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The Use of Personal Responders in the Elementary Reading Classroom

Mitzi Helms

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The Use of Personal Responders in the Elementary Reading Classroom

A recent position statement on children and electronic technology by the International Reading Association (2009) asserts,

To become fully literate in today's world, students must become proficient in the new literacies of 21st-century technologies. As a result, literacy educators have a responsibility to effectively integrate these new technologies into the curriculum, preparing students for the literacy future they deserve. (p. 2)

As this quotation suggests, innovative technology is not only an important part of young children's learning but also a powerful tool that educators can use to enhance children's educational experience. The implementation of the No Child Left Behind Act and Reading First initiative have challenged teachers to select appropriate instructional tools, in order to maximize opportunities for time on task and differentiated learning. Ke, Sun, and Yang (2012) indicate that greater student engagement increases student understanding of complex subject matter, student interest and enjoyment, student awareness of individual levels of comprehension, and teacher insight into student difficulties and heightens discussion and interactivity. Recently, there has been a push in research and practice to determine factors that influence student engagement. In this push, personal response systems, also known as "clickers" have been determined a potential factor contributing to student engagement and comprehension (Morgan, 2008).

Purpose of the Study

Although a number of researchers have studied student response systems in higher education, there has been very little research at the K-12 level. There are examples of studies that show promising effects on achievement, as well as case studies that suggest promising applications in areas such as mathematics and reading (Parette, Quesenberry, & Blum, 2010;

Penuel, Boscardin, Masyn, & Crawford, 2007). At the same time, case study researchers have also raised questions about how feasible it is to implement response systems in smaller classes (Penuel, Boscardin, Masyn, & Crawford, 2007). While numerous studies have documented the association of technology with student engagement, very few have involved first grade students using modern interactive technology. With the push to bring technology to our classrooms and in an effort to fill the gap in the literature, the purpose of this study was to explore the effectiveness of using personal responders in instruction and assessment of reading comprehension in a first grade classroom in a rural elementary school in the southeast.

Research Question

The following research question guided this study: Does using personal responders in a first grade classroom at a rural southeastern elementary school to teach and assess reading comprehension increase students' comprehension level compared to those that are taught using traditional teaching methods?

Significance of the Study

The search for the most effective uses of interactive technology for instruction and assessment is an endeavor that merits exploring (Parette et al., 2010). The findings from this study are significant because they will aid early childhood teachers in the implementation of interactive technology to effectively deliver and assess reading instruction. This is imperative because students' reading comprehension affects all other areas of their education. If a student does not understand what he has read, then he will struggle to gain the knowledge he needs to complete other instructional tasks. Also, it was anticipated that the use of personal responders would more efficiently assess students and allow more time for remediation of students who face a challenge with reading comprehension.

Limitations and Delimitations of the Study

While every effort was made to lessen the number of limitations in this study, there were several factors that could have had a potential impact on the results of this study. The small class size and four-week length of the study were the two main limiting factors. The extent of parental involvement in reading and questioning at home could not be determined and how this contributed to the effects. There were also a few delimitations of this study that limited its scope. One of the delimitations was that this study only involved two first grade classrooms and thus the sample size was small being made up of only 29 students. Additionally, this study only addressed the use of personal responders in teaching and assessing reading comprehension. Although the limitations and delimitations of this study were considered in the analysis of the results, the study remains thorough in its contributions to information regarding interactive technology usage in the first grade classroom and its impact on student learning.

Trustworthiness and Ethical Considerations

To combat internal validity threats, the experimental and control groups experienced the same events. The participants in the study were all the same age and at equal academic levels in an effort to create validity. The test items were different for the pre-test and post-test so the testing validity threat was diminished. The only conflicting variable was the fact that two different instructors were administering the instruction; however, the instructors aligned their instruction so that each group received the same content. Also, the researcher followed ethical guidelines to confirm validity in the study. Permission to conduct the study was obtained from the principal of the participating school and the University IRB. Additionally, all IRB approved permissions were obtained.

