



Summary of AMSTI External Evaluation, Student Achievement Data, 2005

Evaluation data from the Alabama Math, Science, and Technology Initiative's (AMSTI's) external evaluator indicates that AMSTI is making a dramatic difference by improving student achievement. This evaluation confirms the findings of the two former evaluations that AMSTI is having a major impact on student achievement. Even while the number of AMSTI Schools in each grade range still remains relatively small (hence large test score differences are needed to achieve statistical significance), the recent study demonstrated "statistically significant differences" between AMSTI Schools and the control groups of Non-AMSTI Schools on a number of comparisons. The fact that marked improvement was found using multiple assessments helps validate that AMSTI is making a real difference in the lives of Alabama's students in terms of math and science instruction.

*Steve Ricks
AMSTI State Coordinator*

The following student performance data and quotations were taken from the *Impact of AMSTI on Student Performance on Standardized Tests* report developed for the Alabama Department of Education by the Institute for Communication and Information Research at the University of Alabama.

- External Evaluator: Institute for Communication and Information Research at the University of Alabama
- Examined the performance of AMSTI Schools and Non-AMSTI Schools in the twenty school systems where AMSTI was implemented beginning July 2002 through May 2005
- The report compares 75 AMSTI Schools to a control group of 265 Non-AMSTI Schools with similar demographics

The external evaluator examined student performance using data from the following standardized tests: (1) *Stanford Achievement Test* (10th Edition); (2) *Alabama Reading and Math Test*; (3) *Alabama High School Graduation Exam*. The analysis was conducted separately for three levels, using the appropriate sets of scores: elementary (Grades K-5), middle (Grades 6-8), and high school (Grades 9-12). AMSTI cohorts (Summer Institute Schools of 2002, Summer Institute Schools of 2003, and Summer Institute Schools of 2004) were monitored in order to compare the impact of AMSTI on student achievement after one year, two years, and three years of implementation.

Quotations from the *Impact of AMSTI on Student Performance on Standardized Tests* by the Institute for Communication and Information Research at the University of Alabama.

“The results of all elementary schools from UAH, UNA, and USA-Mobile that joined AMSTI in 2004 and the corresponding comparison schools show that AMSTI Schools had significantly higher percentile ranks in all subjects. This is the most consistent advantage found for the AMSTI adopters so far, compared to previous studies.”

“Data from the ARMT show AMSTI adopters to have lower percentages of students below standards and higher percentages of students who met or exceeded the standards.”

“...AMSTI Schools significantly outperformed the controls on the SAT-Reading...”

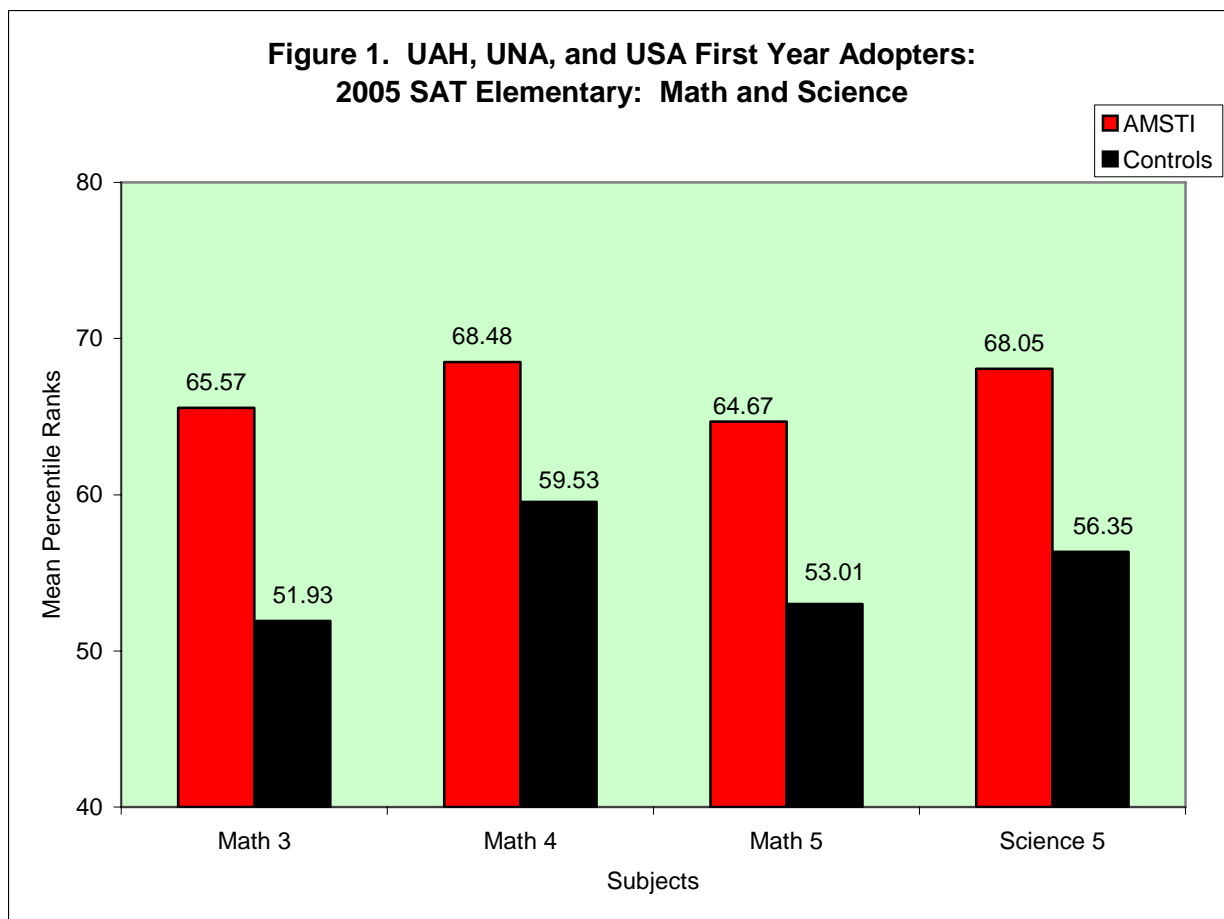
“The advantages of the AMSTI elementary schools...increased considerably after the third year of program implementation, reaching statistical significance in all subject areas.

