Kindergarteners and Learning Devices

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By

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Kindergarteners and Learning Devices

Title of Item

Kindergarten Curriculum, iPads, technology in Schools

3 to 5 keywords or phrases to describe the item

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Chapter 1

Statement of Problem

Some days when I am studying at local coffee shops, I see young children sitting next to their parents. As parents are drinking coffee and working, children are playing contently on some variation of electronic device. They swipe with their fingers, maneuvering ever so easily. The possibilities of learning are endless: reading, math, vocabulary building, games, and movies. One day, I observed a little girl with her iPad. She was watching carefully as the app introduced her to a variety of animals. Every time the iPad narrated an animal name, the little girl repeated. Before long, she was reiterating animal names and the sounds that the animal makes. Are these devices helping our children? Or could they be a detriment to our future leaders? How much time should our children spend on these learning devices? Thanks to a rich body of research, we know much about how young children grow, learn, play and develop. There has never been a more important time to apply principles of development and learning when considering the use of cutting-edge technologies and new media (NAEYC 2012).

Purpose of the Study

The purpose of this study is to determine if the learning increases in Kindergarten students with access to electronic learning devices. How does the utilization of iPads increase learning in areas such as language development, motivation, and academic growth? Finally, what type of learning is taking place with these iPads? What are Kindergarten students most attracted to when it comes to learning apps?

Significance

This problem interests me on multiple levels.   The first reason of interest is simply because I am a mother of a young child. He is a smart, studious, 7 years old. He is a first grader at a local Port Hueneme School, in the Hueneme Elementary School District. He could spend hours on end on the iPad, Samsung Galaxy, or any other electronic device. The second reason of interest is related to the classroom. I am a Kindergarten teacher in the Hueneme School District. Our district demographics are approximately 80% Hispanic students. Approximately 51.8% of students are limited English-speaking or non-English speaking. The district is currently in the process of distributing iPads to our students. I would like to see how these learning devices positively affect our students. I am also interested in helping my Kindergarten students look at literacy in a different way.

In examining some of the current articles available there are others that are asking these same questions. Clements and Sarama state "The conversation has generally moved from whether or not technology should be used to how it should be used" (Clements and Sarama, 2003). I think parents and educators need to wrap their minds around this idea and figure out how best to utilize this amazing amount to technology.   Another researcher comments, "Meaningful integration of technology can transform literacy instruction" (Hutchinson and Reinking, 2011).

Since digital technology is rapidly becoming an essential part of the daily life of many adults (Children Now, 2007), its use may be influencing young children's emerging ideas about

literacy. We must look at this technology as a means to advance our students and children to an even higher level of learning, using all tools that are available to us.

Setting

The setting for this research was the classroom in which I teach. I studied kindergarten students at Richard Bard Elementary School in Port Hueneme, California. The kindergarteners were enrolled in the afternoon K-2 classroom.

Definitions of Terms as used in this paper

Learning devices- an electronic device that is used for learning such as, iPad or similar tablet, Smartphone, or computer

Working Definitions

English Language Learner (ELL) – a child of Hispanic descent who is learning English as a second language, with Spanish being his/her native language

Research Questions

1. **How do Kindergarten students with access to learning devices perform in a)letter recognition b)sound recognition c)number recognition d)high frequency words**

2. **Does Kindergarten writing improve with access to the learning devices?**

3. **How do ELL students benefit from using learning devices in the classroom? Does their use of English increase?**

4. **In particular, how were the five case study students affected? What types of apps were chosen? Were they able to access the device with ease? What were they most interested in? How was social interaction among the group? How was student motivation during use of iPads?**

Chapter 2

Literature Review

The following literature reviews were selected to investigate the subject of

Kindergarteners' and technology. The chapter is divided into four sections: *Technology in the*

Home, Young Children Interacting with Technology, Demographics and Socioeconomic Status,

and Cognitive Learning and iPads. The first section, *Technology in the Home,* takes a closer

look at who has computers in the home as well as Internet access. It also describes the growing

number of electronic devices and computers, as well as Internet use among school-age children

as opposed to older households. The next section, *Young Children Interacting with Technology,*

details what is happening with young children. A breakdown of children 0-8, show much and

what type of media is being used. The third section, *Demographics and Socioeconomic Status,*

helps highlight the conditions of many of the students in this study. I felt it was important to

include this data being that many of the students are ELL, migrant, and come from a lower

socioeconomic status. The final section, *Cognitive learning and iPads,* explores cognitive

learning, cognitive tools, and how the iPad is being utilized for literacy instruction. It briefly

touches on the excitement and motivation with the classroom when using the iPads as a learning

device.

