ENHANCING PARENT INVOLVEMENT IN NC-CCSS FOR K-2 MATHEMATICS AT P.W. MOORE ELEMENTARY SCHOOL

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Abstract

- In this study, the 2015 Research Experience Undergraduates (REU) mathematics team from Elizabeth City State University (ECSU) extended the research initiated by the 2014 summer REU mathematics team. A workshop was provided to assist parents to a better understanding of student homework assignments on the North Carolina Common Core State Standards for K-2 Mathematics. Parent involvement is defined as parent participation in the educational processes and experiences of their children. A chi-square analysis was used to analyze data collected from a pre-survey and 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 aspects of parent involvement that yielded statistically significant results in affirming that parent involvement attributed positively to urban student achievement. These findings were particularly helpful for indicating which kinds of parent involvement influenced academic success. Remarkably, 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 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?

Overview

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- Focus Questions
- Pre and Post Survey
- Chi Square Test
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- Chi Square Data Charts
- Math Team Workshop
- Conclusion
- Questions

Purpose

- The purpose of this research was to develop training sessions in mathematics support skills for parents and/or guardians of K-2 grade students enrolled at P. W. Moore Elementary School. Parents' attitudes toward mathematics have an impact on children's' attitudes. This process will extend mathematical concepts from the classroom to home and establish the idea that mathematics is not just a school subject, but also an everyday subject.

Methodology

- Mathematics Team members in the REU program at ECSU worked to build a data collection system specifically for this research. This collection system provided an assessment of K-2 grade parents and their current knowledge pertaining to the North Carolina Common Core State Standards. In preparation for the research workshop, the mathematics team went to P. W. Moore Elementary School to observe the interactions between teachers and students in Kindergarten, 1st grade, and 2nd grade. Information was collected concerning the benefits of parent involvement and its relation between the Common Core State Standards for K- 2 grade mathematics. Once a survey was constructed, the three focal points were presented by the mathematics team at a workshop; formatted to supply the parents with some of the information and activities needed to assist their child at home.
- On the day of the workshop, the mathematics team arrived early at P.W. Moore Elementary School to organize each member's designated grade level area. After parents arrived, a brief introduction was given stating the purpose and goal of the workshop. The parents were split into three different workshops pertaining to their child's grade level. A pre-survey was completed at the beginning of the workshop and a video was viewed that explained the importance of the Common Core State Standards and the key attribute that all children despite background are given the same advantages to an education. Using the mathematics activities in relation to each grade level respective Common Core State Standards, parents constructed miniature activities to introduce to their children in the home environment [9].

Methodology cont.

- Throughout the activities, parents were encouraged to use mathematics language in their homes allowing their child to become accustomed to using different learning styles. The parents were also informed of the benefits as they continue to become more involved in their children's education. At the conclusion of the workshop a post-survey was administered to determine if their perspective on assistance with mathematics changed in comparison to their pre-survey. To conclude the workshop, parents were given participation awards and parent helper kits to continue in their efforts of being involved in their child's education.
- The survey instrument consisted of three focus sections. In these twenty-five questions, participants were asked to select their level of agreement with each of the statements for their knowledge of North Carolina Common Core State Mathematics Standards for their children and their level of satisfaction with their with 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree.

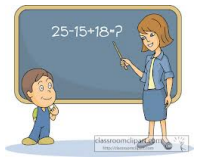
Focus Questions

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

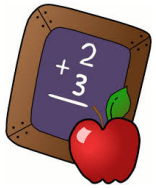
Parent Workshop Flyer

ATTENTION: **Parents/Guardians** of P.W. Moore Elementary School

Parent Involvement Workshop for K-2 Mathematics



Where: P.W. Moore Elementary School Cafeteria
When: **Tuesday**, **March 24, 2015**
Time: 5:00-6:30p.m.



