeted instruction in phonological awareness recognized fewer than 10 letters.

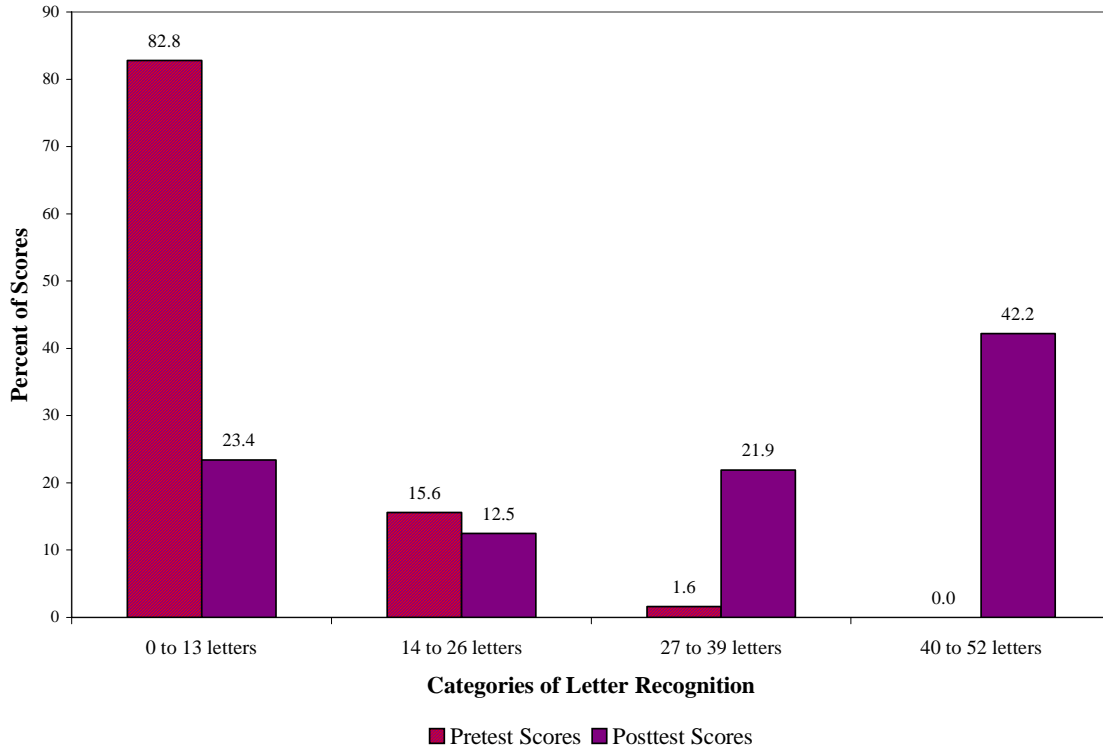


Figure 13. The Alphabet Letter Recognition Ability Inventory pretest and posttest scores of the 64 JUL Head Start ELLM children selected for targeted instruction in phonological awareness.

At the end of the school year:

- ▶ 42% of the JUL Head Start children selected for targeted instruction in phonological awareness were *proficient* (recognizing at least 75% of the sampled letters).
- ▶ Less than 19% of the JUL Head Start children selected for targeted instruction in phonological awareness recognized fewer than 10 letters.

Conclusions

Question 1: Who were the 2003/2004 JUL Head Start ELLM children?

- Attrition of the 384 JUL Head Start ELLM children sampled for TERA-3 assessment was about 11%, resulting in complete scores for 340 4-year-old children.
- Almost all of the JUL Head Start children were *Black*, 47% were boys, and the children were slightly older than the median age of the traditional age range of 4-year-old preschool children in Florida.

Question 2: Was ELLM effective in improving the reading readiness of the JUL Head Start children based on improved TERA-3 Reading Quotient and TERA-3 subtest scores?