Key Terms

- *Personal Responders (CPS)*: A Classroom Performance System (CPS) is a radio frequency based system consisting of software, a wireless receiver, and handheld remote units which resemble a television remote control device. Students hold the device in their hand and respond to questions posed by the teacher. Most often, the questions are multiple-choice style and answered with A, B, C, or D.
- *Reading Comprehension*: Intentional, active, interactive process that occurs before, during and after a person reads a particular piece of writing.
- *Reading First*: National initiative focusing on K-3 reading instruction enacted to promote usage of research based reading instruction programs through grants and support personnel.
- *Traditional Teaching Methods*: Within the context of this study, traditional teaching methods are teacher-centered instructional approaches that typically include direct instruction and lectures, seatwork, and where students learn through listening and observation.

Review of Selected Literature

Personal responders are hand-held devices that use radio frequency waves that transmit a signal to a base that is connected to a teacher's computer to record student's answers via the remote. "Clickers" is the most common term for the hand-held devices; however, many other terms have been used. Terms used include: classroom response systems (CRS), student response systems (SRS), audience response system (ARS), interactive student response technology, wireless response technology, classroom communication system, audience-paced feedback system, personal responders, peer response system, and group response system. The topic of personal responders in the classroom is important to technology instruction as these responders have been shown to increase student motivation, engagement and participation (Stowell &

Nelson, 2007). Additionally, personal responders have been shown to improve achievement both initially and up to one month after the lesson (Gauci, Dantas, Williams, & Kemm, 2009).

Effective educators are responsible for maintaining standards and setting goals to attain those standards by way of providing effective instructional methods to increase student understanding and learning. Teachers are also required to provide formative and summative assessments to evaluate students' performance on learning certain concepts. Personal responders are a technology that is growing in popularity to address all of the above concerns of educators. Reported in the research literature, teachers have created various ways to incorporate personal responders into their classrooms. Because the purpose of this study was to explore the effectiveness of using personal responders in instruction and assessment of reading comprehension in a first grade classroom in a rural elementary school in the southeast, this review of literature includes research relating to (a) reasons for using personal responders, (b) advantages and disadvantages of using personal responders in the classroom, and (c) information that may be missing from the research.

Reasons for Using Personal Responders

Most students in today's society use technology as a means of communication daily. Jensen, Meyer, & Sternberger (2009) describe that "the current generation expect the integration of technology in the educational process." Without technology, in today's classes of "grades verses learning, rote memorization versus understanding, [or] recalling meaningless facts versus explaining processes" (Skinner, 2009, p. 22) the students would likely become disengaged with the content and facilitator and then not want to participate in order to understand the concepts being taught. As Kenwright (2009) posited, motivation has been shown to increase since

Students know immediately how their level of understanding compares to their classmates. Sometimes students think no one else in the class understands so it must be the professor's fault. When they see that 80% of the class answered the question correctly but they did not, it is motivation to study more. The class does not know who answered a question incorrectly. (p.74)

“Active lectures were found to increase both student motivation and engagement.

Students who participated in answering questions achieved better results than students who chose not to [be actively engaged in class]” (Gauci, Dantas, Williams, & Kemm, 2009, p. 60). This study sought to determine if the personal responders would increase student achievement with regards to reading comprehension. Research suggests that personal responders provide an active and engaging dynamic in the classroom that keeps students motivated during lessons while promoting student interaction and critical thinking (Dunnett, Shannahan, Shannahan, & Treholm, 2011). In conclusion, elementary students require engaging technology to captivate their attention while involved in reading instruction.

When considering classroom participation, Stowell and Nelson (2007) compared a class that used personal responders with another class that used hand-raising for their answers. There were one hundred forty undergraduate students in introductory psychology classes at a public Midwestern institution that participated in the study. They found that there were no differences in informal participation but when asked formal review questions, 76% of the hand raising group responded and nearly 100% of the personal responder and response card group participated. Stowell and Nelson concluded that an “advantage of clickers and response cards is that they create an avenue for interaction with students who might be too shy to speak or even raise their hands” (p. 257).

