Enhancing Parent Involvement in NC-CCSS for K-2 Mathematics

Presented By: 2014 REU Math Team

Members

Deanna Mallard
Mississippi Valley State University

Tayla Frizell
Mississippi Valley State University

Nyjah Grant
Longwood University

Mentors

Dr. Darnell Johnson
Elizabeth City State University

Dr. Ervin Howard
Elizabeth City State University

Overview

Abstract

- In this study, the 2014 REU math team developed and provided a workshop that assisted parents in understanding the North Carolina Common Core State Standards for K-2 Mathematics to assist with student homework assignments. Parent involvement is defined as parent participating in the educational processes and experiences of their children. A chi-square analysis was used to analyze data collected from the pre survey and the post survey administered to participants in the workshop. The study revealed all of the individual components of parent involvement were positively and significantly related to educational goals. The study identified various aspects of parent involvement that yielded statistically significant results in affirming that parent involvement attributed to urban student achievement. These findings were particularly helpful for indicating which kinds of parent involvement influenced academic success. Most notably, parent expectations and styles demonstrated a strong relationship with scholastic outcomes. Parent expectations and styles created an educationally oriented ambience that established an understanding of the certain level of support the child needed to succeed academically. The REU mathematics team focused on three essential questions in this study: (1) What practices will increase parent awareness of K-2 NC-CCSS for mathematics at P. W. Moore Elementary School? (2) What methods can be used to strengthen parent skills in assisting with mathematics homework assignments at P. W. Moore Elementary School? (3) What actions can be taken to motivate parent involvement in the school improvement process focusing on mathematics at P. W. Moore Elementary School?

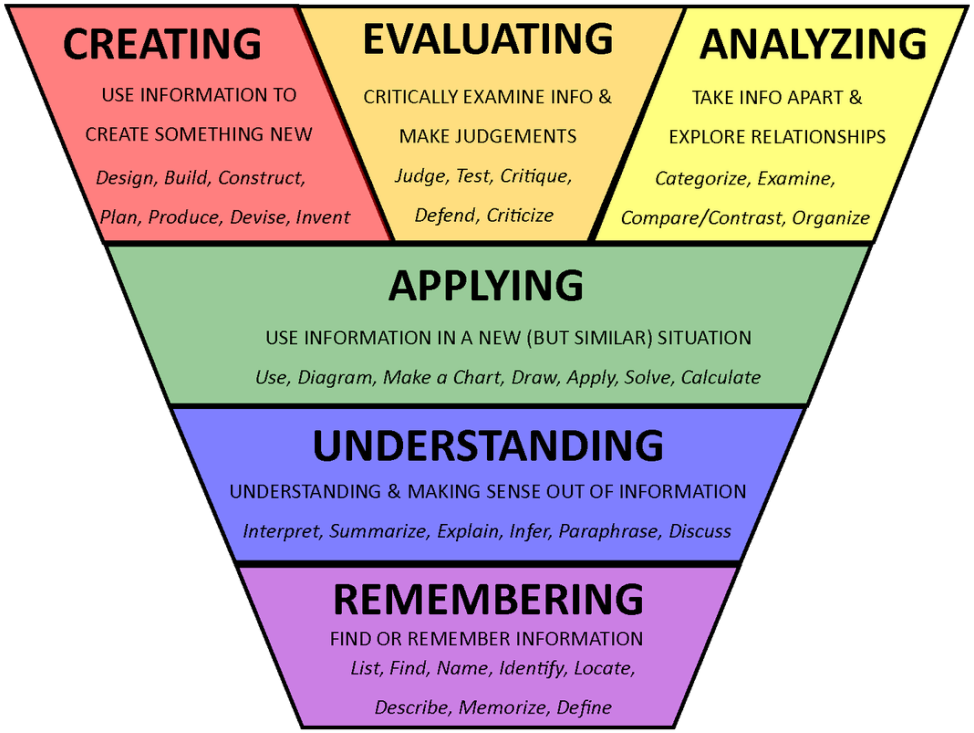
- *Key Terms*— Parent Involvement, Common Core State Standards, Homework, K – 2 Mathematics

