Attachment A
External Evaluator Report
Submitted by Nan Dempsey
July 30, 2009

No Child Left Behind Improving Teacher Quality Higher Education Grant Program
Clemson University

Summative Evaluation Report 2009

Inputs

- ITQ (CHE)
- Clemson University
- Greenville County Schools (Title I funds)
- General Electric funds
- Fluor Foundation
- John I. Smith Charities

Goal

- To build and sustain a mathematical community of learners in selected Greenville County schools that have consistently demonstrated a need for improvement in the areas of mathematics instruction and student mathematical achievement.

Objectives

- Teachers applying instructional practices supported by research-based instructional materials that have been found to support the mathematical learning for diverse subgroups of students
- Increasing percentages of students demonstrating mathematical proficiency as evidenced by improved student achievement on assessments such as PACT

Outcomes

- Deeper understanding of pedagogy/teaching practices
- Improved mathematical instruction
- Application of instructional practices supported by research-based instructional materials
- Broader vision of classroom instructional practices and the role it plays in student learning
- Acquisition of strategies and skills for supporting and sustaining a mathematical community of learners
- Increased student mathematical achievement

Activities

- Strategic planning including district, school-based administrative teams, and the Clemson research team (30 hours).
- Research and design of professional development, follow-up support, and data collection protocol.
- Professional development activities supporting teacher pedagogical knowledge.
- Professional development activities supporting teacher content knowledge.
- Site visits and follow-up support to school sites.
- Professional development sessions including workshops, grade level planning, and model lessons.
- Collection of classroom observation data.
- Pre/post retrospective addressing pedagogical/content knowledge of teachers.

The purpose of this evaluation is to assess the impact of the *No Child Left Behind Improving Teacher Quality Higher Education Grant Program* in meeting the goals of the project conducted by Dr. William F. Moss, Project Director, Clemson University.

Stakeholders for the *No Child Left Behind Improving Teacher Quality Higher Education Grant Program* project include Clemson University researchers from the Department of Mathematical Sciences and the Eugene T. Moore School of Education Research, Greenville County Schools (Armstrong Elementary, East North Elementary, Grove Elementary, Sue Cleveland Elementary, and Welcome Elementary), elementary teachers from participating schools. Grove Elementary dropped out of the program after the first year.

The external evaluator conferenced with the *No Child Left Behind Improving Teacher Quality Higher Education Grant Program* project director, the Clemson University researchers, school-based instructional leaders, and Greenville County Schools mathematics consultant assigned to this project to identify project strengths, weaknesses, and recommendations and to obtain perceptions of project outcomes and impacts. Interactions of respondents stimulated rich responses and valuable thought.

In addition, the external evaluator examined the data analysis for the data collected and analyzed by the project director and project researchers.

Dimension I: Research-based Criteria of PD Quality from *Improving Evaluation of Teacher Professional Development in Math and Science at State and Local Levels: Guide to the PD Program Quality Rubric,* (2006), identifies "six key features of professional development that are effective in

improving practice: 1) type of activity, 2) duration of activity, 3) extent the activity incorporates collective participation of groups of teachers, 4) extent the activity incorporates active learning opportunities for teachers, 5) extent the activity has a content focus on mathematics or science, and 6) degree to which activity promotes coherence in professional development with teacher experiences." Of these six key features *No Child Left Behind Improving Teacher Quality Higher Education Grant Program* project clearly supports the six key features. This project

- Provides teachers with study of math, pedagogical content knowledge in math—how to teach content to students and addresses identified content weaknesses or needs of teachers
- Addresses opportunities for teachers to "talk, think, try out, and hone new practices" (Lieberman, 1996) by demonstrating, modeling lessons, mentoring in the classroom, engaging in learning network and discussion with teachers
- Aligns with state and district standards for learning, consistent with state rules for "highly qualified" teachers under NCLB, and designed to meet state certification
- Participating in professional development with other teachers from their school
- Addresses the time span, contact hours, and frequency that a program demands from participant teachers in order to facilitate successful change in practice

As part of the project, the Clemson University research team facilitated strategic planning with district administrators, and school-based administrative teams. The Clemson University research team researched and designed professional development, follow-up support, and data collection protocols; professional development activities supporting teacher content knowledge in mathematics; professional development activities supporting teacher pedagogical content knowledge; and conducted site visits and follow-up support to schools sites.

According to research (Horizon Research, 2002), the majority of elementary teachers use textbooks on a regular basis in their mathematics instruction. In the United States curriculum materials are a central component of mathematics instruction. Yet, teachers are provided little professional development and support in applying instructional practices supported by research-based instructional materials that have been found to support mathematical learning for diverse sub-groups of students (Diaz, 2006).

Professional learning communities provide teachers with the opportunity to participate in professional development activities with teachers from their own grade level and school. Professional learning communities emerge from

blending professional learning opportunities into school culture. Blending teacher learning, teacher practice, student learning, and organizational learning transforms "groups" into "communities". Collaboration is essential for developing community.

As part of the project, teachers from Armstrong Elementary, East North Elementary, Grove Elementary, Sue Cleveland Elementary, and Welcome Elementary schools experienced focused, job-embedded, on-going professional development including workshops, grade-level planning, and model lessons.

Classroom Support

The *No Child Left Behind Improving Teacher Quality Higher Education Grant Program* project was high quality, effective professional development. It was sustained, intensive, and classroom/school focused. This project was grounded in scientifically-based research and met all the *South Carolina Professional Development Standards.*

Model lessons by the Clemson partners and by lead teachers provided reflective learning experiences for participating teachers. These model lessons addressed both the content knowledge and pedagogical strategies needed to teach all students. Teachers were required to write reflections on the model lesson observed.

Researchers conducted grade-level training, met with administrative teams at each school, planned with grade-level teams, conducted classroom observations, conducted reflecting conversations with teachers, and made presentations to parents at these schools.

Professional Development Workshops

Professional development workshops were provided at the request of Greenville County Schools. According to one of the district administrators involved in this project, the workshops were "very good. . . well-versed presenters, helpful hints and tips, did their part to make successful. . . . resistance (was) on the part of the district and school participants."

Professional Teaching Communities

The third year of the grant focused on developing professional teaching communities. Teachers involved in this project received instruction based on best practices of mathematics teaching and learning. Instruction emphasized modeling "how to teach" while examining "what to teach." The

project focused on building community, beginning with a focus on the classroom and moving to a focus on grade level team planning and research.

