



DISCOVERY EDUCATION ASSESSMENT CONSEQUENTIAL VALIDITY STUDIES



DISCOVERY EDUCATION ASSESSMENT CONSEQUENTIAL VALIDITY

Consequential validity studies investigate both the positive/negative and the intended/unintended outcomes of the implementation and interpretation of assessments. Discovery Education Assessment has accumulated evidence demonstrating the positive impact of using Discovery Education benchmark assessments on student performance. Through eight different studies, it is shown in both large and small districts that improvement in student test scores is achievable with the help of Discovery Education Assessment.

Executive Summary

- Metro Nashville, Tennessee** **pg 2**
 - Metro Nashville Public Schools that used Discovery benchmarks made greater increases in their AYP than the schools that did not use the assessments.

- Birmingham, Alabama** **pg 8**
 - Birmingham City schools that used Discovery benchmarks showed greater improvement in their SAT 10 scores than schools that did not use the assessments.

- Milwaukee, Wisconsin** **pg 11**
 - Milwaukee WKCE math ‘proficient and above’ percentages improved by 10% after the implementation of the Discovery benchmark system.

- Gilchrist County, Florida** **pg 13**
 - Gilchrist Co improved their FCAT proficiencies at a greater percentage than overall in the State of Florida with the use of Discovery Education Assessments.

- Grainger County, Tennessee** **pg 19**
 - Grainger Co improved their TCAP proficiencies at a greater percentage than overall in the State of Tennessee with the use of Discovery Education Assessments.

- St. Johns, Florida** **pg 21**
 - After the implementation of Discovery benchmarks, St John’s school district increased from the number 4 ranked district on the FCAT Sunshine State Standards to the number 1 ranked district.

- District of Columbia** **pg 22**
 - After the implementation of DE benchmarks, DC 4th graders increased their 2010 NAEP reading levels by 5% from 2008, the highest increase in the country, while on a national level there was no increase.

- Robeson County, North Carolina** **pg 24**
 - Robeson County increased the percent of students proficient in Reading by 12.4% and the percent of students proficient in Mathematics by 12.7% from 2008 to 2009 when they began using DE benchmark assessments.



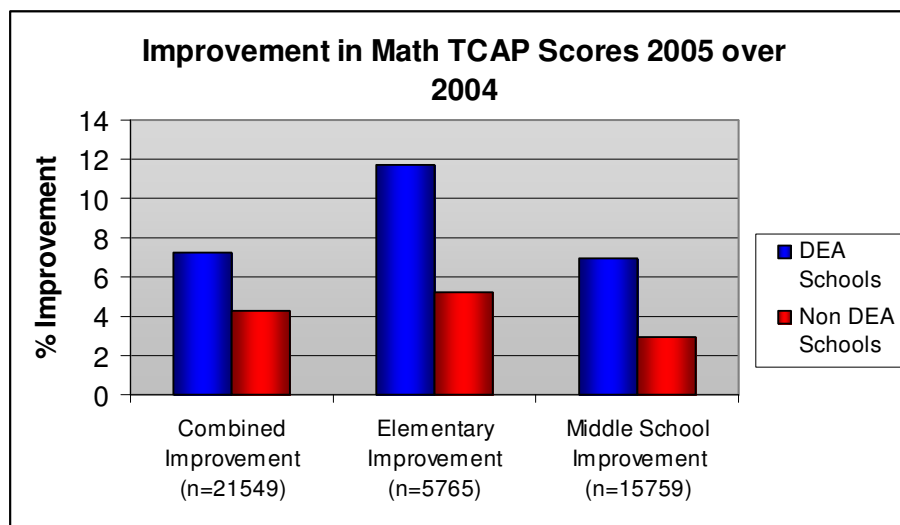
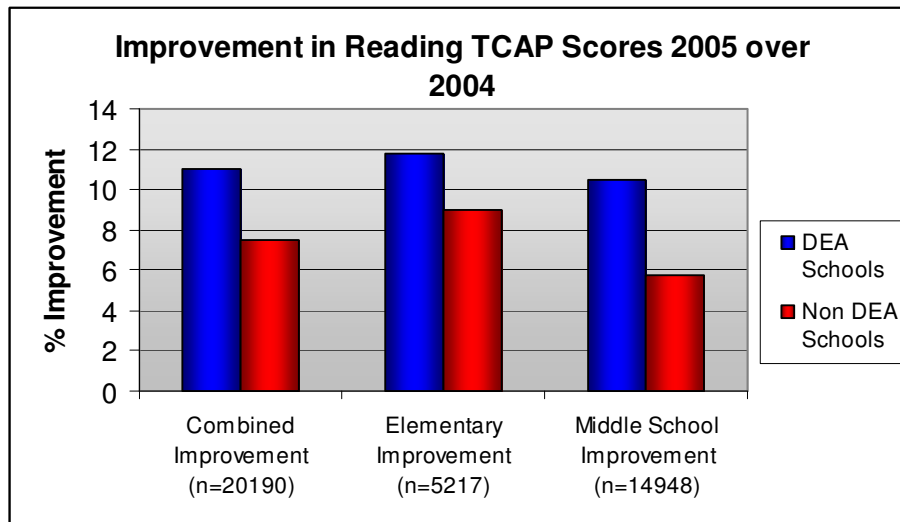


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METRO NASHVILLE, TN

Metro Nashville schools that used Discovery Education Assessment made greater improvements in AYP (Accountability-Adequate Yearly Progress) than Metro Nashville schools that did not use Discovery Education Assessment. During the 2004-2005 school year, sixty-five elementary and middle schools in Metro Nashville, representing over 20,000 students, used Discovery Education Assessment benchmarks. Fifty-two elementary and middle schools, representing over 10,000 students, did not use Discovery Education Assessment assessments. The improvement in the percent of students at the Proficient/Advanced level from 2004 to 2005 is presented in the graph below. The results compare Discovery Education Assessment schools versus non-Discovery Education Assessment schools in Metro Nashville. Discovery Education Assessment schools showed more improvement in AYP status from 2004 to 2005 when schools are combined and analyzed separately at the elementary and middle school level.

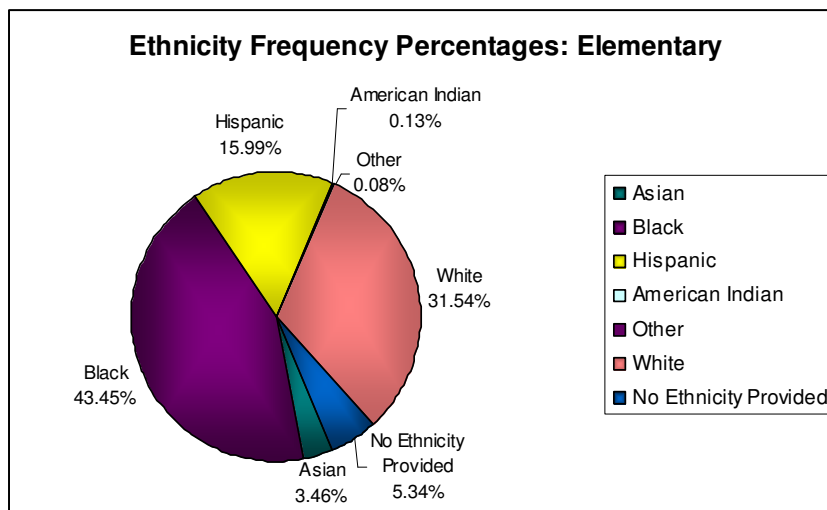
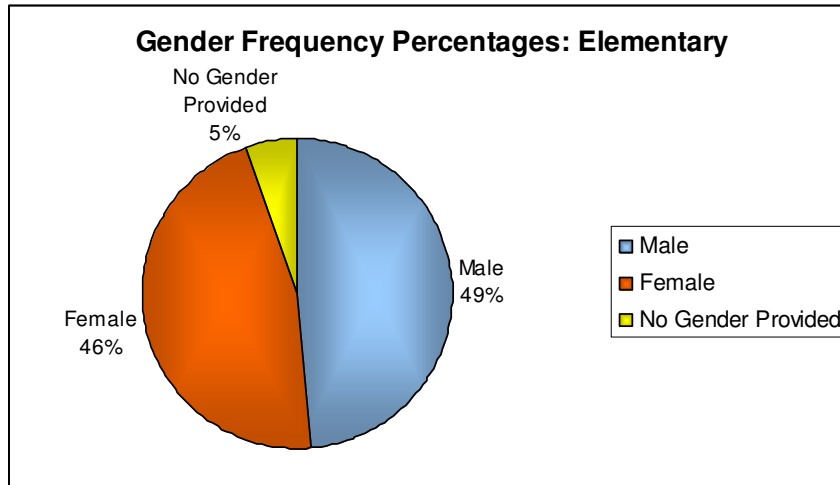




