4-8-2015

# What happens when QR codes are used to increase student engagement, motivation and independence in a fourth grade basic skills classroom?

Stephanie Baruffi

# WHAT HAPPENS WHEN QR CODES ARE USED TO INCREASE STUDENT ENGAGEMENT, MOTIVATION AND INDEPENDENCE IN A FOURTH GRADE BASIC SKILLS CLASSROOM?

By

Stephanie Baruffi

A Thesis

Submitted to the
Department of Language, Literacy, and Special
Education
College of Education
In partial fulfillment of the requirement
For the degree of
Masters of Arts in Reading Education
at
Rowan University
December 15, 2014

Thesis Chair:    Dr. Marjorie Madden, Ph.D.

## Dedication

*Thank you God for giving me the gift of learning to live, and living to learn.*

# Acknowledgements

I would like to thank my family and friends for all the ways you have encouraged me, supported me, and loved me, especially you Mom.

To Samantha Dulude: I could not have done this without you. You will forever be my "Thelma".

I would like to thank my husband for supporting me throughout this process and walking this journey with me. Your love and dedication to our family, and me, over these past two years allowed me to have the courage to work hard and achieve my goal.

Most of all, I would like to thank my beautiful boys: Jack, Luke and Matthew. You are the real reason I embarked on this academic adventure. Your unique spirits, warm hearts, and love for me inspire me like nothing else could. I hope you use my experience in this program to mold you into the men God wants you to be. I love you forever.

Thank you, JC

**Abstract**

Stephanie Baruffi
WHAT HAPPENS WHEN QR CODES ARE USED TO INCREASE STUDENT
ENGAGEMENT, MOTIVATION AND INDEPENDENCE IN A 4<sup>TH</sup> GRADE BASIC
SKILLS CLASSROOM?
2014/2015
Marjorie Madden, Ph.D.
Master of Arts in Reading Education

The purpose of this study was to determine what happens when QR Codes are

used to increase students' engagement, motivation and independence in a 4th grade BSI

classroom. Twelve students participated in the research model. Data collected included

surveys, audio taped interviews, and audio taped discussions, personal teacher journal,

and student surveys. The data was analyzed recursively across all data sets to determine

patterns and themes. Themes that emerged were difficulties scanning the QR Codes on

the iPads, creating QR Codes independently, and limited timing issues. Also, one of the

major findings of this study was that the students who had ADHD displayed significant

frustration. They did not respond positively during the interviews and on their surveys

and visibly struggled to work independently as the teacher- researcher observed them.

Future researchers can benefit from allowing for more time for the study and provide pre-

study technology training to better equip the students to scan the QR Codes and operate

the iPads.

# Table of Contents

**Table of Contents (Continued)**

*"To understand their world we must be willing to immerse ourselves in that world. We must embrace the new digital reality. If we can't relate, if we don't get it, we won't be able to make schools relevant to the current and future needs of the digital generation." – <u>Ian Jukes</u>*

## Chapter 1

## Introduction

Twelve beautifully energetic students sit together in pairs using their brand new, school appointed iPads. A snapshot of the room shows a young girl and boy talking quietly about the day's assignment. Each, more excited that the other, are eagerly waiting for their signal that they may begin. They know the directions in and out like the backs of their hands. They have been doing this now for weeks and feel empowered by it, or so one blonde-haired student says. They have been working on using their iPads to help them learn in a way that meets their needs and different instruction levels. One young boy repeats, "I know I am going to get at least a 95% today; I just know it". As the teacher says go, each pair quickly began and the whispers turn into robust discussions filled with words like, "Yes" "We got it" and "This is the best." Some students look puzzled and sit and stare at the others. Two blonde-haired girls quietly have a discussion that leaves one with a puzzled look on her face. As the room settles into the assignment, a young Hispanic boy approaches me and says, "This thing won't scan; I'm confused." The 3 precocious girls at the round table are quick to say, "What do you mean you are confused", quickly distract him. "This is the easiest assignment ever!"

This picture is not the one that I imagined. In my mind I thought I had all the answers about QR Codes and that I knew what the outcome of this study would be. I

thought that each student would scan the codes with ease and that everyone would automatically fall in love with using the iPads to scan QR Codes. This was not the case as

we began. Gambrell (2012) states individual experiences are noteworthy and students who feel unsure about their educational experiences are likely to disconnect. Students who feel pride and satisfaction towards their accomplishments are more likely to show relative growth.

The research question I plan to investigate is: What happens when QR Codes are used in a 4th grade BSI classroom to encourage engagement, motivation and independence? When students are in a homogenous environment, especially a basic skills setting, it can be quite difficult to garner accurate information due to embarrassment, limitations, and insecurities. Students often retreat and are reluctant to participate in activities that involve voluntary participation out of fear of failure. (Malloy, Marinack &Gambrell, 2010) state that students who feel comfortable and are engaged in a positive setting are more likely to be successful and find meaning in their assignments. As an educator it is important for me to focus on these findings, especially while conducting this study. Students that are invested in their learning experience and motivated to grow are more likely to participate and engage in conversation with the teacher an their peers (Gambrel, 2012). This study fosters the type of environment and atmosphere that offers safety in efforts to obtain optimum results for this study. As this study was conducted, I offered students a private area to complete their assignments. I also interviewed them in a private room where they could feel free to share their experiences.  As research began for this study, I found many gaps in the literature. This influenced my decision to investigate and examine further the possibilities of QR Codes and differentiated instruction and why limited research has been done. This study aims to add to the research and purports to advance future study in this area.

**1.1 Purpose Statement**

Harven (2013) states that some teachers do not utilize the technology they've been given. They have been teaching for years and don't want to incorporate something new into their time-tested lesson plans (Harven, 2013). Some schools are pushing instructors to incorporate technology into their syllabi and when it is poorly taught the technology is not used at optimal level. Teachers given high-tech programs are expected to teach them in the classrooms. These professionals deserve proper training and sometimes that education is not provided. This poses a problem since technology is pivotal to our future classrooms (Lanksheer & Knobel, 2011). Harven (2013) further suggest that limited research studies on QR Codes and how children learn while using them is an issue that effects current and future classroom best practices. This study aims to bridge the gap that research.

There is a widespread belief among teachers that students' constant use of digital technology is hampering their attention spans and ability to persevere in the face of challenging tasks (Ritchel, 2012). Ritchels' research studied 30 teachers in the Northern California area. A large majority felt that they had to "be an entertainer and just about dance to grab their attentions when they didn't use technology" (p.1). The teachers further said, "but I don't know how to keep up with the technology; they teach us" (p.1). The lack of education and professional development poses an issue for teachers who want to teach to the student and keep up with the times. In this multi-tasking generation, teachers should be prepared to meet the challenges of teaching to children who are wired differently than past years and need be provided the training to do so (Ritchel, 2012).