Technology in the Home

More than three – quarters (77%) of all American households had a computer at home in

2010, up from 62% in 2003. Research is showing that 58% of U.S. households used a desktop,

laptop, netbook, or notebook computer only, while 17% of households are using a handheld

device in addition to a personal computer (Economics and Statistics Administration, 2011, p.3).

These numbers indicate that computers and technology use is growing at a rapid pace. It also shows that many homes have multiple devices that are being used. "Only 2% of households reported having just a handheld device" (Economics and Statistics Administration, 2011, p.3). "This study also shows that in 2010, more than two-thirds about 68% of all American households utilized broadband Internet access service, which is up from the previous year" (Economics and Statistics Administration, 2011, p.5). These percentages lead indicate that computers and internet access continue to be on the rise. Home Internet access and computer ownership are also correlated by the presence of school-aged children (between 6 and 17 years of age). Households with one or more children between those ages were more likely to own a computer (86%) and have home Internet access services (78%) than households with no school-age children (Economics and Statistics Administration, 2011, p.12). This shows the need for children to have access to Internet and computers in the home. The more we can provide for our children to grow and improve learning with technological competence, the better the chance for success. The data also showed that computer use and Internet access was less prevalent in "older households".

Young Children Interacting with Technology

Young children live in a world of interactive media. They are growing up at ease with digital devices that are rapidly becoming the tools of the culture at home, at school, at work, and in the community (Berson & Berson 2010; Buckleitner 2009; Calvert et al. 2005; Chiong & Shuler 2010; Couse & Chen 2010; Kerawalla & Crook 2002; Lisenbee 2009; National Institute for Literacy 2008; Rideout, Lauricella, & Wartella 2011).

Among 0-to 8-year olds, a quarter (27%) of all screen time is spent with a variety of digital devices such as computers, handheld or console video games, cell phones, video, iPods,

and iPad – style tablet devices. This tells us that today a substantial proportion of time is spent with screen media. Approximately 11% of all 0-to 8-year olds use a cell phone, iPod, iPad, or similar device, and those who do spend approximately 43 minutes doing so (Common Sense Media, 2011, p. 9). Whether we are willing or not, these numbers tell us that the media world for our children is changing and growing at lightning speed. Students must find a way to keep up in the ever growing media world. Newer and better devices are being made before we can even get used to what we currently have.

On average children age 8 and under spend about three hours (3:14) a day with media, including screen media, reading and music. To narrow it even more, children ages 5-8 spend close to three hours (2:50) on screen media. It is clear that television is where children pick up the majority of their screen time with two-thirds (65%) of children age 8 and under watching once or more during the day (Common Sense Media, 2011, p. 17). Would we rather have our children and students learning with digital devices or watching television? As a mom, I would rather have my son learning a skill rather than just sitting in front of the TV.

Computer access is less in comparison to television. However, according to a Kaiser Family Foundations survey 31% of children age 3 and under are using computers. Sixteen percent use them several times a week, 21 percent can point and click with a mouse by themselves, and 11 percent can turn on the computer without assistance (LeClaire, Jennifer, 2006, p.2). On average 5- to 8- year olds spend about 24 minutes in a typical day. The most common activity on the computer is playing games. Computer usage is not happening daily for children this age. Overall, 14% of children age 8 and under use the computer every day; 17% use it several times a week, and 11% only once a week (Common Sense Media, 2011, p. 9). "Young children are now using newer mobile media for example: smartphones, video, iPods,

iPads, or similar devices. However, the time children spend with these devices is still small compared to other media" (Common Sense Media, 2011, p. 21).

Approximately half (52%) of all children ages 0-8 live in homes where there is access to new media devices. Most children use their parent's smartphones (41%). One in five (21%) have access to a video iPod or similar device, and fewer than one in 10 have an iPad or similar tablet device at home (8%) (Common Sense Media, 2011, p. 21).

This data shows us that the best way to reach our students is by broadcast television, which is nearly universal 98-99%. The amount of time children spend with technology and media is important (Christakis & Garrison 2009; Vandewater & Lee 2009; Tandon et al. 2011), but how children spend time with technology must also be taken into account when determining what is effective and appropriate (Christakis & Garrison 2009; Tandon et al. 2011). Johnson (2010) found that all trends indicate that the number of children accessing the Internet and the amount of time they spend online are steadily increasing (Johnson, 2010).