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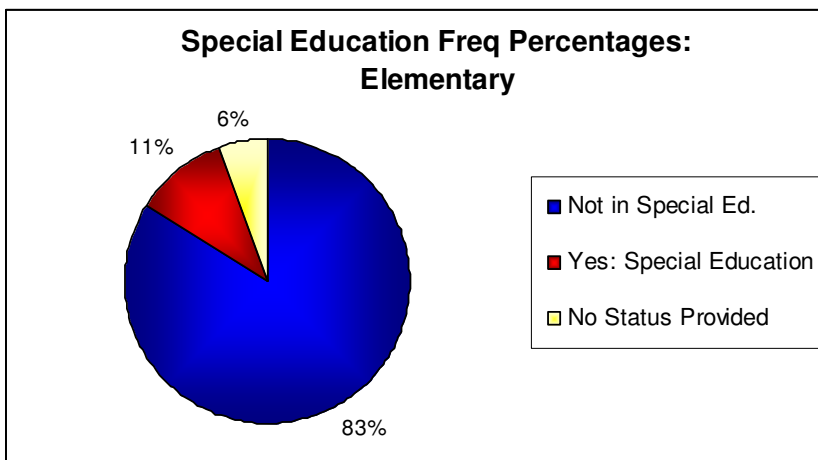
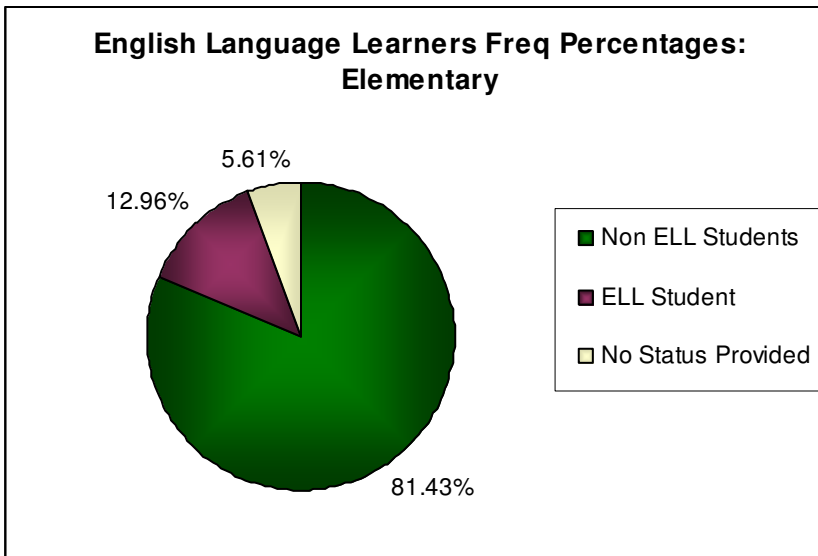
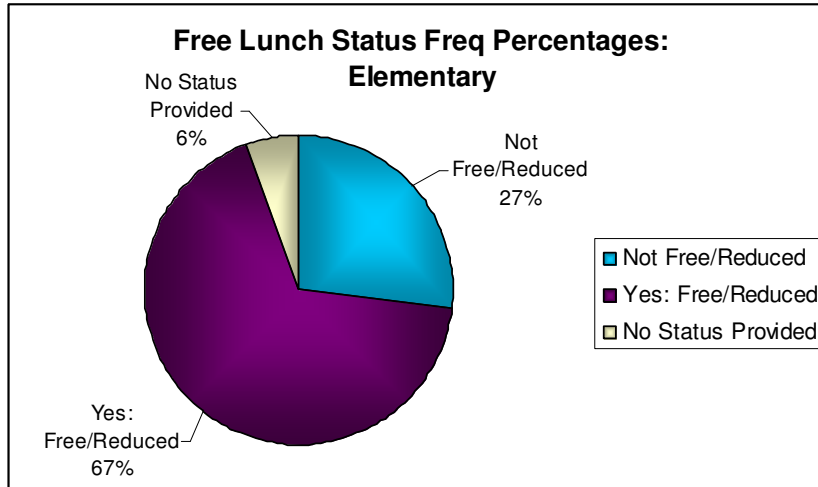


The following pie charts display the frequency percents of the NCLB data provided to DEA from the Metro Nashville Public School System for the Elementary Schools.





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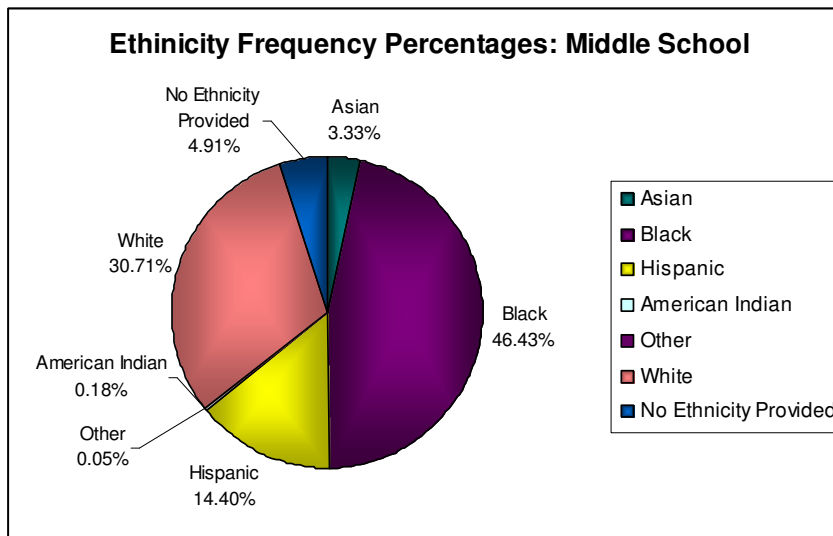
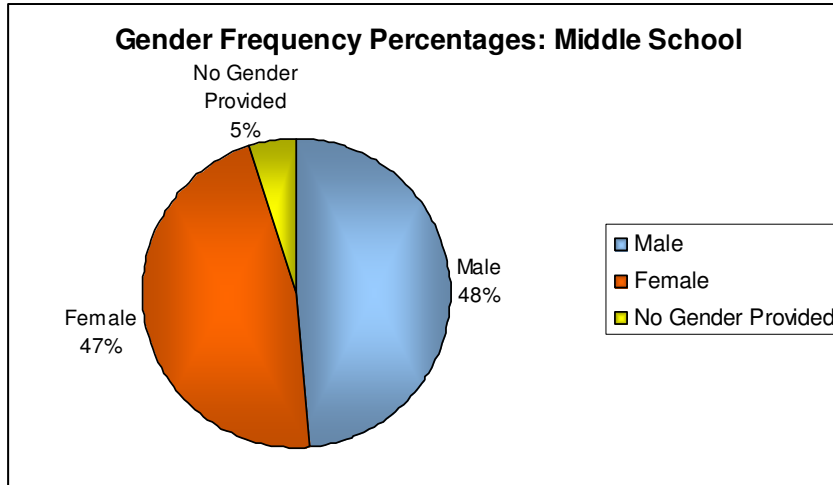