Methodology

- In preparation for our workshop, we
  - Observed Kindergarten, First Grade, and Third Grade classrooms at P.W. Moore Elementary School
  - Constructed a lesson plan using the 5E Learning Model
  - Taught content related to Common Core State Standards and assigned Math Fun worksheet for homework
  - Introduced NXT LEGO Robotics to the students
  - Divided the students into three competitive teams to be monitored by one member for each team
  - Involved students in programming robots to complete an obstacle course designed by the REU team
- Distributed 150 flyers to P.W. Moore Elementary School's Kindergarten, First and Second grade parents
- Constructed a workshop for the parents of grades K-2 at P.W. Moore Elementary School

Bloom's Taxonomy

- Taxonomy equals classification to classify forms and levels of learning
- Suggested to not address higher levels until those below them have been covered



5E Learning Model

Lesson Plan Template

5E Lesson Plan

Teacher: Tayla Frizell

Date: June 17-18, 2014

Subject / grade level: Ratios and Proportions / 6th-7th grade

Materials: Pencils, handouts, scratch paper, white board, markers, construction paper, tape, scissors, and sales papers

NC SCOS Essential Standards and Clarifying Objectives

Lesson objective(s):

- The 6th – 8th grade students will learn the definition of ratios and proportions and how to relate them to calculating unit prices in the classroom by the end of the class period.
- The 6th – 8th grade students will identify if two ratios are a proportion by using cross multiplication in the classroom by the end of the class period.
- The 6th – 8th grade students will solve proportions for unknown quantities in the classroom by the end of the class period.

Differentiation strategies to meet diverse learner needs:

ENGAGEMENT

- I will start by defining and identifying the differences between ratios and proportions.
- The student will then identify the ways ratios and proportion can be written and solved.
- I will then give the students the steps to solve the problems efficiently.

EXPLORATION

- The students will be allowed to come to the board and help solve the problem while the students in their seats still assist with it.
- The questions for the students will be "why are ratios and proportions important " and " what can I use proportions for in my everyday life? " to help them notice how much they use ratios and proportions without noticing it.
- The student will take a sales paper, select an item and solve for the unit price using a method of their choice.

EXPLANATION

- I will ask questions such as "did you follow each step?" to make sure the student is on track to correctly solve the problem.

ELABORATION

- By the end of the lesson the student would have learned how to identify ratios and proportions and solve for proportions.
- We use ratios in our everyday lives to divide food equally among people, comparing miles the number of gallons in a car, etc.

EVALUATION

- The students will be given homework on the subject.
- This should be embedded throughout the lesson as well as at the end of the lesson.

Math FUN

NXT LEGO Robotics

- Engaged students by displaying a PowerPoint presentation on the construction and programming of the NXT Lego Robots.
- Assembled team robots from NXT Lego Set with little assistance from REU members
- Programmed the robots to complete an obstacle course designed by the REU team

LEGO Robotics

Parent Workshop Flyer

Attention K-2 Parents/Guardians of P.W. Moore Elementary School

Parent Involvement Workshop for K-2 Mathematics

Where: P. W. Moore Elementary School Media Center

When: Monday, June 30, 2014

Time: 5:00 p.m. – 7:00 p.m.

~~Light Refreshments~~

Purpose

Building Stronger Support Systems in Mathematics
From the North Carolina Common Core State Standards

Activities

Ice-Breakers
Workshops
Power-Points
Hands-On Lessons
Parent Tool-Kits
Mathematics Calendars

Question and Answer Session

R.S.V.P by Wednesday, June 24, 2014 at (252) 335-3977
Dr. Darnell Johnson, E.V. Wilkins Distinguished Professor,
Elizabeth City State University

Partnership between
P.W. Moore Elementary School
Mr. Lindsey James, Principal
Mrs. Joycelyn W. Hinton, "2013-2014 Teacher of the Year"
and
Elizabeth City State University
*(Center of Excellence in Remote Sensing Education and Research, **CERSER**)*

Workshop Template

Workshop Title: Parent Involvement for K – 2 Mathematics

Workshop Description: The purpose of this workshop is to build stronger support systems in K-2 Mathematics from the North Carolina Common Core State Standards.

