Running head: IMPACT OF NO CHILD LEFT BEHIND

Impact of No Child Left Behind on the Passage Rate for Statewide Assessments in Mathematics:

A Comparative Look at Students With Disabilities

Jennifer L. Bell, Glennelle Halpin, and Gerald Halpin

Auburn University

Impact of No Child Left Behind on the Passage Rate for Statewide Assessments in Mathematics:

A Comparative Look at Students With Disabilities

The No Child Left Behind Act (NCLB) of 2001 mandated that students with disabilities, including students with IQ scores that are two standard deviations below the norm or less—more clearly, children with mild intellectual disabilities—must reach proficient levels of academic achievement by 2013-2014. NCLB required each state to establish academic standards in the areas of reading and mathematics and later science, and then devise statewide assessments for measuring students' achievement of those academic standards. This same law mandated that students with disabilities, including students with mild intellectual disabilities, must participate in all statewide assessments in order to determine if they have reached proficient levels of academic achievement. Student achievement levels are defined as basic, proficient, or advanced (Title I, Part A, Subpart 1, Sec. 1111[D]) (Learning Point Associates, 2004). Georgia selected to use the Criterion-Referenced Competency Tests (CRCT) and the Enhanced Georgia High School Graduation Test (EGHSGT) to determine students' academic proficiency level (Georgia Department of Education, n.d.).

According to the requirements of NCLB (2001), each school and system must meet Adequate Yearly Progress (AYP) in order to avoid placement on the needs-improvement list. In order to meet AYP, each school must have 95% or more participation in statewide assessments and meet or exceed the state's annual measurable objectives in curriculum content areas, specifically reading and mathematics. Other indicators that are used to determine a school system's AYP include each school's attendance and graduation rates. The AYP data determine if

a school or school system achieved AYP (Georgia Department of Education, n.d.) or will be placed on the needs-improvement list.

Students with disabilities are among the four specific subgroups that must be included in the reporting of AYP data. AYP data for school systems often reflect concerns with students with disabilities; either enough students with disabilities did not participate in the statewide assessments or students with disabilities did not meet acceptable levels of academic achievement in one of the required areas. Therefore, there is increased pressure on special educators to bring students with disabilities, including those with mild intellectual disabilities, to proficient levels of achievement given that the data for students with disabilities often account for a school not achieving AYP (Georgia Department of Education, n.d.; NCLB, 2001).

The Georgia Department of Education outlined in Rule 160-3-1-.07 (2004) that all students with disabilities must participate in statewide assessments unless the Individual Education Plan (IEP) team deemed that the student was unable to participate given reasonable accommodations. However, according to NCLB (2001) only 1% of all students may be assessed using an alternative assessment. Thus, students with mild intellectual disabilities whose IEP teams would have recommended alternative assessments now are being required to take statewide assessments required of students without disabilities.

The primary purpose of this study was to determine the effect of this requirement brought about by NCLB. The comparative effect of NCLB for students without disabilities was also a concern. Specific research questions were these:

1. What is the effect of NCLB on the pass rate for students with disabilities on the mathematics subtest of the Georgia High School Graduation Test (GHSGT)?

2. What is the effect of NCLB on the pass rate for students without disabilities on the mathematics subtest of the Georgia High School Graduation Test (GHSGT)?

3. Do select demographic factors affect the pass rate for students with and without disabilities on the mathematics subtest of the GHSGT?

Students with disabilities are defined as those students who are eligible for special education services in one of the 13 categories according to the Individuals with Disabilities Education Act (IDEA) and has a current individual education plan (Georgia Department of Education, 2000).

<div align="center">Methodology</div>

Data Source

Mathematics scores for the 1999-2000 and 2004-2005 administrations of the GHSGT to students in a 12-county district in Georgia were the data source. This 12-county district included Butts, Carroll, Coweta, Fayette, Heard, Henry, Lamar, Meriwether, Pike, Spalding, Troup, and Upson counties. Schools were chosen from these counties based on the following criteria: (a) the school enrolled students from 9th through 12th grade; (b) the school administered the mathematics subtest of the GHSGT in the spring of 2000 and the spring of 2005; (c) each administration had at least 10 first-time test-taking students with disabilities. The resulting sample was from 11 high schools in these five counties: Carroll, Coweta, Fayette, Henry, and Troup.