A similar participation study by Milner-Bolotin, Antimirova and Petrov (2010), demonstrated personal responders being used as a 5% participation grade in a college physics class. Points were awarded by the instructor in the form of two points for a correct answer, one point for an incorrect attempt, and zero points if the student was absent or did not answer the question. Not only did the student need to be in class, but the student also needed to participate to increase their grade. Additionally, personal responders were shown to increase achievement when compared to classrooms that did not incorporate them into lectures. Furthermore, personal responders have been reported to increase student achievement and motivation in classroom settings (Shirley, 2009). This study involving first-graders sought to identify if personal responders would boost students' reading comprehension levels.

Most of the studies that were examined were qualitative in nature and included surveys that showed the perception of satisfaction by most students with the use of the student response system. Other studies (Gauci, Dantas, Williams, & Kemm, 2009; Stowell & Nelson, 2007) were mixed method in nature in that they incorporated not only t-tests with SPSS data differentiating the two type of classes (i.e. one class used personal responders while the other class did not), or exams given with personal responders as opposed to exams without personal responders as well as the results of a Likert based survey in which students either 1 (strongly disagreed) or 5 (strongly agreed) as to the usefulness and perception of active learning by the student (Lee & Dapremont, 2012). According to the previously mentioned studies, motivation, participation and achievement have been increased, incorporating new methodology to achieve results.

Advantages of Using Personal Responders in the Classroom

Having shown the benefits of increasing motivation, participation, and achievement, there are other reasons for using personal responders in the classroom. Incorporating personal

responders into a lecture with questions provides a shift in the students' attention from inactively listening to active engagement through answering those questions (Kenwright, 2009). Personal responders can also keep students engaged during lectures (Sevian & Robinson, 2011). Studies suggest that using personal responders in class increased student attendance (Kenwright, 2009).

Students reported reviewing material prior to attending class because they knew they would be quizzed throughout the period (Berry, 2009). In Berry's (2009) study, personal responders were introduced to a senior pediatric class. The scores on the previous year's class were used in comparison to determine whether the personal responders increased student achievement and engagement. The students were more engaged while using the personal responders in the study. According to research, one of the best reasons for using personal responders is to obtain an accurate and immediate analysis of what students know or do not know (Sevian & Robinson, 2011). This immediate analysis provides insight into what concepts the students understand. The use of personal responders reduces the anxiety of many students (Lee & Dapremont, 2012). Also, anonymity was acknowledged by students who self-reported that they were more likely to participate if their answers were anonymous, which enhanced self-confidence (Bode, Drane, Kolikant & Schuller, 2009).

The use of personal responders and classroom assessment is something for instructors to consider when using personal responders in their classrooms. "Clickers can be used to achieve a variety of pedagogical goals including assessment of student comprehension, and to provide feedback to both the student and instructor. [This] immediate feedback provides vital information on where the lectures have missed their target and where the students' level of knowledge stands." (Morse, Ruggieri & Whelan-Berry, 2010, p. 100) The use of personal responders during summative assessments provide a paperless tool that will directly send scores

to the computer program for teachers and students to access immediately and quickly. During the course of this study, students used personal responders for summative as well as formative assessments. The formative assessment findings guided future reading instruction. Personal responders allowed the instructor to quickly determine whether students had mastered the content being covered.

Disadvantages of Using Personal Responders in the Classroom

Even with all of the positive attributes of using personal responders in the classroom, there are also drawbacks and problems that go with using them. Teachers must plan ahead and decide when to include the personal responders in their PowerPoint presentations or lectures and create higher-order thinking questions or discussions that would challenge students. In one study, the author showed an instructor's struggle with making these critical-thinking and higher-ordered questions (Milner-Bolotin, Antimirova, & Petrov, 2010). Due to the development of higher-ordered questioning, teachers must be prepared for alternate questions that were sparked by the original higher ordered question and therefore must be confident enough to answer any unanticipated questions (Lee & Dapremont, 2012).