“...AMSTI Schools had higher percentages of students who passed the Alternative Assessment tests than the control schools had...”

AMSTI Summer Institute Schools of 2004 Elementary Schools

Stanford Achievement Test Data for First Year Adopters

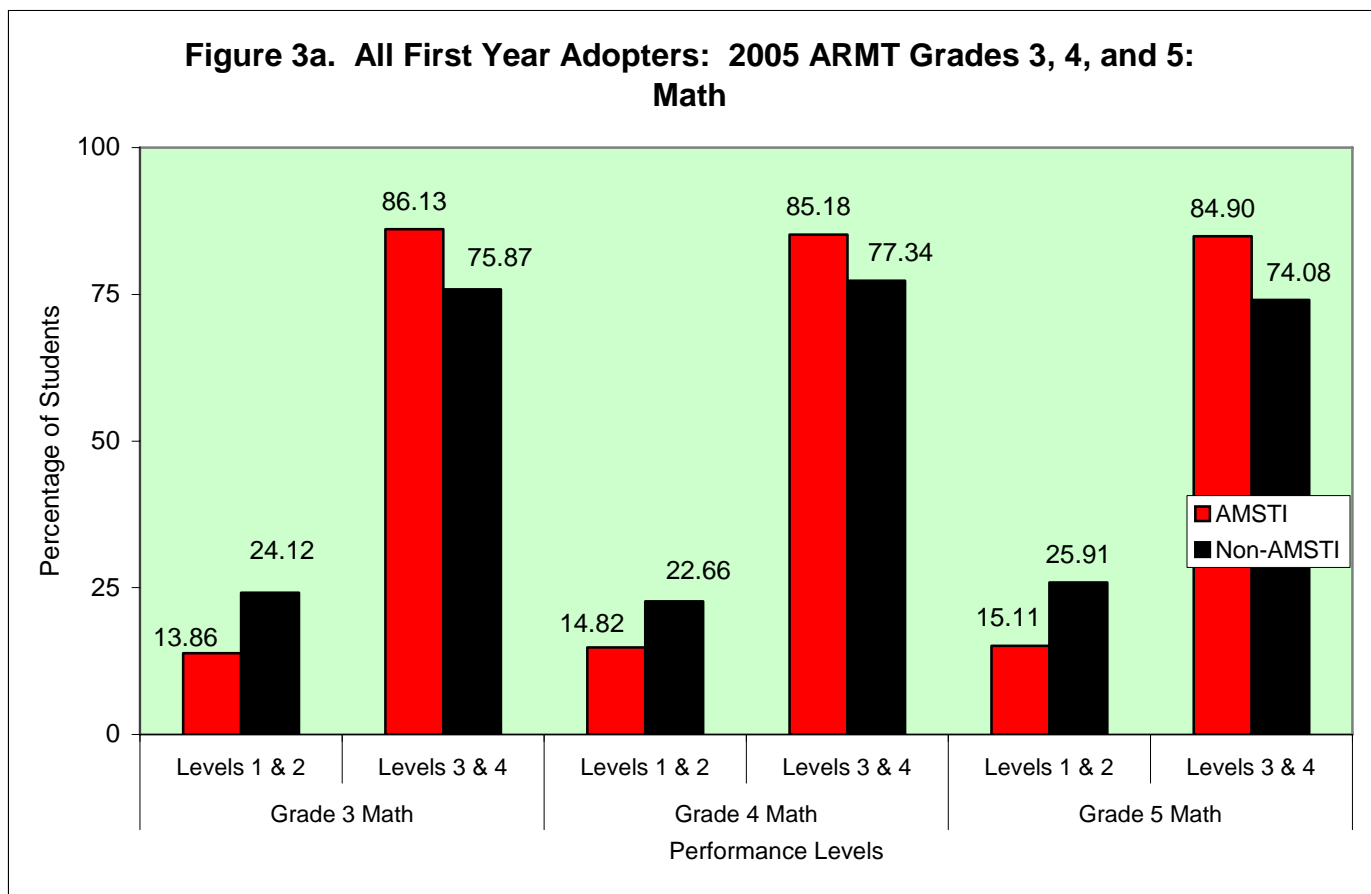
- AMSTI Schools consistently scored higher than Non-AMSTI Schools after one year of implementation. Differences in math and science scores varied between 8.95 and 13.64 mean percentile rank points.
- Even though the number of AMSTI Schools is relatively small for each grade range, the advantage of AMSTI Schools reached statistical significance on the 3rd through 5th grade *Stanford 10* Math and the 5th grade *Stanford 10* Science.
- “Results of all elementary schools that joined AMSTI in 2004 and the corresponding comparison schools show that AMSTI Schools had significantly higher percentile ranks in all subjects.”