Carroll County. Central High School was selected based on the aforementioned criteria. This school had an enrollment of 1,251 students. The ethnic demographics of this enrollment were 78% White, 18% Black, 2% Hispanic, and 2% students of other races. The special education population was 17.6% of the school's total population. This percentage exceeded the

state of Georgia's percentage of 12%. Of the students enrolled at Central High School, 43.73%
were eligible for the free or reduced meal program which was comparable with the state of
Georgia's rate of 49.72% (Data Collection System, 2006; Governor's Office of Student
Achievement, 2005).

   Coweta County. East Coweta High School and Northgate High School were selected as
participating schools in this study. East Coweta High School had a student enrollment of 2,162
with a special education population of 13.9% which slightly exceeded the state's average. The
ethnic demographics were 69% White, 24% Black, 4% Hispanics, and 3% students of other
races. This school had 24.33 % of its student population eligible for the free or reduced meal
program. Northgate High School's student enrollment was 1,532 with a special education
population of 10.7% which was slightly below the state average. The ethnic demographics for
Northgate High School were 82% White, 13% Black, 3% Hispanics, and 2% students of other
races. Within this school, 13.45% of the student population was eligible for the free or reduced
meal program which was approximately one-fourth of the state's average of 49.72% (Data
Collection System, 2006; Governor's Office of Student Achievement, 2005).

   Fayette County. McIntosh High School, Sandy Creek High School, and Starrs Mill High
School were selected for this study. McIntosh High School had a student enrollment of 1,657
with 7.1% special education population. This percentage was extremely below the state average
of 12%. The ethnic demographics of McIntosh High School were 81%White, 9% Black, 4%
Hispanics, and 6% students of other races. McIntosh High School had 6.22% of its student
population who were eligible for free or reduced lunch. This rate fell considerably below the
average percentage for the state of Georgia. The student enrollment for Sandy Creek High
School was 1,395, and 10.5% of this enrollment received special education services which was

just below the state's average. The ethnic demographics of this school were 54% White, 39%

Black, 3% Hispanics, and 4% students of other races. The rate of those students who were

eligible for free or reduced meals was 12.04% which was 24% of the state's average. Starrs Mill

High School had a student enrollment of 1,769 which consisted of 87% White, 7% Black, 3%

Hispanics, and 3% students of other races. For this school, 8.4% of the enrollment received

special education services which was two-thirds of the state's average of 12%. This school had

5.31% of its student population eligible for the free or reduced meal program which was

approximately 10% of the state's average (Data Collection System, 2006; Governor's Office of

Student Achievement, 2005).

 Henry County. Eagle's Landing High School, Henry County High School, and

Stockbridge High School were selected as participating schools in this study. Eagle's Landing

High School had a student enrollment of 1,330 with 20.90% of the population eligible for the

free or reduced meal program which was far below the state's average of 49.72%. The ethnic

demographics for this school were 52% White, 36% Blacks, 4% Hispanics, and 8% students of

other races, and 10.3 % of the enrolled students received special education services which was

just below the state's average. Henry County High School had 1,609 students enrolled which

consisted of 55% White, 38% Black, 4% Hispanics, and 3% students of other races. Within this

school, 11.1% of the student enrollment received special education services which was just

below the state's average of 12%. Henry County High School had 34.74% for the free or reduced

meal program which was below the state's average of 49.72%. Stockbridge High School had a

student enrollment of 1,971 which consisted of 48% White, 47% Black, 3% Hispanics, and 2%

students of other races. This school had 9.7% of its students receiving special education and

30.14% eligible for the free or reduced meal program. Both of these percentages were below the

average percentages for the state of Georgia (Data Collection System, 2006; Governor's Office

of Student Achievement, 2005).

       Troup County. LaGrange High School and Troup County High School were selected

based on the prescribed criteria. LaGrange High School's student enrollment was 1,343 with

47.65% of its students eligible for the free or reduced meal program. The ethnic demographics

were 53% White, 43% Black, 1% Hispanics, and 3% students of other races. The percentage of

students who received special education services was 9.3%. Troup County High School had

1,332 students enrolled with 50.60% of its students eligible for the free or reduced meal program.