Addressing the notion that today's students are wired differently, current research conducted using technology, specifically QR Codes, suggests that it motivates and engages students' ages 6-18 in their comfort zones and social cultures (Munoz, 2012). This suggests that students identify with technology as a means of communication and comfort. Likewise, Roberts (2011) argues children that grow up constantly learning new technology will be well prepared to learn newer and more complex technology as it is invented throughout their lives. Using QR Codes in the classroom is a fast way to help students stay connected, receive quick answers and provide fast solutions (Walsh, 2010).

Both Walsh (2010) and Ritchel (2012) provide ample evidence that technology in the classroom is vital and necessary. Both researchers, along with Roberts (2011) argue that teachers need to be educated in using QR Codes and technology and they must shift their style of teaching to Generation Z (Everyone born after 1990) and away from Generation X (Everyone born between 1960-1980). When children are given the opportunity to learn through different technological approaches, they are able to take risks that enhance their independence (Walsh, 2010). This allows for a classroom filled with students who are engaged and motivated to learn.

The evolution of technology will not cease and it demands that we continue to grow with it on a daily basis. John Dewey once said, "If we teach today as we taught yesterday, we rob our children of tomorrow." Investigating if QR Codes help engage and motivate students to independently work is research that is meaningful, essential, and necessary in order to strengthen the gap in research.

**1.2 Statement of the Research Problem and Question**

It is important for students to be exposed to technology and the opportunities it can provide in an educational setting. Technology is at the root of our world and we cannot escape its powerful presence in our children's lives (Bilton, 2014). More research that focuses on the use of QR Codes in a classroom is useful future teacher researchers and scholars alike because it can provide a window into a world that has limitless potential. The question I address in this study is: What happens when QR Codes are used in a 4th grade BSI classroom to encourage engagement, motivation and independence? In order to investigate this question I plan to carefully collect data and analyze it in order to answer how and if QR Codes will increase engagement, motivation and independence.

**1.3 Story of the Question**

In order to fully understand my position in this research, it is important to understand my personal connection to this topic. I have always been an advocate of using technology to motivate students. When I began to teach at Cumberland County College in 2010, we used technology to help developmental students stay focused and maintain a true interest in their studies. It was obvious to the professors that if we were going to capture the attention of our students we had to use a medium they understood and felt comfortable with. It was then that I realized that technology should be rooted in a student's learning experience and that it could be the vehicle that could usher us into the next generation and beyond. During my clinical experience in the summer of 2014, I revisited my desire to investigate and use technology in my classroom. A group of students gave a presentation on technology highlighting QR Codes and their potential significance in the classroom. It was an "A-ha" moment for me. I began to question what

would happen if students were exposed to this medium and what affects it could have in classrooms. This is where I decided that I needed to focus my research on QR Codes. I was not sure how I could craft such an assignment because I knew very little about this teaching tool. I began to research this topic and found that is was becoming popular in the commercial world but there existed a large gap in the research focusing on the classroom arena. This made me want to complete more research in the classroom to address this gap. I dove into the significant work of key theorists and researchers like Guthrie and Gambrell who theorize that engagement and motivation are essential in student learning and through the use of technology we, as educators, can provide students with meaningful lessons that are differentiated and meet personal goals. Once I gathered more data about how important and necessary it is for teachers to be educated about QR Codes, I began to craft a study that will hopefully strengthen and inform future research in this area of study.

**1.4 Organization of the Paper**

Chapter two provides a review of the literature surrounding the use of QR Codes and technology in the classroom. It also provides research about how engagement and motivation through the use of technology can lead to independence and differentiation. Chapter three describes the design and context of the study, including my plan for implementing the literature, as well an essential facts about the class in which the study will be done. Chapter four analyzes the data research and discusses the finding of the study. Chapter five provides the conclusions of the study and implications for teaching and learning accompanied by suggestions for further research regarding the us of QR Codes in a classroom.

**Chapter II**

**Literature Review**

This study strives to investigate what happens when QR Codes are used to increase students understanding, independence and motivation in a 4th grade classroom. Chapter II examines the research associated with using QR Codes in an educational setting. The first section defines what QR Codes are and when they originated. The second section details how student engagement and motivation are necessary in order to generate excitement and foster connection between the student and the lesson. The third section addresses the importance and significance of technology in the classroom and focuses on how technological devices are becoming increasingly used in American homes and classrooms.

**2.1 What is a QR Code?**

This section focuses on the definition of a QR Code and its origin. A QR Code (abbreviated from Quick Response Code) uses four standardized encoding modes (numeric, alphanumeric, byte / binary, and kanji) to efficiently store data; Denso Wave invented The QR Code system in 1994. Although initially used for tracking parts in vehicle manufacturing, QR codes now are used in a much broader context, including commercial tracking applications and convenience-oriented applications aimed at mobile-phone users, businesses, and classrooms alike. QR codes are used to display text to the user. Users generate and print their own QR codes for others to scan and use by visiting one of several paid and free QR code generating sites or apps. The technology is one of the most-used types of two-dimensional barcode. It has potential as a modern-day classroom tool and researchers like O'Connor (2012) posit that the use of QR Codes in

the classroom is needed and important because technology will soon replace many of the archaic anchor texts and worksheets that have been considered the norm in the classroom. Over the next 10 years, technology as a primary source will become the norm requiring teachers to be prepared and educated. This is a necessary step because more and more households are using technology as a central source of information and connection to the ever-changed world. According to the United States Census Bureau (2014) 78.6% of Americans have access to the internet.  An additional study found that by the end of 2015 3.2 billion American homes will have mobile devices that connect to the internet such as iPads, Kindles, iPods and iPhones. Moreover, 74% of American schools have at least one mobile, Internet accessible device designated to their classroom.

## 2.2 Engagement and Motivation

R. Munoz (2014) states that in order to differentiate instruction, especially in a basic skills setting, technology should play a commanding and necessary role. This study is informed by Munoz's work in this area. He states that students who need specialized instruction, like repeated directions, could benefit from the use of QR Codes. This type of technology allows for the independent repetition of the recorded activity allowing for student to listen to direction, videos, and links at their leisure (Munoz, 2014). Moreover, technology can meet each student at their level and motivate them to engage and make a true connection with their assignments. Lanksheer and Knobel (2011) argue that students that are exposed to new literacies increase their engagement and motivation. Further, a study that was done by R. Munoz (2014) highlights the importance of technology, namely QR Codes in the classroom and argues that using QR Codes are important tools

to use when trying to differentiate lessons, especially for students with special needs and need kinesthetic activity.