According to one of the district administrators involved in the project, ". . .connection was missing. . .no connection to the kits—no closure on this piece. . . good research questions. . .developed research questions related to *Math out of the Box."*

Grade level teams chose a research question based on mathematical content. The Clemson University partners then provided a six week after school workshop for each participating grade level team. Participating teachers and a matching control group were administered a pre/post content knowledge assessment based on NAEP released items. A pre/post assessment of number concepts was created using nine released NAEP items. Pre/post assessment of number concepts created using released NAEP items indicate teachers increased their content knowledge in number concepts.

TEACHER CONTENT KNOWLEDGE—Number Concepts

Item #	Pre-test # participants answering correctly	%	Post-test # participants answering correctly	%	increase
1	37/40	92.5	38/40	95	+2.5
2	32/40	80	38/40	95	+15
3	30/40	75	40/40	100	+25
4	32/40	80	37/40	92.5	+12.5
5	34/40	85	36/40	97.5	+12.5
6	34/40	85	40/40	100	+15
7	34/40	85	38/40	95	+10
8	29/40	72.5	38/40	95	+22.5
9	35/40	87.5	38/40	95	+7.5

Teachers also submitted a research paper on changes in pedagogical/content knowledge they experienced as part of the Professional Teaching Community.

Appendix A provides a summary of the Content Knowledge Findings.

Teachers received a stipend for out-of-school time and as well as earn points toward recertification.

Impact

Thomas Guskey (*Evaluating Professional Development.* 2000. Thousand Oaks, CA: Corwin Press, Inc.) has defined levels of evaluation: initial satisfaction, change in content knowledge, change in instructional practices, and student achievement.

Evidence suggests that the anticipated goals of the project were met. The project was of sufficient intensity and duration as to have a positive impact on the teaching and learning at participating schools. The professional development had a year-round, multi-year focus and substantial contact hours that included follow-up activities undertaken throughout the school year to sustain change in classroom practice. The follow-up activities provided continuing reinforcement of project objectives.

Participating teachers have an increased understanding of instructional practices supported by research-based instructional materials that support the mathematical learning for diverse sub-groups of students and increased percentages of students demonstrating mathematical proficiency as evidenced by improved student achievement on assessments such as PACT. (APPENDIX C)

According to one of the administrators involved in this project, "teachers (are) moving out of their comfort zone. (The project has) given them the bigger picture—builds pre-requisite knowledge piece before getting to the meat of the content. (Their) learning curve has been tremendous—turning the classroom over to the students. Teachers feel confident in content for that to happen."

One district administrator involved in the project shared that an internal audit revealed "students love math. That's a plus. Teachers recognize that student performance is better in math. Still some resistance—the prep time and lack of content knowledge in math."

Initial satisfaction: Participating teachers provided written reflections.

Change in content knowledge

Teachers in participating schools completed a pre/post retrospective designed by Dr. Donna Diaz, the first PI of this project. This instrument collects data about the pedagogical/content knowledge of teachers. This instrument has been revised and used with teachers in research projects in South Carolina and by the Education Testing Service in New Jersey.

The grant was revised/redesigned in the middle of the second year to address content knowledge for participating teachers. In addition to activities already in place, a new content knowledge component was added. Grade level teams met six times during the year for training.

Grade level teams chose a research question based on mathematical content. The Clemson University partners provided a six-week after school workshop for each participating grade level team. Participating teachers examined the NCTM Focal Points and intent of NCTM standards in preparation for writing a research paper. Each of the six sessions were built around the framework of brainstorm; read (NCTM standards or Focal Points); reflect; problem-resolve (each meeting, teachers would bring issues to the table).

Participating teachers and a matching control group were administered a pre/post content knowledge assessment based on NAEP released items. (see APPENDIX B)

Teachers submitted a research paper on changes in pedagogical-content knowledge they experienced as part of the Professional Teaching Community.

Change in instructional practices

A fidelity of implementation instrument was piloted in spring of 2008. This instrument is used in classroom observations to collect data about teacher practices and content knowledge. This instrument was developed by the Clemson University research team based on revisions of *Classroom Observation and Analytic Protocol* by Horizon Research, Inc. It is the strong belief of the project director that it is not sufficient to have inquiry-based curriculum. Change in instructional practices only come with fidelity of the implementation of that curriculum.

According to one of the district administrators involved in the project, the model lessons provided by the researchers enabled teachers to manage their (teaching) time better and "see that natural break and teach lessons over two days. Dot created pacing guides for each unit with standards correlation."

According to one of the school-based leaders, it was difficult for teachers to understand instruction that is based on best practices of mathematics teaching and learning--- the *how to teach* while examining the *what to teach.* " . . . (there were) concerns at grade levels—'this lesson not one of my standards'. Kits build conceptual knowledge. (you) don't skip lessons. .

.activities based on national standards. . . teachable moments in that student learning. . .some of kit A building block for kit B."

Researchers suggest:

- "(we've) seen progress in best practices. In 2005-06 most of the rooms arranged in rows. . . now students work in groups."
- Based on their written reflections, many of the teachers "need far more conceptual understanding. . .prerequisite understanding of what to do."
- "Value to look at data together—problem solve together—indirectly teachers learn a lot from each other. . .saw value."

Student achievement

When teachers receive professional development in mathematics content and research-based teaching strategies, achievement gaps narrow. As a result of this project, the achievement gap between white and African American students scoring proficient and advanced is narrower in the ITQ students scores than the district and state scores. Of the 1.116 3-5 students taking the mathematics test in the ITQ schools, 43% are African American. That compares to 25% of African American students in the district and 38% in the state. The achievement gap between white and African American students meeting standard is narrower in the ITQ student scores than the district and the state. (see APPENDIX C)

Each participating school provided a report of student achievement on the MAP test results for spring 2007, fall 2007 and spring 2008. Measures of Academic Progress (MAP), is a state- aligned computerized adaptive assessment program that provides educators with the information they need to improve teaching and learning. Educators use the growth and achievement data from MAP to develop targeted instructional strategies and to plan school improvement.