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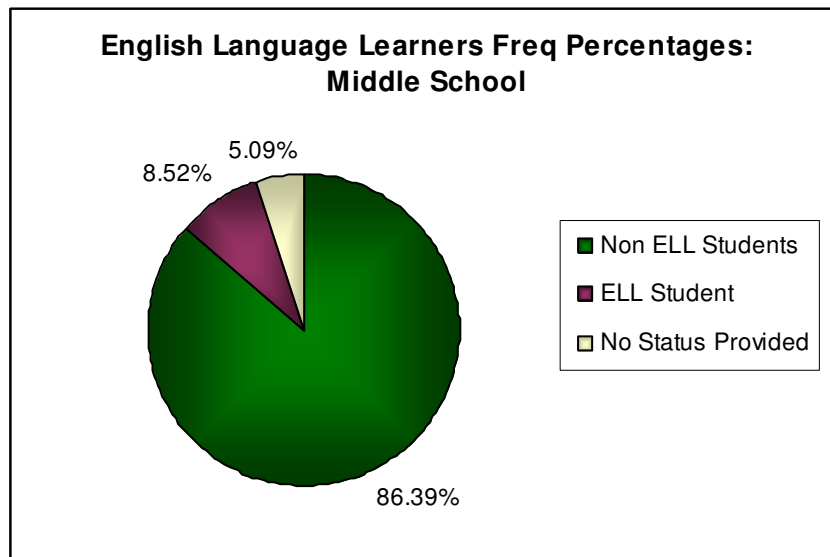
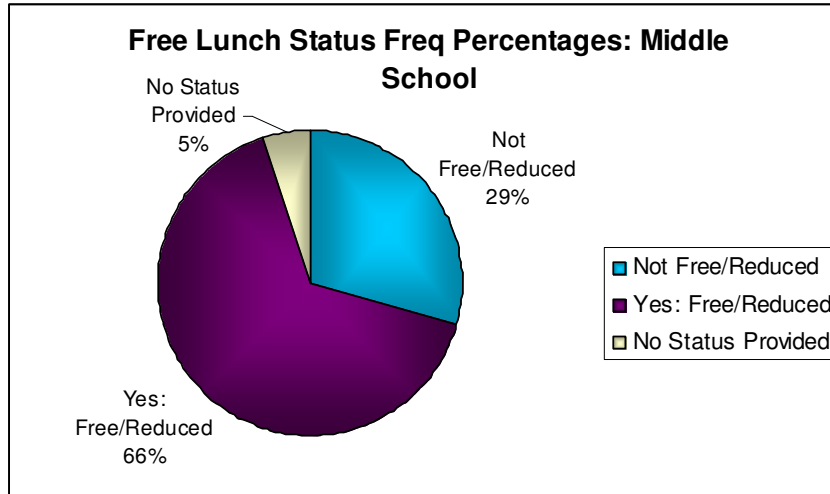


The following pie charts display the frequency percents of the NCLB data provided to DEA from the Metro Nashville Public School System for the Middle Schools.



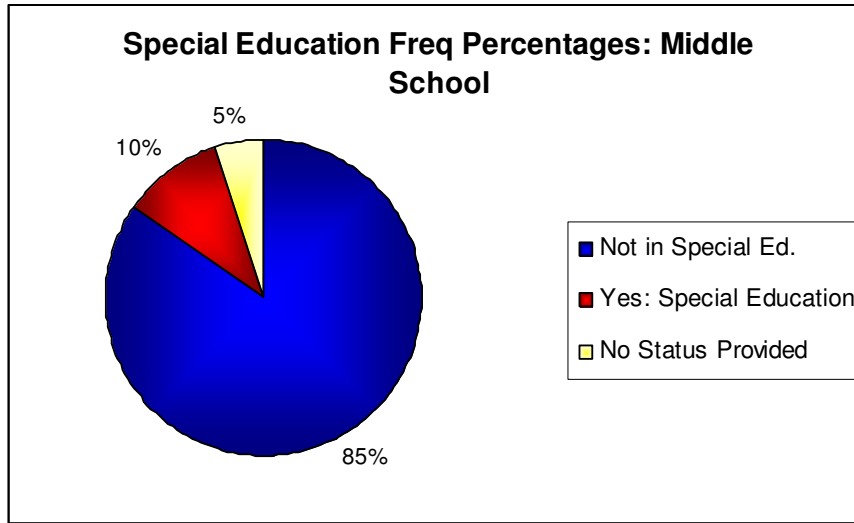


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BIRMINGHAM, AL

Larger schools and school districts typically do not participate in experimental or quasi-experimental studies due to logistical and ethical concerns. However, a unique situation in Birmingham, Alabama afforded Discovery Education Assessment with the opportunity to investigate the efficacy of its benchmark assessments in respect to a quasi-control group. In 2003/2004, approximately one-half of the schools in Birmingham City used Discovery Education Predictive Assessments whereas the other half did not. At the end of the school year, achievement results for both groups were compared revealing a significant improvement on the SAT10 for those schools that used the Discovery Education Predictive Assessments as opposed to those that did not. Discovery Education Assessment subsequently compiled a brief report titled the “Birmingham Case Study”. Excerpts from the case study are included below:

This study is based on data from elementary and middle schools in the City of Birmingham, Alabama. In 2002-03, no Birmingham Schools used Discovery Education’s Predictive Assessment Series. Starting in 2003-04, 20 elementary and 9 middle schools used the Discovery Education Assessment program. All Birmingham schools took the Stanford Achievement Test Tenth Edition (SAT10) at the end of both school years. The SAT10 is administered yearly as part of the State of Alabama’s School Accountability Program. The State of Alabama uses improvement in SAT10 percentiles to gauge school progress and as part of its NCLB reporting. National percentiles on the SAT10 are reported by subject and grade level. A single national percentile is reported for all students within a subject and grade level (this analysis is subsequently referred as ALL STUDENTS). Furthermore, national percentiles are disaggregated by various subgroups within a school. For the comparisons that follow, the national percentiles for students classified as utilizing free and reduced lunch (referred to below as POVERTY) were used. All percentiles have been converted to Normal Curve Equivalents (NCE) to allow for averaging of results.

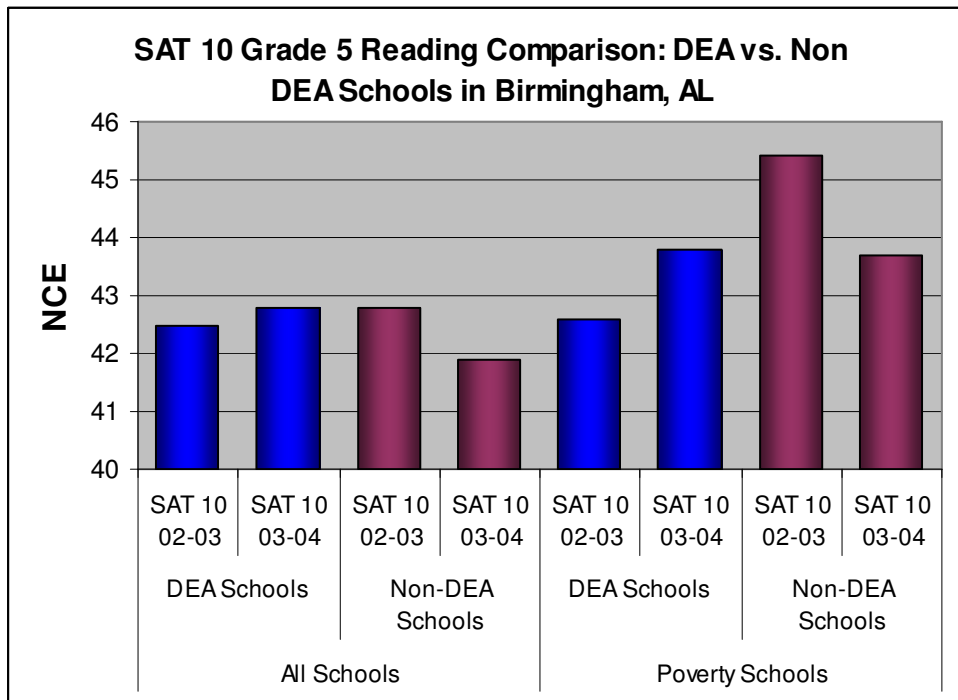
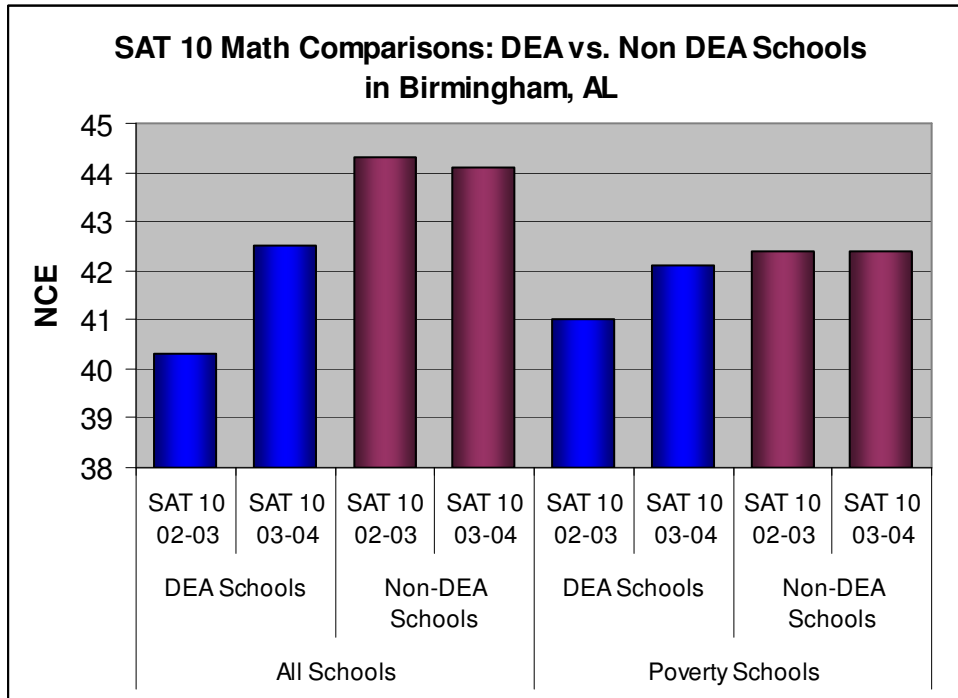
The Discovery Education Assessment schools comprise the experimental group in this study. The Birmingham schools that did not use Discovery Education Assessment comprise the matched comparison group. The following charts show SAT10 National Percentile changes for Discovery Education Assessment Schools vs. Non-Discovery Education Schools in two grades levels (Grades 5 and 6) for three subjects (Language, Mathematics, and Reading) for two groups of students (ALL STUDENTS and POVERTY students). In general, there was a significant decline or no improvement in SAT10 scores from 2002-03 to 2003-04 for most Non-Discovery Education Assessment schools. This trend however did not happen in the schools using Discovery Education Assessment: instead, there was a marked improvement with most grades scoring increases in language, math and reading. In grade levels where there was a decline in Discovery Education Assessment schools, it was a much lower decline in scores when compared to those schools that did not use Discovery Education Assessment.