Guthrie (2008) posits that one way to intrinsically motivate students to read is through the use of technology. Guthrie continues that young readers are often disconnected with the text and motivation plays a huge role in the success of a struggling reader. An empirical study performed by Aguila and Breen (2011) states that QR Codes have yet to achieve their full potential in education, even though they have shown their usefulness. This study shows that because of lack of education and awareness that this technology is still in its infancy; this is harmful to the America school system (Aguila and Breen, 2011). The researchers state that more research and education should been completed in order to help this very valuable instrument become a universal tool in education. Gambrell (1996) found that students that are engaged in reading and read often perform significantly better than those who are disconnected and lack motivation. She found that 37% of a total of the 60 students polled, do not read for pleasure at all, especially at the elementary and junior high level. Gambrell suggests that in order to develop intrinsically motivated students within a classroom, the teacher must attempt to engage them in a way that differentiates instruction through a construction of new materials and platforms, such as hands-on activities and the use of technology. Gambrell and Marinak (2009) find that allowing students to be creatively involved in their reading material and activities increased the likelihood that they would engage more in reading. In addition, Guthrie and Wigfield (2006) suggest that providing genuine student choices increases effort and commitment to reading, especially when an option is technology.

**2.3 Technology: Growth, Understanding, and Implementation**

In an article titled *Why Use Technology* Burns (2014), stated that in 2009, some 97 percent of teachers had one or more computers located in the classroom every day, while 54 percent bring computers into the classroom. The ratio of students to computers in the classroom every day is 5.3 to 1. Teachers reported that they or their students used computers in the classroom during instructional time often. Technology is available in schools and more qualitative research is being conducted in efforts to maximize student achievement and success in keeping with ever-changing classrooms (Burns, 2014). When students are using technology as a tool or a support for communicating with others, they are in an active role rather than the passive role of recipient of information transmitted by a teacher, textbook, or broadcast. The student is actively making choices about how to generate, obtain, manipulate, or display information. Technology use allows many more students to be actively thinking about information, making choices, and executing skills than is typical in teacher-led lessons (Munoz, 2014). Moreover, Ritchel (2012) states when technology is used as a tool to support students in performing authentic tasks, the students are in the position of defining their goals, making design decisions, and evaluating their progress. As the new CCSS are implemented, teachers must be provided support to figure out how best to teach to them. CCSS.ELA-LITERACY.W.4.2.A says to "Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension." Also, CCSS.ELA-LITERACY.W.4.6 also states with some guidance and support from adults should use technology, including the internet, to produce and publish writing as well as to interact and collaborate with others. Using technology is

required to accomplish these goals and meet the standards the state mandates. Klopfer, Osterweil, Groff and Hass (2012) focus on the question, "does the use of technology increase collaboration, engagement, and independence amongst elementary students?" (p.3). The study found that of the 25 students, 16 students felt that they were "excited when it came time to use their device." The data analysis concluded that while each student completed the assignments, the students who were considered low level, basic skills or had a personalized plan maintained focus more often and completed their assignments independently  (Klopfer, et all). These findings support the argument that QR Codes will help students improve their engagement and motivation while helping them improve their independence. Hau, Siraj, Alias, Abd, Zakaria and Darusalam (2011) posed the question, "How were QR Codes being used in an high school educational setting?" An ethnographic study proved to be most effective to this study because it found that the students addressed in this study raised their overall average by 1 full grade level. The data showed that during conferences with these students, almost every student said they were interested in the assignment because they were using an iPad or iPhone and responded yes when asked if using QR Codes made their experience faster or less time consuming (Hau et all, 2011). Susono & Shimomura (2006) feel that learning while using technology allows for an experience that is personalized, differentiated, and student-centered.  They further assert that using technology in the classroom invites innovation and meets the students in their digital world. Moreover, the researchers state that students that use technology to connect to their lessons are more motivated to do well because the use of digital technologies is foundational to their generation (Lanksheer & Knobel, 2011).

In a study by Rikala and Kankaanranta (2009) a group of teachers were polled. They were asked to give their opinions about QR Codes in their classrooms. Teacher responses were mixed but mainly highlighted positive experiences using this technological medium. One teacher held that, " learning materials are not longer limited to textbooks. Using technology in the classroom allows students to experience the world in real-time while still learning the standards required of them. (pg. 3). Moreover, Burns (2014) stated that many teachers understand that using technology in the classroom is essential if educators as a body want to engage them at their authentic creative space. This article suggests that students will learn well and be motivated to continue their studies if they are given the chance to use technology in some form. Vanwelsnaers (2012) suggests that, "common sense tells educators that technology in the classroom enhances and improves student performance" (p. 1). This same study found that a majority of students have access to smartphones, iPads, and other technologies; therefore, learning through this medium is very possible and accessible. This access proves to be pivotal to this study and the aforementioned studies as well. Students who do not have access to these types of technologies are not afforded the opportunities to differentiate their learning experience in a way that is relatable and relevant to their generation.

**2.4 Conclusion/Looking Ahead**

QR Codes link the physical world with the virtual by providing on-the-spot access to descriptive language and online resources and locations. In this way, the codes support experiential learning, connection to the technical world. They offer expanded pedagogical value in the classroom create a new style of learning, which can lead to engagement, motivate and independence amongst students.

Currently, there is a gap in the literature conducted and researched about the use of QR Codes in education. It is hoped that this study will add to the research about the benefits of using QR Codes in the classroom to enhance engagement, motivation and independence that have been researched and discovered by the authors addressed in this literature review and serve as a source for further research studies. As the review of the available research suggests, using technology that has been researched and discovered by the authors addressed in this literature review and serve as a source for future research studies. Once this methodology is put to use in the classroom, it can serve as an essential tool to enhance reading comprehension and promote interaction between student and technology.

Chapter three discusses the research designs and methodology. It will begin by examining the research paradigm used in this study and the methods of data collection and analysis. It concludes with the description of the context and the participants in the study.