Purpose

Building Stronger Support Systems and Comprehension in Mathematics for Parents of K-2 Students and Establish Understanding of the North Carolina Common Core State Standards

Activities

Presentation
Hands-On Lesson
Parent Tool Kit

Please Respond

Parent/Guardian Name: _____ Student Name: _____

Teacher's Name: _____ Grade Level: _____

I plan to attend this workshop: yes___ no ____

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 (ECSU)
Center of Remote Sensing and Education Research **(CERSER)**
Mentor
Dr. Darnell Johnson, E.V. Wilkins Distinguished Professor, ECSU

Pre and Post Survey

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 acros the row.	1	2	3	4	5
Focus Question 1					
I understand the North Carolina Common Core State Standards (NC-CCSS) for mathematics.	☐	☐	☐	☐	☐
I am invited to meetings so that I can learn about what is going on in the school concerning CCSS.	☐	☐	☐	☐	☐
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's mathematics curriculum.	☐	☐	☐	☐	☐
I am asked what my child's learning goals are for mathematics.	☐	☐	☐	☐	☐
My child's teacher sends home information about NC-CCSS in mathematics.	☐	☐	☐	☐	☐
The school has meetings that continually inform parents about NC-CCSS in mathematics.	☐	☐	☐	☐	☐
Focus Question 2					
I receive information on what I can do at home to help my child improve or advance their learning in mathematics.	☐	☐	☐	☐	☐
I receive informational exercises on building mathematics skill for my child.	☐	☐	☐	☐	☐
I receive information on grade level mathematics development.	☐	☐	☐	☐	☐
When my child's school communicates with me it is easy for me to read or understand mathematics homework assignments	☐	☐	☐	☐	☐
I receive information on what my child should learn and be able to do at the end of each grade.	☐	☐	☐	☐	☐
My child receives the support required to meet individual needs in mathematics.	☐	☐	☐	☐	☐
Focus Question 3					
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 stays in good communication with me (e.g., letters, phone calls or e-mails).	☐	☐	☐	☐	☐
If I have a question, concern or comment about mathematics the teacher, principal or guidance counselor gets back to me right away.	☐	☐	☐	☐	☐
There are many different ways I can be involved with school events and activities, 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.	☐	☐	☐	☐	☐
I receive regular updates from the teacher on my child's progress in mathematics.	☐	☐	☐	☐	☐
My child's teacher holds high expectations for my child in mathematics.	☐	☐	☐	☐	☐
I can be involved in school improvement planning and decision-making at my child's school.	☐	☐	☐	☐	☐
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.).	☐	☐	☐	☐	☐
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.	☐	☐	☐	☐	☐

Chi Squared Test

- The Chi-Square Test showed a comparison of the observed values (parents' survey response) and the expected values (parents' strong agreement), which are listed above and concluded that the impact of the Parent Involvement Workshop was considered to be a positive factor in influencing parents' attitudes toward the research focus questions. In the analysis of the pre and post surveys, the Chi-Square Test determined a statically significant relationship exists.

$$\chi^2 = \sum \frac{(Observed - Expected)^2}{Expected}$$

Chi-Square Data Tables

Pre Survey for Kindergarten Chi Square Test				
0.816536798	0.51412362	0.883171378	0.883171378	0.162606262
0.455937195	0.085586791	0.92407596	0.616305225	0.779187716
0.946307674	0.883171378	0.851382575	0.991467607	0.897691671
0.997822863	0.946307674	0.224820642	0.574903424	0.92407593
0.92407593	0.637119407	0.595548507	0.739918292	0.816536798

Post Survey for Kindergarten Chi Square Test				
0.99634689	0.83430826	0.996334689	0.996334689	0.996334689
0.897762597	0.955834726	0.816536798	0.996334689	0.998821103
0.946307674	0.994249945	0.983452951	0.994249945	0.996334689
0.983452951	0.98789554	0.98789554	0.971699157	0.99782286
0.994249945	0.998821103	0.991467607	0.883171378	0.994249945

Chi-Square Test Data Tables

Pre Survey for First Grade Chi Square Test				
0.054280552	0.173522716	0.211644484	0.14871972	0.244258546
0.47735613	0.173522716	0.22212358	0.378862888	0.173522716
0.267987205	0.426663308	0.443263278	0.061093509	0.173522716
0.2442585546	0.47735613	0.132097256	0.378862888	0.306598116
0.191837347	0.410386118	0.22212358	0.394447922	0.306598116