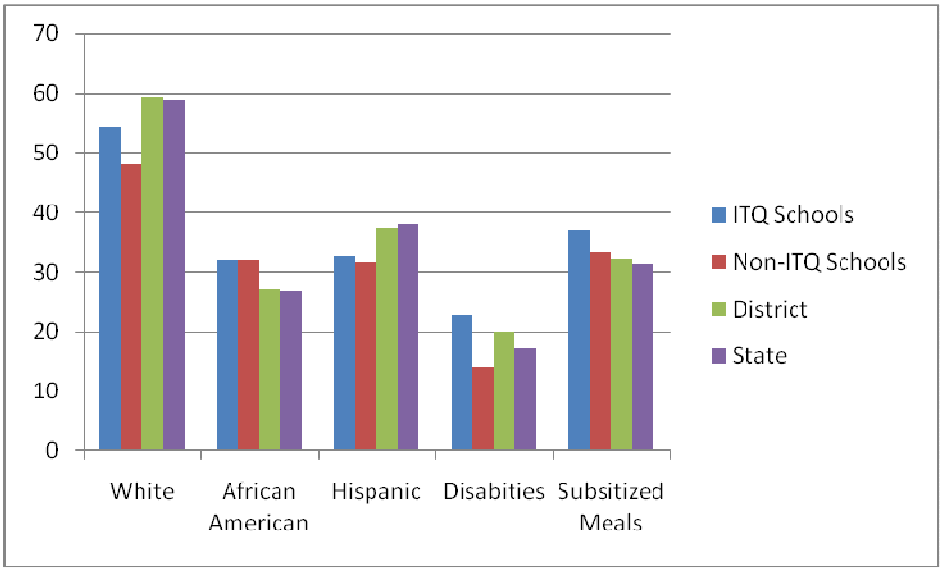
Each participating school provided a report on PACT results with aggregated data. (see APPENDIX C)

Since PASS, the new South Carolina standardized test for grades 3-8 was first administered in spring 2009, the standard setting for the test is taking place during the summer of 2010. Results will not be available until fall.

The following graph compares the percent of grades 3-5 proficient and advanced scores for the four ITQ schools, to four Title 1 schools not part of the ITQ grant, but located in the same White Horse Road/Augusta Road

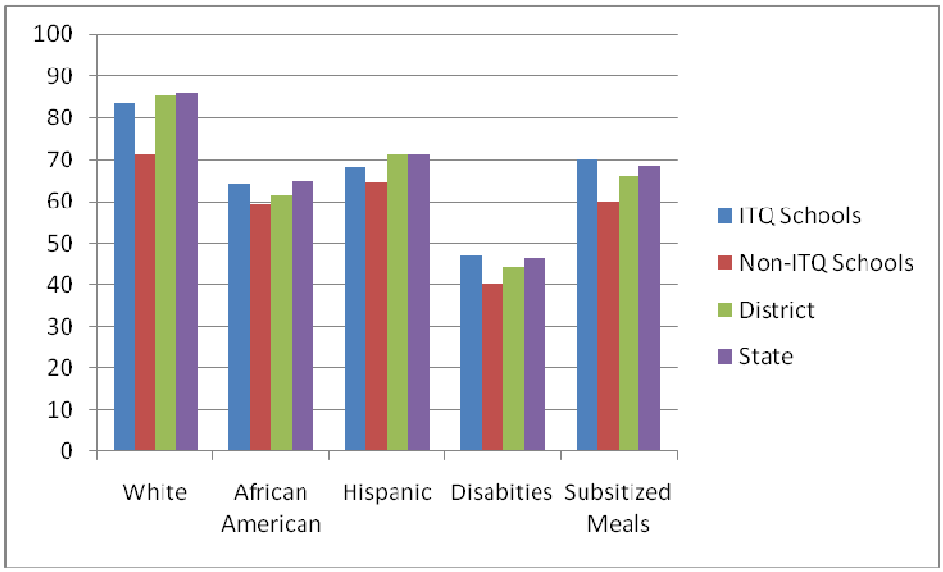
corridor. The graph also shows the percent of proficient and advanced scores in Greenville County Schools and the state of South Carolina. All data are from 2009 school report cards.

Percent of Students Scoring Proficient and Advanced



The following graph compares the percent of meeting standard scores for the four ITQ schools, to four Title 1 schools not part of the ITQ grant, but located in the same White Horse Road/Augusta Road corridor. The graph also shows the percent of 3-5students meeting standard in Greenville County Schools and the state of South Carolina. All data are from 2009 school report cards.

Percent of Students Meeting Standard



Of the four low achieving schools in this partnership who administered the PACT after implementation of the project, NCLB objectives were met in the following ways:

School	Number of Years Involved with ITQ Grant	Met NCLB Objectives	Met NCLB Math Objectives	Improvement Status
Armstrong	1	Met 19 of 23	Met 2 of 5	Continuing school improvement
East North Street Academy	2	Met 27 of 29	Met 5 of 6	Restructure
Sue Cleveland	2	Met 19 of 21	Met 4 of 5	Continuing school improvement
Welcome	2	Met 17 of 27	Met 1 of 6	Newly Identified

According to one of the school-based leaders, ". . . school always had a math deficiency—constantly seen growth now . . .gains *every* year past four years. (The) school is fortunate to be invited in this project."

Our belief is that student achievement in mathematics will continue to improve if teachers have research-based professional development in mathematics content knowledge. There was much confusion about content knowledge on the part of teachers due to the revision in state mathematics standards. Concerns expressed by teachers and school leaders about different mathematical language, standards moved to different grades, the redesign of the standards from curricular to academic, and lack of information about the K-5 vertical design of the standards have made the partners in this project realize the need for more information about the impact of the project on math content knowledge of teachers. It is our belief that the revised support document in mathematics will help alleviate some of

these concerns and serve as a tool to continue on this path of increasing student achievement.

Lessons Learned

- Principal buy-in is key to the success of the project
- Less experienced teachers were more willing to try and implement with fidelity the research-based instructional materials
- In order to raise the quality of teacher preparation in mathematics, elementary teachers must have the pedagogical content knowledge about how to teach mathematics effectively
- Multiple courses in ways to teach content are needed to increase teacher effectiveness in mathematics
- Mathematics coursework for teachers should interweave theory with practical tools, including curriculum planning and content-specific teaching strategies
- Professional development should involve teachers in curriculum planning and assessment with their colleagues and provide learning opportunities linked to the teaching of specific content

APPENDIX A

Summary of Content Knowledge Findings in ITQ Schools

In the four ITQ schools, we examined teacher content knowledge in several different ways.