Skills/Knowledge: The Common Core State Standards will be addressed to assist at each student's appropriate grade level including tips/activities parents can do at home to enhance their children's education.

Participant Outcomes: By the end of this session, parents will be able to:

- Understand 2nd grade Common Core State Standards
- Utilize math language in their everyday activities
- Use hands on methods to practice mathematical concepts
- Access information about their child's school
- Enhance children's education with technology use

Facilitator: Nyjah Grant
Undergraduate Student/2014 REU Math Team at ECSU

Participants: The audience is K – 2 parents of P. W. Moore Elementary School

Agenda and Activities: This workshop is to be conducted in this order:

1. Ice Breaker
2. Distribute pre-survey (white color)
3. Introduction and statement of purpose for workshop
4. Present Common Core introduction video
5. Brief description of 2nd Grade Standards
6. Activity 1-5 (Assess each activity after completion)
7. Distribute post-survey (purple color)
8. Conclude workshop/dismissal

Introductions: To begin the workshop, I will introduce myself giving a small blurb about my current education and internship involvement. I will explain how important it is for parents to have a positive perspective on mathematics when in the presence of their children. A brief description of the benefits of parent involvement in children's education. Then parents will complete a pre-survey that gathers their current knowledge on the Common Core and the North Carolina Public School System.

Activity #1: During this first session, operations and algebra will be introduced to parents. Parents are taught the multiply ways that children can add and subtract within 100. The keywords of this standard are defined and parents will design their own "Secret Code Cards", place value manipulatives, and freehand drawings. They will be given a link that will help students understand this standard.

Activity #2: To understand numbers and operations, parents will use popsicle sticks to write the multiples of 5's, 10's, and 100's, mix them up and ask the children to put them in correct ascending order. If children are having problems, they can practice skip counting with M & M's and group them writing the corresponding amount underneath and have them count groups by the specified number.

Activity #3: To practice money with children, parents will be advised to purchase a fake money kit from their local dollar tree and create a mock shopping event (furniture, clothing, food, etc.). Children will be able to choose the things they want to purchase and purchase as they shop. To learn time, parents will be given the materials necessary to construct their own paper clock and will be taught to use this clock to ask children to interpret the hour and minutes on the clock. Parents can use specific time periods (i.e. commercial break times when a show will come back on) for children to model on the clock.

Activity #4: Teaching geometry requires parents to become a bit crafty. They will be making their own geo-boards! Parents can teach their children with these homemade boards the angles of shapes, the shapes made from multiple ones, and much more!

Activity #5: DIY 2nd Grade Math Calendar. Parents will be given a tip to make their own calendar from a 10" x 14" picture frame, white poster board, coloring utensils, and paint swatches. This inexpensive calendar design gives parents the opportunity to reuse it every year writing as many things they choose on it. They will also be given a list of activities that could possibly go on the calendar being applicable to their children's education.