Its ethnic demographics were 59% White, 39% Black, 1% Hispanics, and 1% student of other

races, and 10.0% of its student population received special education services. Both of these

schools in Troup County had a special education percentage below the state's average of 12%

and free/reduced meal rate approximately equal to the state's average of 49.72% (Data

Collection System, 2006; Governor's Office of Student Achievement, 2005).

Instrumentation

       The Georgia High School Graduation Test consists of four subtests: English/Language

Arts, Mathematics, Social Studies, and Science. The mathematics subtest used in this study

assessed the following strands from the Quality Core Curriculum in mathematics: number and

computation (17-19% of the test), data analysis (19-21% of the test), measurement and geometry

(32-34% of the test), and algebra (28-30% of the test). In the number and computation strand, the

test evaluated the student's ability to express numerical values and solve word problems using

fractions, decimals, and whole numbers. For the data analysis strand, the test determined the

student's aptitude for collecting, organizing, and interpreting data via tables, charts, graphs, and

diagrams. In the measurement and geometry strand, the test measured the student's geometric

skills for identifying and differentiating between different figures and utilizing formulas to find

perimeter, area, and volume. With the algebra strand, the test assessed the student's ability to

simplify and solve algebraic expression, evaluate ratio and proportion applications, and graph

linear equations. Georgia Department of Education did not supply reliability and validity data

because this standardized test was used as a curriculum-based measurement (Georgia

Department of Education, 1998).

Procedures

Each GHSGT subtest was administered to all 11th-grade students in the spring. The

number of students who took the test and the percentage who passed the mathematics subtest for

the 1999-2000 and 2004-2005 school years was gathered using the website of The Governor's

Office of Student Achievement in Georgia (Governor's Office of Student Achievement, 2005;

Office of Education Accountability, 2001). The pass rate percentage was obtained by adding the

percentage of students who scored in the Pass category and the percentage of students who

scored in the Pass Plus category. On the mathematics subtest, a score between 500 and 534 out

of a possible 600 was classified as *Pass*, and a score of 535 or higher was classified as *Pass Plus*.

The 1999-2000 school year was selected because it had the earliest available results for a

GHSGT administration prior to the implementation of NCLB. The 2004-2005 school year was

selected as a comparison because it had the latest available results from the Governor's Office of

Student Achievement. In addition, the students who took the GHSGT in 2004-2005 had three

years of NCLB implementation beginning in their ninth-grade year and could serve as an

appropriate comparison group for the effects of NCLB.

A chi square analysis was used to determine the statistical significance of the effect of

NCLB on the GHSGT mathematics subtest for students with disabilities as well as for those

without disabilities. Statistical significance was determined using a probability of .05. After the

initial analysis, schools were divided into three subgroups based on their demographic data:

percentage of free/reduced meal program (more or less than 21%), percentage of students who

received special education services (more or less than 10%), and percentage of minority

enrollment (more or less than 35%). After disaggregating the data, a repeated measure analysis

was conducted on each data set. These analyses were used to determine possible demographic

factors which might affect the pass rate of students with and without disabilities.

<div align="center">Results</div>

General Data

The difference in the percentages of students with disabilities passing the mathematics

subtest of the GHSGT from the 1999-2000 to 2004-2005 administrations was not statistically

significant (Wilks's Λ = .97, $F(1,10)$ = 0.32, p = .58, η^2 = .03). The difference in the percentages

of students without disabilities was significant with a large effect size (Wilks's Λ = .61, $F(1,10)$

= 6.37, p = .03, η^2 = .39).