## Chapter III

## Research Design and Methodology

This study is a qualitative study. The definition of qualitative research is primarily exploratory research. It aims to gain a deep understanding of a specific event, rather than a surface description of a large sample population. It strives to provide an explicit rendering of a structure, order, and broad patterns found among a group of participants. Qualitative research allows the meaning of the inquiry to emerge from the participants. Finally, it aims to get a better understanding through first hand experience, truthful reporting, and quotations of actual conversations along with understanding how the participants derive meaning from their surroundings, and how their meaning influences their behavior. This study was conducted in a natural classroom setting, often in small groups. Detailed reports feature views, opinions and insights of the informants who participated. Qualitative teacher research is the most suitable study because it focuses on student acceptance in a classroom setting, contrary to a quantitative research study which focuses on variables aimed at solving a specific issue or problem.

Through teacher research, the intention is to work collaboratively in an inquiry community to question, evaluate, and consider change for teaching pedagogies (Cochran-Smith & Lytle, 2009). In order to meet the goals intended for the research study, teacher researchers must make plans, observe, collect data, and analyze that data. This process typically increases levels of teacher cognition and teaching practices, which leads to transformation and change. Cochran-Smith and Lytle (2009) reference this method of research a way for teachers to examine their own assumptions and develop knowledge by posing questions and gathering data. This method of research will allow me to gather an

14

authentic understanding of how QR Codes work in a fourth grade basic skills classroom to enhance engagement, motivation and independence.

Cochran-Smith and Lytle (2009) examine many roles that teacher researchers play in their inquiries because they are an important part of the setting in which the study is set as opposed to a researcher that is merely an outsider looking into the classroom. The qualitative teacher research paradigm allows for the teacher to act as both facilitator and researcher, making the benefits and valuable perspectives. This study will use multiple measures in order to collect data, such as surveys, voice recordings and recorded interviews. It will also include anecdotal notes, observations, which will be recorded in a teacher's journal.

Teacher researcher is a balancing act that marries hands on examination and quiet observation (). This dichotomy is one that is hard and requires planning. This study involves lessons that span over a four-week period in a natural classroom setting. There are 12 participants who are between the ages of 9 and 10 years old. The natural setting of this study allows for increased learning of the participants and further learning for the researcher, as well. This study takes place during a Language Arts literacy block in a small classroom.

### 3.1 Procedure of the Study

The first step in conducting this study was to submit an application to the Institutional Review board at Rowan University to obtain approval for research. Next, permission slips were distributed to parents. These forms outlined the study and sought parent approval. Each of the twelve students returned their slips granting them permission

to participate in the study. All research was conducted in my classroom in Room 3. The data was gathered during November of 2014.

Prior to the initiation of the research, students were instructed on the meaning of the QR Code and its function. Each student practiced scanning practice codes using their iPads and Chrome books. Students were lead in a min lesson on how to record a QR Code and then create and print them, as well.  Students were also given a baseline data survey that focused on the follow 5 questions:

1.  Do you like to use technology to help you read? Why?

2.  How often do you use technology (iPods, iPads, etc.) in your home?

3.  Do you like to use technology?

4.  Do you need help when you use technology?

5.  Do you think that technology could help you in your classroom? Why or why not?

They were also given a Post Survey, as well. They were asked:

1.  Did you find that QR Codes helped you complete your assignments on time?

2.  Do you think that using QR Codes helped you to work by yourself?

3.  List as many reasons that you did not like QR Codes

4.  What was the easiest lesson for you? Why?

5.  What was the hardest lesson? Why?

*All surveys were read aloud to students to ensure comprehension.

In the first week of the study, students were given their iPads, which are assigned to their classroom. Students were given a pre-designed worksheet with a list of 10 sentences that were missing either a subject or a predicate. They were also given two QR

16

Codes: one that, when scanned played a prerecorded explanation of what a subject was, and another that when scanned played a prerecorded explanation of what a predicate was. Once the students chose their answer, they were then given another sheet that consisted of 10 QR Codes, which reflected the corresponding answers. Students then scanned the answers to check their work. They repeated the same activity with another worksheet that focused on action verbs and linking verbs.

In the second week, students were given a QR Code that when scanned read a book aloud. After listening to it, they were given another set of QR Codes that when scanned asked them questions that were reflective of the story they just heard. The first QR Code asked, "What was the main idea of the story Spaghetti in a Hot Dog Bun." The second QR Code read, "Please name two of the characters in the story and how they were similar/different". The last QR Code read, "Would you recommend this book to a friend? Why or Why not?" After scanning each code, students responded to the question in their writing binders. Students were then asked to share their experience with their partners. I will document these shared responses in my teacher journal.

In week three, students were given an assignment to go onto YouTube and find a grade appropriate movie trailer. Once they have found the movie trailer of their choice, they are to create their own QR Code and print it. Once they print it, they are to create a movie poster promoting the movie.

In week four, student will scan pick a famous person from history using the book 100 people who made history and people who shaped the modern world written by Ben Gilliand. After choosing a famous figure, students will collaborate in pairs and will videotape and record each other giving a summary and highlights of the person according

to an outline provided by the teacher. They will generate a QR Code and cut and paste it to a photo of their famous person. All work will be displayed in "The Read Box" and students will view each other's work using the QR Codes scanners.

As a final assignment, I will meet with the partners and interview them, take notes and record their responses. During this recorded interview, I will talk with them about their impressions of QR Codes and how they helped or hindered their learning. Based on these results, I will guide students to generate their own QR Codes. They will work in partners and be given the freedom to create their own QR Codes in an attempt to construct lessons and activities, which they will present to the class.

**3.2 Data Collection**

Data was collected from three main resources. The first source was a personal teacher journal in which anecdotal notes were recorded along with quotes, questions, queries, thoughts, comments and any personal reflections based on student interactions and interviews.

The second source of data was surveys filled out by the students. The surveys were given to the students prior to the beginning of the study, after each lesson was completed, and at the end of the research study. Students were not provided any guidance on the surveys by school staff except for defining problematic wording or clarification for comprehension purposes.

The third source of data was audio recording of students working together. All recordings were organic and recorded prior, during and after the QR Code lessons were completed.

**3.3 Context of the Study**

Pittsgrove is a township in Salem County, New Jersey. According to the 2010 United States Census, the population is estimated to be 9,300 residents, 3,307 households, and 2,576 families residing in the township. The population density is 208.3 per square mile. The racial makeup of the township was 88.17% (8,282) White, 6.97% (655) Black or African American, 0.42% (39) Native American, 0.94% (88) Asian, 0.01% (1) Pacific Islander, 1.39% (131) from other races, and 2.10% (197) from two or more Pittsgrove Township is governed under the Township form of government with a five-member Township Committee. The Township Committee is elected directly by the voters in partisan elections to serve three-year terms of office on a staggered basis, with either one or two seats coming up for election each year as part of the November general election in a three-year cycle.[5] At an annual reorganization meeting, the Township Committee selects one of its members to serve as Mayor and another as Deputy Mayor.