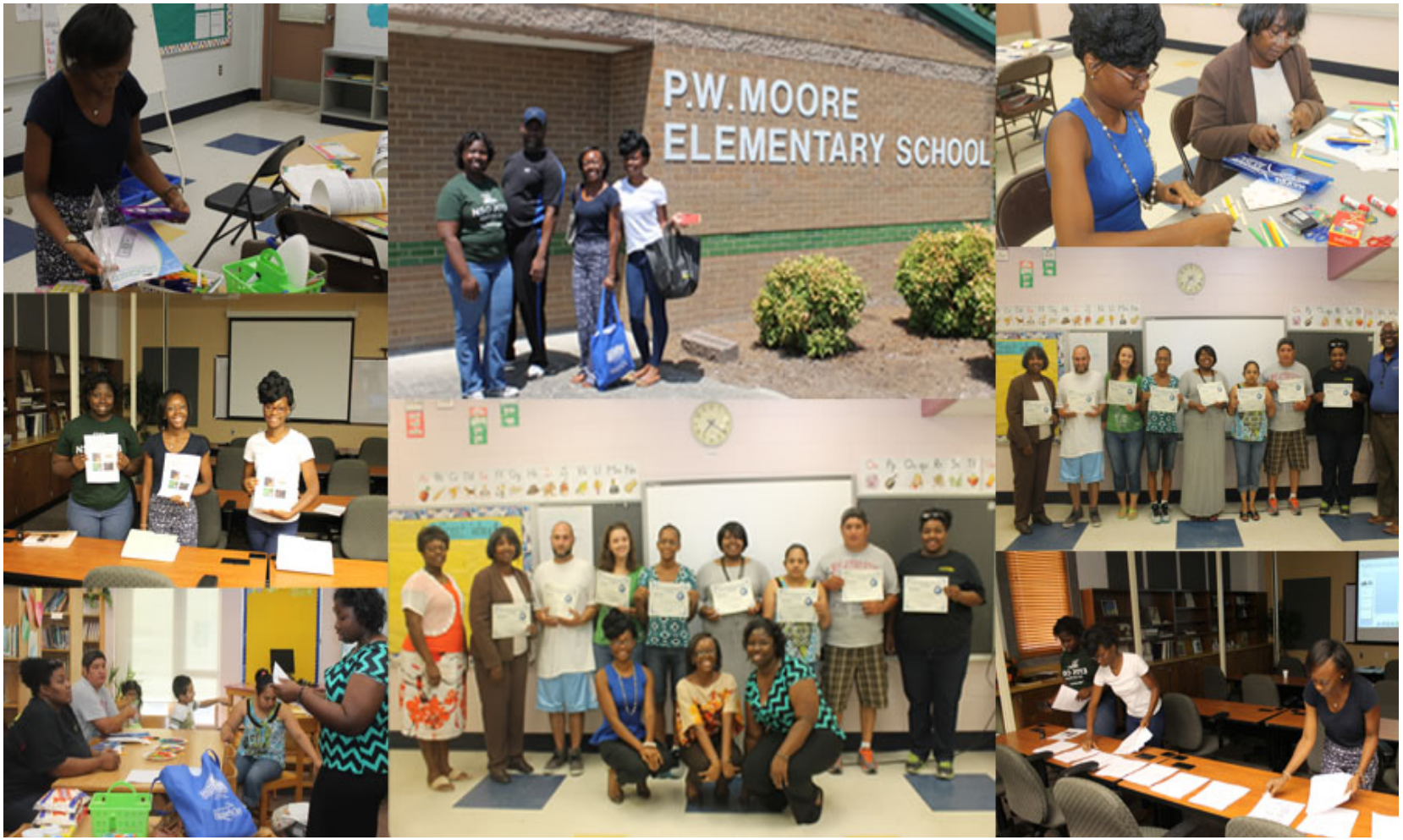
Wrap-up activity: Parents are given a post-survey to assess whether or not they were learned anything from the workshop.

Evaluation: Parents are given additional dates for their math calendar, a list of helpful resources categorized by the standards, the music playlist, and a take home 2nd grade mathematics tool kit.

Materials

- Pre & Post Survey
- PowerPoint
- Workshop Resources
- Index Cards
- Sponges
- Place Value Slots
- Popsicle Sticks
- Black Markers
- Rubber bands
- M & M's
- Foam Boards
- Paint swatches
- Writing Utensils
- Poster Board
- Plates
- Construction Paper
- 2nd Grade Standards

Parent Workshop



Focus Questions

- (1) What practices will increase parent awareness of K-2 NC-CCSS for mathematics at P. W. Moore Elementary School?
- (2) What methods can be used to strengthen parent skills in assisting with mathematics homework assignments at P. W. Moore Elementary School?
- (3) What actions can be taken to motivate parent involvement in the school improvement process focusing on mathematics at P. W. Moore Elementary School?

