



**Summary of  
“Report of the Normative Data on Teacher Content Knowledge Pretests and  
Posttests from Five 2008 AMSTI Summer Institutes”**

An external evaluation of the effects of AMSTI Summer Institute Training on teacher content knowledge was conducted by the Office of Community Affairs under the direction of Dr. Estelle Ryan Clavelli.

Pre-tests and post-tests were administered to teachers who attended AMSTI Summer Institutes at Athens State University (Athens), Auburn University (AU), Jacksonville State University (JSU), University of Alabama at Birmingham (UAB), and Wallace Community College Selma/Alabama State University (WCCS/ASU). The pre-test was used to gather baseline data. Differences in scores from the pre-test and post-test were used to determine an increase in teacher content knowledge.

Through the use of the pre-test, post-test approach, the external evaluation provides empirical evidence that teachers’ content knowledge was strengthened across grades and sites as a result of participation in AMSTI Summer Institutes, providing further documentation that the AMSTI professional development model is achieving its primary purpose.

The external evaluation also examined the Teacher Content Knowledge Pretests and Posttests to determine how well the results aligned with the Council of Chief State School Officers (CCSSO) report, “Improving Evaluation of Professional Development in Math and Science Education,” released in February 2008. The results show that AMSTI professional development meets CCSSO requirements in that it “report(s) measurable effects of teacher development,” uses national criteria to evaluate math and science professional development programs, and provides statistical evidence that “purposeful evaluation yield(s) measurable results.” (CCSSO, 2008, p. 1)

**Summary of 2008 AMSTI Summer Institutes**

*“Our findings show that the AMSTI sites had consistently higher, post-test mean percentage scores across grades and across sites. The pretest-posttest approach offers empirical evidence of an increase in the teachers’ content knowledge across grades and across sites.” (p. 75)*

*“...we conclude that the AMSTI 2008 intervention in math and science fostered positive, teacher content learning.” (p. 86)*

*“...AMSTI teachers demonstrated that they possess the content knowledge to continue to positively affect Alabama children’s learning in math and science.” (p. 86-87)*

*“This report has analyzed the data from the math and science pretests and posttests from the 2008 Summer Institute. The results show conclusively that AMSTI’s professional development program positively impacts teacher learning. Moreover, it meets the CCSSO requirement in item 1 that AMSTI ‘report(s) measurable effects of teacher development.’” (p. 90)*

*“...CCSSO item 3 asks for indications that ‘purposeful evaluation yield(s) measurable results.’ There is significant statistical evidence from Summer Institute 2008 that support(s) the statement that AMSTI Summer Institute 2008 produced measurable results.” (p. 90)*