Educators must continuously build on their previous professional development, especially with regards to new technology. "When teachers participate in professional development focused on how to teach in new ways with the technology, they do adopt practices that do much more than support traditional instruction" (Penuel, Boscardin, Masyn, & Crawford, 2007, p. 340). Furthermore, personal responders should not diminish the vital curriculum that students are required to learn. According to Lee & Dapremont (2012), another apprehension that teachers reported was the amount of time it takes to learn the software and technology as well as upload the questions into their PowerPoint presentations to effectively increase active learning. The

research on differentiating the two types of medical-surgical classes (i.e. one class used personal responders while the other class did not) that were taught, the results of a Likert-based survey in which students either 1 (strongly disagreed) or 5 (strongly agreed) with the question of the student “understanding the content” had the highest standard deviation. This suggested that even though the students liked the involvement in class with the personal responders, they still felt that the responders didn’t fully help them understand the content and that further instruction from the educator needed to be completed for mastery of the concept (Lee & Dapremont, 2012).

Another difficulty would be if the personal responders were misused by the students fostering inattentive behavior towards the lesson. If the students were unsure and confused as to what to do with the personal responder, then this could also take time away from the lesson. It was also reported from the laboratory environment that personal responders used in the lab setting were difficult to use since labs are mostly inquiry based and students cannot manipulate the personal responders if their hands are busy performing the lab tasks; this would spoil the excitement of discovery of the inquiry-based lab (Sevian & Robinson, 2011).

What Information May be Missing from the Research

There is a great deal of available research on the implementation of personal responders in high school and secondary educational settings; however, the studies that discuss the uses of personal responders in the elementary school classroom is very minimal. More research is needed to investigate the impact of these tools with younger students. Researchers may choose to test the effect personal responders have on students’ learning as well as their attention to the subject content. Additionally, these studies could show whether or not the technology improves test scores when used as part of an assessment in the elementary classroom.

Method

The purpose of this study was to explore the effectiveness of using personal responders in instruction and assessment of reading comprehension in a first grade classroom in a rural elementary school in the southeast. The research question guiding this study was: Does using personal responders in a first grade classroom at a rural southeastern elementary school to teach and assess reading comprehension increase students' comprehension level compared to those that are taught using traditional teaching methods? In this section, details related to research design, participants, data collection and data analysis will be discussed.

Research Design

This quasi-experimental study utilized a pretest-posttest design to determine if the use of personal responders resulted in increased student comprehension in a first grade classroom. The independent variable in this study was the use of personal responders, and the dependent variable was the students' comprehension level. The two groups that were used in the study were not randomly assigned, but were pre-existing groups that were available to the researcher. Two first-grade classes made up the experimental and control groups for this study.

The experimental group was the researcher's homeroom class. This was decided to be the experimental group for the convenience of the researcher. Also, the instructor of the control group did not incorporate new technologies often in her class. The two groups were decided upon based on likeness of student ability in each class, which was determined by pre-assessed reading levels evaluated by their classroom teachers.

Participants

This study took place at Sunny Side Elementary School, a rural school in the southeast; Sunny Side has an average enrollment of approximately 650 students ranging from kindergarten

to fifth grade. Approximately 48% of the population was Caucasian, 40% African-American, 8% Hispanic, 3% Multi-Racial, and 2% Asian. 72% of the students at Sunny Side Elementary School were eligible for free or reduced meals. Students with disabilities made up 9% of the population at this Title I school. Also noteworthy to this study, the amount of students with limited English proficiency was 3% at Sunny Side Elementary.