Table 1

Pass Rate for 1999-2000 and 2004-2005 GHSGT: Mathematics

	1999-2000		2004-2005	
school	Students without disabilities	Students with disabilities	Students without disabilities	Students with disabilities
Central High School	90%	42%	91%	34%
Eagle's Landing High	96%	69%	97%	67%
East Coweta High	95%	50%	99%	62%
Henry County High	92%	47%	97%	57%
LaGrange High	90%	30%	97%	64%
McIntosh High	100%	97%	100%	82%
Northgate High	98%	64%	99%	90%
Sandy Creek High	98%	53%	98%	80%
Starrs Mill High	99%	81%	99%	95%
Stockbridge High	95%	72%	98%	56%
Troup County High	93%	70%	92%	30%

The pass rates for the students without disabilities for the 1999-2000 school year ranged from 90% to 100%. The mean pass rate was 95.09% with a standard deviation of 3.51. The pass rates for students without disabilities for the 2004-2005 school year ranged from 91% to 100%. The mean pass rate was 97.00% with a standard deviation of 2.90. Comparatively, the pass rates for students with disabilities for the 1999-2000 school year ranged from 30% to 97%. The mean pass rate was 61.36% with a standard deviation of 19.16. The pass rates for students with disabilities for the 2004-2005 school year ranged from 34% to 95%. The mean pass rate was 65.18% with a standard deviation of 20.94. Table 1 displays the pass rate for the 1999-2000 and 2004-2005 GHSGT mathematics subtest for students without and with disabilities. With the passage of NCLB (2001), the number of students with disabilities who participated in statewide assessments, such as the GHSGT, has increased.

Table 2

Number of students who took the GHSGT: Mathematics during 1999-2000 and 2004-2005

School	County	Students with disabilities			Students without disabilities		
		(1999-2000)	(2004-2005)	difference	(1999-2000)	(2004-2005)	difference
Central High	Carroll	12	32	20 (166.67%)	218	182	-36 (-16.51%)
Eagle's Landing High	Henry	16	24	6 (37.50%)	415	396	-19 (-4.58%)
East Coweta High	Coweta	14	35	20 (142.86%)	252	401	149 (59.13%)
Henry County High	Henry	19	35	16 (84.21%)	382	237	-145 (-37.96%)
LaGrange High	Troup	10	11	1 (10.00%)	210	224	14 (6.67%)
McIntosh High	Fayette	27	27	0 (0.00%)	323	344	21 (6.50%)
Northgate High	Coweta	14	20	6 (42.00%)	181	263	82 (45.30%)
Sandy Creek High	Fayette	17	29	12 (70.59%)	266	259	-7 (-2.63%)
Starrs Mill High	Fayette	16	36	20 (125.00%)	308	442	134 (43.51%)
Stockbridge High	Henry	22	25	3 (13.64%)	393	326	-67 (-17.05%)
Troup County High	Troup	10	20	10 (100.00%)	223	219	-4 (-1.79%)

The number of students and the percentage of increase or decrease for students with and without

disabilities who took the GHSGT mathematics subtest during the 1999-2000 and 2004-2005

school years are reported in Table 2.

Disaggregated Data

   Free/Reduced Meal Program. When examining the data for schools with less than 21%

($n = 5$) of their enrollment who were eligible for free or reduced meals, students without

disabilities had relatively the same mean passing rate and standard deviations in 1999-2000 ($M =$

98.20, $SD =$1.48) and 2004-2005 ($M = 98.60$, $SD = 1.14$). Thus, the change was not significant

(Wilks's $\Lambda = .60$, $F(1,4) = 2.67$, $p = .18$, $\eta^2 = .40$). Students with disabilities dramatically

increased their mean pass rate from 72.80 with a standard deviation of 16.86 in 1999-2000 to

82.80 with a standard deviation of 10.71 in 2004-2005. These results did not yield statistical

significance (Wilks's $\Lambda = .73$, $F(1,4) = 1.50$, $p = .29$, $\eta^2 = .27$). For schools with more than 21%

($n = 6$) of their enrolled population who were eligible for free or reduced meals, students without

disabilities increased their mean pass rate. In 1999-2000, the mean pass rate was 92.50 with a

standard deviation of 2.26. The mean pass rate for 2004-2005 was 95.67 with a standard

deviation of 3.33. The change in these pass rates was statistically significant with a large effect

size (Wilks's $\Lambda = .40$, $F(1,5) = 7.37$, $p = .04$, $\eta^2 = .60$). Students with disabilities slightly

decreased their mean pass rate from 51.83 with a standard deviation of 16.35 in 1999-2000 to

50.50 with a standard deviation of 14.69 in 2004-2005. These results did not yield statistical

significance (Wilks's $\Lambda = .99$, $F(1,5) = 0.02$, $p = .90$, $\eta^2 = .00$).