As a result of the improvement that many of these schools made in school year 2003-04, the Birmingham City Schools selected Discovery Education Assessment to be used with *all* of the schools in school year 2004-05. The Birmingham City Schools also chose to provide professional development in each school to help all teachers become more familiar with the concepts of standardized assessment and better utilize data to focus instruction.



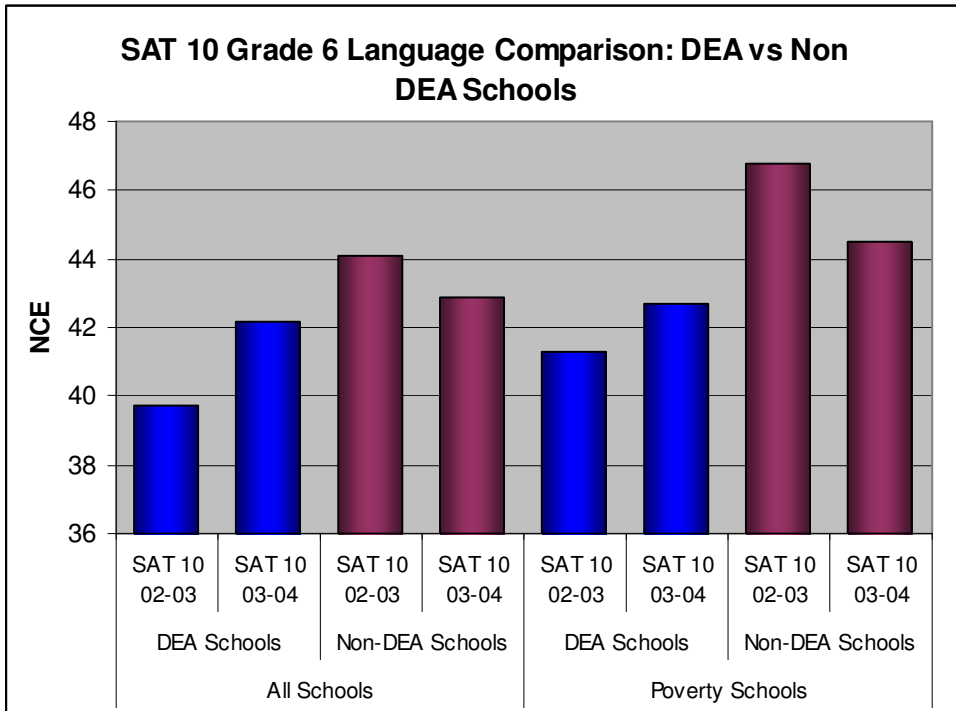


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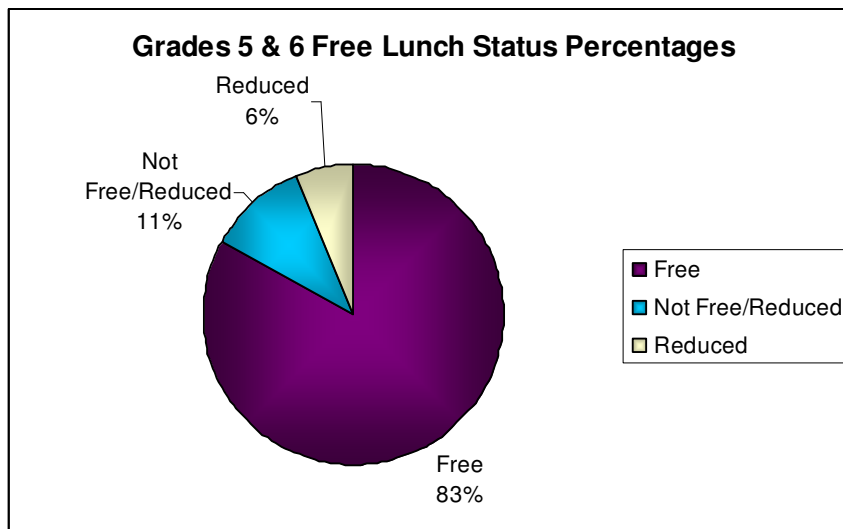




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The following pie graph shows the Lunch Status percentages provided by Birmingham, AL school system for grades 5th and 6th.





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MILWAUKEE, WI

The Discovery Benchmark tests were constructed to help educators improve student performance on the WKCE. An examination of the change in proficiency performance from the 2005 WKCE (before Milwaukee started using Discovery Education Assessments) to the fall 2009 WKCE can help determine if the Discovery Benchmark tests have contributed to student improvement. This aspect of test validity, called consequential validity, determines if the uses of the test results have impacted the improvement of student performance.

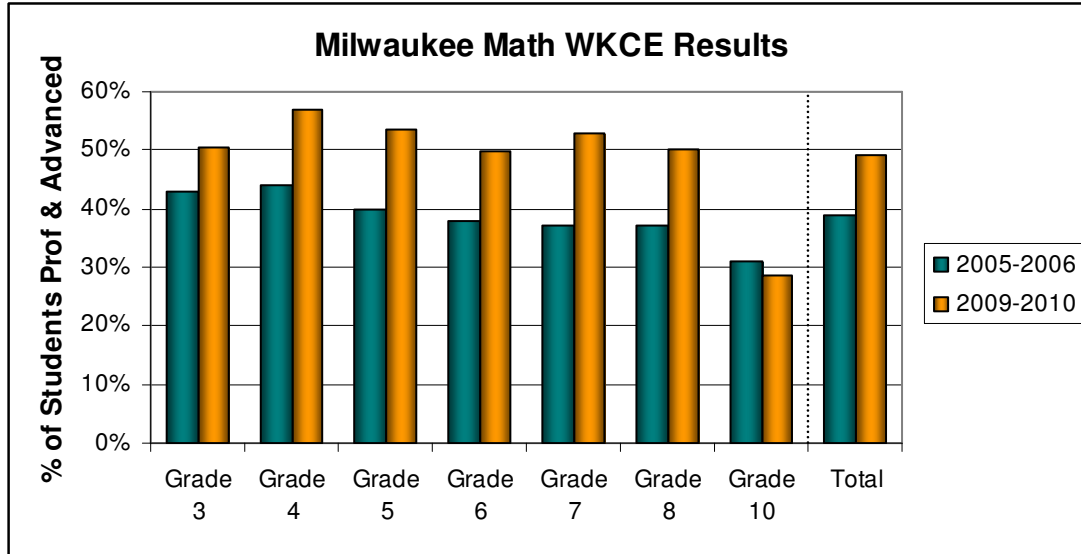
The percent of students at each proficiency level was obtained for the WKCE for the year prior to using Discovery Education Assessments for the Milwaukee School District and for the 2009-2010 school year. The following tables and graphs present these student percentages for Math across grades 3 to 8 and grade 10 for these two time periods for the Milwaukee Public School District. The percent of students scoring proficient and advanced in mathematics in MPS has improved by 10 percentage points in the last four years during its use of the Discovery benchmark assessments.