A convenience sample of 29 students from two first grade classes participated in this study. The control group, Class A, was made up of 16 students, and the experimental group, Class B, had 13 students. The control group was made up of 9 boys and 7 girls, and the racial diversity included 5 African-American students, 5 Caucasian students, 1 Multi-Racial student, and 1 Asian student. The experimental group had 7 boys and 6 girls and racial diversity included 8 African-Americans, 3 Caucasian, and 2 Multi-Racial students. Students from an economically disadvantaged background made up 90% of the total participant population. These students are considered eligible to receive free or reduced meals. Also, 7 of the participants had repeated either kindergarten or first grade, and 2 students were English Language Learners (ELL).

Prior to data collection, participants were read a minor assent script (Appendix A), and the parents were required to complete a consent form (Appendix B) for their child to participate in the study. If any student had not received parental consent to participate, she would still have taken part in the learning but her data would not be included in the analysis.

Data Collection

Since the study compared whether personal responders increased student comprehension levels, the researcher used pre-test (Appendix C) and post-test (Appendix D) instruments to measure the two variables. The experimental and control groups were given the same pre-test prior to any instruction on reading comprehension. The two groups also took the same post-test

at the end of the four-week study. Both assessments included a short reading passage and questions over the reading. The researcher conducted a pilot test for the assessments with a first grade class that was not already included in the study. No changes were made to the assessment because the number of questions seemed developmentally appropriate for the learners. Also, the questions were at the Depth of Knowledge (DOK) level necessary for the study.

The experimental group was given the reading passage on paper and answered the questions using the personal responders. The control group used a paper-and-pencil version of the pre- and post-tests. The researcher informed the other instructor of the procedure for administering the pre- and post-tests, and she also made the necessary copies of the assessments for the control group.

The experimental group was taught reading comprehension strategies using personal responders. This group was instructed using the same strategies as the control group except the experimental group used personal responders in the place of pencils and worksheets. The experimental group read a leveled reading book together, and then the researcher instructed the students to answer prepared questions with the personal responders using the SMART® Notebook Software on the interactive whiteboard. The interactive whiteboard was required in order for the personal responders to work properly. The control group, however, did not use the interactive whiteboard for this study. The instructor of the experimental group also used the interactive whiteboard to display graphic organizers and asked students true/false and multiple choice questions for them to answer anonymously. The same graphic organizers were used with the control group.

Each group met with the instructor every day for 15 minutes to receive instruction. The researcher was the instructor for the experimental group. For the control group, the instructor

was another first grade teacher at the school. For the purpose of this study, the instructor of the control group was given the pseudonym of Teacher X. The researcher had been teaching eight years, and Teacher X was a veteran teacher that had been teaching 25 years. The researcher provided Teacher X with the lesson plans and materials necessary for instruction during the study. Teacher X followed the lesson plans closely with the exception of student responses and discussion.

Both groups completed graphic organizers and charts in order to communicate what they had comprehended from their readings. Also, the instructors worked collaboratively to create questions related to the readings. The control group answered the questions orally or wrote their responses on paper. The experimental group answered the questions with the personal responders. Also, both groups played games on the interactive whiteboard, but the experimental group participated by using the personal responders connected to the interactive whiteboard. Both groups took the same pre-test before the instruction began and post-test after the instruction had ended. The study took place over four weeks during the course of normal instruction.

Data Analysis

Once the data were collected, they were analyzed using the computer software, IBM Statistical Package for the Social Sciences (SPSS) Statistics 22 for Windows 8. An Analysis of Covariance (ANCOVA) was used to test for growth as well as to analyze group differences in posttest scores. The pre-test was the covariate in the study. The pretest and posttest measures were scored on a percentage scale. Each question on the pre-and posttests was worth 20 points for a possible 100 points. The researcher computed the alpha coefficient for the two assessments as .733, suggesting that the test items have an acceptable internal consistency (Tavakol & Dennick, 2011). There was homogeneity of variances, as evaluated by Levene's test of

homogeneity of variance as shown in Table 1. The relationship was not statistically significant, $F = 2.287$, $p = .061$. There were no outliers in the data, due to the fact that there were no cases with standardized residuals greater than ± 3 standard deviations.