1. We administered a pre- post-assessment of nine NAEP released items with an added reflection question where the 40 participants explained their strategies. The items all dealt with number sense. We saw improved responses on each on the nine items on the post-assessment.

2. We modeled 27 inquiry-based lessons. We also observed 37 classroom teachers teaching math lessons. The majority of the lessons were being taught using an inquiry-based curriculum. During the reflections after the observations and model lessons we were able to discuss content-related questions from the participating teachers such as:

Which of these bar graphs is a correct data display?
How can I use the expanding numbers card sets to connect to addition and subtraction?
How many strategies should be generated when teaching the different operations?
Why do my students still have problems with basic facts?
What can I do to help my students with fractions?
Can the commutative and associative properties be used in the same problem?

3. We received 14 research papers written by participants of the grade level teams. Following are examples of content-related reflections in the papers:

> I now understand that when students are given permission to explore multiplication they learn a variety of strategies to solve arithmetic problems. By guiding students to explore strategies and discover patterns within groups of facts I give students deeper understanding of their facts.
>
> These sessions helped me realize that each person has a different way of solving a problem. Each person on my grade level was able to answer a question, but each solved it differently. When trying to come up with different strategies for renaming in subtraction, I was impressed with the second grade team. They used patterns to help them solve the subtraction algorithm. I would have never thought to solve the problem in that way. It helped me to realize that patterns are woven throughout mathematics.
>
> Conducting the teacher action research really made me step back and ask “what do I want my students to accomplish.” Many times I would give them a problem and we would work it out exactly the way I had in MY mind. I realized during these sessions that my students are capable of using different strategies to solve the exact same problem. There is not simply one way to solve a problem. I need to allow my students time to explore and try different mathematical strategies to figure out the answer.

An on-going theme throughout the research papers was the misconception that fluency with basic facts will be improved by timed tests. Following are reflections on this topic:

5th grade came in struggling with basic multiplication facts, simple addition, subtraction, and division skills. We spent the first nine and a half weeks trying to get them to learn their multiplication facts.

For research purposes, we second grade teachers decided to do one-minute timed tests each week on basic addition and subtraction facts to 10. I noticed that some of my students did not respond well to timed tests in that they rushed through their work and made simple mistakes. Most of my students had the mentality that it was better to do as many problems as possible, whether they knew the answer or not.

4. Every school sent teacher leaders and/or instructional leaders to content-rich institutes in which the SC math standards for numbers and operations were examined. Three of the four schools participated in school-wide professional development workshops in numbers and operations. Discussions were held to address questions such as the following posed by the participants in the institutes and workshops:

Please clarify the following with examples, "simple joining and separating situation."
How can teachers effectively teach basic addition/subtraction facts?
How do you show subtraction pictorially?
How do you help students generate estimation strategies?
What strategies can be used to round to the nearest ten?
Generate strategies to multiply whole numbers by using 1 single digit factor & 1 multidigit factor? What does this mean?
What are some strategies for division?
How do you represent improper fractions, mixed numbers, and decimals? Represent w/what?
How can I help my students build number sense?
What kinds of models are used to generate strategies to find the GCF and LCM of two whole numbers?

APPENDIX B

Teacher Content Knowledge
ITQ Grant
2008/2009
Year 3

To be considered for renewal of a third year of the ITQ grant, a component examining teacher content knowledge was added to the activities. A pre/post assessment of number concepts was created using released NAEP items.

In year three of the grant, Building a Mathematical Community, faculty from the Department of Mathematical Sciences and a graduate assistant from the Eugene T. Moore School of Education met with teacher teams at four elementary schools including Armstrong Elementary, East North Street Academy, Sue Cleveland Elementary, and Welcome Elementary. A total of 30 teachers and instructional leaders participated in action research.

The nine problems from the NAEP released items were selected based on the following criteria:

a.) The problems addressed number sense.
b.) The problems addressed concepts with which teachers and coaches had shown misconceptions in professional development workshops and classroom observations.
c.) The set of problems can be solved along with written reflections in 30 minutes or less.

To score the answers, the following criteria were used to determine incorrect answers:

a.) An incorrect answer was marked on a multiple choice item.
b.) Incorrect computation was observed in the numbers and/or words written by the participant.
c.) A process represented in drawings, words, and/or numbers did not support a correct answer.
d.) Concepts expressed in words and numbers did not match.
e.) No explanation was considered incorrect.

The ITQ research team at Clemson added a reflection question to the multiple choice and short answer NAEP items. Teachers participating in the assessment did so voluntarily. They could withdraw from the project at any time and their identity was kept confidential even from the researchers.

The following analysis shows each problem with the added reflection question, the results of the 30 participants, and the results by students on the NAEP assessment.

Problem 1

On the 2005 NAEP, Problem 1 was identified as a fourth grade problem of moderate difficulty.

Jan entered four numbers less than 10 on his calculator. He forgot what his second and fourth numbers were. This is what he remembered doing.

8 + ☐ − ☐ = 10

List a pair of numbers that could have been the second and fourth numbers. _____ , _____

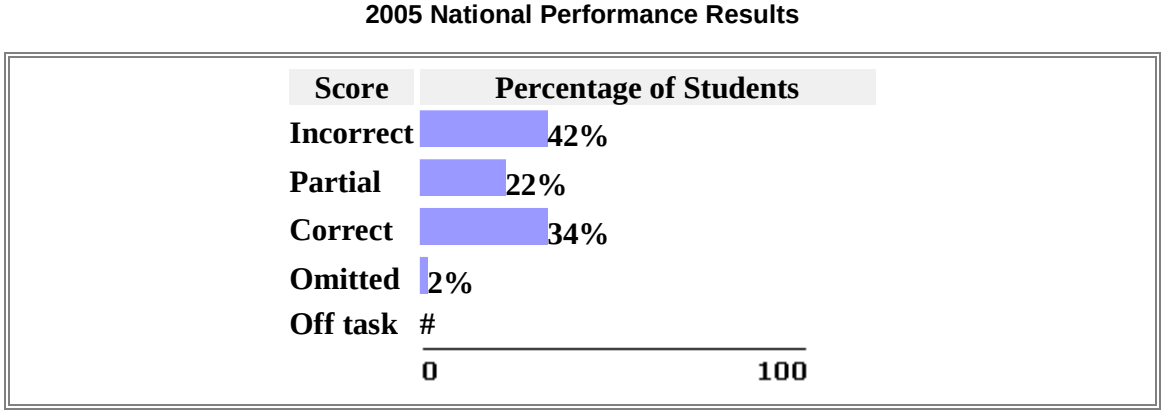
List a different pair that could have been the second and fourth numbers. _____ , _____

Explain your strategy for solving this problem in the space below.