   Special Education Population. Students without disabilities at schools with less than 10%

of the student population who received special education services ($n = 4$) and more than 10% of

its enrollment who received special education services ($n = 7$) had minimal change in their mean

pass rate (less than 10%: $M = 96.00$, $SD = 4.55$ [1999-2000]; $M = 98.50$, $SD = 1.29$ [2004-2005];

more than 10%: $M = 94.57$, $SD = 3.05$ [1999-2000]; $M = 96.14$, $SD = 3.29$ [2004-2005]). The

changes for students without disabilities were not significant for schools with less than 10%

(Wilks's $\Lambda = .57$, $F(1,3) = 2.27$, $p = .23$, $\eta^2 = .43$) and schools with more than 10% (Wilks's $\Lambda =$

.62, $F(1,6) = 3.74$, $p = .10$, $\eta^2 = .38$). Students with disabilities at schools in both category had

similar increases in the mean pass rate (less than 10%: $M = 70.00$, $SD = 28.60$ [1999-2000]; $M =$

74.25, $SD = 17.60$ [2004-2005]; more than 10%: $M = 56.43$, $SD = 11.18$ [1999-2000]; $M =$

60.00, $SD = 22.13$ [2004-2005]). The changes for students with disabilities were not significant

and had small effect sizes for schools with less than 10% (Wilks's $\Lambda = .96$, $F(1,3) = 0.12$, $p =$

.75, $\eta^2 = .04$) and schools with more than 10% (Wilks's $\Lambda = .97$, $F(1,6) = 0.17$, $p = .70$, $\eta^2 = .03$).

Minority Enrollment. At schools with less than 35% ($n = 5$) and more than 35% ($n = 6$)

minority enrollment, students without disabilities had approximately equivalent mean pass rates

and standard deviations (less than 35%: $M = 96.40$, $SD = 4.04$ [1999-2000]; $M = 97.60$, $SD =$

3.72 [2004-2005]; more than 35%: $M = 94.00$, $SD = 2.90$ [1999-2000]; $M = 96.50$, $SD = 2.26$

[2004-2005]). These changes for students without disabilities were not significant for schools

with less than 35% (Wilks's $\Lambda = .60$, $F(1,4) = 2.67$, $p = .18$, $\eta^2 = .40$) and schools with more than

35% (Wilks's $\Lambda = .56$, $F(1,5) = 3.95$, $p = .10$, $\eta^2 = .44$). This same equivalence was found in the

mean pass rates and standard deviations for students with disabilities (less than 35%: $M = 66.80$,

$SD = 22.47$ [1999-2000]; $M = 72.60$, $SD = 24.98$ [2004-2005]; more than 35%: $M = 56.83$, $SD =$

16.63 [1999-2000]; $M = 59.00$, $SD = 16.64$ [2004-2005]). The changes for students with

disabilities were not significant and had small to medium effect sizes for schools with less than

35% (Wilks's $\Lambda = .87$, $F(1,4) = 0.59$, $p = .49$, $\eta^2 = .13$) and for schools with more than 35%

(Wilks's $\Lambda = .99$, $F(1,5) = 0.04$, $p = .86$, $\eta^2 = .01$).

Discussion

When examining the data associated with students with disabilities, some conclusions based on the trends may be drawn even though statistically significant results were not found. First, schools with more than 10% of their student population who received special education services increased the mean pass rate by little more than three points. Furthermore, for schools with less than 21% of their enrollment eligible for the free or reduced meal program, students with disabilities had the greatest gains in mean pass rate (10 points) compared to the other subgroup data. The schools with less than 21% of their enrollment who were eligible for free or reduced meals also were the schools with special education percentages ranging from 7.1% to 10.7%. These findings suggest that the NCLB's objectives of closing the achievement gap for economically disadvantaged and students with disabilities have not been accomplished (Franklin, 2006).