Table 1

Levene's Test of Equality of Error Variances

Dependent Variable: Post

F	df1	df2	Sig.
2.287	10	18	.061

The researcher conducted an ANCOVA analysis to test the differences between the two groups. The ANCOVA was used to determine whether there were any significant differences between the means, more specifically, the adjusted means. The regression lines for these individual groups have homogeneity of regression slopes.

Table 2

ANCOVA Results and Descriptive Statistics for Groups by Instructional Condition and Pre-Test Scores

Group	Scores			
	Observed Mean	Adjusted Mean	SD	n
Control	.8250	.796	.144	16
Exp	.6769	.660	.300	13
Source	SS	df	MS	F
Group	.033	1	.033	1.891
Pre	.296	5	.059	3.292
Error	1.007	18	.056	.256

Note. $R^2 = .054$, $Adj. R^2 = .057$, adjustments based on Pre-Test mean = .759. Homogeneity of regression tested and not significant: $F = 1.891$, $p < .001$. Pre-Test regression coefficient = .136

The results shown in Table 2 are from the ANCOVA results of the tests of effects between subjects. A one-way between subjects ANCOVA was calculated to examine the effect of the use of personal responders on posttest scores, covarying out the effect of pretest scores. The main effect for the use of personal responders was not significant ($F = 1.891$, $p < .001$), with

the experimental group not scoring significantly higher on the posttest ($m = .677$, $sd = .300$) than the control group ($m = .825$, $sd = .144$), even after testing the effect of pretest scores. Table 2 also shows the adjusted means. The control group is .796 and the experimental group is .660. There is a standard error of .072 for the control group and .079 for the experimental group.

Discussion

This quasi-experimental study utilized a pretest-posttest design to determine if personal responders increased students' comprehension level in a first grade classroom. The control group was the group that was taught reading comprehension strategies using traditional teaching methods. The experimental group was taught reading comprehension strategies using personal responders. This group was instructed using the same strategies as the control group except the experimental group used personal responders in the place of pencils and worksheets. The researcher was the instructor for the experimental group, and another first grade teacher at the school was the instructor for the control group. Each group met with the instructor every day over the course of four weeks for 15 minutes to receive instruction.

Research showed that there was no difference between the two groups on comprehension levels. The results of this study also revealed that the pretest score was not a significant predictor of the posttest score in either group. According to the findings, there was no significant difference between the growth the experimental group exhibited and the control group's growth from the pretest to posttest scores. Therefore, this study was unsuccessful in showing that using personal responders increased student comprehension levels; however, the study demonstrated that the reading comprehension levels did not decrease with the use of personal responders. Also, the researcher realized the importance of providing training in the use of technology before students are expected to apply it in class. The pilot test did not allow the researcher to see the

need for a brief tutorial on how to use the personal responders due to the fact that the pilot class has used personal responders on a regular basis.

Stowell and Nelson (2007) found no differences in informal participation but when asked formal review questions, students using personal responders participated more actively than those students without the personal responders. According to the instructor, the control group showed that they viewed their lesson as just a typical reading lesson. Research suggests that one of the best reasons for using personal responders is to obtain an accurate and immediate analysis of what students know or do not know (Sevian & Robinson, 2011). The results of this study suggest that further research on the effectiveness of personal responders could be conducted using a larger sample group. Bekoff & Mech (1984) suggest that a larger sample would reduce the variability of the estimate.

Conclusions

The following research question guided this study: Does using personal responders in a first grade classroom at a rural southeastern elementary school to teach and assess reading comprehension increase students' comprehension level compared to those that are taught using traditional teaching methods? As realized in this study, personal responders do not significantly impact comprehension levels when used in the instruction of first-graders. The students in the control group scored slightly higher on the pretest as well as the posttest, but the difference was not great enough to be considered statistically significant. Further, there were a small number of limitations experienced during the study.