AMSTI Summer Institute Schools of 2004: Elementary Schools

Alabama Reading and Mathematics Test Data for First Year Adopters

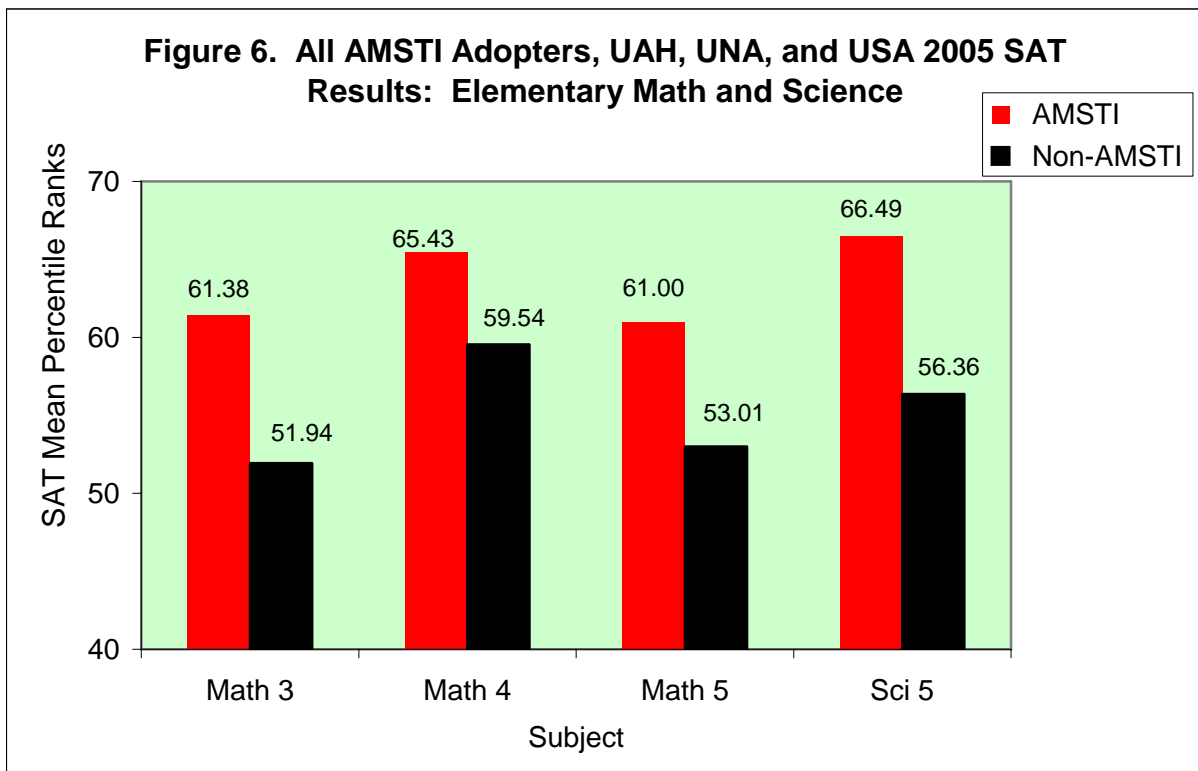
- “The data show a general tendency for the AMSTI adopters to have lower percentages of students below standards and higher percentages of students who met or exceeded the standards.”
- “The AMSTI adopters have lower percentages of students who passed at levels 1, 2, and 3 and higher percentages of students who exceeded the standards.”
- Differences in math scores from AMSTI Schools to Non-AMSTI Schools ranged from 4.76 to 9.16 mean percentile rank points.



All AMSTI adopters – Elementary Schools

Stanford Achievement Test Data

- “The advantages of the AMSTI elementary schools of the controls increased considerably after the third year of program implementation, reaching statistical significance in all subject areas.”
- Differences in math and science scores varied between 5.89 and 9.44 mean percentile rank points in math and 10.13 mean percentile rank points in science.

