



Research on End-of-Grade Testing: Characteristics of Level I Students

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One purpose of the End-of-Grade testing program is to provide accurate measurement of the knowledge and skills attained by groups of students in grades 3 through 8. Of particular concern are students who perform at the lowest level of achievement, Level I, in reading and mathematics. In order to better help these students, the characteristics of typical Level I students in North Carolina are described below.

Achievement Levels

Achievement levels allow the comparison of student and group performance to standards based on what is expected in each subject at each grade. The developmental scale score ranges for each achievement level were established from teacher judgements about the performance of each of their students when the End-of-Grade reading and mathematics tests were field tested in 1992 and administered for the first time in 1993.

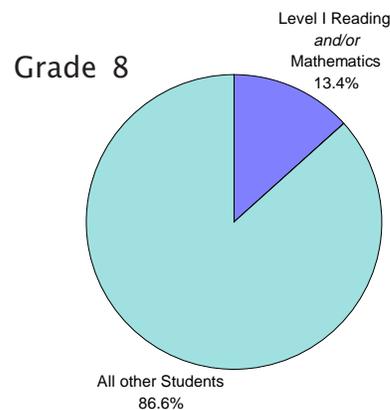
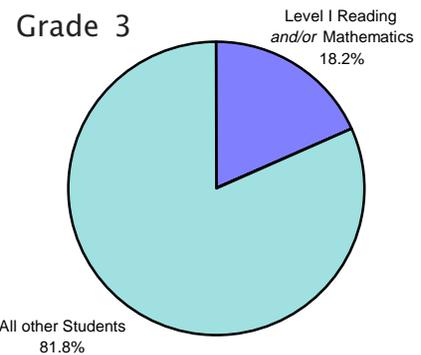
Table 1. Achievement Level I Scores on North Carolina End-of-Grade Tests.

Grade	Reading	Mathematics
3	115–130	98–124
4	119–134	111–131
5	124–138	117–140
6	128–140	130–145
7	130–144	138–151
8	132–144	140–154

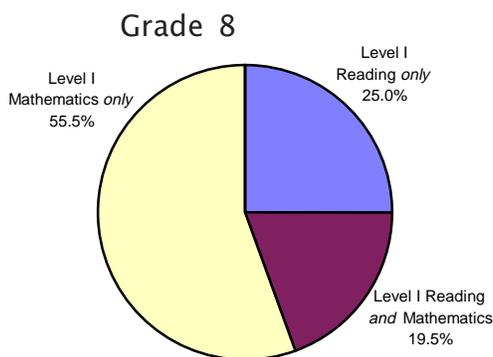
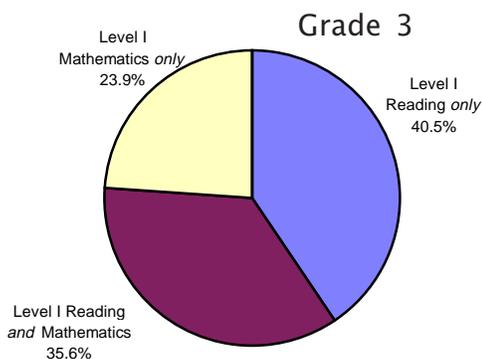
Students Classified as Level I

For this Assessment Brief, only data for grades 3 and 8 from the 1994 assessment will be discussed. The data can be found in Table 3 on the last page of this Brief.

The figures below show the proportion of students in grades 3 and 8 that are classified as Level I in reading *and/or* mathematics based on End-of-Grade Test scores. These proportions are similar for all grades 3 through 8.



In grade 3, 18.2% of the students in North Carolina are classified as Level I in reading and/or mathematics and, *of those students*, 35.6% (or 5,748 students) are classified as Level I in *both* reading and mathematics. In grade 8, 13.4% of the students are classified as Level I in reading and/or mathematics and, *of those students*, 19.5% (or 2,160) are classified as Level I in *both* reading and mathematics.