Limitations

The researcher believes that the study would have produced more reliable results if the researcher were able to be the instructor for both groups. That way, the variable of having two

different instructors would be eliminated. The only feasible way to conduct this research was to have two teachers deliver the same instruction. The students in the experimental group should have received instruction on how to use the personal responders before the implementation of them in the study. Also, the interactive whiteboard disconnected numerous times throughout the study, and the participants in the experimental group were forced to wait longer to answer questions following their readings. This unanticipated wait-time caused the participants to lose their focus on the lesson.

The last limitation was based solely on the age of the participants. The participants in this study were only 6 or 7 years of age so the researcher had to consider the maturity of the experimental group with regards to the personal responders. The experimental group viewed the personal responders as new toys; therefore, taking more time out of the instruction.

Implications

More research is needed to investigate the impact of these tools with younger students. Researchers may choose to test the effect personal responders have on students' learning as well as their attention to the subject content. For a later study, school administrators could include the use of personal responders in daily instruction from the start of first grade and integrate them throughout the students' educational careers. It would be fascinating to see a comparison of those students' comprehension levels with students who have not had personal responders embedded into their reading curriculum; however, it would be difficult to pinpoint any differences the personal responders made.

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Appendix A

Oral Assent Script

(First Grade Student's Name),

I am a student just like you. I am learning about how to be a better teacher as a graduate student at Georgia Southern University.

You are invited to participate in a research study about comprehending what you have read. You do not have to participate, but if you do, you will be helping teachers figure out the best way to teach you reading comprehension skills. You can decide to stop at any time by letting me know. I have also asked your parents' permission for you to participate. Do you have any questions?

Are you willing to participate in this study? Student's Response: _____

Thank you for your participation in this study.

Appendix B

Study Description for Participants and Informed Consent Form

**COLLEGE OF Education****DEPARTMENT OF Leadership, Technology, and Human Development****Title:** The Use of Personal Responders in the Elementary Reading Classroom**Who I am and why this research.**

The Principal Investigator, Mitzi Helms, a first grade teacher and graduate student at Georgia Southern University, is researching the use of personal responders in instruction and assessment of reading comprehension in a first grade classroom. Your child is invited to participate in this 4 week long research study by completing reading comprehension activities and assessments within the regular course of study in your child's regularly assigned classroom. These activities and assessments will be directed by the Principal Investigator.

What does your child's involvement entail?

If you agree for your child to take part in this study, he/she will participate in learning activities and assessments in his/her regularly assigned classroom. He/she will not be asked to do anything beyond the regular procedures of his/her classroom. Copies of your child's assessment data will be made available to you at your request. Oral consent for participation will be obtained from your child as well.

Risks to your child during research.

This research has minimal risk. The researcher does not expect any harm to come to your child because of his/her participation in this research. All data will be kept in a locked cabinet in the researcher's classroom, and all electronic data will be password protected. All students will be randomly assigned a letter or letter combination to protect their identity in the data. Any identifiable information will be kept separately so that your child's participation will not be identifiable.

Will you benefit from your participation?

There are no direct benefits from participation in this research. Your child's participation is voluntary. You may stop your child's participation at any time for any reason. Your child's

participation will begin only after you have reviewed and signed the Consent Form and received the answers to any questions you may have for the Principal Investigator.

_____ Participant's Parent's Initials (page 1)

All research remains confidential.

All data materials remain confidential, and your name or your child's name will not be attached to any data. Pseudonyms will be used for all people, proper nouns, and identifiable events. No references will be made which could link participants to the research. All data will be kept in a locked file cabinet in the classroom of the Principal Investigator. All electronic data will be password protected.