Pre and Post Surveys

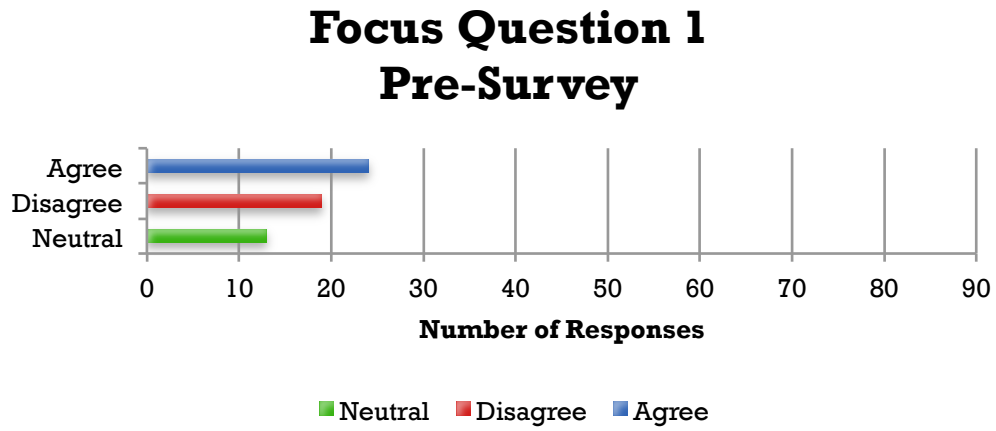
REU Parent Involvement Survey

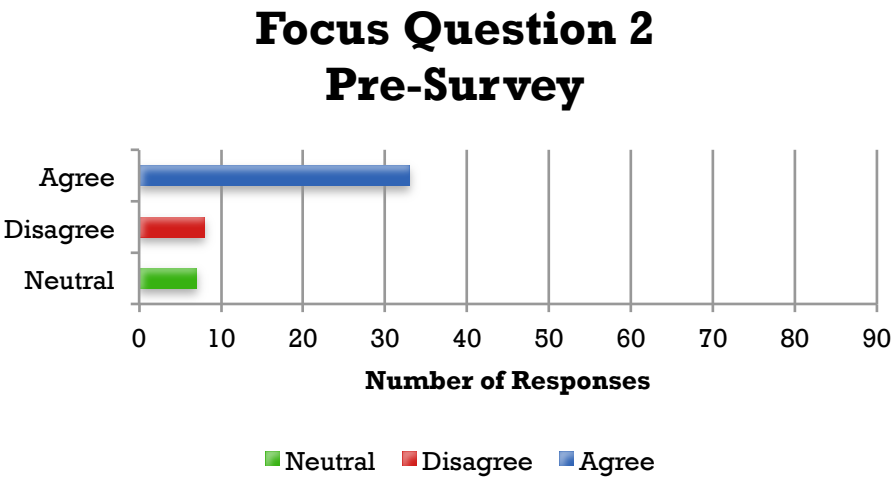
As a parent or caregiver, your involvement in your child's learning and school is valuable and important. This survey asks for your opinions about what your child's school does to get you involved in your child's education in mathematics. Your individual responses will remain confidential. Please give each statement relevant thought in your response.

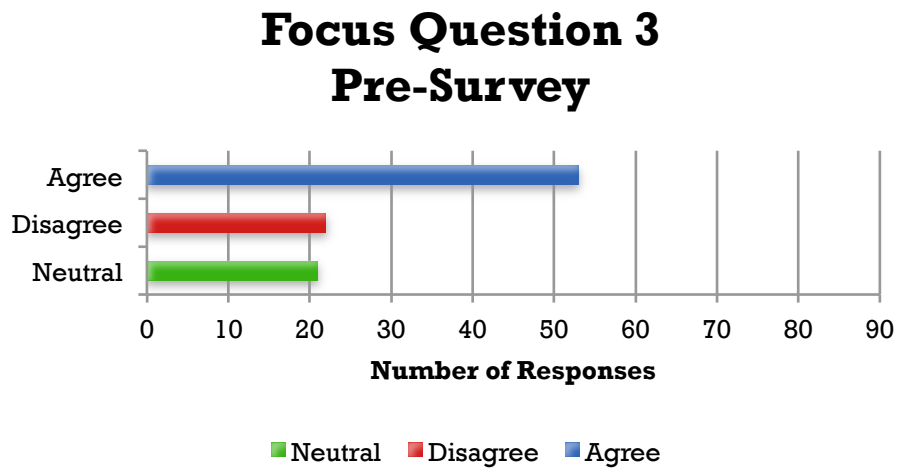
Gender: ☐M ☐F **Relationship to child:** _____ **Grade Level:** ☐K ☐1 ☐2