Proficiency Data for WKCE 0506 & 0809		
MPS Mathematics		
	2005-2006	2009-2010
Grade 3	43%	50%
Grade 4	44%	57%
Grade 5	40%	54%
Grade 6	38%	50%
Grade 7	37%	53%
Grade 8	37%	50%
Grade 10	31%	29%
Total	39%	49%





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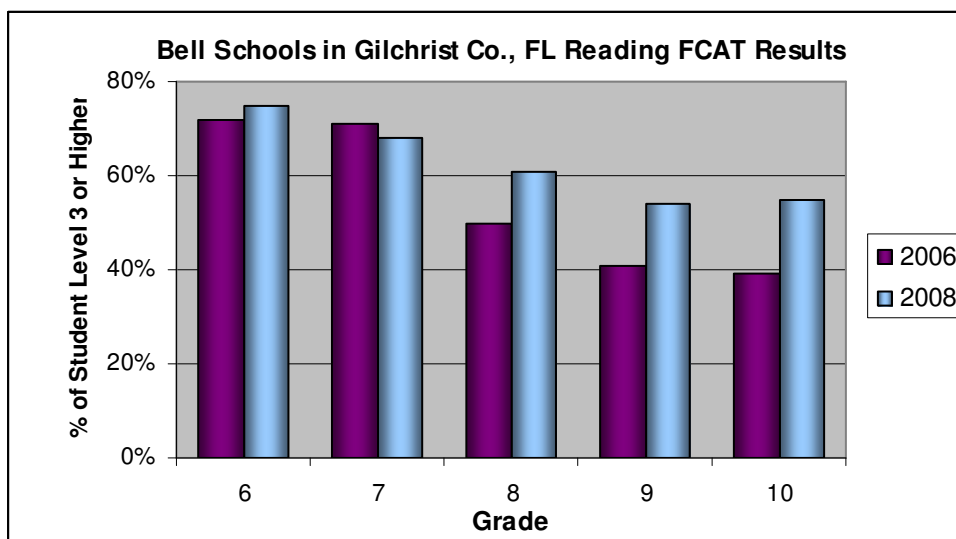
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GILCHRIST Co., FL

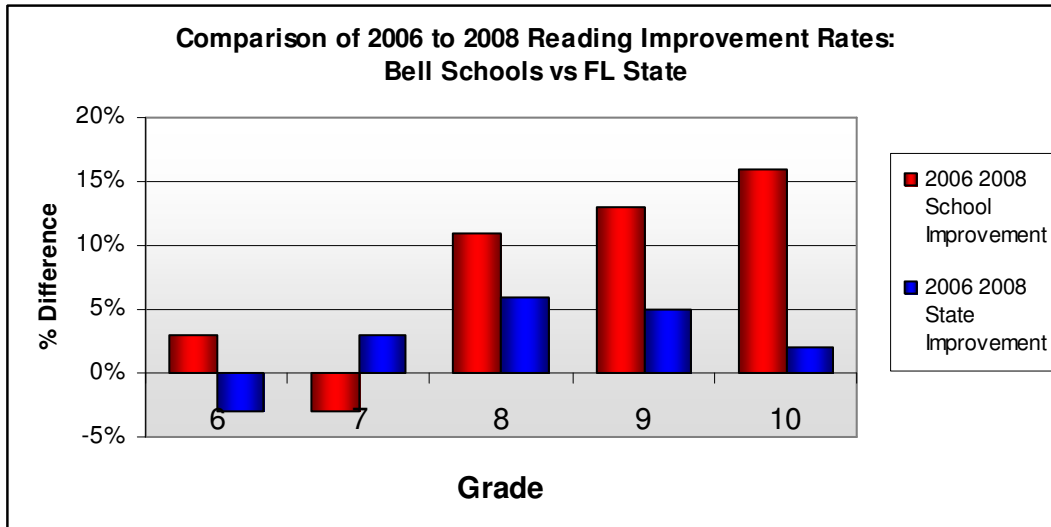
The Gilchrist County School System participated in a consequential validity study. This system used Discovery Education Predictive Assessments during the 2006-2007 & 2007-2008 school years. The percent of students that were classified as Proficient (Levels 3, 4, or 5) on the 2008 FCAT was tabulated and compared with the percent of students that were classified as Proficient on the 2006 FCAT. The results for Reading and Mathematics grades 6 to 10 for the two years 2006 and 2008 are presented in the following tables. The results are presented separately for the Bell schools and the Trenton schools. The difference between 2008 and 2006 is tabulated; a positive score indicates an increase in the percent of students scoring proficient from 2006 to 2008. As a reference point, the improvement (or decline) in the percent of students proficient in the state of Florida was compared to this Difference score. As you can see, there is improvement overall across all the grades, PLUS there is a much higher improvement rate in the Gilchrist County Schools than in the overall State of Florida. Refer to 9th grade reading at Bell High School. The school improved from 41% to 54% Level 3 or Higher from 2006 to 2008. In comparison, the state of Florida only improved from 41% to 46%. That means there was 8% higher percentage increase in Bell High School than there was in the State of Florida.

Bell High School in Gilchrist County FCAT Results 2006 to 2008						
Reading						
Grade	2006 Bell HS	2008 Bell HS	2006 2008 School Improvement	2006 State	2008 State	2006 2008 State Improvement
6	72%	75%	3%	66%	63%	-3%
7	71%	68%	-3%	62%	65%	3%
8	50%	61%	11%	47%	53%	6%
9	41%	54%	13%	41%	46%	5%
10	39%	55%	16%	36%	38%	2%





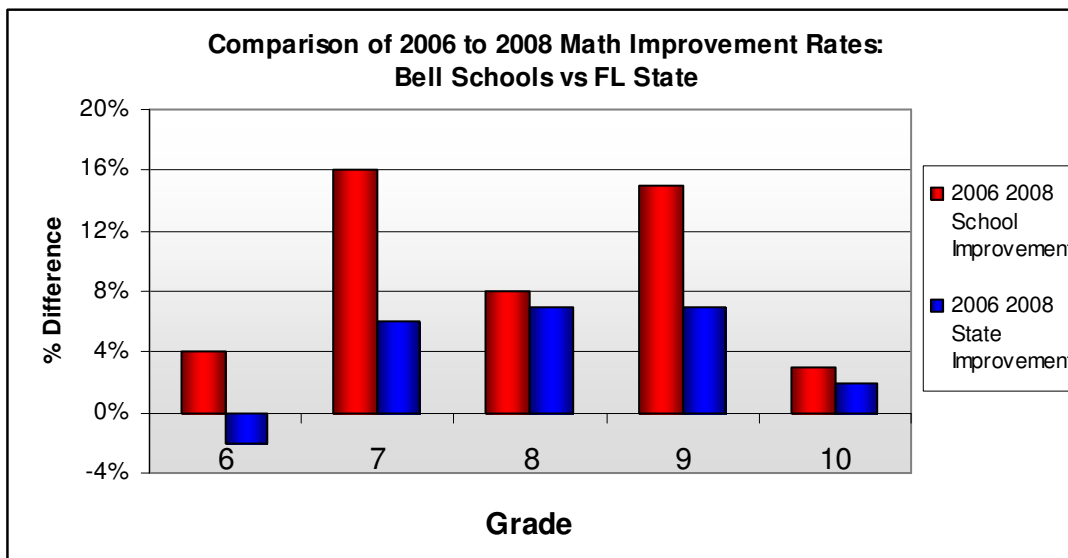
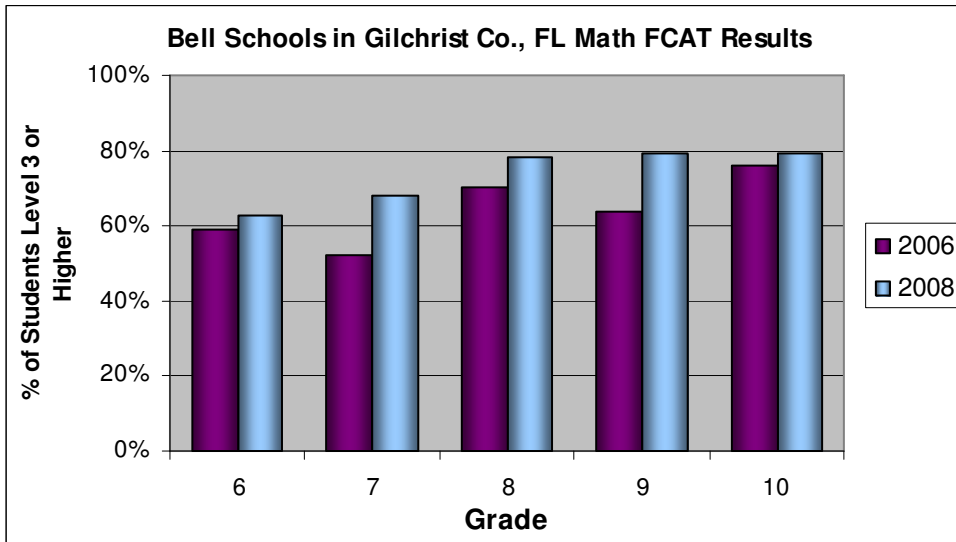
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Bell High School in Gilchrist County FCAT Results 2006 to 2008						
Mathematics						
Grade	2006 Bell HS	2008 Bell HS	2006 2008 School Improvement	2006 State	2008 State	2006 2008 State Improvement
6	59%	63%	4%	55%	53%	-2%
7	52%	68%	16%	55%	61%	6%
8	70%	78%	8%	60%	67%	7%
9	64%	79%	15%	58%	65%	7%
10	76%	79%	3%	67%	69%	2%