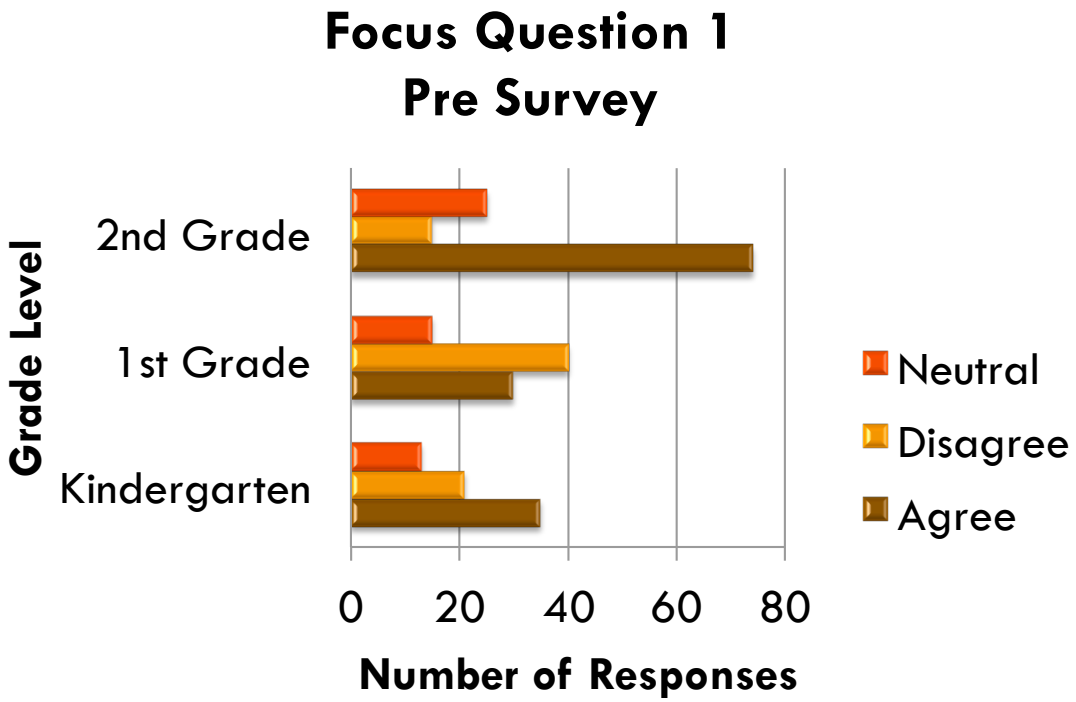
Post Survey for First Grade Chi Square Test				
0.999728667	0.99999958	0.001966995	0.987809831	0.99999641
0.99999641	0.99998394	0.99994961	0.99999641	0.99998394
0.99999641	0.99999641	0.999873664	0.99999641	0.99999641
0.99994961	0.99999641	0.999873664	0.99998394	0.999873664
0.99999958	0.99994961	0.99999958	0.99994964	0.995027368