Indicate the extent to which you agree or disagree by filling in the appropriate box. Please address your response based on the statements which range from "1" Strongly Disagree to "5" Strongly Agree as they are represented across the row.	1	2	3	4	5
I receive information on what I can do at home to help my child improve or advance his/her learning in mathematics.	☐	☐	☐	☐	☐
I receive information on mathematics skill building exercises.	☐	☐	☐	☐	☐
I receive information on grade level mathematics development.	☐	☐	☐	☐	☐
My child's teacher asks to meet with me face to face at least once a year to talk about how my child is doing in mathematics.	☐	☐	☐	☐	☐
My child's school is good about staying in touch with me (e.g., letters, phone calls or e-mails).	☐	☐	☐	☐	☐
I understand about the North Carolina Common Core State Standards (NC-CCSS) in mathematics.	☐	☐	☐	☐	☐
When my child's school communicates with me it is easy for me to read or understand mathematics homework assignments.	☐	☐	☐	☐	☐
If I have a question, concern or comment about mathematics for my child the teacher, principal o guidance counselor gets back to me right away.	☐	☐	☐	☐	☐
I am invited to meetings so that I can learn about what is going on in the school concerning CCSS.	☐	☐	☐	☐	☐
There are many different ways I can be involved with the school, either at the school itself, at home or in the community.	☐	☐	☐	☐	☐
When I volunteer at the school, I am given training and resources to do my task well, if needed.	☐	☐	☐	☐	☐
I receive regular updates from the teacher on my child's progress in mathematics.	☐	☐	☐	☐	☐
I receive information on what my child should learn and be able to do in each grade in school.	☐	☐	☐	☐	☐
My child's teacher adjusts their teaching styles to meet the mathematics needs of my child.	☐	☐	☐	☐	☐
I believe my child is challenged by the school mathematics curriculum.	☐	☐	☐	☐	☐
My child's teacher holds high expectations for my child in mathematics.	☐	☐	☐	☐	☐
My child receives the support required to meet individual needs in mathematics.	☐	☐	☐	☐	☐
I am asked what my child's learning goals are for mathematics.	☐	☐	☐	☐	☐
I can be involved in school improvement planning and decision-making at my child's school.	☐	☐	☐	☐	☐
My child's teacher sends home information about NC-CCSS in mathematics.	☐	☐	☐	☐	☐
I am invited to help plan parent involvement activities.	☐	☐	☐	☐	☐
I am given information about community services that help with parents' needs (adult education, job, health, mental health, utilities, etc.).	☐	☐	☐	☐	☐
The school has meetings that continually inform parents about NC-CCSS in mathematics.	☐	☐	☐	☐	☐
My involvement in my child's education is valued at my school.	☐	☐	☐	☐	☐
My child's school is a friendly environment for students, parents and families.	☐	☐	☐	☐	☐