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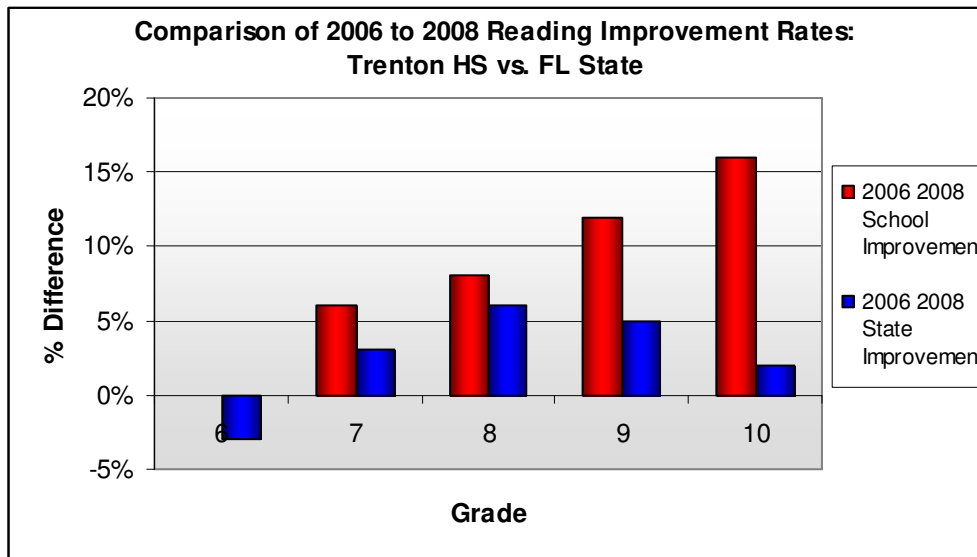
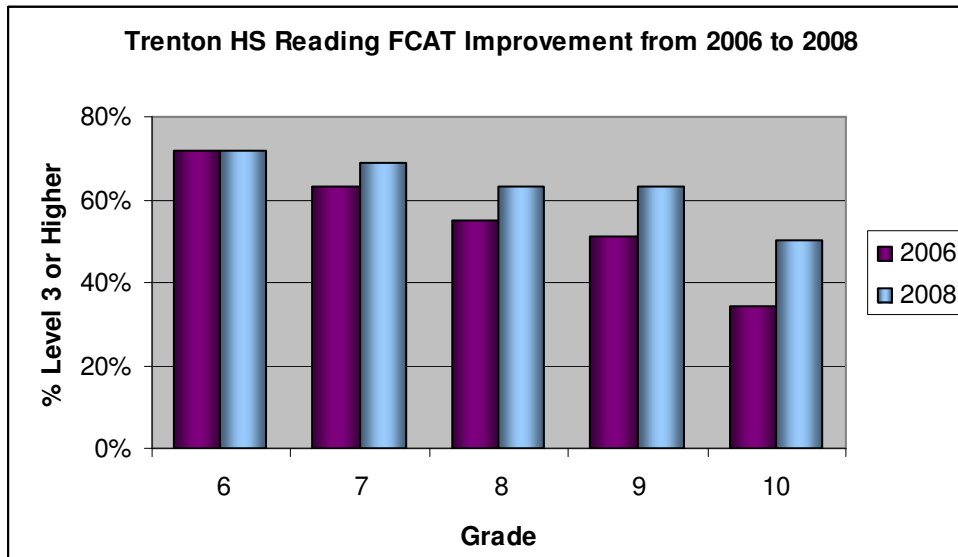


Trenton High School in Gilchrist County FCAT Results 2006 to 2008						
Reading						
Grade	2006 Trenton HS	2008 Trenton HS	2006 2008 School Improvement	2006 State	2008 State	2006 2008 State Improvement
6	72%	72%	0%	66%	63%	-3%
7	63%	69%	6%	62%	65%	3%
8	55%	63%	8%	47%	53%	6%
9	51%	63%	12%	41%	46%	5%
10	34%	50%	16%	36%	38%	2%





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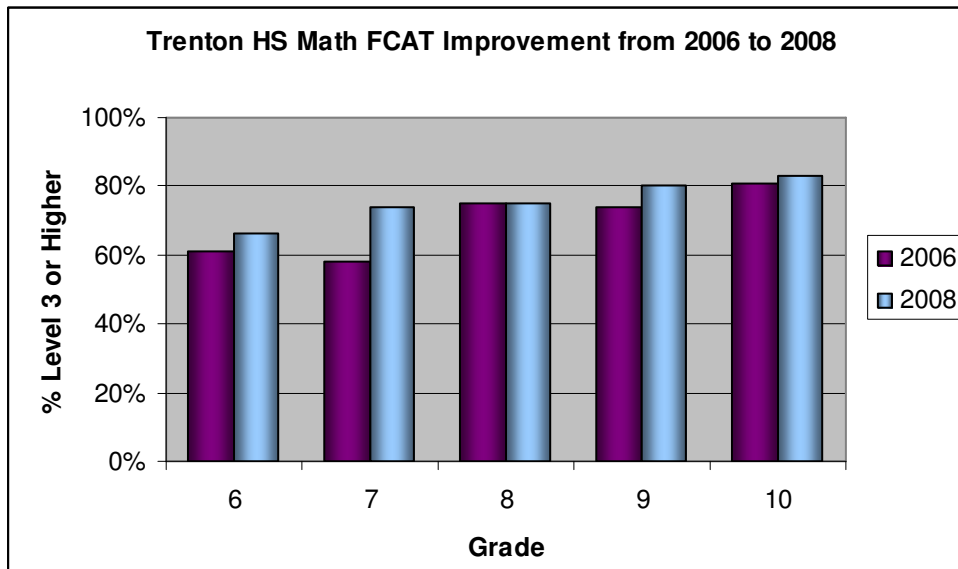


Trenton High School in Gilchrist County FCAT Results 2006 to 2008

Mathematics

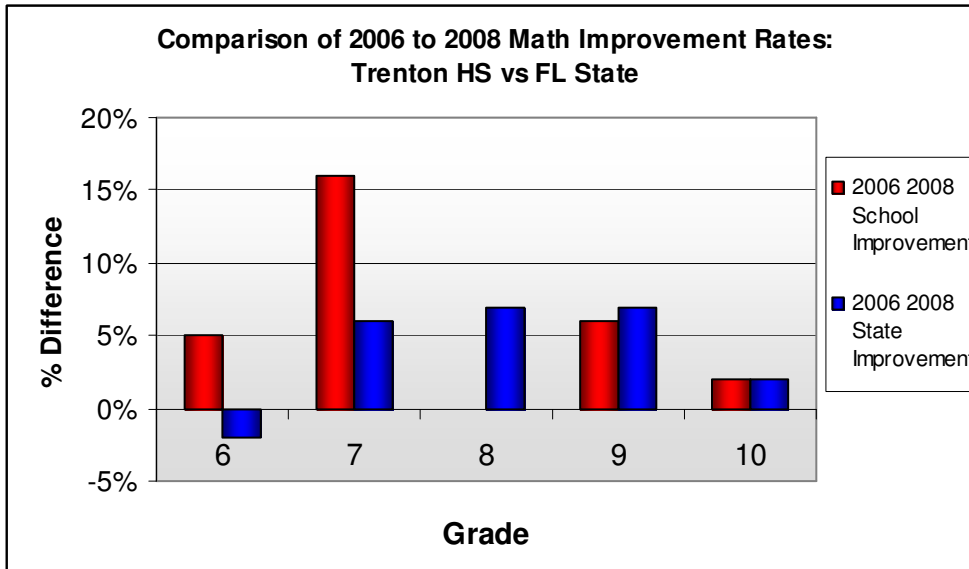
Grade	2006 Trenton HS	2008 Trenton HS	2006 2008 School Improvement	2006 State	2008 State	2006 2008 State Improvement
6	61%	66%	5%	55%	53%	-2%
7	58%	74%	16%	55%	61%	6%
8	75%	75%	0%	60%	67%	7%
9	74%	80%	6%	58%	65%	7%
10	81%	83%	2%	67%	69%	2%

Trenton HS Math FCAT Improvement from 2006 to 2008





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GRAINGER CO., TN.