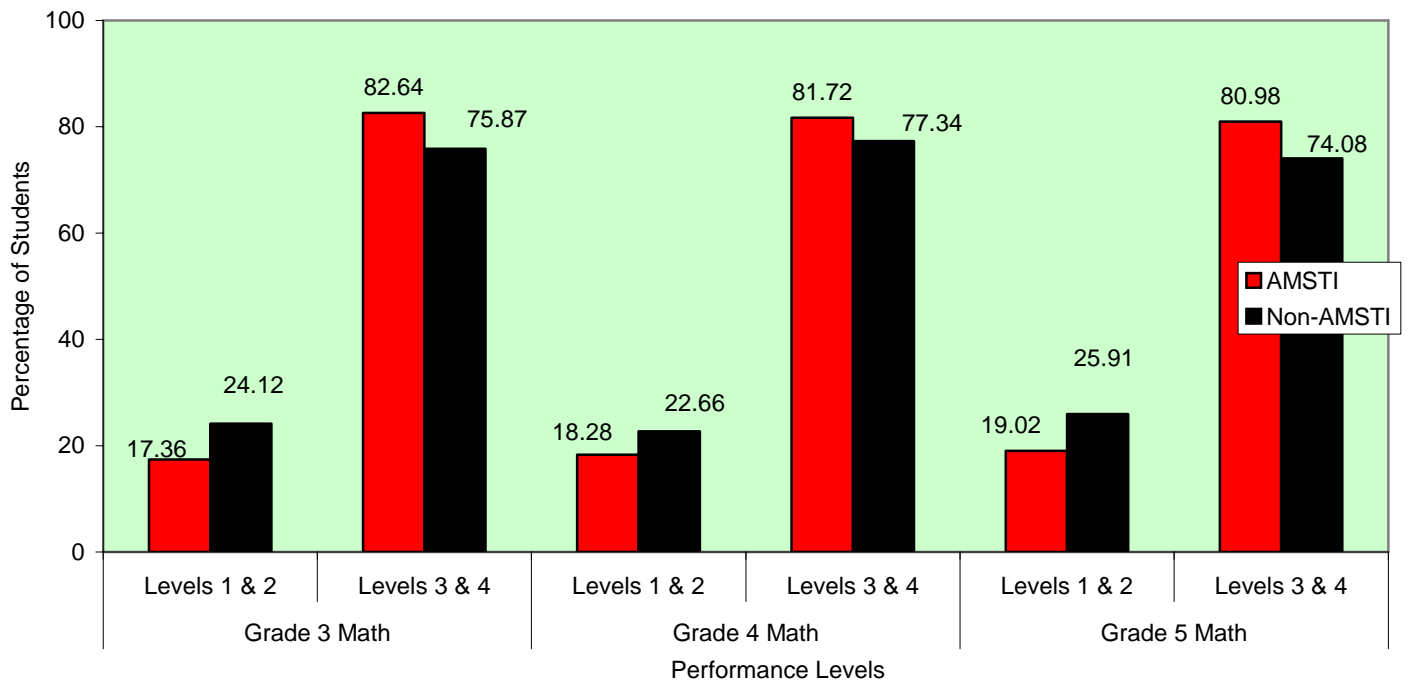


All AMSTI Adopters – Elementary Schools

Alabama Reading and Mathematics Test Data

- “The advantages of all AMSTI elementary schools over controls...had a consistent pattern across grades, with lower percentages of students who passed at levels 1 to 3, and higher percentages of students who passed at level 4.
- “Overall, the ARMT findings for Grades 3 to 5 showed increasing advantages of the AMSTI Schools over controls at the end of the third year of program implementation...”
- The AMSTI advantage over Non-AMSTI Schools ranged from 4.38 to 6.90 mean percentile rank points.

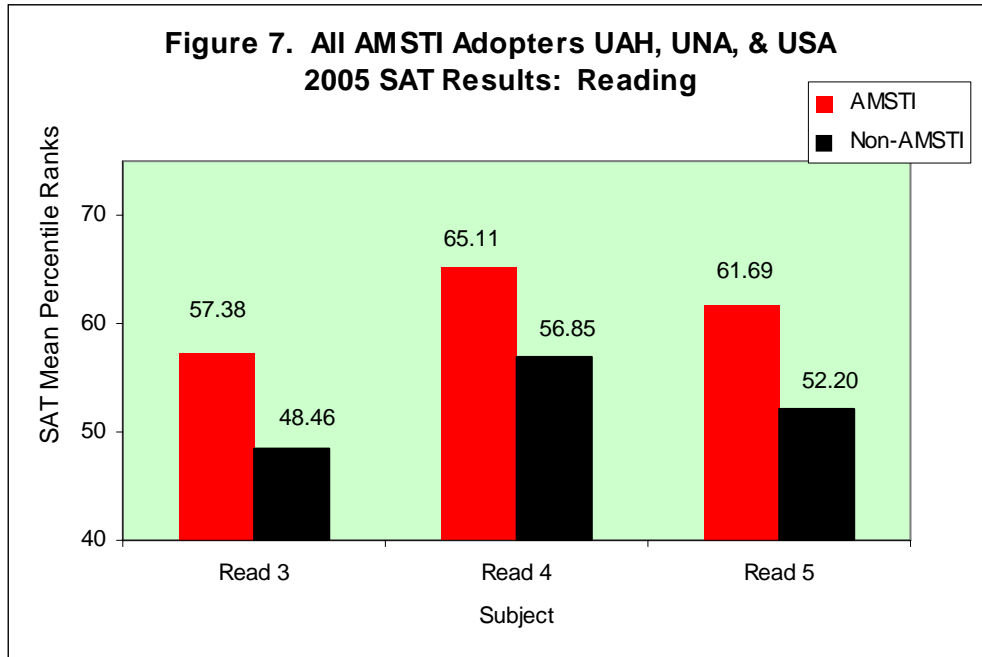
Figure 8a. All AMSTI Adopters, UAH, UNA, and USA 2005 ARMT Grades, 3, 4, and 5: Math



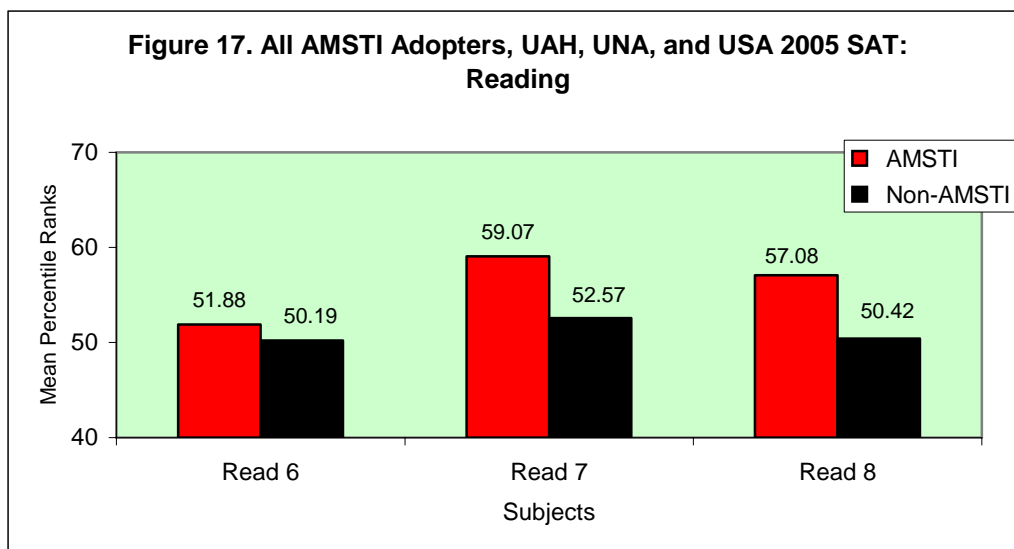
All AMSTI Adopters – Elementary and Middle Schools

Stanford Achievement Test Data – Reading

- “The great improvement registered by the AMSTI Schools at the end of the third year...indicates that the AMSTI program capitalized on the implementation experience.”
- AMSTI Schools displayed an advantage over Non-AMSTI Schools in the area of reading in grades 3 through 5 ranging from 8.26 to 9.49 percentile rank points.