Hispanics or Latinos of any race were 4.80% (451) of the population. Public school students from Pittsgrove Township and Elmer borough attend district for Kindergarten through twelfth grade as part of a full sending/receiving relationship in which the former Elmer School was integrated into the district as of 2011 and Elmer and Pittsgrove Township students attend school together throughout their education. Schools in the district are Norma Elementary School for Preschool-K (172 students), Elmer Elementary School for grades 1-2 (NA), Olivet Elementary School for grades 3-5 (412), Pittsgrove Township Middle School for grades 6-8(NA) and A.P. Schalick High School for grades 9-12.

Olivet Elementary School

Olivet Elementary School (OES) is where this study took place. This school houses

grades 3-5 and is a Title I school. According to the New Jersey Department of Education

2012-2013 School Report Card, there were about 188 male students and 185 female

students enrolled in Olivet School. About 205 of those pupils are students with

disabilities who have either Individualized Education Plans (IEPs) or 504 plans. 81% of

the student population is Caucasian while 5.95 is African American, 8.6% Hispanic, 1.35

Asian, and two or more races 3.2%. The school day is 6 hours and 30 minutes.

The fourth grade consists of 4 mainstream classes, 1 Behavioral Disorder (BD)

class, and 1 Special Education class. This study focused on 12 students in the mainstream

classroom that are pulled out for a daily block of Language Arts for 2 hours per day. Of

those 12 students, 2 have IEP, 3 have ADHD and are taking medication and 1 student is

receiving speech therapy.  Each student is either 9 or 10 years of age and has been chosen

to be in this class because of MAP scores, NJ ASK scores, and teacher recommendations.

The class instruction is rooted in the basal reading program, Journeys by Houghton

Mifflin & Harcourt, and supplemental-guided reading instruction is based on Fountas and

Pinnell leveled texts.

**3.4 Conclusion/Looking Ahead**

Chapter four discusses the findings of the data analysis. Chapter five presents a

summary of the findings, conclusions of the study, limitations of the study, as well as

implications of the student recommendations for future research.

**Chapter IV**

**Data Analysis**

Chapter IV discusses the findings of my study, focusing on answering my question, "What happens when QR Codes are usedin a 4<sup>th</sup> grade BSI classroom to promote engagement, motivation and independence?" As I sat and organized my data (teacher-research journal, surveys, student projects and voice recordings)  apparent themes became evident. As I began, I quickly discovered that timing was an issue. Some students were not completing the assignment with ease and required redirection and guidance. Further, the inability to properly scan the codes also caused confusion, as well. Another common theme that is evident is students who use technology at home performed well independently and were eager to perform and use QR Codes. Lastly, the students in my class who have ADHD were not motivated to use QR Codes and did not perform well independently; they were also the least engaged in the activities.

**4.1 Revisiting the Study**

As chapter three explained, I collected data over a four-week period during which children were exposed to QR Codes. First I used questionarries to learn about students' background knowledge on technology and the use of QR Codes. As the study began, I observed students' experiences and recorded them using a teacher journal and voice recorder. This enabled me to review student responses and chart common themes that were evident. The process of recording and taking observational notes allowed me to analyze student behaviors throughout the study and chart information that was needed in order to analyze the data and record findings. Lastly, a post survey was given to the

students to assess their experience with the study. This inquiry sheet allowed me to examine student opinions based on their experiences with the study.

## 4.2 Encountering QR Codes and Issues

During the first week, the students were introduced to QR Codes. They were given a chance to learn how to use the QR Code, the QR Code Generator and the iPad. After these concepts were discussed and practiced, students began week one of the study. The first lesson proved to be challenging. As the first group sat and attempted to scan the code to listen for the definition of the word subject and the word predicate, a look of puzzlement ran across their faces. A student named Onesto said, "Ah, I can't scan this thing; are you sure this works?" Giana, mirrored Onesto's sentiments and said, "this iPad will not scan this code and when it does I don't hear anything." Another boy, Zyheem disagreed and said, "this is so cool; I have never done this before." The last student at the table, another girl named Katie, laughed with Zyheem and said, 'I know, right!" While all students were able to focus and complete the activity, Onesto and Giana struggled the most to finish. My reflections from my teacher research journal dating back to that week supported this finding stating, "Onesto and Giana are having difficulty with this activity. Onesto said, "Ah man-this iPad is making me concentrate on using it and not the worksheet you gave me". The notes also reflected that Giana said, "I don't get this" and that she began to cry. In a voice recording from that date, I recorded Zyheem, Katie, Onesto and Giana after the activity was completed. Part of the recording read as follows:

Me: "What did you like about using QR Codes in this activity?"

Zyheem: "I really like that you didn't have to help me. I like doing this by myself and I like using technology."

Katie: "Yea. I like that it's cool to scan it and your voice came up. I like that".

Me: "What about you, Giana? Was can you describe your experience to me about using QR Codes to complete your assignment?"

Giana: "Um, I really felt like I had to rush. I didn't like all of the papers; it confused me. Oh, and my iPad is heavy."

Onesto: (jumps in) "I was just thinking that, Giana. I felt like I was looking at everyone and trying to do what they did and I forgot what a subject and predicate was".

Me: "Did you remember that you could go back and scan it as many times as you needed to scan it?"

Onesto: "I did, but…it was hard."

As I reflected on my teacher research journal from that conversation, I wrote, "it is evident that Katie and Zyheem had a positive experience with QR Codes. Onesto and Giana are struggling with the technology and timing." This was the most notable experience I had in the first week of the study.

As the second week began, students were given a QR Code that when scanned read a book aloud. After listening to it, they were given another set of QR Codes that when scanned asked them questions that were reflective of the story they just heard. The first QR Code asked, "What was the main idea of the story Spaghetti in a Hot Dog Bun: Having the Courage to Be You?" The second QR Code read, "Please name two of the characters in the story and how they were similar/different". The last QR Code read, "Would you recommend this book to a friend? Why or Why not?" After scanning each code, students responded to the question by generating a QR Code, with my help. The

students printed the codes and all were asked to walk around and scan each other's codes. Through observations and anecdotal notes, I recorded the following annotations:

1. Autumn- "I can't get this thingy to work-can you help me?" Autumn seems lost.

2. Delaney-"(laughs) Here silly. Do this. The code is little so you have to sit still." Delaney appears to be on target.

3. Jyasia- "(humming) I think I got it. Should I hit the play button? The book didn't come up by itself.  Jyasia looks a little frustrated.