The Grainger County school system participated in a consequential validity study. This system used Discovery Education Predictive Assessments during the 2006-2007 school year. The percent of students that were classified as “Proficient” and “Advanced” on the 2007 TCAP was tabulated and compared with the percent of students that were classified as “Proficient” and “Advanced” on the 2006 TCAP. The results for Grades 3 to 8, Reading and Mathematics, for the two years—2006 and 2007—are presented in the following tables. The “Difference” between 2007 and 2006 was also tabulated; a positive score indicates an increase in the percent of students proficient from 2006 to 2007. As a reference point, the improvement (or decline) in the percent of students classified as “Proficient” and “Advanced” in the state of Tennessee was compared to this Difference score.

The percentages are to be understood as follows. Take a look below at Grade 3 Mathematics. The percent of students proficient in 2006 was 87, and the percent proficient in 2007 was 93, a difference or improvement of 5% (using exact not rounded percentages). However, Grade 3 Mathematics in the state of Tennessee improved by only 1% during the same time. Therefore, the “Grainger ↔ TN State” calculation is actually 4%. That is, the Grainger County Grade 3 Reading classes improved 4% in the percent of students proficient compared to the state of Tennessee.

Results of Consequential Validity Study for Grainger County in Mathematics.

Grainger County, TN Mathematics				
Grade	2006	2007	Difference*	Grainger ↔ TN State*
3	87%	93%	5%	4%
4	90%	96%	6%	4%
5	94%	97%	2%	2%
6	87%	92%	4%	4%
7	92%	91%	-1%	-2%
8	89%	92%	3%	0%

*Calculated based on exact not rounded percentages listed under 2006 and 2007.

Results of Consequential Validity Study for Grainger County in Reading.

Grainger County, TN Reading				
Grade	2006	2007	Difference*	Grainger ↔ TN State*
3	87%	93%	5%	2%
4	92%	88%	-4%	-4%
5	92%	97%	5%	2%
6	91%	94%	3%	-2%
7	90%	93%	2%	0%
8	92%	94%	2%	0%

*Calculated based on exact not rounded percentages listed under 2006 and 2007.





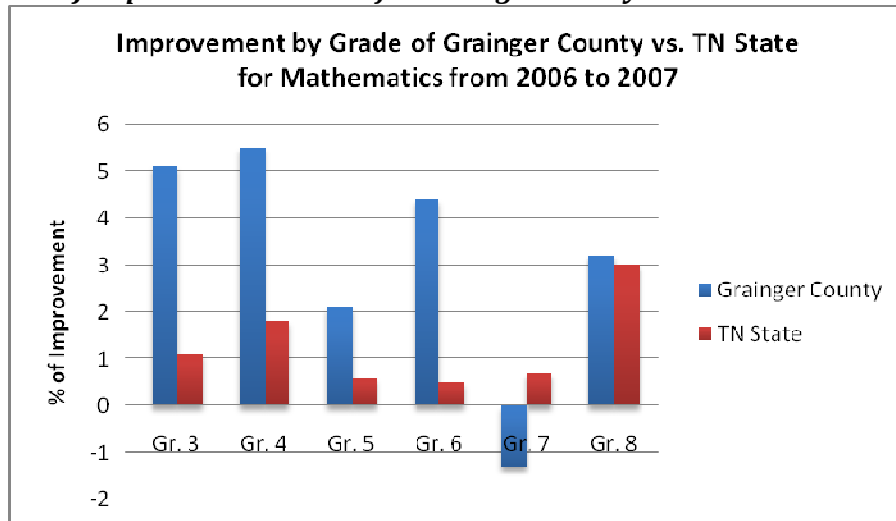
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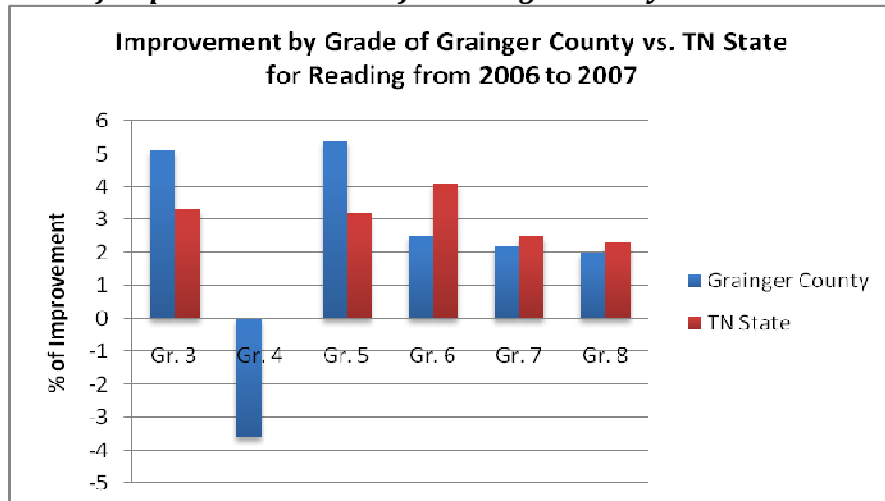
Many factors contribute to the improvement of the percent of students proficient from year to year. Discovery Education Predictive Assessments are usually just one factor in school and district-wide improvement plans. Thus, these results should be considered in the light of these many factors.

The following figures graphically represent the data. Grainger County had significant improvement (exceeding the state's improvement during the same time period) in Grades 3, 4, 5, 6, and 8 Mathematics and in Grades 3 and 4 Reading.

Comparison of Improvement Results for Grainger County and TN State in Mathematics



Comparison of Improvement Results for Grainger County and TN State in Reading





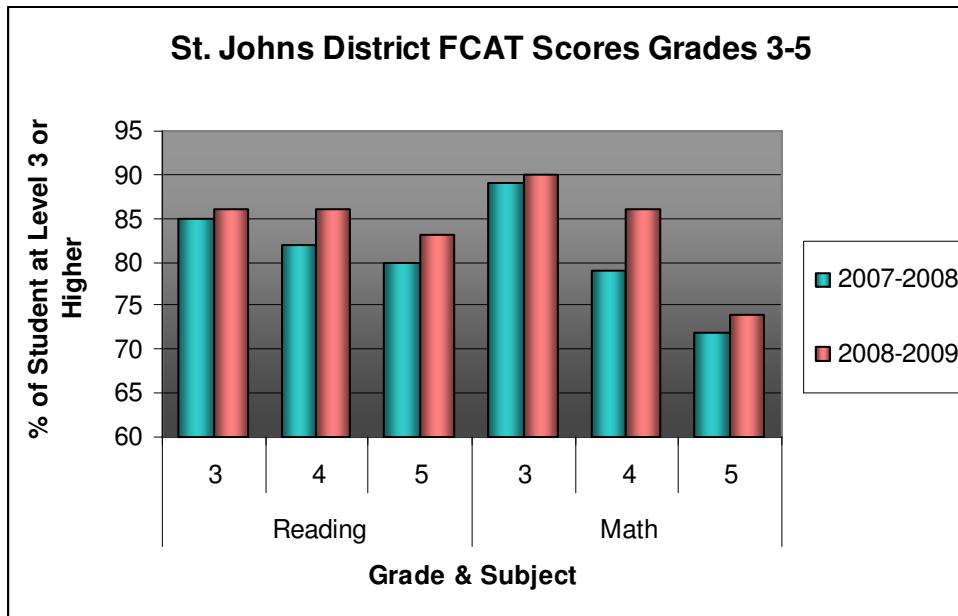
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ST. JOHNS, FL.

St. John's County, FL has been using Discovery Education Assessments district wide since the 2008-2009 school year. Before their use of the Discovery Assessments, this district was ranked fourth for the Sunshine State Standards (SSS) of the Florida Comprehensive Assessment Test (FCAT). After just one school year with DEA, St. John's was able to advance from 4th to 1st place in grades 3-5 in both Reading and Math. Out of all the school districts in Florida, they had the highest percentage of students scoring at Level 3 or higher.