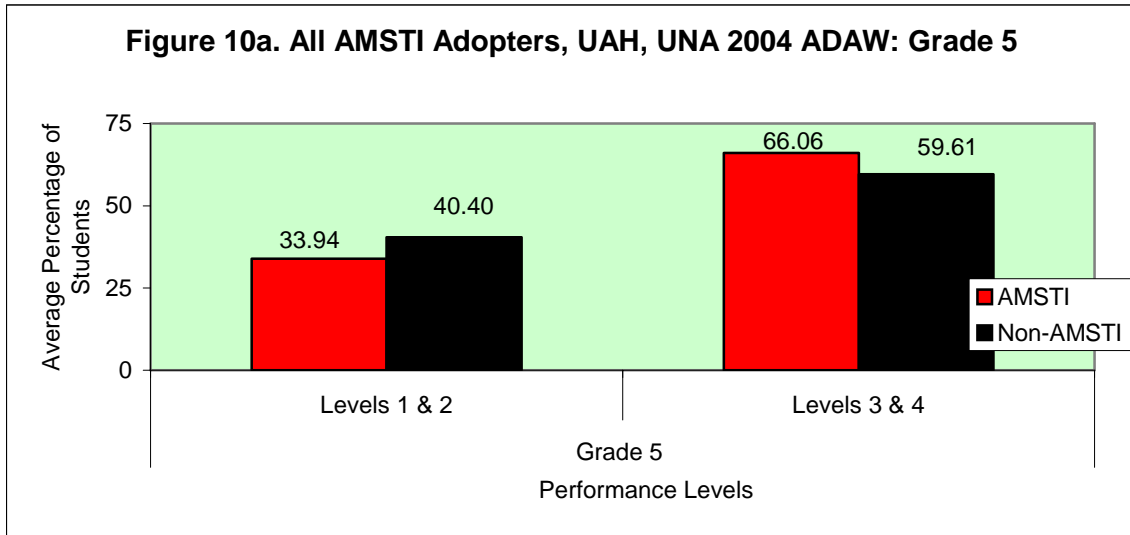
- This trend continued in middle school with AMSTI Schools demonstrating advantages over Non-AMSTI Schools ranging from 1.69 to 6.66 percentile ranking points, reaching statistical significance in the 7th grade.



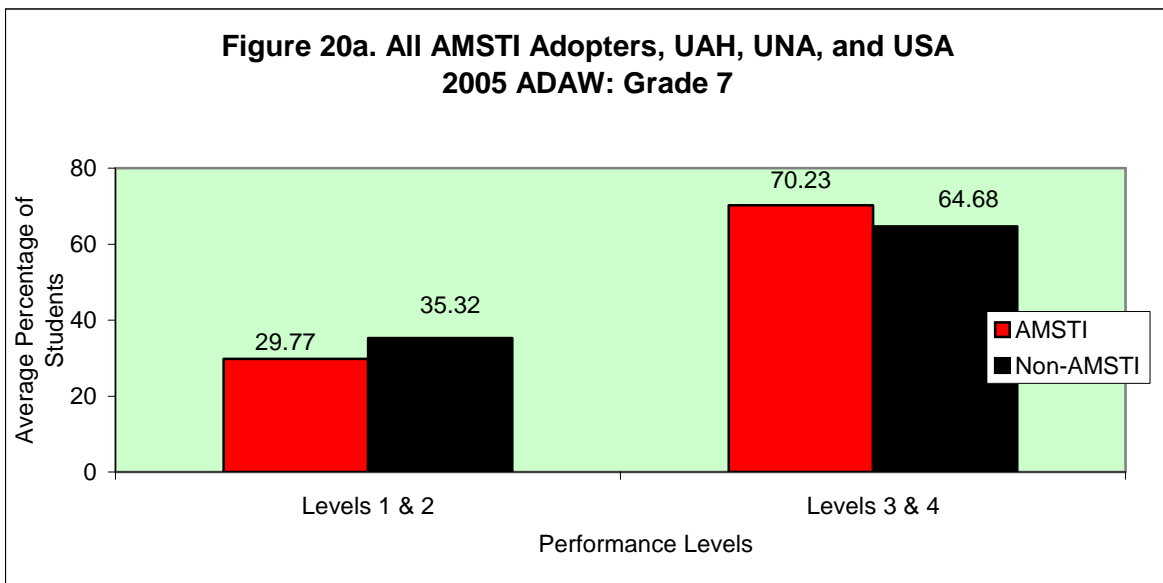
All AMSTI Adopters – Elementary and Middle Schools

Alabama Direct Assessment of Writing

- “...the net effect of AMSTI on the ADAW performance was a higher percentage of students who met and exceeded the standards at a 6.45 percentage point difference from the control schools.”
- The advantage reached statistical significance at the Level 4 Performance Level of the Assessment.