Chi-Square Test Data Tables

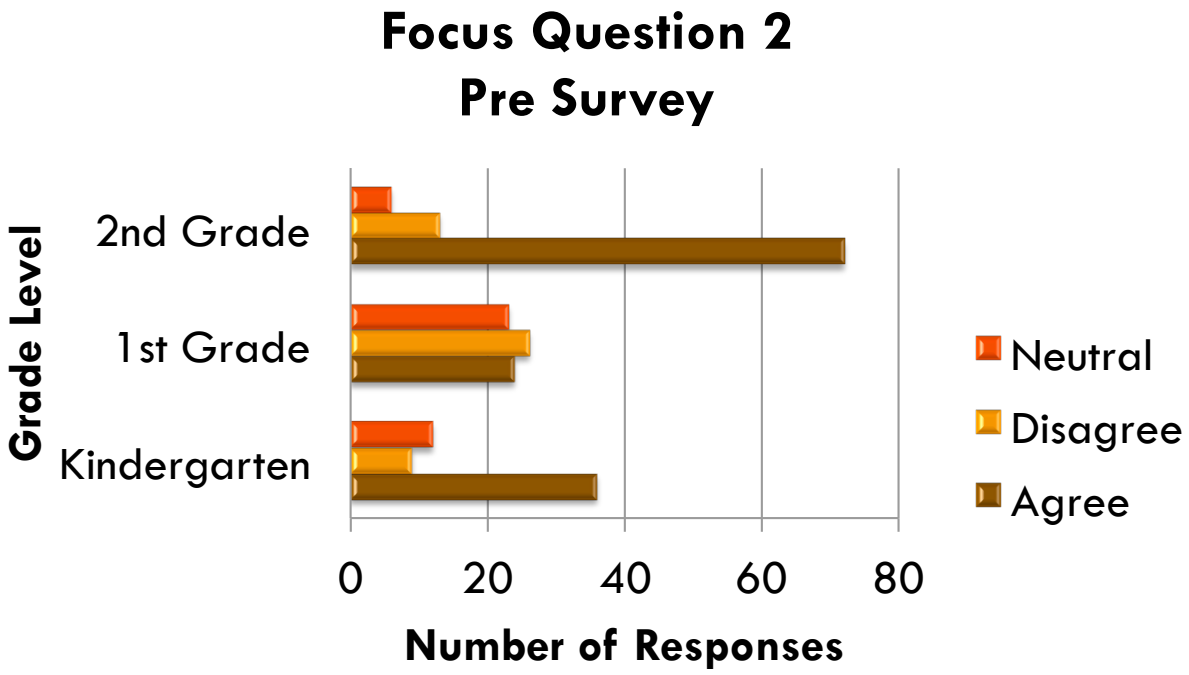
Pre Survey for Second Grade Chi Square Test				
0.762183463	0.982829904	0.982829904	0.855789985	0.867463996
0.979430546	0.867463996	0.988405921	0.942146779	0.996553861
0.990638066	0.955380899	0.966491465	0.942146779	0.97558938
0.961195794	0.990638066	0.878648247	0.878648247	0.988405921
0.979430546	0.670257798	0.606302782	0.990638066	0.996553861

Post Survey for Second Grade Chi Square Test				
0.991467607	0.99776595	0.999988388	0.999988388	0.999776595
0.999776595	0.999988388	0.999933619	0.999933619	0.999988388
0.999988388	0.999776595	0.999988388	0.999933619	0.999933619
0.999988388	0.999988388	0.999999443	0.999933619	0.999988388
0.999933619	0.999999443	0.999933619	0.999933619	0.999988388