Grade	Subject	Increase	Rank
3rd Grade	Reading	Level 3 Improved 85% to 86%	1 st
4th Grade	Reading	Level 3 Improved 82% to 86%	1 st
5th Grade	Reading	Level 3 Improved 80% to 83%	1 st
3rd Grade	Math	Level 3 Improved 88% to 90%	1 st
4th Grade	Math	Level 3 Improved 79% to 86%	1 st
5th Grade	Math	Level 3 Improved 72% to 74%	1 st





DISCOVERY EDUCATION ASSESSMENT CONSEQUENTIAL VALIDITY STUDIES



DISTRICT OF COLUMBIA

Discovery Education Assessment has been working with the District of Columbia during the district-wide reform initiated in 2007. In the District of Columbia, 1,800 4th graders and over 1,600 8th graders took the 2009 National Assessment of Educational Progress (NAEP) reading test. Though nation wide there was no increase in scores, DC 4th graders led the nation with a 5 point gain from 2007 to 2009. Similarly, DC 4th graders showed gains on the Discovery Education reading assessment from 38.1% Prof & Advanced in 2007 to 54.9% in 2009.

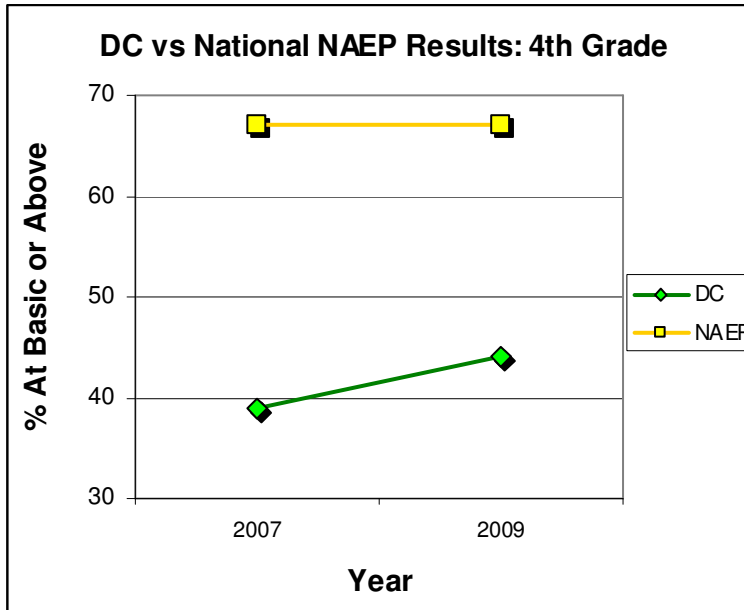
*4th Grade Performance Highlights:

- The average District score increased 5 points from 2007 to 2009. Comparatively, the national average did not increase. No state had a greater increase from 2007 to 2009 than DC.
- The percentage of students scoring Basic or above was 39 percent in 2007 and 44 percent in 2009.
- The percentage of students scoring Proficient or Advanced increased markedly, from 14 percent in 2007 to 17 percent in 2009.

*8th Grade Performance Highlights:

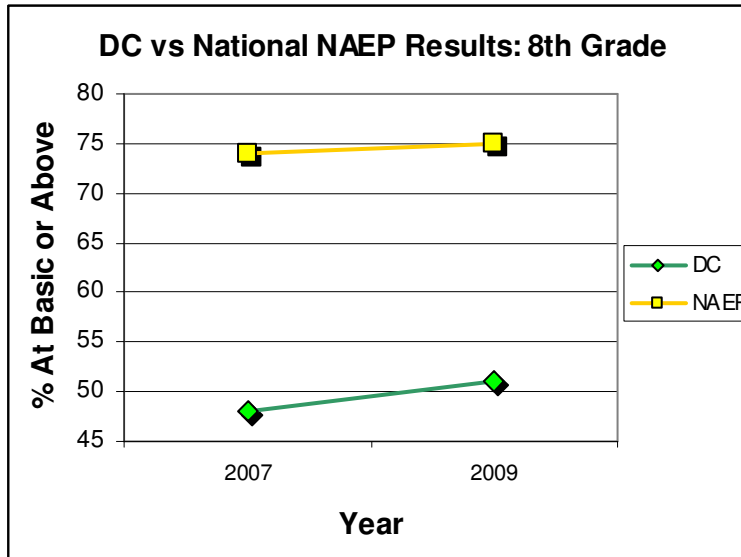
- Since 2007, the average student's score increased 1 point, consistent with gains nationwide.
- The percentage of students scoring Basic or above increased from 48 percent in 2007 to 50 percent in 2009.
- The percentage of students scoring at Proficient or Advanced was 12 percent in 2007 and 13 percent in 2009.

(*DCPS Press Release)





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ROBESON COUNTY, NC.

The Robeson County, North Carolina, school system used Discovery Education Assessment benchmarks throughout the 2008-2009 school year. These benchmarks were used in Grades 3 to 8 in both Reading and Mathematics by approximately 10,000 students. The number of students who completed these benchmarks, by grade, is as follows: Grade 3 1978; Grade 4 1837; Grade 5 1694; Grade 6 1690; Grade 7 1582; and Grade 8 1615.

The percent of students proficient (Levels 3 and 4) on the North Carolina End of Grade Tests (NCEOG) was tabulated for both 2007-2008 and 2008-2009. The results for Reading are presented in Table 15 and for Mathematics in Table 16.

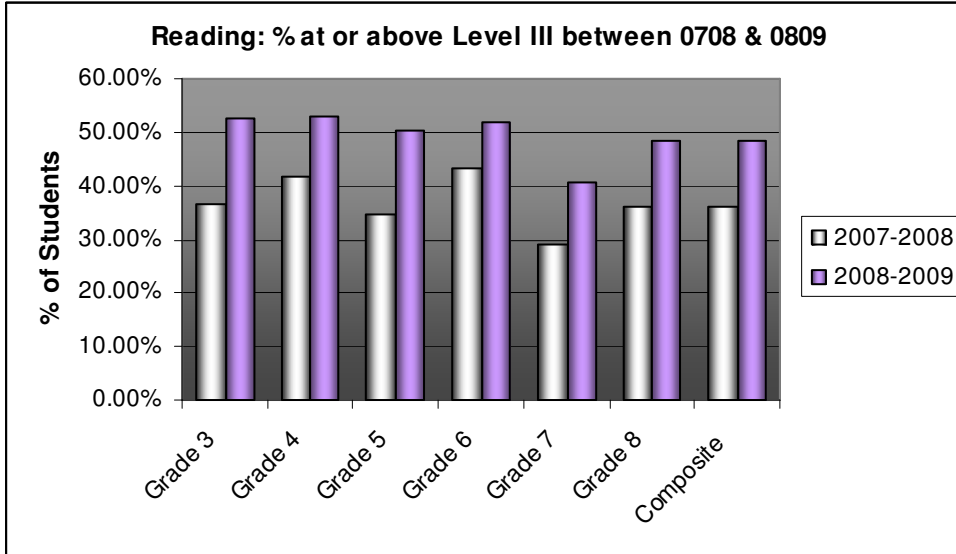
Robeson County increased the percent of students proficient in Reading by 12.40% and the percent of students proficient in Mathematics by 12.70% from 2008 to 2009. These huge increases in the percent of students proficient helped Robeson County improve its AYP standing in many schools from 2008 to 2009. Certainly many factors contributed to this change in student performance. DEA benchmarks played a role in school improvement; this role led this district to use these benchmarks once again during the 2009-2010 school year.

Robeson County, NC: Percent at or above Level III			
Reading			
	2007-2008	2008-2009	Change
Grade 3	36.70%	52.40%	15.70%
Grade 4	41.90%	53.00%	11.10%
Grade 5	34.80%	50.40%	15.60%
Grade 6	43.10%	51.90%	8.80%
Grade 7	29.10%	40.80%	11.70%
Grade 8	36.20%	48.60%	12.40%
Composite	36.20%	48.60%	12.40%





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Robeson County, NC: Percent at or above Level III			
Mathematics			
	2007-2008	2008-2009	Change
Grade 3	63.80%	73.70%	9.90%
Grade 4	60.40%	71.80%	11.40%
Grade 5	52.10%	68.80%	16.70%
Grade 6	55.80%	65.00%	9.20%
Grade 7	51.70%	63.50%	11.80%
Grade 8	51.00%	67.80%	16.80%
Composite	55.90%	68.60%	12.70%



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