Data for Problem 1

	Results	Correct Answers	Incorrect Answers
Pre-Assessment	37 of 40 participants answered correctly	Most participants used a guess and check strategy.	One participant did not complete the entire problem. One did not show a strategy and one answered incorrectly.
Post-Assessment	38 of 40 participants answered correctly	The explanations of the strategies were more detailed in many of the post-assessments.	One participant did not follow directions.

NAEP Results



Problem 2

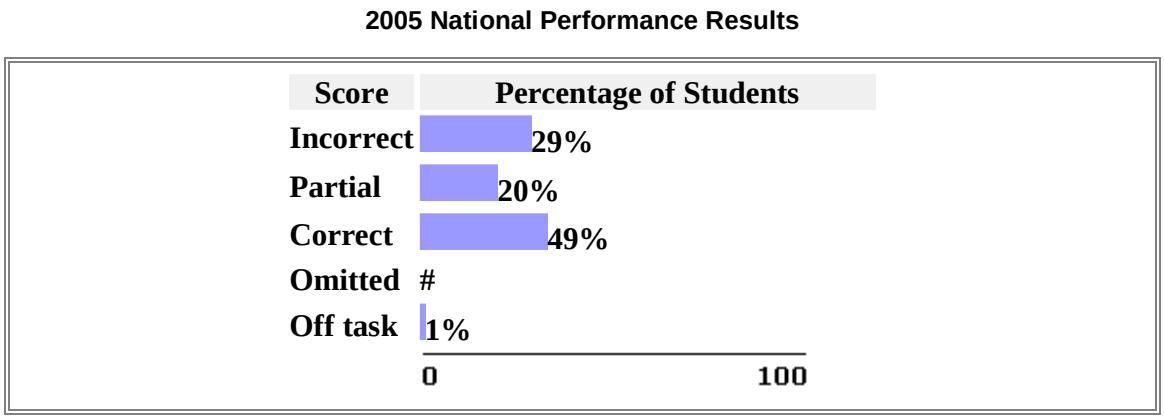
On the 2005 NAEP, Problem 2 was identified as an eighth grade problem of moderate difficulty.

> Raynold had 31 baseball cards. He gave the cards to his friends. Six of his friends received 3 cards each. Seven of his friends received 1 card each. The rest received 2 cards each. How many of his friends received exactly 2 cards from Raynold?
>
> Explain your strategy for solving this problem in the space below.

Data for Problem 2

	Results	Correct Answers	Incorrect Answers
Pre-Assessment	32 of 40 participants answered correctly	In addition to numbers and words, participants used pattern identification, drawings, and equations as strategies.	Incorrect responses were a result of mistakes in computation, computation not matching process, and missing answers.
Post-Assessment	38 of 40 participants answered correctly	More participants used equations.	Mistakes were a result of an error in computation.

NAEP Results



Problem 3

On the 2007 NAEP, Problem 3 was identified as an eighth grade problem of moderate difficulty.

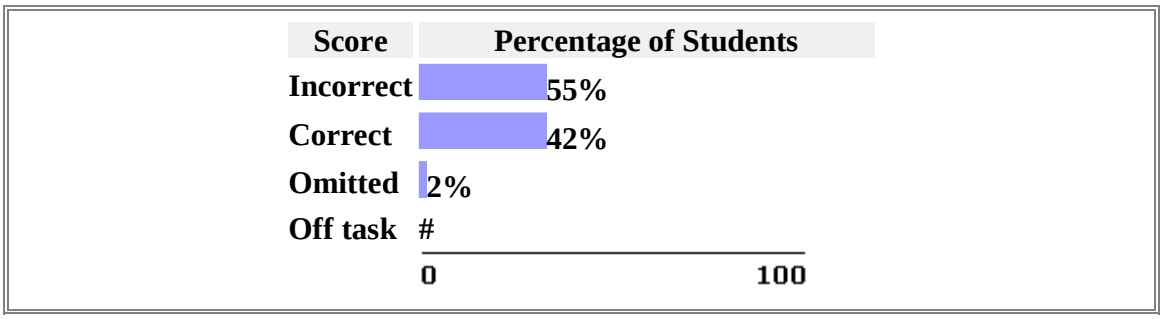
> The sum of three numbers is 173. If the smallest number is 23, could the largest number be 62?
>
> ⬭ Yes ⬭ No
>
> Explain your strategy for solving this problem in the space below.

Data for Problem 3

	Results	Correct Answers	Incorrect Answers
Pre-Assessment	30 of 40 participants answered correctly	In addition to numbers and words, participants used algebraic equations as strategies.	Most incorrect responses were a result of mistakes in computation. Several explanations did not match the computation represented in numbers.
Post-Assessment	40 of 40 participants answered correctly	Explanations were more detailed.	No errors.

NAEP Results

2007 National Performance Results



Problem 4

On the 2005 NAEP, Problem 4 was identified as a twelfth grade problem of moderate difficulty.

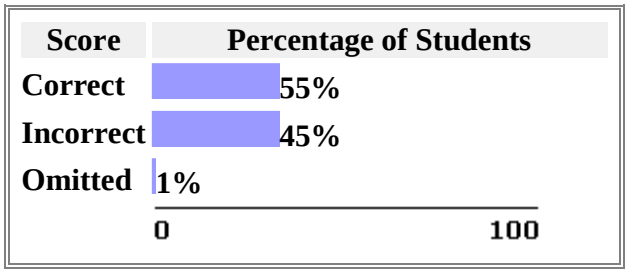
> If the digit in the tens place of 37,241 is increased by one and the digit in the thousands place is decreased by one, how has the number been changed?
>
> A) The number has been decreased by 990.
>
> B) The number has been decreased by 1,000.
>
> C) The number has been decreased by 1,010.
>
> D) The number has been increased by 10.
>
> E) The number has been increased by 1,010.
>
> Explain your strategy for solving this problem in the space below.

Data for Problem 4

	Results	Correct Answers	Incorrect Answers
Pre-Assessment	32 of 40 participants answered correctly	In addition to numbers and words, participants used algebraic equations as strategies.	Incorrect responses were a result of mistakes in computation, use of a process that did not work, or lack of explanation.
Post-Assessment	37 of 40 participants answered correctly	Explanations were more detailed.	Incorrect responses were a result of mistakes in computation.