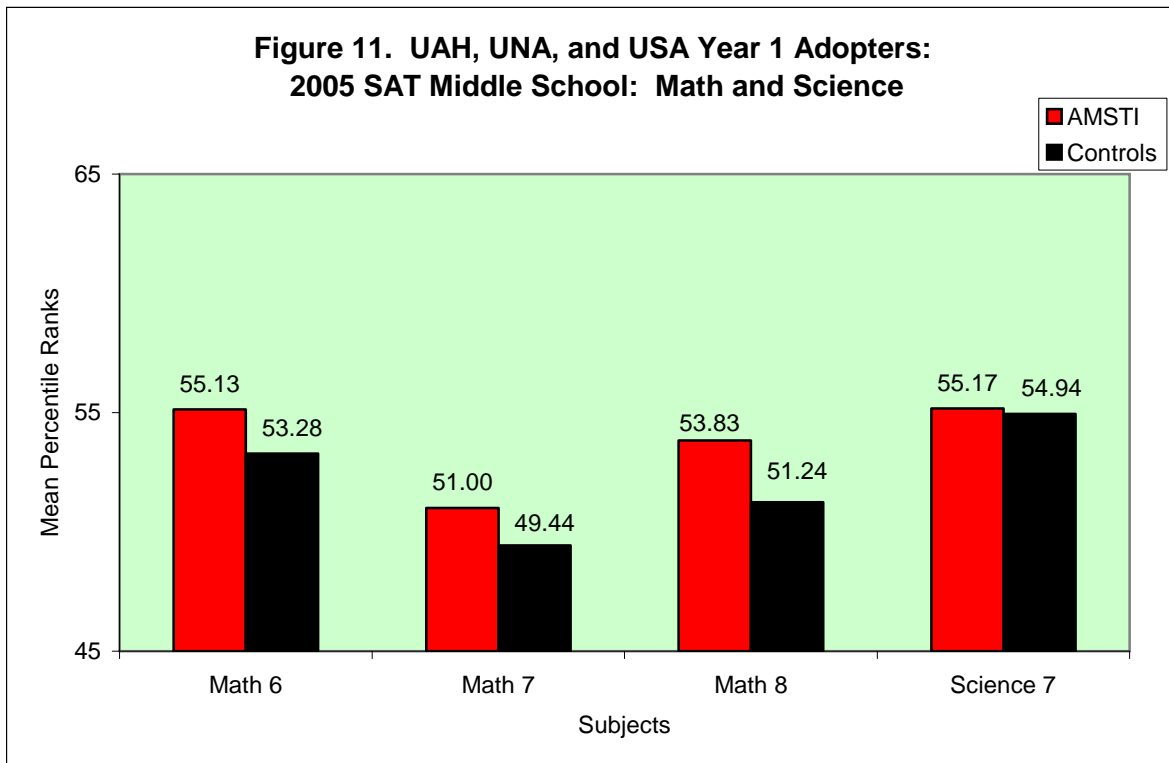
- “The advantage of the AMSTI Schools...showed increased advantages, with lower percentages of students who passed at levels 1 and 2 than those obtained in 2004, and a higher percentage of students who passed at level 4.”
- AMSTI Schools demonstrated a 5.55 mean percentile rank points advantage over Non-AMSTI Schools.



AMSTI Summer Institute Schools of 2004: Middle Schools

Stanford Achievement Test Data

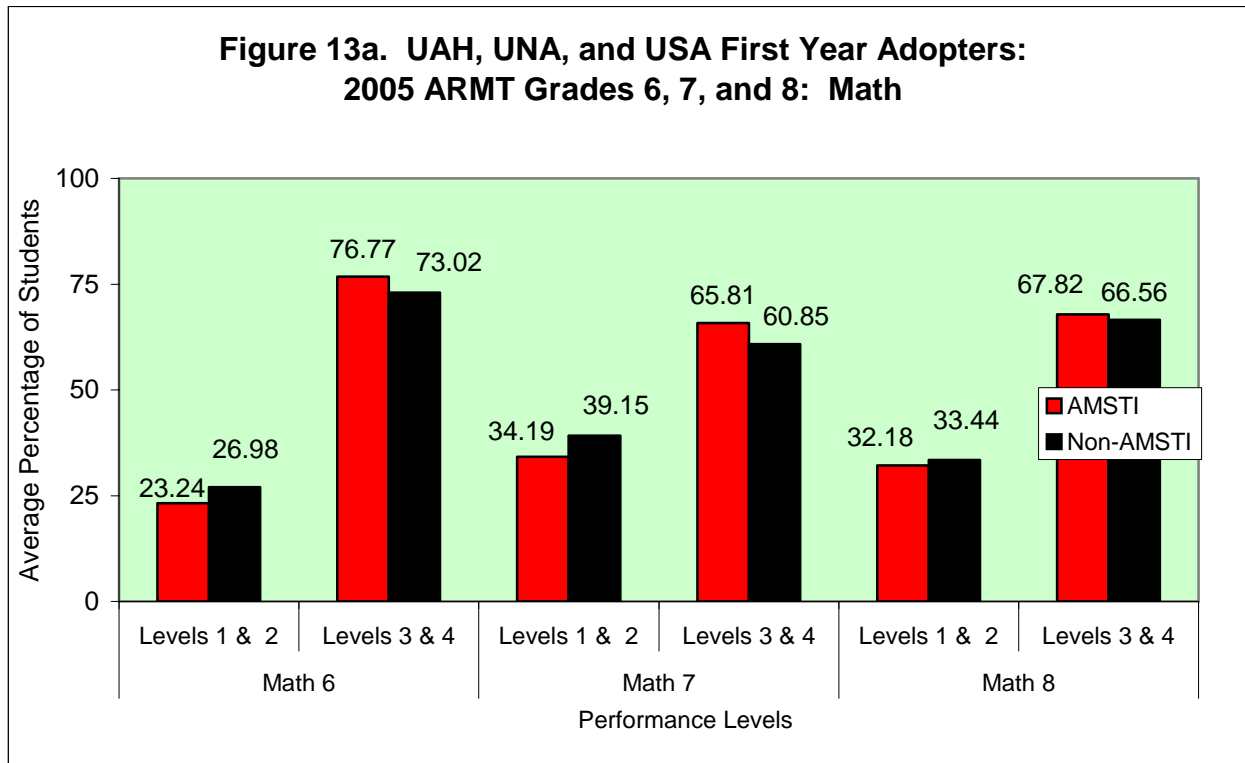
- “All first year AMSTI middle schools...had better scores or performed better than the control schools on the 2005 SAT in both math and science.”
- The AMSTI Schools demonstrated an advantage over Non-AMSTI Schools ranging from 1.56 to 2.59 in math in grades 6-8 and was 0.23 in science in grade 7.