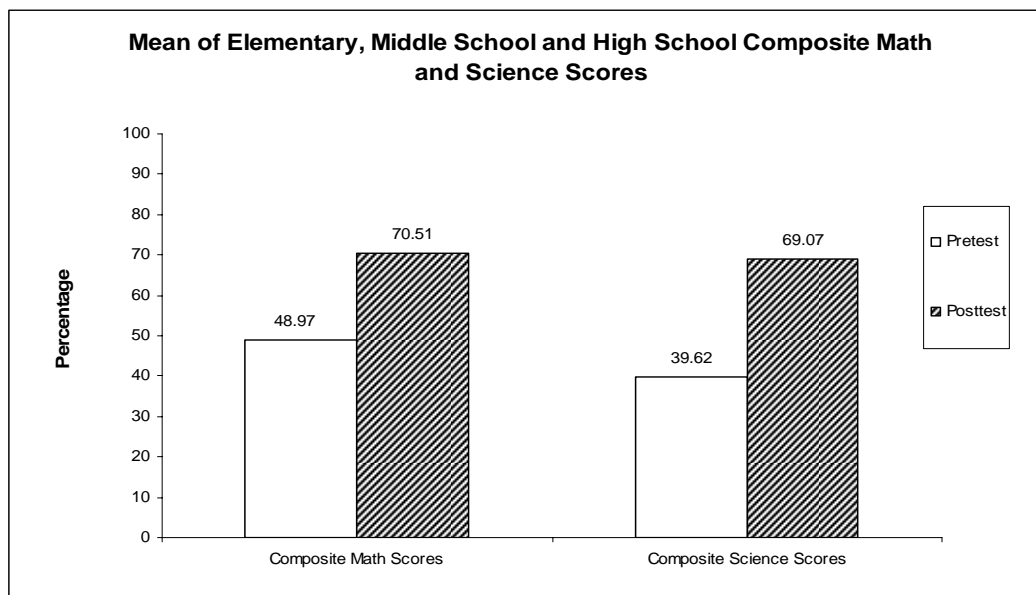


Figure 5.6.1 AMSTI-MS2008

## Summary of 2008 AMSTI Summer Institutes by Site

### Athens

#### Math

- *“All post-test mean percentage points show an increase in teacher learning.” (p. 25)*
- *“...we can conclude that there was a significant improvement in math posttest scores in Athens.” (p. 28)*
- *The AMSTI pretests and posttests validly measured the teachers’ knowledge before and after the math and science interventions. The consistently positive increase in the post-test mean percentage scores reflects the teachers’ knowledge gain.” (p. 28)*

#### Science

- *“There is evidence of improvement in the teachers’ post-test scores as a result of the AMSTI training.” (p. 29)*
- *“...indicates an improvement in the teachers’ content mastery in each grade.” (p. 31)*
- *“...we can conclude that there was a significant improvement in science posttest scores in Athens science scores.” (p. 33)*

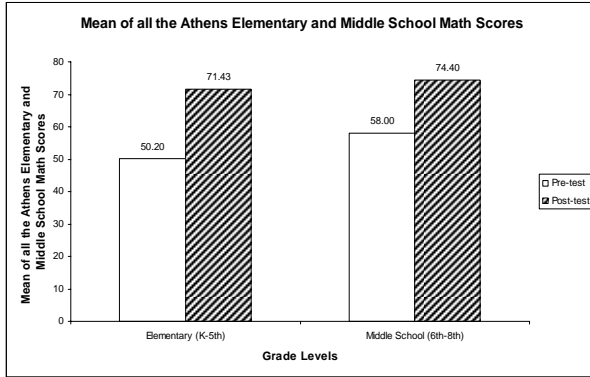


Figure 4.1.2 Athens M-2

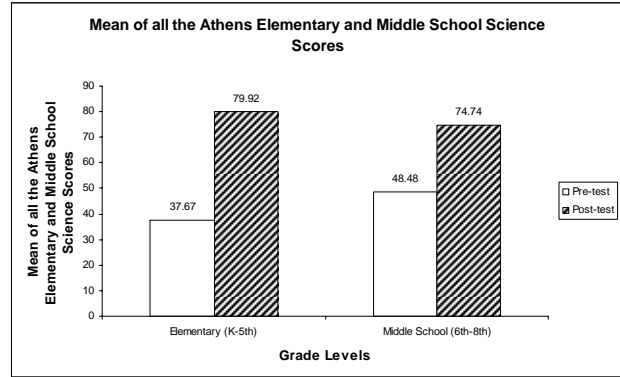


Figure 4.2.2 Athens S-2

## AU

### Math

- “The mean percentage scores from the elementary, middle school and high school improve on the posttests.” (p. 37)
- “In the middle school the pre-test mean percentage score is 57.45. The post-test mean percentage score is 100.00. The mean percentage points in the middle school rose 42.55 points. This improvement led to 100 percent mastery.” (p. 37)
- “...we can conclude that there was a significant improvement in math posttest scores at AU.” (p. 38)

### Science

- “...the AU post-test mean percentage scores demonstrate consistent gains across all grades.” (p. 39)
- “...all AU teachers participating in AMSTI achieved higher scores across the grades on the posttest.” (p. 42)
- “...we can conclude that there was a significant improvement in science posttest scores at AU.” (p. 43)