NAEP Results

2005 National Performance Results



Problem 5

On the 2005 NAEP, Problem 6 was identified as a fourth grade problem of moderate difficulty.

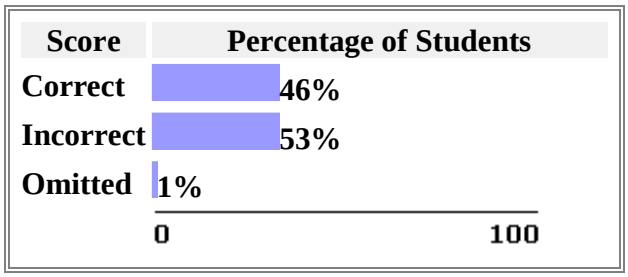
> Alba needed to know about how much the sum of 19.6, 23.8, and 38.4 is. She correctly rounded each of these numbers to the nearest whole number. What three numbers did she use?
>
> A) 19, 23, 38
> B) 19, 24, 38
> C) 20, 24, 38
> D) 20, 24, 39

Data for Problem 5

	Results	Correct Answers	Incorrect Answers
Pre-Assessment	34 of 40 participants answered correctly	Almost all of the participants used the standard rounding algorithm.	Incorrect responses were a result of mistakes in computation, explanations not matching the process, or no explanations.
Post-Assessment	36 of 40 participants answered correctly	More participants addressed place value in their explanations than in the explanations in the pre-assessment.	Incorrect responses were a result of mistakes in computation or no explanations.

NAEP Results

2005 National Performance Results



Problem 6

On the 2007 NAEP, Problem 6 was identified as a fourth grade problem of easy difficulty.

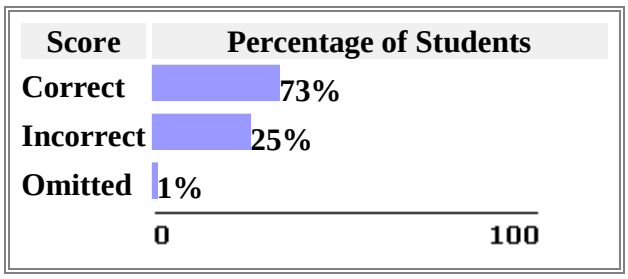
> Alba needed to know about how much the sum of 19.6, 23.8, and 38.4 is. She correctly rounded each of these numbers to the nearest whole number. What three numbers did she use?
>
> A) 194

Data for Problem 6

	Results	Correct Answers	Incorrect Answers
Pre-Assessment	34 of 40 participants answered correctly	Almost all of the participants used the standard subtraction algorithm to determine the difference.	Incorrect responses were a result of no explanations.
Post-Assessment	40 of 40 participants answered correctly	All participants explained their strategy for determining the difference.	There were no incorrect responses.

NAEP Results

2007 National Performance Results



Problem 7

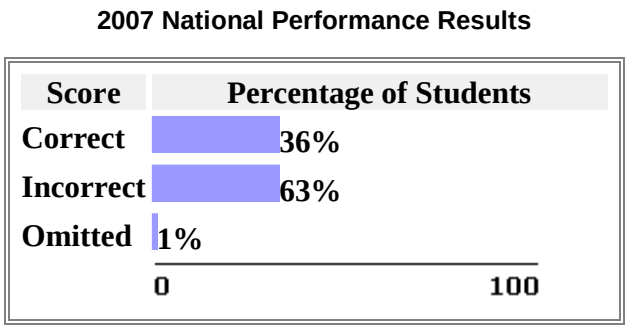
On the 2007 NAEP, Problem 7 was identified as a fourth grade problem of hard difficulty.

> The Ben Franklin Bridge was 75 years old in 2001. In what year was the bridge 50 years old?
>
> A) 1951
> B) 1976
> C) 1984
> D) 1986

Data for Problem 7

	Results	Correct Answers	Incorrect Answers
Pre-Assessment	34 of 40 participants answered correctly	Processes included subtraction and counting backwards.	Incorrect responses were a result of processes not matching computation or no explanations.
Post-Assessment	38 of 40 participants answered correctly	The processes used to solve this problem were varied.	The incorrect response was a result of an incorrect process.

NAEP Results



Problem 8

On the 2007 NAEP, Problem 8 was identified as a fourth grade problem of hard difficulty.

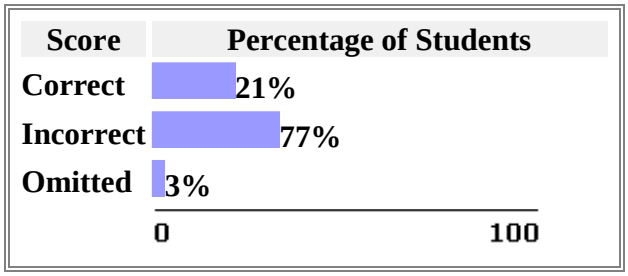
> There will be 58 people at a breakfast and each person will eat 2 eggs. There are 12 eggs in each carton. How many cartons of eggs will be needed for the breakfast?
>
> A) 9
> B) 10
> C) 72
> D) 116

Data for Problem 8

	Results	Correct Answers	Incorrect Answers
Pre-Assessment	29 of 40 participants answered correctly	All of the steps in the multi-step problem were completed.	Incorrect responses were a result incomplete and incorrect processes and incorrect computation.
Post-Assessment	38 of 40 participants answered correctly	More participants checked their answer in the explanations of their strategy.	The incorrect responses were a result of an incorrect process.