AMSTI Summer Institute Schools of 2004: Middle Schools

Alabama Reading and Mathematics Test Data

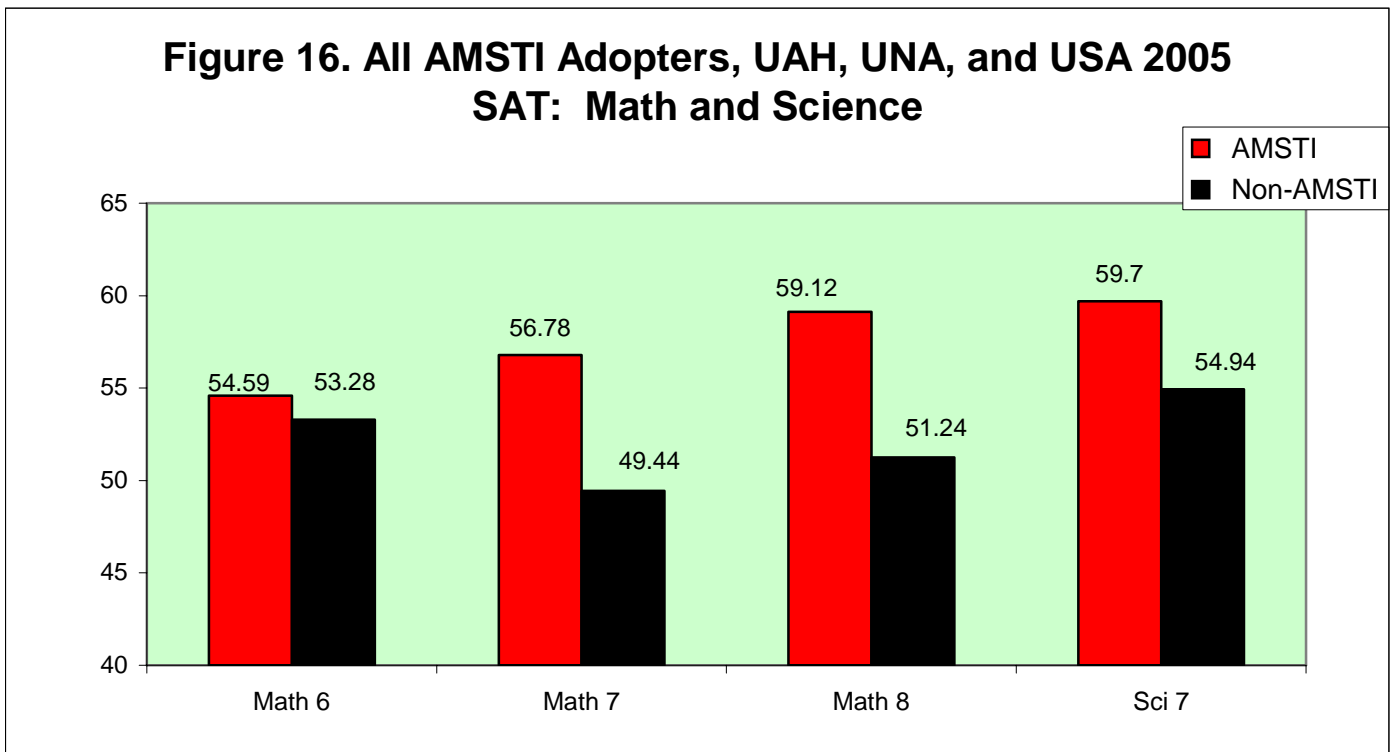
- For 6th through 8th grade mathematics, AMSTI Schools had advantages over Non-AMSTI Schools ranging from 1.26 to 4.96 mean percentile rank points.
- “...first year AMSTI middle schools moved in the desirable direction of raising the percentage of students who passed at levels 3 and 4.



All AMSTI adopters – Middle Schools

Stanford Achievement Test Data

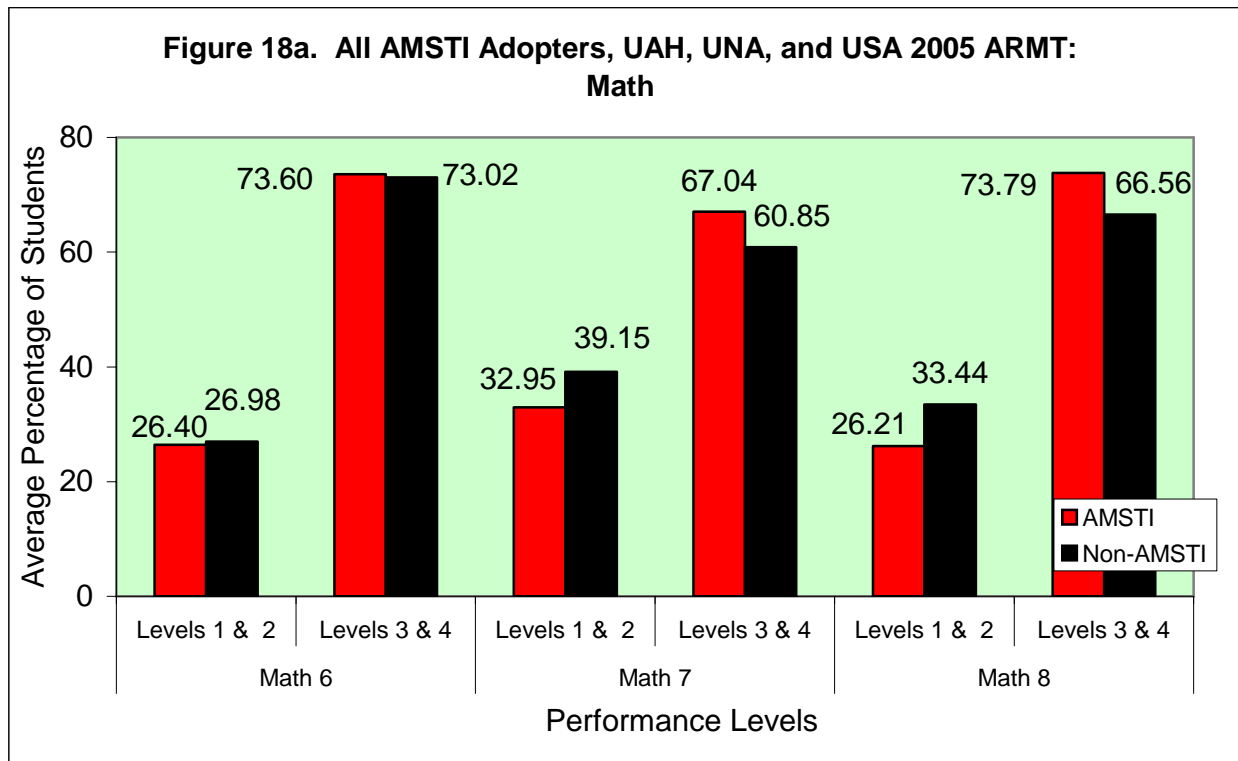
- “All AMSTI middle schools...performed significantly better than the controls on the 2005 SAT-Math in the 7th and 8th grades.”
- The AMSTI Schools confirmed an advantage over Non-AMSTI Schools ranging from 1.31 to 7.88 in math and was 4.76 in science.