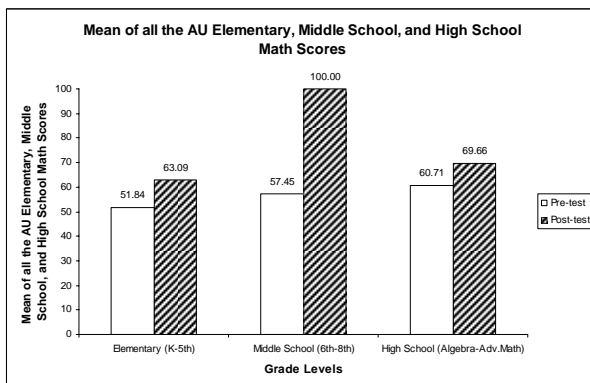


Figure 4.3.2 AU M-2

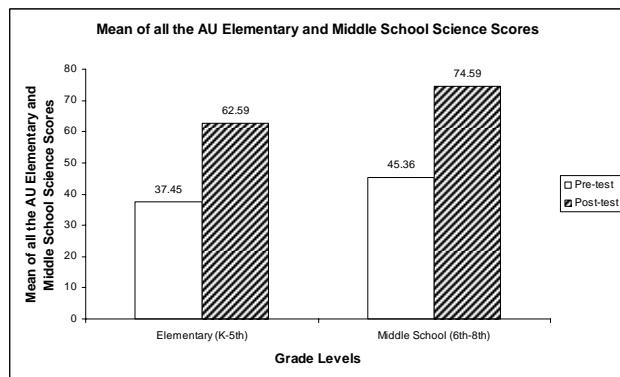


Figure 4.4.2 AU S-2

## JSU

### Math

- “The maximum post-test mean percentage score is found in the seventh grade ( $M=100.00$ ).” (p. 44)
- “All post-test mean percentage points show an increase in teacher content learning.” (p. 45)
- “...we can conclude that there was a significant improvement in math posttest scores in JSU math scores.” (p. 49)

### Science

- “There is evidence of improvement in the teachers’ post-test scores as a result of the AMSTI training.” (p. 49)
- “...all JSU teachers participating in AMSTI achieved higher scores across the grades on the posttest.” (p. 52)
- “...we can conclude that there was a significant improvement in science posttest scores at the JSU site.” (p. 53)

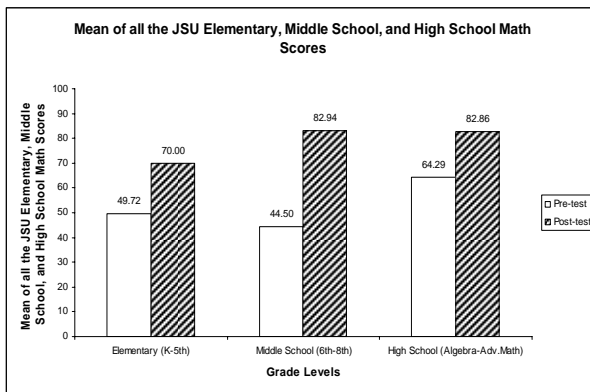


Figure 4.5.2 JSU M-2

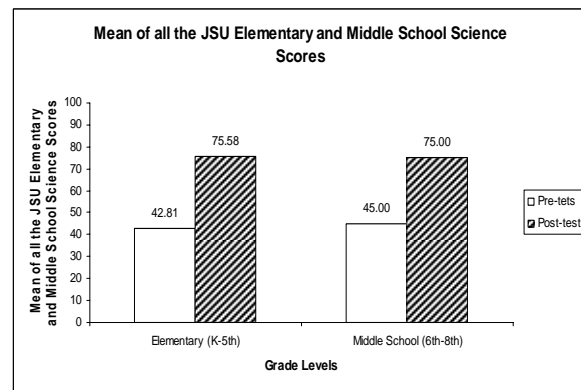


Figure 4.6.2 JSU S-2

## UAB

### Math

- “All post-test mean percentage points show an increase in teacher, content learning.” (p. 55)
- “Figure 4.7.2 UAB M-2 illustrates the positive impact of the AMSTI math initiative at the UAB site.” (p. 57)
- “...we can conclude that there was a significant improvement in math posttest scores in UAB math scores.” (p. 58)