Student Achievement

Typical growth from year-to-year can be estimated from the developmental scale score (determined from the development of the scales for reading and mathematics). Based on the data in Table 2, the typical Level I student is performing more than three years behind his or her peers.

Table 2. 1993-94 Average Scale Scores of Level I Students in Mathematics and Reading

	All Students	Level I	Performance Difference
Reading			
3	142.8	126.2	more than 3 years similar to 3rd graders
8	159.7	141.3	
Mathematics			
3	140.0	118.9	more than 4 years behind similar to 5th graders
8	169.0	151.7	

Gender and Ethnic Group

- Compared to the state population where there are equal proportions of males and females, almost 3 out of 4 eighth-grade Level I students in reading are male (73.1%).
- Smaller gender differences are observed in the students categorized as Level I in mathematics. For third-graders, 57.2% of the students in Level I mathematics are male, and in eighth grade, 57.8% are male.
- There are differences in the representation of ethnic groups at Level I in reading and mathematics when compared to all students in North Carolina:
 - Native American: twice the expected proportion
 - Black: almost twice the expected proportion
 - Asian: half the expected proportion
 - Hispanic: almost half the expected proportion
 - White: almost half the expected proportion
 - Other: about the expected proportion
- For students classified as Level I in reading, there is not a significant gender by ethnicity interaction. The main differences in performance are due to gender, with three-fourths of the Level I students in reading being male.
- For students classified as Level I in mathematics, there is a gender by ethnicity interaction. Consistently, Blacks are over represented in the Level I classification and Black males form the largest subgroup.

Parental Education

There appears to be a strong relationship between student achievement and the educational level of the parent. In general, students classified as Level I are about one-and-a-half times more likely to have parents who have not completed high school or have only a high school diploma compared to all students in North Carolina (approximately 50%).

- For third-grade students classified as Level I in mathematics, 83% report parents as having not graduated from high school or only having a high school diploma.
- For eighth-grade students classified as Level I in mathematics, 74% report parents as having not graduated from high school or only having a high school diploma.

Homework and Television

Amount of homework and number of hours of television watched are indicators that also differentiate students classified as Level I from the general student population.

- Approximately 54% of all eighth-grade students report that they do more than three hours of homework each week, whereas, only 24.4% of Level I students in reading report that they do more than three hours of homework.
- Nearly one-third of all eighth-grade students report watching four hours or more of television daily. For eighth-grade students classified as Level I in reading this proportion rises to 45%.

Attendance

School attendance also differentiates Level I students from the general population of students in North Carolina. As a group, Level I students miss more school when compared to all students in North Carolina.

- Statewide figures show that only 14.5% of all eighth-grade students miss more than 14 days of school a year. For eighth-grade Level I reading students, this percentage more than doubles to 32%.
- Attendance appears to decline for Level I mathematics students as grade level increases. For grade three students, about 10% of Level I students missed more than 14 days of school, while 26% of eighth-grade students missed more than 14 days. This compares to the state averages of about 6.3% of third graders and about 14.5% of eighth graders missing more than 14 days of school.

Retention

Retention also differentiates Level I students from the general population of students in North Carolina. Based on birthdates to determine cohorts of students, the typical Level I student is about twice as likely to be retained at least one grade level when compared to all students in North Carolina.

- About one-fourth of the eighth-grade students statewide have been retained at least one grade. For students classified as Level I in reading and/or mathematics, the percentage of students having been retained at least one grade level rises to 64.1% for reading and 55.6% for mathematics.
- Retention appears to increase for Level I students as grade level increases. For grade three students, 30.3% of the students classified as Level I in reading have been retained, while the percentage more than doubles to 64.1% for grade 8 students classified as Level I in reading.

Studies have shown that students who have repeated at least one grade are more likely to become dropouts (USDE/OERI, 1994).