4. Taea- "Can you help me make the code? I forget what I have to do". "Mrs. Baruffi, this is fun!" Taea appears to be excited and engaged.

5. Onesto- (gazing away)- appears to be tired and note engaged.

6. Giana- "I liked that book. Can I read it again, or are we out of time?"

The observations and recorded from this session seem to suggest that many students are struggling with scanning the codes and timing. Engagement seems to be lacking in particular students and the motivation to accomplish the work in the given time is not seen. However, many other students are excited and connected to the work and have little to no problem scanning and generating the codes and completing the work on time. The population of students in this category portion is much smaller.

**4.3 The Benefits of Technology at Home**

Throughout the study, the data suggested that students who have experience with technology (QR Codes, scanning, and iPads)  displayed greater independence, motivation and engagement.

Question 2 on the Pre Survey asked if students used technology at home. Those that answered yes were more responsive during the activities and could articulate the issues and experiences, both positive and negative, better than the students who were novices.

An excerpt, dated the second week of the study, from my teacher research journal questioning three particular students who were very familiar with technology read like this:

Me: "Katie, how do you feel about this experience? Did you like this activity or not?"

Katie: "Oh yes! One of my favorite things to do when I finish my homework is to play on my mom's iPad. She has a scanner like this one too".

Me: How about you, Zyheem?

Zyheem: "Well, this is my thing, you know. I want to work with technology when I grow up so you know I like to use it every time I can". Now I can add QR Codes to my list of things I can do!"

Me: Did the QR Code make it easier or harder for you to complete this assignment?

Zyheem: "Way easier. I like that I could do it all by myself and listen to the book again."

As I continue to gather my data and further analyze, I replay the end of that conversation with Zyheem and Katie and hone in on another conversation that Giana and Trinity are having. The girls are talking about iPads and Trinity says, "I have only used this tablet a few times; I only use it on the weekends when I am with my dad". Giana replies, "I never get to use one except when I am here; my mom might get me one for Christmas because hers broke". Taea said, "I like to use iPads in school. This lesson is so cool and I can't wait to tell my mom. Jaylynn agreed and said, "I'll bet you no one in our

school uses these codes." My teacher research journal dated November 18, 2014 reads, "I think that a pattern is becoming more clear to me. I can see a divide in engagement and motivation between the children who have experience with technology and those who do not. I knew that this could be an issue, but I didn't know that it would be a pattern in this study." Giana and Trinity's conversation demonstrated a disconnect in using QR Codes because of the lack of experience with the technology itself, whereas Taea and Jaylynn's conversation seemed to express their excitement for QR Codes. These reactions are consistent with the experience each girl has with technology. This finding seems to be consistent with each of the 4 students who have ADHD. This finding has been the most significant for this study.

**4.4 Common Themes with Those Who Have with ADHD**

On the final day of the study, all 12 students were asked to complete a post survey. After analyzing the surveys, the information provided a clear theme. All three of the students with ADHD had a strong response to questions 4 and 5 of the survey. Question 4 asked, "What was the hardest lesson for you and why?" Onesto responded, "Almost everything. It confused my brain; I couldn't think in enough time". Giana stated, "I didn't like that I had to sit by myself and think alone. I didn't like that the iPad scanned different things. I didn't like that I forgot and had to go back". Jyasia wrote, " I didn't like the subject and predicate lesson because the QR Codes wouldn't scan and I got frustrated. I also couldn't organize myself". For question 5, "What was the hardest lesson and why?", some of the same sentiments were recorded. Onesto responded, "My least favorite lesson was the one where we had to look up a famous person and then write down facts about them and then make a QR Code. I got confused a lot and I forgot what I

was doing a lot too." Giana wrote, "I didn't have a least favorite. Some of it was fun because I liked to hear your voice. I liked to learn to scan. I didn't have enough time." Jyasia stated, "I am not sure. I didn't like to use QR Codes. I liked the iPad but for games."

The surveys were valuable tools in helping me to better understand how these three particular children, whom all have ADHD, felt about their QR Code experiences. After examining the surveys and recording the data, those three students gave responses that indicated that QR Codes were not effective in increasing engagement, motivation and independence. The other 9 students gave responses that indicated that their experience was positive, productive, and purposeful. According to a post survey in response to question 4 which was dated December 9, 2014, Taea said, " I don't think there was a hard lesson. It was easy for me to scan the codes and I liked it." Chloe mirrored those sentiments and said, "I don't think it was hard. It was so fun". The overall evaluation of the surveys, along with the observations allowed me to glean pivotal information that affects the theme of this study. This information helped support the theory that the students in this survey who have ADHD struggled to maintain engagement and lacked focus. The children without ADHD responded to the surveys citing positive opinions and provided optimistic feedback.

**4.5 Timing is an Issue**

As I looked across the data sources, lack of time was a common theme. In a voice recording from November, 25, 2014 between Trinity and I said:

Me: What's wrong Trinity? You seem frustrated."

Trinity: "I kinda am." It's taking me a long time to scan this and answer the

questions.

Me: Is that today's work or yesterday's?"

Trinity: "No it is still yesterday's work. I didn't have time to finish."

(Other students overheard what we were saying and joined the conversation)

Chloe: "I didn't finish mine either.  I wanted to reread the code like 5 times."

Katie: "I know! It was fun and I lost my way."

Me: What do you mean by lost your way?"

Katie: I mean sometimes I run out of time because I listen to the Codes a few

times and then I forget where I left off."

Across this study, timing proved to be an interference with success and

independence for most of the students. On the post survey, question number 1 asked,

"Did you find that QR Codes helped you complete your assignments on time?", 8 of the

12 students, or 66 percent,  answer no.  Post survey question number 2 asked, "Do you

think that using QR Codes helped you to work by yourself?" 7 of the 12 students, or

58%, answered no and added, "I needed to ask lots of questions still; "I needed someone

to help me scan the code; I asked my buddy to do it for me." I reflected later in my

journal and said, "Today was an eye-opener.  The surveys are revealing that my students

with ADHD need more help than the others. This suggests that the students in my class

with classifications are not engaged in these activities and cannot independently work by

themselves in a timely manner." Further strengthening the notion that students with

ADHD did not engage in this study was the final conversations I had with the 3 students

with this disease. According to my teacher journal dated December 3, 2014,  Onesto said

to me: " Mrs. Baruffi, thanks for planning all these activities, but I got confused a lot. I see everyone having fun, but my brain hurts".