NAEP Results

2007 National Performance Results



Problem 9

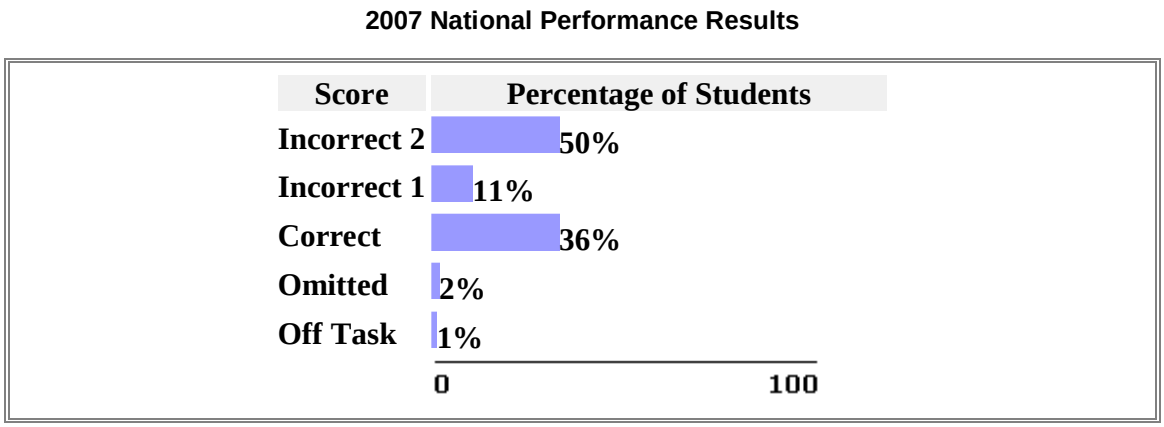
On the 2007 NAEP, Problem 9 was identified as a fourth grade problem of hard difficulty.

> Five classes are going on a bus trip and each class has 21 students. If each bus holds only 40 students, how many buses are needed for the trip?
>
> Answer: _____

Data for Problem 9

	Results	Correct Answers	Incorrect Answers
Pre-Assessment	35 of 40 participants answered correctly	All of the steps in the multi-step problem were completed.	Incorrect responses were a result incomplete and incorrect processes and incorrect computation.
Post-Assessment	38 of 40 participants answered correctly	More participants checked their answer in the explanations of their strategy.	The incorrect responses were a result of an incorrect process.

NAEP Results



APPENDIX C

Results of Student Achievement in ITQ Schools

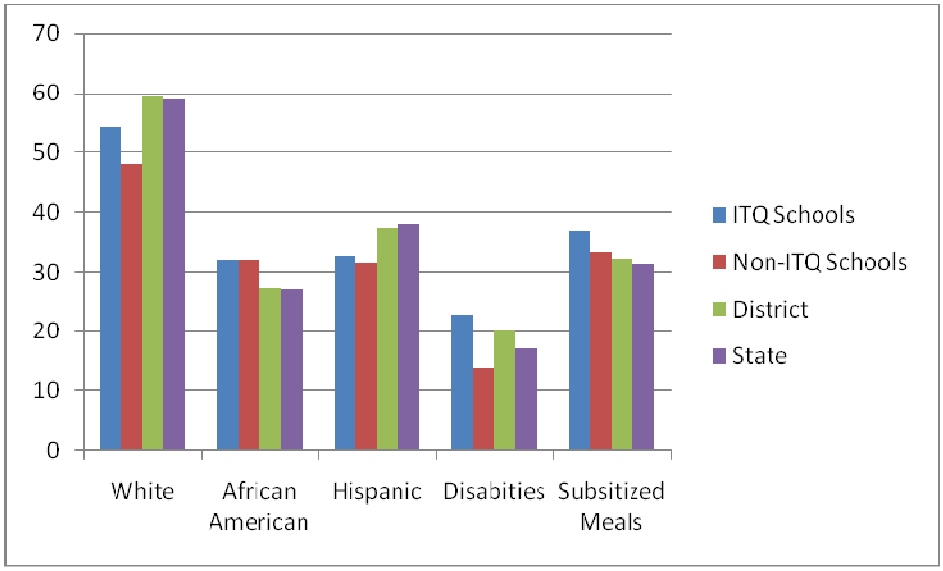
Since PASS, the new South Carolina standardized test for grades 3-8 was first administered in spring 2009, the standard setting for the test is taking place during the summer of 2010. Results will not be available until fall.

The most recent test data are the 2008 school report cards. The following tables summarize the NCLB data:

School	Number of Years Involved with ITQ Grant	Met NCLB Objectives	Met NCLB Math Objectives	Improvement Status
Armstrong	1	Met 19 of 23	Met 2 of 5	Continuing school improvement
East North Street Academy	2	Met 27 of 29	Met 5 of 6	Restructure
Sue Cleveland	2	Met 19 of 21	Met 4 of 5	Continuing school improvement
Welcome	2	Met 17 of 27	Met 1 of 6	Newly Identified

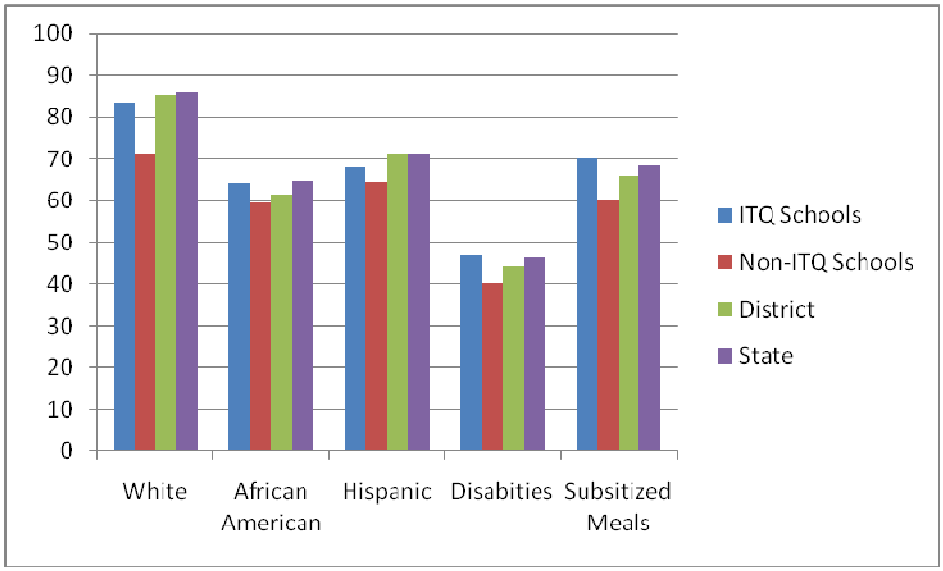
The following graph compares the percent of grades 3-5 proficient and advanced scores for the four ITQ schools, to four Title 1 schools not part of the ITQ grant, but located in the same White Horse Road/Augusta Road corridor. The graph also shows the percent of proficient and advanced scores in Greenville County Schools and the state of South Carolina. All data are from 2009 school report cards.