- The TERA-3 Reading Quotient mean posttest score showed significant and meaningful improvement of more than 25% of a standard deviation. The mean posttest score ranked in the broad *Average* ability category.
- The TERA-3 Alphabet subtest mean posttest score showed significant and meaningful improvement of 56% of a standard deviation. The mean posttest score ranked at the 54th percentile, above the national average ranking at the 50th percentile. This improvement can be attributed to the children's participation in JUL Head Start ELLM classes.
- At the end of the school year, there were 21% fewer Alphabet subtest scores in the bottom quartile than in the fall and 2% fewer than in the national population.
- At the end of the school year, there were fewer TERA-3 Alphabet subtest scores ranked at or below the 9th percentile than in the national population.
- At the end of the school year, almost 10% of the TERA-3 Alphabet subtest scores of the JUL Head Start ELLM children ranked at or above the 90th percentile, and 29% of the scores ranked in the top quartile.
- The TERA-3 Conventions of Print mean posttest score of the JUL Head Start ELLM children indicated no significant difference from the pretest score; therefore, the JUL Head Start ELLM children's mean posttest score did not improve in ranking relative to a national population in the concepts measured by this TERA-3 subtest.
- The TERA-3 Meaning mean posttest score of the JUL Head Start ELLM children indicated no significant difference from the pretest score; therefore, the JUL Head Start ELLM children's mean posttest score did not improve in ranking relative to a national population in the concepts measured by this TERA-3 subtest.

Question 3: How did JUL Head Start ELLM children compare to existing national benchmarks in the recognition of the upper- and lowercase letters of the alphabet at the end of the school year?

- At the end of the school year, the typical JUL Head Start ELLM child recognized 77% of the 52 letters (ECLS-K researchers described the recognition of 75% of sampled letters as *proficient*).
- At the end of the school year, 67% of the JUL Head Start ELLM children were *proficient* at letter recognition compared to 66% of all children entering kindergarten for the first time in the national ECLS-K sample.
- At the end of the school year, approximately 13% of the JUL Head Start ELLM children recognized all 52 letters.
- At the end of the school year, less than 8% of the JUL Head Start ELLM children recognized fewer than 10 letters.

Question 4: Who were the JUL Head Start children selected for targeted instruction in phonological awareness, and was ELLM effective in improving the reading readiness of this group of children based on improved TERA-3 and ALRI scores?

- The 73 JUL Head Start ELLM children selected for targeted instruction in phonological awareness mirrored the complete sample of JUL Head Start ELLM children except 60% were boys.
- The TERA-3 Reading Quotient mean posttest score indicated significant and meaningful improvement of more than 47% of a standard deviation.
- The TERA-3 Alphabet subtest mean posttest score indicated significant and meaningful improvement of 77% of a standard deviation.
- At the beginning of the school year, almost 99% of TERA-3 Alphabet subtest scores of the children selected for targeted instruction in phonological awareness were in the bottom quartile. At the end of the school year, 49% of the posttest scores were in the upper three quartiles.
- The TERA-3 Meaning mean posttest score of the JUL Head Start ELLM children selected for targeted instruction in phonological awareness indicated significant and meaningful improvement of more than 22% of a standard deviation.
- At the end of the school year, the typical JUL Head Start ELLM child selected for targeted instruction in phonological awareness recognized 58% of the letters.
- At the end of the school year, 42% of the children were *proficient* at letter recognition, which more than matches the 39% of children living in poor families in the national ECLS-K sample of children entering kindergarten for the first time.

During the 2003/2004 school year, JUL Head Start in conjunction with the *Early Literacy and Learning Model* (ELLM) was successful in significantly increasing participating children's mastery of emergent literacy achievement in the area of alphabet letter knowledge. The three areas of alphabet letter knowledge include knowing the names of letters, recognizing upper- and lowercase letters arranged in non-alphabetic order, and understanding the function of the letters of the alphabet. This achievement is documented through posttest TERA-3 and ALRI results.