Chi-Square Test Chart



Chi-Square Test Chart



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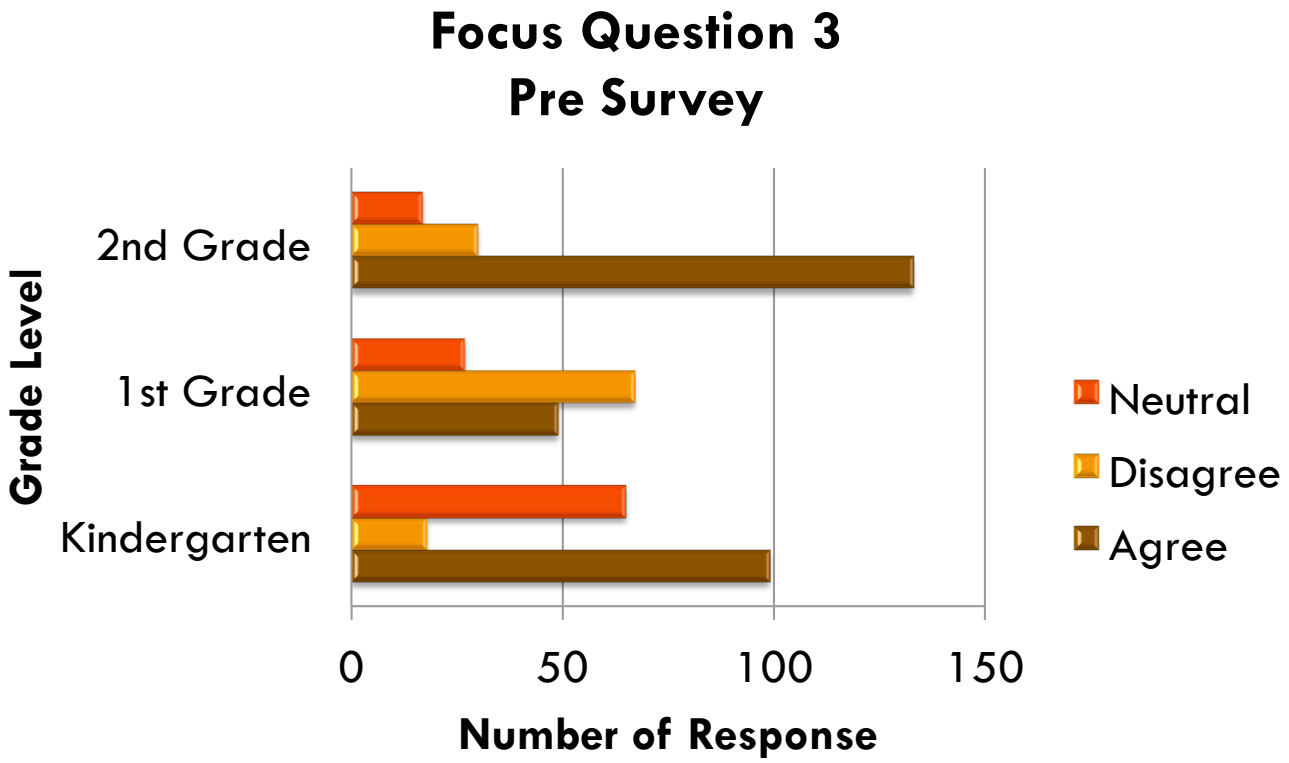

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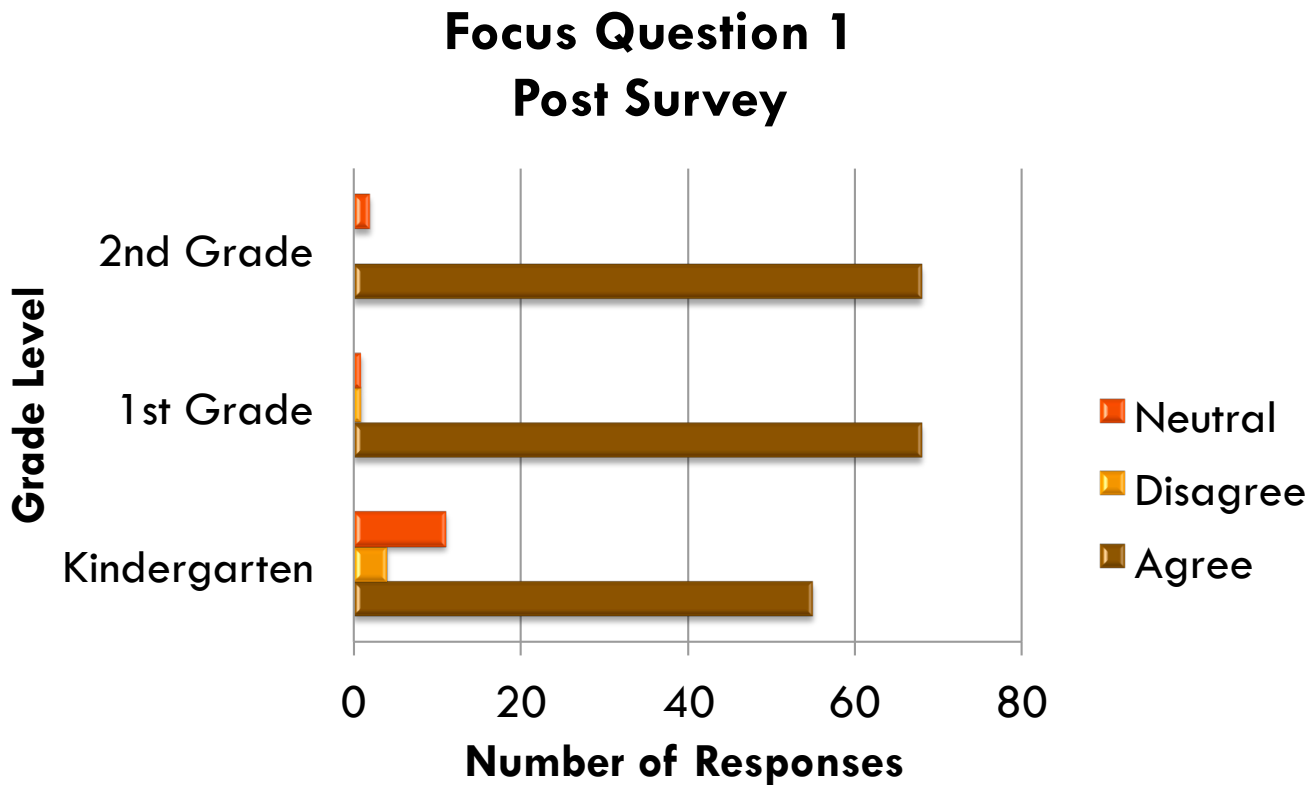