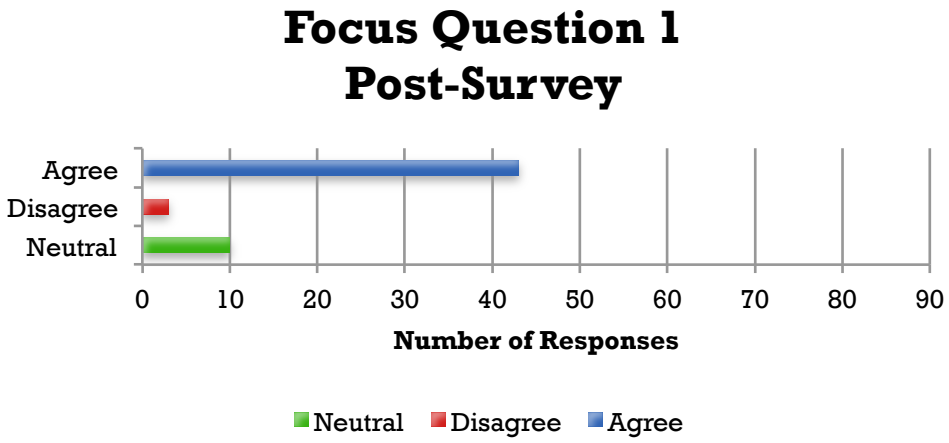
Pre-Survey Breakdown Results

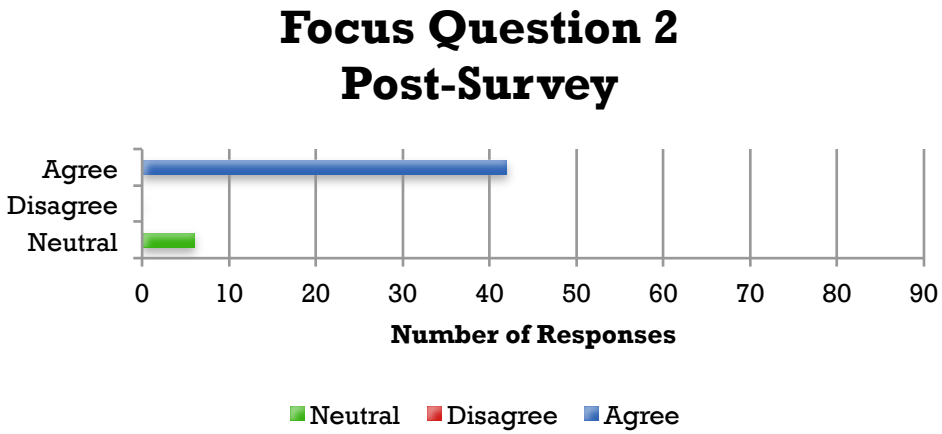


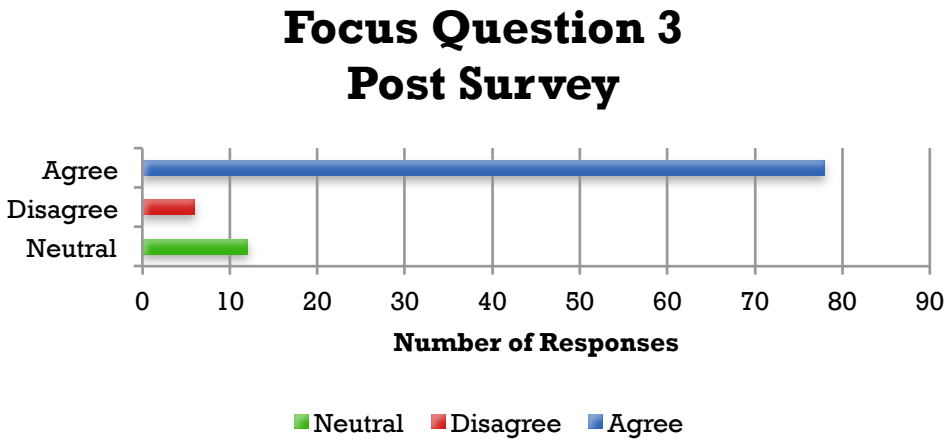




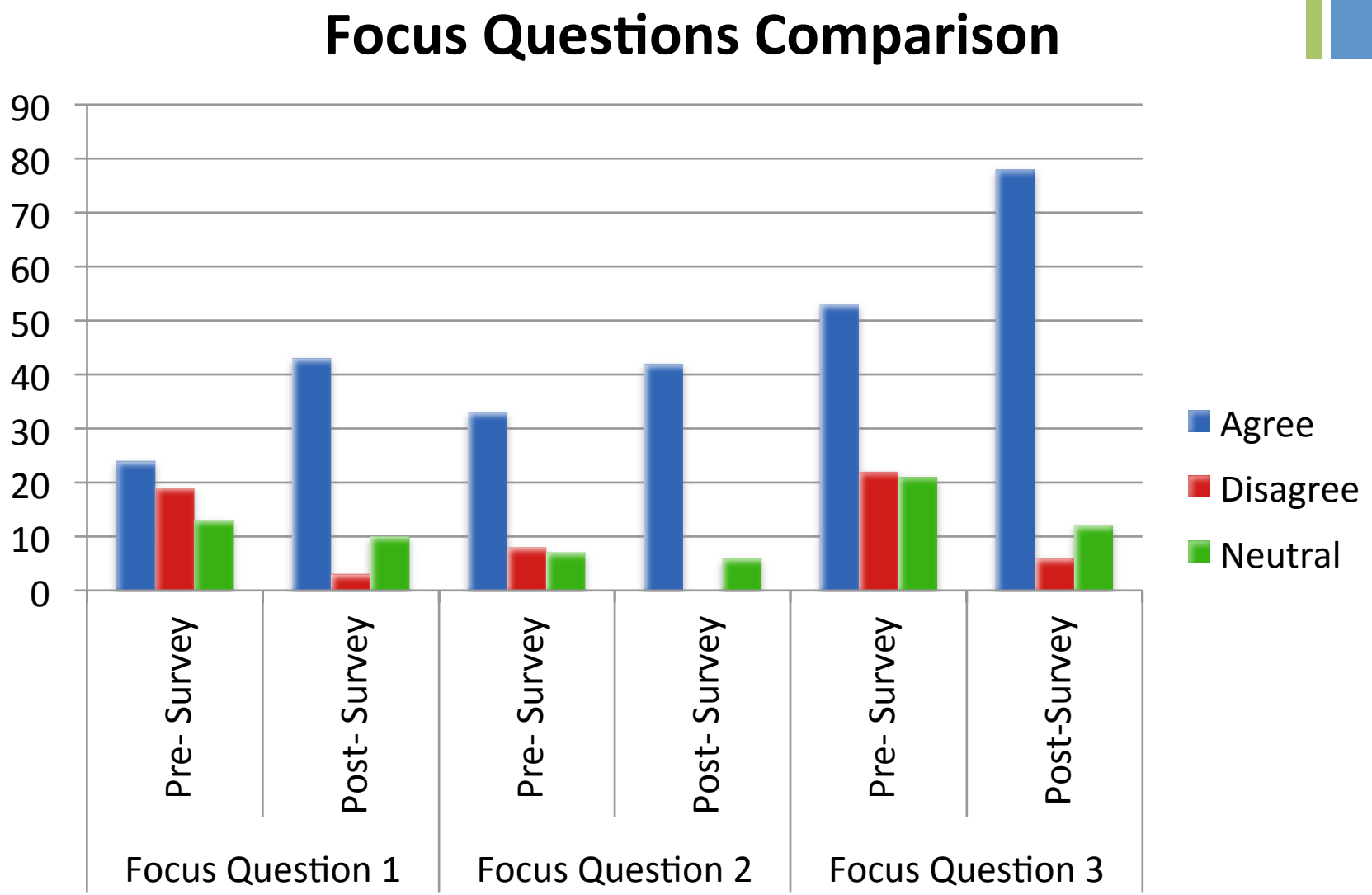
Post-Survey Breakdown Results







Pre and Post Survey Comparison



Conclusion

The results of the surveys concluded that Parent Involvement contributes to growth in student learning. Involved parents accomplish things, including motivating and engaging their children, acquiring new knowledge and skills, and collaborating with teachers. But those accomplishments best serve their purpose when they lead their children to help improve student achievement. The workshop provided richer information on what skills and topics students are learning according to the North Carolina Common Core State Standards. Assisting parents in an understanding of the standards provided the parents with a different perspective on mathematics and understand the importance of being involved with their child's education. Parents understood the math language by constructing different activities that can be used in the home during the workshops. Take-home activities and tips given in the parent tool kits benefited parents in assisting with student homework and learning. Most education reformers agree that improving student learning defines effective teaching. The best way to enhance parent involvement is to provide parents with guidance that is grounded in the standards and school—that is, parent use involvement to encourage student learning.

Future Work

The long-term goal is to build stronger parent support systems in Kindergarten, 1st and 2nd grade Mathematics in Pasquotank County Public Schools using the North Carolina Common Core State Standards. Continuation of this parent involvement workshop will be conducted at P. W. Elementary School during the 2014 – 2015 academic school year. Using the same research methods, attendance in the workshops will be enhanced by greater assistance by classroom teachers soliciting parents of Kindergarten, 1st and 2nd grade levels.

Acknowledgements

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Questions?