Percent of Students Scoring Proficient and Advanced

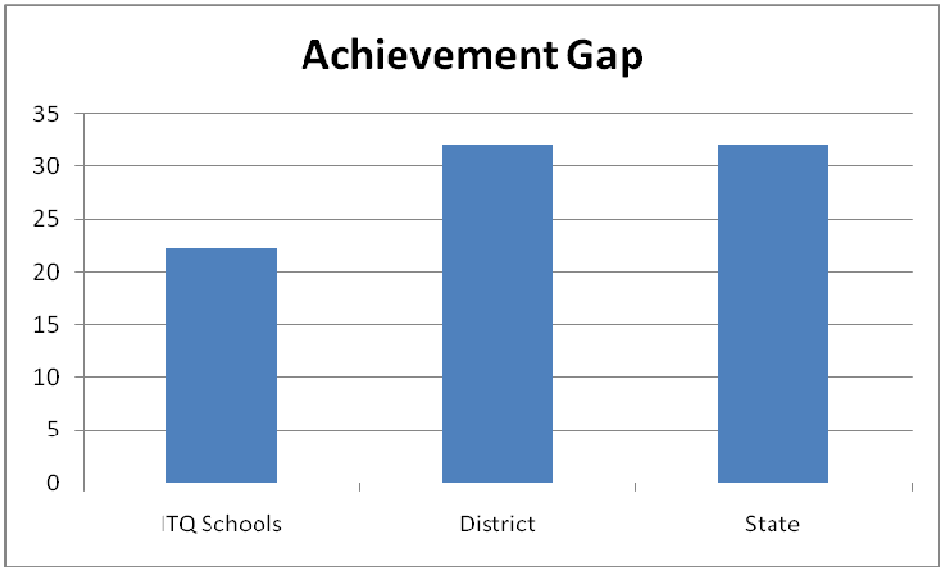


The following graph compares the percent of meeting standard scores for the four ITQ schools, to four Title 1 schools not part of the ITQ grant, but located in the same White Horse Road/Augusta Road corridor. The graph also shows the percent of 3-5students meeting standard in Greenville County Schools and the state of South Carolina. All data are from 2009 school report cards.

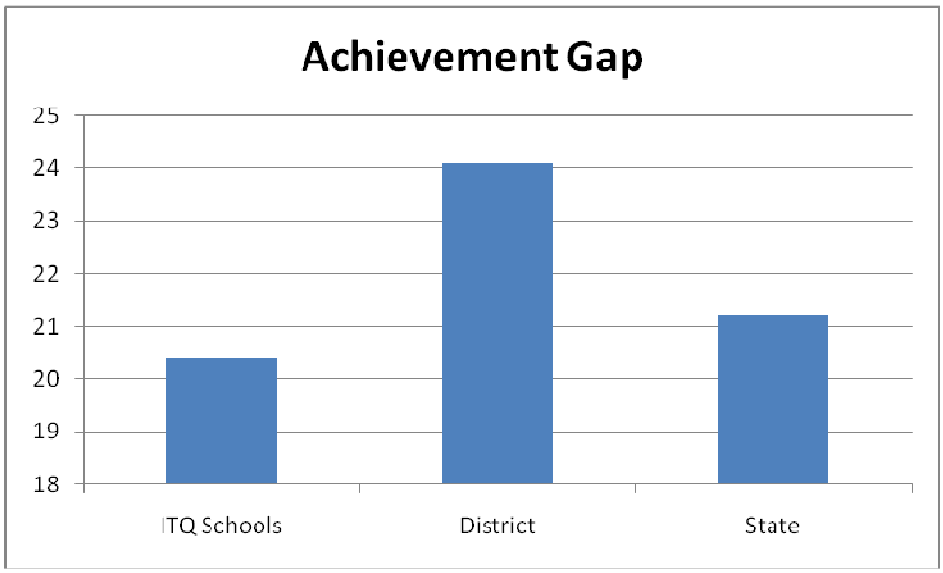
Percent of Students Meeting Standard



The achievement gap between White and African American students scoring proficient and advanced is narrower in the ITQ student scores than the district and state scores. Of the 1,116 3-5 students taking the mathematics test in the ITQ schools, 43% are African American. That compares to 25% of African American students in grades 3-5 in the district and 38% in the state.

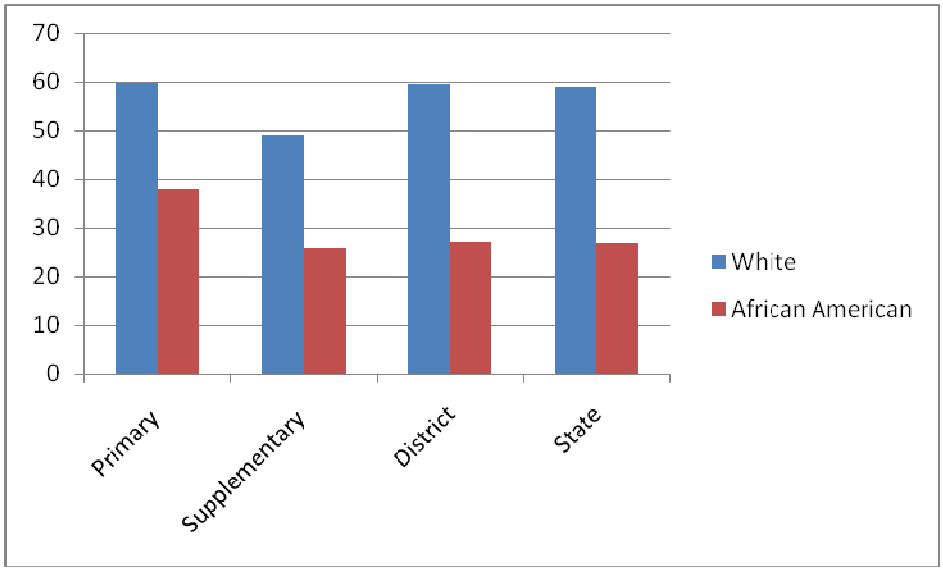


The achievement gap between White and African American students meeting standard is narrower in the ITQ student scores than the district and state scores.



Two of the ITQ schools in the 2007/2008 school year used MOOTB as a primary curriculum and two used it as a supplementary curriculum. Following are graphs showing the results of PACT scores.

Percent of 3-5 Grade Students Scoring Proficient and Advanced



Percent of 3-5 Grade Students Meeting Standard