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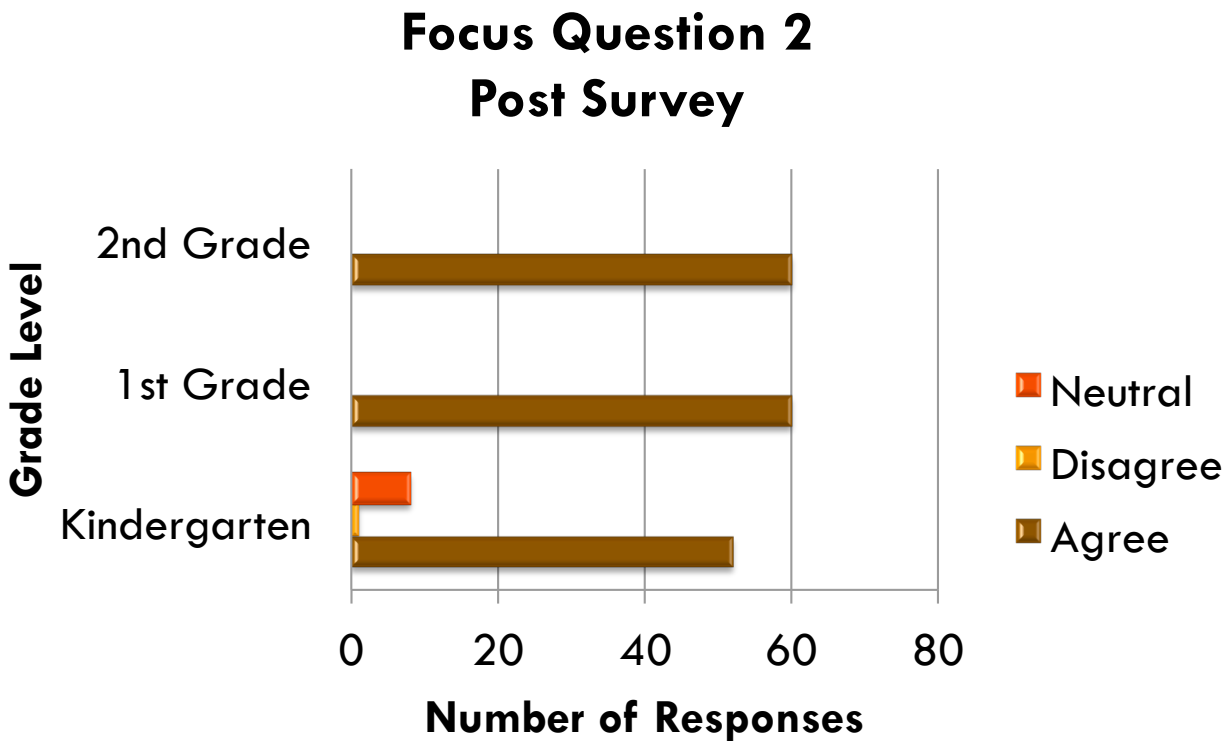
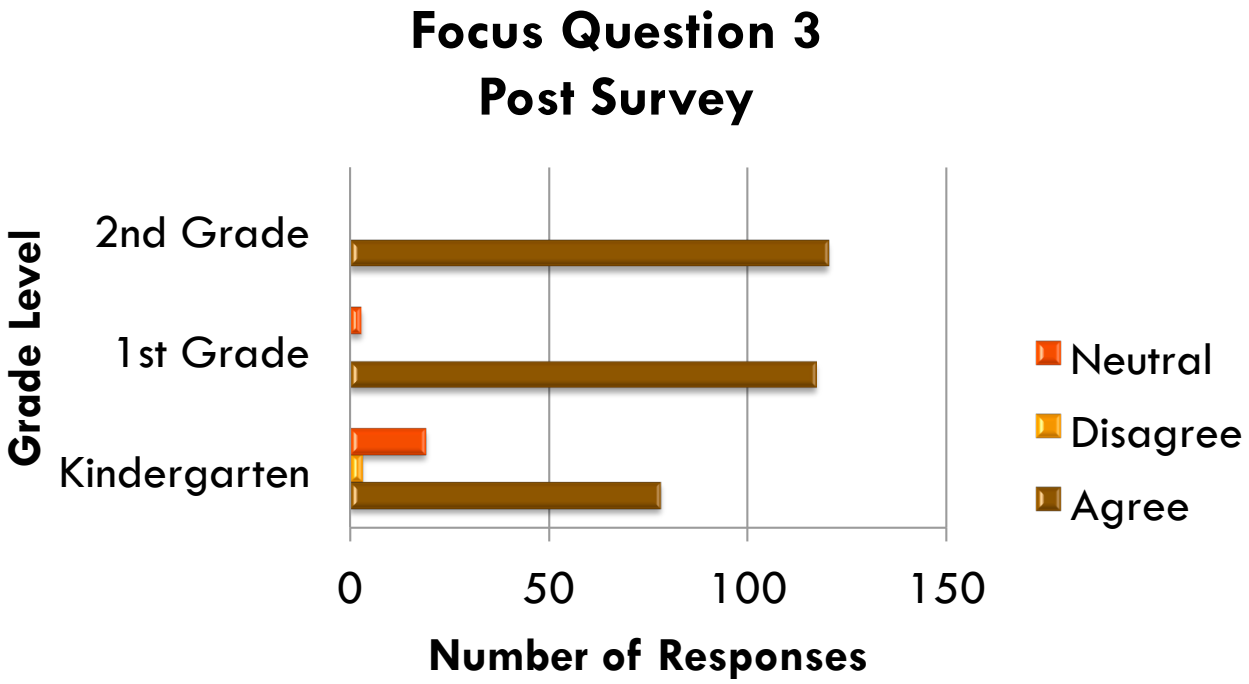
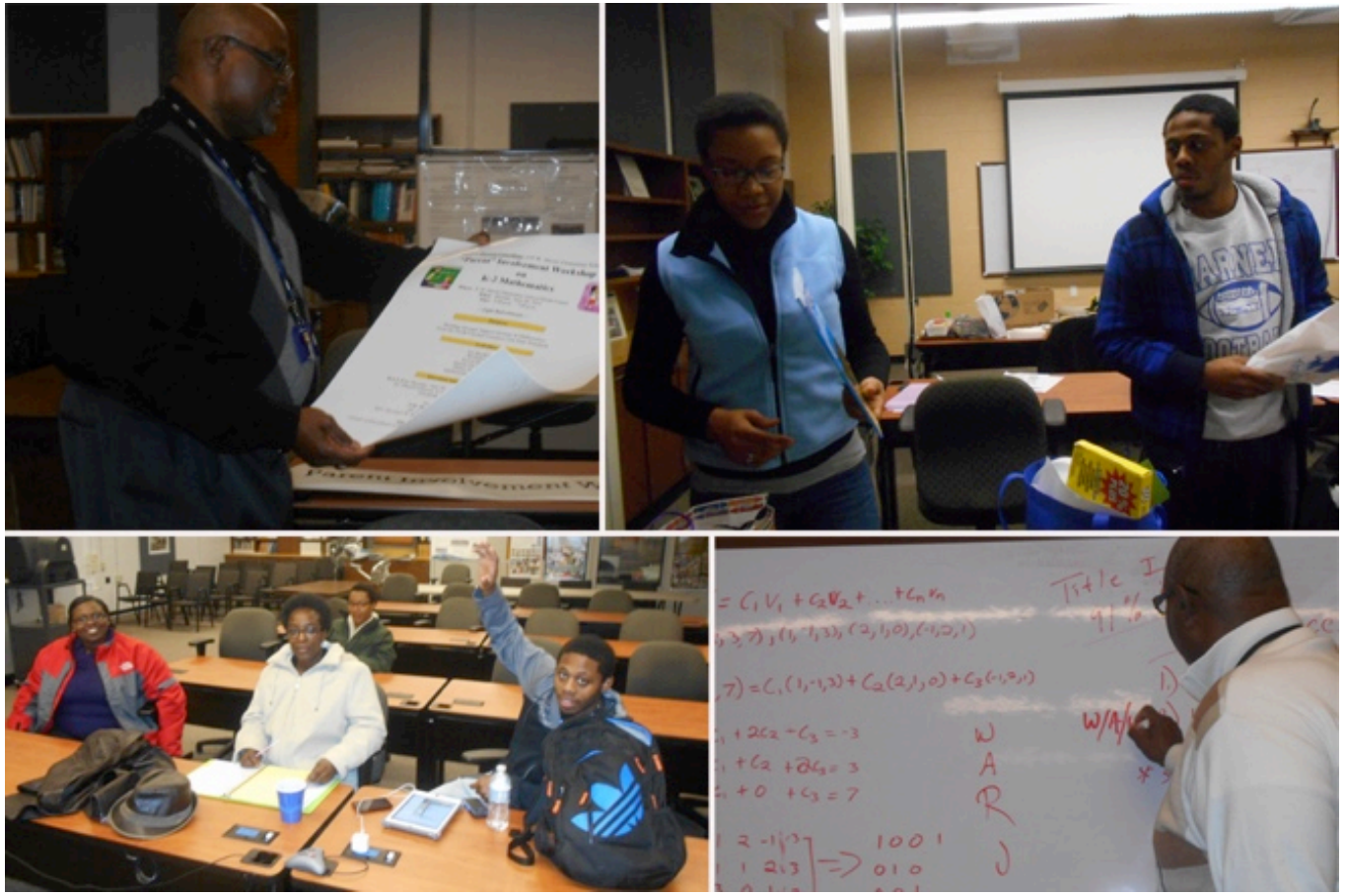


Chi-Square Test Chart



Math Team Discussion of Research



Math Team Observes Math Classes at P.W. Moore Elementary School

Math Team Plan for Parent Workshop

Math Team Coordinating Parent Workshop

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 the importance of being involved with their child's education. Parents understood the math language by constructing different activities during the workshops and were given different tips that can be used in the home. 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 [10].

Future Work

- The long-term goal is to build a stronger parent support system in Kindergarten, 1st grade, and 2nd grade Mathematics in Pasquotank County Public Schools using the North Carolina Common Core State Standards. It is our intent to continue working with Title I elementary schools in the Pasquotank County Public School System. The mathematics team will provide an increased number of workshops during the school year to strengthen parent attendance and student achievement of K-2 mathematics.

Acknowledgements

- The members of the 2015 Research Undergraduates Mathematics Team would like to give a special thanks to Dr. Linda B. Hayden, Dr. Darnell Johnson, Principal Lindsey James, 2014 Teacher of the Year Mrs. Joycelyn Hinton, the REU staff, and faculty of P.W. Moore Elementary School for guidance and assistance during this research process.

QUESTIONS?