### Science

- “There is evidence of improvement in the teachers’ posttest scores as a result of the AMSTI training.” (p. 59)
- “...indicates an improvement in the teachers’ content mastery in each grade.” (p. 61)

- “The results show that there was significant statistical difference between pretest and the posttest.” (p. 63)

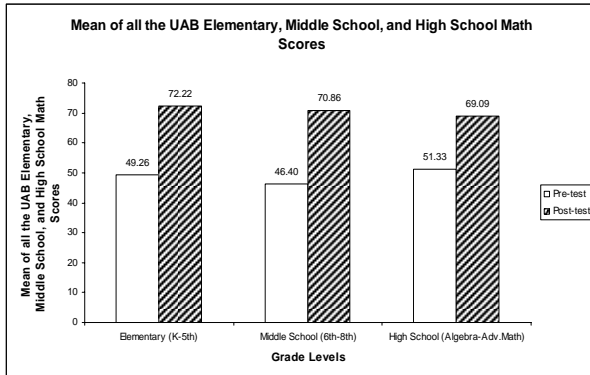


Figure 4.7.2 UAB-M2

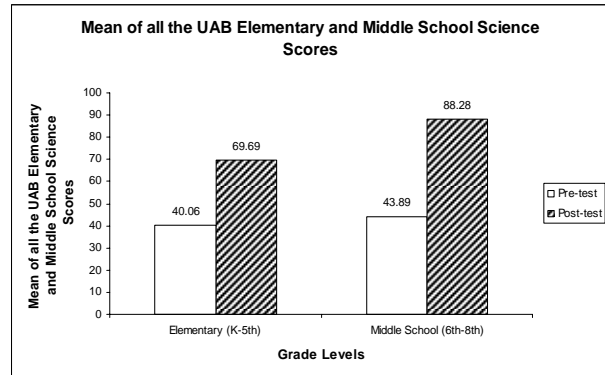


Figure 4.8.2 UAB-S2

## WCCS/ASU

### Math

- “Our findings point out that there is a consistent improvement across grades.” (p. 64)
- “...indicates that the mean percentage points increased across the participating grades. This indicates the positive impact of the AMSTI Math institute.” (p. 66)
- “The results show that there was significant statistical difference between pretest and the posttest...” (p. 68)

### Science

- “The results conclude that the posttests improve across grades.” (p. 69)
- “...we can conclude that there was a (statistically) significant improvement in science posttest scores in WCCS/ASU science scores.” (p. 73)

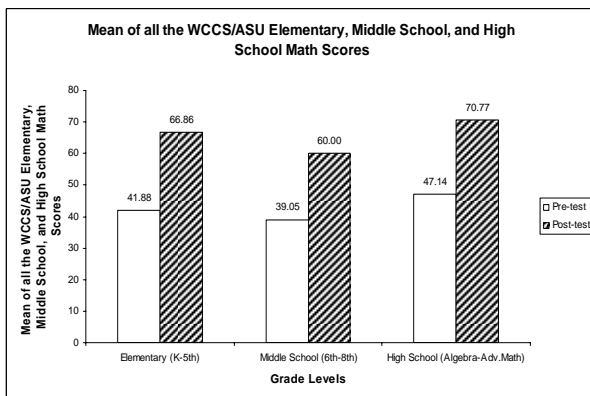


Figure 4.9.2 WCCS/ASU-M2

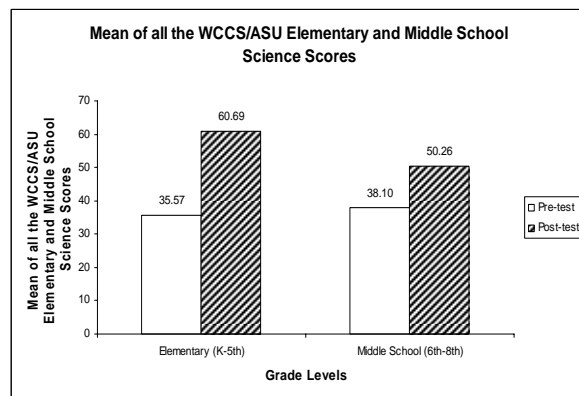


Figure 4.10.2 WCCS/ASU-S2