Contact Information

Please contact Mitzi Helms, Principal Investigator, by phone at 478-783-7340, or by email at mhelms@pulaski.k12.ga.us, at any time during the study if you should have any questions or concerns. My advisor, Randal Carlson in Leadership, Technology, and Human Development at Georgia Southern University can be contacted as well at 912-478-5260, or by email at rcarlson@georgiasouthern.edu.

CONSENT

I have read the above information and I have received a copy of this form. I agree for my child to participate in this study. This study has been reviewed and approved by the Georgia Southern IRB under tracking number H14330.

Participant's Parent's signature _____ Date _____

Investigator's signature _____ Date _____

Appendix C

Pre-Test

Name: _____ **Date:** _____**The Drum and Jug Band**

Beth yells, "Let's put on a good show!"

Beth can tap on a drum.

Russ can hum in a jug.

They want to make a band.

Rick has just sung a song.

What a show!

They tap and sing under a tent.

The three pals are having fun!

1. Which of these BEST tells what Beth and Russ want to do?
 - a. sing a song
 - b. make a band
 - c. jump up and down

2. Which of these BEST tells what Rick can do?
 - a. hum in a jug
 - b. tap a drum
 - c. sing

3. Who is in the band?
 - a. adults
 - b. kids
 - c. animals

4. Which of these BEST tells what Beth can do?
 - a. hum in a jug
 - b. tap a drum
 - c. sing

5. Which of these BEST tells what the kids do under a tent?
 - a. clap and sing
 - b. tap and sleep
 - c. tap and sing

Appendix D

Post-Test

Name: _____ **Date:** _____**The Big Game**

Today is the big game. Jake is making plans. Jake must pick up his pals, Dave and Jane. They could all walk, or Dad can take them in the van. Dad gave them a ride. "Hello, Dave and Jane. Mom has a cake. We will pick her up on the way." Dad pulls up, and Mom gets in. "Hello, Mom. Come with us. Who made that big cake? Dad is taking us to the game. Let's go and eat cake! Oh, it will be fun!" Jake says.

1. Where is Jake going?
 - a. to the mall
 - b. to the game
 - c. to the store
2. Who will they pick up on the way to the game?
 - a. Jake
 - b. May
 - c. Mom
3. What will Jake MOST LIKELY do at the game?
 - a. rake
 - b. bake
 - c. eat cake
4. What will the pals MOST LIKELY do after the game?
 - a. get a cake
 - b. walk home
 - c. go home in the van

5. Who is going to the game with Jake?
 - a. Dave and Jane
 - b. Hank and Jane
 - c. Dave and Hank

Appendix E

Letter of Cooperation

PULASKI COUNTY ELEMENTARY SCHOOL

280 Broad Street
Hawkinsville, GA 31036
Phone: 478-783-7275
Fax: 478-783-4918

"Every Child, Every Day, Whatever It Takes"

November 22, 2013

Human Subjects - Institutional Review Board
Georgia Southern University
P.O. Box 8005
Statesboro, GA 30461

To Whom It May Concern:

Mitzi Helms has requested permission to collect research data from students at Pulaski County Elementary School through a project entitled The Use of Personal Responders in the Elementary Reading Classroom. I have been informed of the purposes of the study and the nature of the research procedures. I have also been given an opportunity to ask questions of the researcher.

The data requested including student test scores can be provided to the researcher with parental permission under our Pulaski County Schools Family Educational Rights and Privacy Act (FERPA) policy. The data will be collected by the researcher without student names, id numbers or other identifiers.

As a representative of Pulaski County Schools, I am authorized to grant permission to have the researcher recruit research participants from our school. Mitzi Helms is also permitted to collect research data during school hours at Pulaski County Elementary School. The researcher has agreed to the following restrictions: no second contact for recruitment and provide a copy of published conclusions or results.

If you have any questions, please contact me at 478-783-7275.

Sincerely,



Dale Garnto, Principal
Pulaski County Elementary School