**4.6 Summary of the Data Analysis**

As quoted in Chapter II, "allowing students to be creatively involved in their reading material and activities increased the likelihood that they would engage more in reading." (Gambrell and Marinak, 2009). After looking across my data sources, I found that timing was an issue. This was a four-week study, which limited the amount of information that could be gathered and the quantity of lessons that could be performed. I found that students who struggled most with finishing their QR Code assignments felt rushed and needed more than one day to complete the activity. This posed a problem for the study's timeline. Another issue was the inexperience with technology. The students who did not have access to technology or did not know how to operate an iPad struggled to scan the QR Codes. The students who had personal iPads or used hand-held technology were motivated and engaged in this study and demonstrated confidence during the activities. The data further suggests that the students who had prior exposure to hand-held technology were able to work independently during this study. Of the 12 students, 9 of them, or 75%, responded positively on the surveys when asked questions regarding the use of technology at home. The data collected during the survey corroborates they answers given on the questionnaires. Lastly, students who have been diagnosed with ADHD were least likely to be engaged in the various QR Code activities that were presented.  As I reflected on my data collection I noted that these three students lacked motivation to engage in their assignments. They found it difficult to follow directions without assistance and were least likely to complete their assignments on time

with the rest of the class. It was evident after listening to the voice recording that these

thee students felt frustrated and did not like participating in this study. They felt defeated,

confused and dissatisfied with their performances. This pattern was the most important

finding to this study and the most unexpected, as well.

Chapter V presents the conclusions and implications of this study as well as

recommendations for further research.

**Chapter V**

**Summary of the Findings**

In concluding my research, I found that 9 of the 12 students, or 75%, demonstrated an understanding of using QR Codes in our classroom study. I also found that 3 out of 12, or 25% of the students were not motivated and engaged when using QR Codes. These results are a result of data collection through triangulation, which included voice recordings and observations, a teacher researcher journal and surveys. After spending four weeks on presenting QR Codes through activities rooted in the question, "What happens when QR Codes are used in a 4th Grade basic skills classroom to enhance engagement, motivation and independence, I found that this study was beneficial. This use of QR Codes motivated the students to complete the lesson and maintain engagement. It also allowed them to work independently which increasingly allowed for personal growth. This was evident by their responses in their post survey questionnaires. 8 of the 12 students responded that they liked this method and it allowed them freedom to work alone and on task.

After four weeks, I found that a large percentage of the students participated in this study were excited and eager to learn through the use of QR Codes. As the study began, the majority of the students quickly learned to operate the iPads and generate the QR Codes needed to complete the activities. As the weeks progressed, those that were familiar with the use of technology displayed greater confidence and helped the students who were novices and did not have much experience using technology. These acts exhibited independence and that autonomy was a common theme that was found across this study.

Some of the students demonstrated frustration when it came time to scan the QR Codes and complete the assignments. All three students with ADHD did not exhibit engagement and motivation and needed the most direction and support. After reviewing the surveys, these three students were the only students to voice their dislike and confusion and reported that they did not like working independently. On the other hand, the other nine students who participated in this study reported positive feedback during the surveys that indicated that using QR Codes motivated them to work independently because they enjoyed using technology in school, enjoyed hearing my voice instructed them as many times as they needed, and enjoyed creating codes themselves.

Lastly, the findings of my research suggested that time played a huge factor in this study. The four-week time line limited the amount of information that could be collected and restricted the amount of activities that could be assigned. The chunk of time that a study was given in a language arts period was also an issue. Some students did not like that they had to complete the activity over a 2-3 day period, which often made them feel frustrated. On the survey, the students with ADHD responded that they felt pressured to complete the assignments because they needed to scan the QR Codes multiple times in order to absorb the information.

**5.1 Conclusions**

After reviewing the literature surrounding the use of QR Codes and technology in the classroom, I found that my study was beneficial to the students because it helped to expose them to technology in a way they would have otherwise not exposed to through a typical fourth grade curriculum. Gambrell (2011) suggests that in order to develop intrinsically motivated students within a classroom, the teacher must attempt to engage

them in a way that differentiates instruction through a construction of new materials and platforms, such as hands-on activities and the use of technology. This statement is rooted in the purpose of this study. Further, Guthrie and Wigfield (2000) suggest that providing students with choices increases effort and commitment to reading, especially when an option is technology. I found that my research supported this idea as the children took in new information through the use of technology and became intrinsically motivated and excited about their performance and accomplishments.

In addition, the use of QR Codes can help children feel that learning while using technology allows for an experience that is personalized, differentiated, and student-centered and using technology in the classroom invites innovation and meets the students in their digital world. (Susono & Shimomura, 2006). I found this to be true in my research. In many of my voice recordings I reviewed, one sentiment that was resounding was how pleased they were to work on projects that used technology as a main source of information. Moreover, they also felt eager to engage in this study because it allowed for them to work at their own pace and listen to the books or directions as needed, providing them with the independence required being successful and productive.

Essentially, the findings of my research closely align with the current literature surrounding the use of QR Codes, although there is a gap in the literature and more studies are needed to fill this gap. The students were able to gain valuable knowledge about QR Codes and discover the need and importance of using these codes in the classroom. Through this study the participants made gains in their confidence and independence and learned to generate and create QR Codes, thereby allowing for a unique experience with technology.

**5.2 Limitations**

      The major limitations that affected the course of this study and the findings were the available time to conduct the research. This study took place in a two hour Language Arts period 1-2 days per week. The schedule for this study only allowed for 1- 1½ hour per day and sometimes less depending on the vacation and half day schedules. For the purposes of this study, a much longer span of time would have been ideal, such as a semester or the entire school year. If the time frame of the study were expanded, the teacher researcher could choose more QR Code activities that would support the thesis inquiry. Also, an ideal population would have been larger than 12 students. This is a small sample size and an idyllic model would be more than 20 participants in order to gather more data.

**5.3 Implications for the Field**

      After analyzing the data I received throughout the study in order to draw conclusions about the use of QR Codes in the classroom, I found that there were certain areas that could be further investigated. One area in particular would be how the study would change if the participants were a larger population. The limitations of having 12 students in the study can skew the significance of the study in some cases; therefore, increasing the amount of participants would be beneficial in the future. Also, teacher researchers who plan to conduct similar research in their classrooms would likely benefit from designing a study that spanned over a semester, or an entire school year. This could allow for more a more in depth look at the reactions and responses of the participants and also the possibility to explore them more intensely, possibly by gather more resources to create better activities that require funding.

ADHD. If the population of students with 504 plans, IEPs, or special needs were increased, the teacher researcher form a greater understanding if all students with special needs or ADHD had issues with using QR Codes. Because there were only three students who had ADHD, making the assumption that all students with ADHD struggle with QR Codes is presumptuous and cannot be fully supported.