In addition to the requirements of NCLB (2001) special educators also must ensure that they have complied with the requirements of the Individuals with Disabilities Education Act Amendments (IDEA) of 1997 as well as the recently passed Individuals with Disabilities Education Improvement Act of 2004 (IDEA, 2004). Both of these laws addressed the need for students with disabilities to have access to the general education curriculum and to be educated in general education classrooms with their nondisabled peers. The supposition was that educating students with disabilities, including those with mild intellectual disabilities, in the general education classroom will provide them with opportunities to meet the same educational standards as their peers, and, thereby, increase probability that students with disabilities will pass grade-level, statewide assessments. The findings of this study could provide evidence that opposes that supposition.

The classroom instruction for these students with intellectual disabilities previously had focused on drill and practice, task analysis, and paired associate learning. However, none of these evidence-based practices fostered higher order thinking skills which are required for achievement in today's general education curriculum. The results indicated the NCLB has increased the number of students with disabilities who are taking the tests, but the mere exposure to general curriculum and standardized testing was not increasing their achievement which was the intent of the legislation. In addition to this exposure, educators need to investigate evidence-based instructional techniques and curricula. Other implications for future research are the examination of the GHSGT results across disciplines. Similarly, an examination of the scores for the National Assessment of Educational Progress (NAEP) would yield results about the effect of NCLB on students with disabilities within the nation.

References

Data Collection System. (2006). Free and reduced price meal eligibility. Atlanta: Georgia

    Department of Education. Retrieved July 20, 2006, from http://app.doe.k12.ga.us/ows-

    bin/owa/fte_pack_frl001_public.display_proc.

Franklin, J. (2006). NCLB a year before reauthorization: Squaring off on the issues that will

    frame the debate. *Education Update, 48*(7), 1, 7-8.

Georgia Department of Education. (n.d.). Adequate yearly progress – The basics. Retrieved

    January 20, 2005, from http://www.doe.k12.ga.us/support/plan/nclb/ayp_faq.asp.

Georgia Department of Education. (n.d.). Percent in performance levels - Georgia end of course

    tests – spring 2004. Retrieved January 20, 2005, from

    http://www.doe.k12.ga.us/_documents/curriculum/testing/eoct_2004_results.pdf.

Georgia Department of Education. (1998). Georgia high school graduation tests: Test content

    description for mathematics. Atlanta: Georgia Department of Education. Retrieved July

    20, 2006 from http://www.doe.k12.ga.us/_documents/curriculum/testing/TCD-math.doc.

Georgia Department of Education. (2000). Categories of eligibility. 160-4-7-.02. Retrieved July

    4, 2004 from http://rules.sos.state.ga.us/docs/160/4/7/02.pdf.

Georgia Department of Education. (2004). Testing programs – Student assessment. 160-3-1-.07.

    Retrieved February 13, 2005 from http://rules.sos.state.ga.us/docs/160/3/1/07.pdf.

Governor's Office of Student Achievement. (2005). *2004-2005 annual report cards on K-12

    public schools*. Atlanta, GA: The State of Georgia. Retrieved on June 15, 2006 from

    http://reportcard2005.gaosa.org/k12/PDF/OSA-K12-ALL-ALL.pdf.

Individuals with Disabilities Education Act, 20 U.S.C. § 1400 *et seq.* (1997). Retrieved from

    http://www.cec.sped.org/law_res/doc/law/index.php.

Individuals with Disabilities Education Improvement Act, 20 U.S.C. § 1400 *et seq.* (2004).

Retrieved February 15, 2005 from http://thomas.loc.gov/cgi-

bin/query/z?c108:h.1350.enr.

Learning Point Associates. (2004). *Key NCLB requirements for mathematics and science*.

Naperville, IL: North Central Regional Educational Laboratory. Retrieved February 13,

2005 from http://www.learningpt.org/msc/qkey/require.htm.

No Child Left Behind Act, 20 U.S.C. § 6301 *et seq*. (2001). Retrieved January 20, 2005 from

http://www.ed.gov/policy/elsec/leg/esea02/index.html.

Office of Education Accountability. (2001). *2000-2001 state of Georgia report card for state of

Georgia*. Atlanta, GA: The State of Georgia. Retrieved June 15, 2006 from

http://reportcard2001.gaosa.org/PDF/OEA_Report_ALL-ALL.pdf.