In Conclusion

After examining the characteristics of students classified as Level I in reading and mathematics, several generalizations can be made. These students are typically performing three to four years behind all students in North Carolina. Concerning gender and ethnic groups, Native American, Black, and male students are disproportionately represented at Level I. Often these students have parents who have less education than their peers. Most of the students classified as Level I in either reading or mathematics are watching more television, doing less homework, and missing more school than students that are achieving at higher levels in reading and mathematics. Finally, many of these students have been retained at least one grade. These findings can be used to better focus instruction for specific segments of the student population of North Carolina.

Questions

Below are listed some questions to help guide discussions about the characteristics and achievement of students classified as Level I on the North Carolina End-of-Grade Tests in reading and mathematics:

- How does the data for your school or school system compare with the data from the state?
- How does the data for exceptional students compare with the data in this Brief?
- How are Level I students served in your school or system (i.e., Chapter 1)?

Additional Sources of Information & Data

- *The 1993-94 North Carolina State Testing Results, 1995.* Available from NCDPI/Communication Services and Local Testing Coordinators.
- 1992-93 State Testing Results.
- *Assessment Briefs:*
 - "Developmental Scale Scores" (Vol. 1, no. 2R)
 - "Achievement Levels" (Vol. 1, no. 7)
 - "Assessment of Reading" (Vol. 1, no. 9)
 - "Assessment of Mathematics" (Vol. 1, no. 10).
- *Data Analyst* Computer Program
- Group Summary Reports by Achievement Levels from the NCDPI SCAN Scoring Program.

Table 3. State-Level Data for Students Classified as Achievement Level I in Reading and Mathematics.

Characteristic	Grade 3			Grade 8		
	Reading Level I	Mathematics Level I	State	Reading Level I	Mathematics Level I	State
Gender						
Females	36.2%	42.8%	49.1%	26.9%	42.2%	49.5%
Males	63.8%	57.2%	50.9%	73.1%	57.8%	50.5%
Ethnicity						
Asian	0.7%	0.5%	1.0%	0.8%	0.5%	1.0%
Native American	2.9%	2.7%	1.4%	3.7%	3.1%	1.8%
Black	48.8%	55.7%	29.3%	49.2%	54.3%	29.3%
Hispanic	1.7%	1.7%	1.3%	1.5%	1.2%	1.0%
White	45.7%	39.1%	66.7%	44.3%	40.4%	66.3%
Other	0.3%	0.2%	0.3%	0.5%	0.5%	0.6%
Gender x Ethnicity						
Female, Black	19.0%	25.6%	15.3%	15.7%	25.5%	15.5%
Female, White	17.2%	17.4%	33.5%	11.2%	16.8%	33.6%
Male, Black	32.6%	33.2%	15.8%	36.9%	31.9%	15.7%
Male, White	31.2%	23.8%	35.4%	36.2%	25.9%	35.2%
Parental Education						
LT High School	33.1%	35.2%	14.1%	29.4%	25.2%	11.3%
HS Diploma	49.7%	49.8%	44.3%	47.8%	48.6%	38.1%
MT High School	17.1%	15.0%	41.7%	22.8%	26.2%	50.6%
Homework						
LT 3 hr/week	68.7%	69.2%	60.7%	75.6%	72.6%	45.8%
GT 3 hr/week	31.3%	30.8%	39.3%	24.4%	27.4%	54.2%
Television						
LT 4 hours	66.7%	65.7%	74.4%	55.3%	55.1%	65.6%
GT 4 hours	33.3%	34.3%	25.7%	44.7%	44.9%	34.5%
Attendance						
LT 14 days	90.2%	89.4%	93.8%	68.0%	74.2%	85.5%
GT 14 days	9.8%	10.6%	6.3%	32.0%	25.8%	14.5%
Retention						
On-Grade	69.7%	69.8%	83.4%	35.9%	44.4%	74.6%
Retained	30.3%	30.2%	16.6%	64.1%	55.6%	25.4%
Total Number of Students	12,283	9,600	88,414	4,933	8,310	82,985