Lastly, the study could also be improved if the teacher researcher could provide the students with time to learn how to use the technology that will be used in the study. In this case, many students were not familiar with the use of an iPad, which hindered their experience. For future research, the teacher researcher could benefit from providing the students with weekly instructions and practice times using the technology that will be used in the study, perhaps during the allotted computer lab time during a school day.

In conclusion, the use of QR Codes in a classroom can enhance a student's learning experience by increasing their motivation, engagement and independence. This study suggests that when students are given technology, specifically QR Codes, they can grow their confidence, increase their classroom experience, and maintain focus through planned instruction. It is the role of the teacher to prepare students for the world outside the classroom. By introducing technology and QR Codes into the classroom lessons, teachers can provide stepping-stones for students to make connections to the outside world and give them a chance to experience technology in a way that is meaningful now and for the future. Future research in this area is important, essential, and warranted and technology undoubtedly, will play a huge part in the way children learn and can participate  in the future.

# References

Aguila, A., & Breen, D. (2011, January 1). Unlocking Perspective with Quick Response Codes. *Proceedings of the Media Ecology Association*, 1-10.

Bilton, N. (2014, September 10). Steve Jobs was a Low-Tech Parent. *New York Times*.

Burns, M. (2013, January 23). Five Reasons I Love Using QR Codes in My Classroom. *Edutopia*.

Census.gov. (n.d.). Retrieved November 27, 2014, from http://www.census.gov/

Cockran-Smith, M., & Lytle, S. (2009). *Inquiry as stance: Practitioner research for the next generation*. New York: Teachers College Press.

Gambrell, L. (1996). *Creating Classroom Cultures that Foster Motivation* (1st ed., Vol. 50, pp. 14-25). International Reading Association.

Gambrell, L. (2011, November 15). Seven Rules Of Engagement: What's Most Important to Know About Motivation to Read. *Wiley Online Library*, 172-178.

Gambrell, L., & Marinak, B. (2009, January 1). Reading Motivation: What the Research Says.

Guthrie, J. T. (Ed.). (2008). Engaging adolescents in reading. Thousand Oaks, CA: Corwin Press.

Guthrie, J. T., Wigfield, A., Humenick, N. M., Perencevich, K. C., Taboada, A., &Barbosa, P. (2006). Influences of stimulating tasks on reading motivation and comprehension. Journal of Educational Research, 99, 232-245

Hau, G., Siraj, S., Alias, N., Abd-Rauf, R., Zakaria, A., & Darusalam, G. (2006). Research Trends in the Field of Technology-Enhanced Learning: A Content Analysis of Quick response Code (QR Code) and its Application. *The Malaysian Online Journal of Education Technology, 1*(1).

Harven, M. (2013, November 6). 5 Top Problems in Education Today.

Klopfer, E., Osterweil, S., Groff, J., & Haas, J. (2012). Using the technology of Today, in the Classroom Today. *The Educational Arcade*.

Lankshear, C., & Knobel, M. (2011). *New literacies* (3rd ed.). Berkshire, England ; New York: Open University Press.

Malloy, J., Marinak, B., & Gambrell, L. (2010). *Essential readings on motivation*. Newark, Del.: International Reading Association.

Munoz, R. (2014). *QR Codes in Education*. Create Space Ind. Publishing.

New Jersey Department of Education. (n.d.). Retrieved December 1, 2014, from
    http://www.state.nj.us/education/

O'Connor, G. (2012, February 17). QR Codes-What are they and how can I use them in
    my classroom?

Probst, A. (2012, January 1). The Expectations of Quick Response (QR) Codes in Print
    Media:An Empirical Research Data Anthology. *Journal of Undergraduate Research
    XV*.

Ramdsen, A. The use of QR codes in Education: A getting started guide for academics.
    Working Paper. Retrieved January 1, 2008.

Rikala, J., & Kankaanranta, M. (2009). The Use of Quick Response Codes in the
    Classroom.

Roberts, C. (2011, February 2). QR Codes-Lessons and Resources.

Susono, H. & Shimomura, T. (2006). Using Mobile Phones and QR Codes for Formative
    Class Evaluation and Better Learning for College Students. In T. Reeves & S.
    Yamashita (Eds.), *Proceedings of World Conference on E-Learning in Corporate,
    Government, Healthcare, and Higher Education 2006* (pp. 3026-3029). Chesapeake,
    VA: AACE.

U.S. Department of Education. (n.d.). Retrieved December 10, 2014, from
    http://www.ed.gov/

Vanwelsenaers, M. (2012). *Students Using their Own Technology Device in the
    Classroom: Can "BYOD" Increase Motivating and Learning*.

Walsh, A. (2010, January 1). QR Codes – using mobile phones to deliver library
    instruction and help at the point of need. *Journal of Information Literacy*, 55-65.

**Appendix A**

**Pre Survey**

Name _____

Pre Survey Questionnaire

1. Do you like to use technology to help you read? Why?

2. How often do you use technology (iPods, iPads, etc.) in your home?

3. Do you like to use technology?

4. Do you need help when you use technology?

5. Do you think that technology could help you in your classroom?

**Appendix B**

**Post Survey**

Name_____

Post Survey Questionnaire

1.  Did you find that QR Codes helped you complete your assignments on time?

2.  Do you think that using QR Codes helped you to work by yourself?

3.  List as many reasons that you did not like QR Codes.

4.  What was the easiest lesson for you? Why?

5.  What was the hardest lesson? Why?

**Samples of QR Codes/Work**



**\*To read the QR Code go to:**

1. The App Store

2. Search for "QR Code Reader" (there are several; any will work)

3. Download the free App and following the directions for scanning.

First Name_____

Date_____

QR Code- Week 1 Subjects and Predicates

On the line below, write whether the sentence is missing a SUBJECT or a PREDICATE.
Use your QR Code attached to this worksheet if you need to hear a voice recording
providing the definition of SUBJECT and PREDICATE.

1. went down to the dock to go fishing.    _____

2. The students on the bus    _____

3. celebrated their birthdays today.    _____

4. walking on the street    _____

5. Took it home to show my brother    _____

6. Yesterday when I got off of the school bus.    _____

7. especially on Fridays    _____

8. Put the book bag down because it was heavy.    _____

9. At 3 o'clock tomorrow afternoon.    _____

10. ate four slices of pizza    _____

\*This is the first assignment where I began to discover that the ADHD students were struggling.

# Scan the Codes to Listen to Student Work and Creations

# Appendix D

## Student Photos