All AMSTI Adopters – Middle Schools

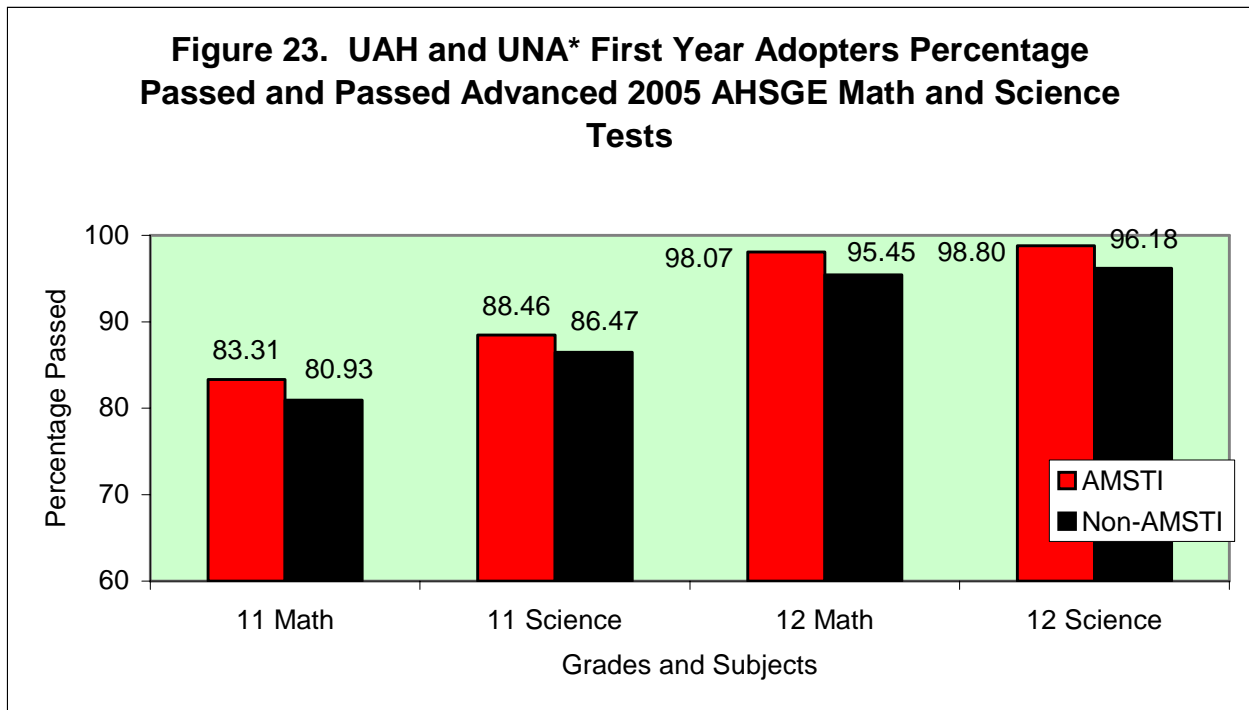
Alabama Reading and Mathematics Test Data

- “The advantages of the AMSTI Schools for grades 7 and 8 on the 2005 ARMT-Math were in the right direction of raising the percentage of students who passed at levels 3 and 4, but considerably stronger than those obtained in 2004.”
- The greatest AMSTI advantage was in the 8th grade at level 4 – 8.74 mean percentage points which was statistically significant.
- AMSTI Schools demonstrated a range of 0.58 to 7.23 mean percentage point differences over Non-AMSTI Schools.



**AMSTI Summer Institute Schools of 2004: High Schools
Alabama High School Graduation Exam Data**

- The adoption of AMSTI benefited high school students in terms of passing the Alabama High School Graduation Exam in both math and science.
- In the first year of implementation, 2.38% more students were passing the math portion of the AHSGE after the 11th grade administration of the test and 2.62% more students were passing after the 12th grade administration.
- Additionally, 2% more students were passing the science portion of the test after the 11th grade administration and 2.62% more students were passing after the 12th grade administration.



The high school science component of AMSTI is provided by Alabama Science In Motion (ASIM). This program serves science teachers in a number of the Non-AMSTI Schools as well as in AMSTI Schools. Hence, a comparison of schools using AMSTI science (ASIM) with those not using it is not accurately reflected in the data. The fact that some Non-AMSTI Schools are utilizing ASIM may account for the small difference between AMSTI and Non-AMSTI Schools in high school science.

* “The USA-Mobile site added in 2004 had no high school adopters during the first year. Consequently, the analysis will cover only UAH and UNA high schools.”