Demographics and Socioeconomic Status

There is substantial evidence showing that home computer use and Internet adoption are strongly associated with income. Less than half (43%) of all households with annual incomes below $25,000 in 2010 reported having Internet access at home, compared to (93%) of households with incomes exceeding $100,000 (Economics and Statistics Administration, 2011, p.11). In Hueneme Elementary School District, several of the families fall into this category. If students are using electronic devices, we must remember that there may not be Internet access in the home. The classroom that utilizes could be the only place that our students would be able access the Internet.

To break down the numbers even more, nearly three out of four (72%) 0- to 8-year olds have a computer at home, but access ranges from 48% among those from low-income families (less than $30,000 a year) to 91% among higher income families (more than $75,000 a year). In addition, a new "app gap" has developed among young children. Among lower-income children 27% have a parent with a Smartphone, compared to 57% for high-income children. One in 10 (10%) lower-income children have a device in the home, compared to one in three (34%) upper-income children (Common Sense Media, 2011, p. 10). These numbers are staggering to look at, nearly 30% of many of our families many not have access to a learning device.

There is a "divide" in home computer access among young children; those of lower income, less educated, and Hispanic children – often do not have a computer at home. This is important to take in being that those are the children who may be most in need of support for learning. Guernsey states: It is often referred to an uneven Internet access: where 68% of households in the United States have access to broadband Internet networks; lower-income families, people with less education, those with disabilities, blacks, Hispanics, and rural residents are less likely to have access (Guernsey, 2012).

The "app gap" becomes greater between higher – and lower – income children. For example, smart phones access (41% among all 0-to 8-year olds) ranges from 27% for families earning $75,000 a year or more. As for the newest devices such as iPads, tablets, or a similar device only 2% of lower income children have one in their home compared to 17% in the higher income group (Common Sense Media, 2011, p. 21). This percentage is probably higher today than it was in 2011.

Cognitive Learning and iPads

Why are iPads and other learning devices becoming such a popular cognitive tools for our classrooms? Just as carpentry tools enable builders to extend their capabilities to create structures and objects that would be difficult without them, learners can employ 'cognitive tools' to support their learning and assist in the creation of authentic products (Oldfield & Herrington, 2013). Computers, smartphones, mobile tables, and the software applications they support are all examples of cognitive tools (Oldfield & Herrington, 2012). Cognitive tools have been described by Jonassen and Reeves (2004) as "technologies, tangible or intangible, that enhance the cognitive powers of human beings during thinking, problem-solving, and learning" (p.1). More often in classroom in the Hueneme Elementary School District and around the Ventura County we are seeing more cognitive tools entering our children's classes.

Kim and Reeves (2007) state that the learner, the tool, and the activity form a joint learning system, where the expertise element of learning that is used by the learner is reflected in both the tool and activity (p.18). While others question whether the information age has turned into information overload. Mali Mann, adjunct clinical assistant professor of psychiatry and behavioral sciences at the Stanford School of Medicine, said the abundance of technology can create a "technology addiction" in children (Rich, S., 2012). Skeptics may wonder how the iPads or learning devices are being utilized in the classroom and how they may be impacting literacy and motivation among students.

Experts suggest that these personal devices can increase motivation, organizational skills, independent and active learning, and self-directed learning (Fadel & Lemke, 2009). Furthermore, as of 2009, no research had been located that conducted rigorous studies of the effects of these devices on learning, despite an initial positive response by educators, students,

and parents (Harmon, J., 2011). A study conducted in Lakeville, Minnesota integrated iPads into

32 classroom environments. The results show 23 classes increased student achievement, 24

classes increased student motivation, and 20 classrooms showed a gain in student learning

(Gillen, J., 2013). Clearly, iPads and learning devices are having an impact on student

motivation and learning. The article did mention that simply adding an iPad to a class is not

enough to alter student success, the transformation depends on the teacher as well. In addition

the simplicity of the iPad, the uniqueness of its user interface, the familiarity of design all

pointed to one thing: excitement for learning (Harmon, J. p.3).

As teachers begin exploring the use of iPads and other learning devices in their

classrooms, it is important to determine how the technology is influencing student learning. For

literacy instruction, this means investigations regarding how such mobile devices can foster

successful reading practices (Hutchinson, Beschorner & Schmidt-Crawford, p.16). One way that

the iPad is providing opportunities for literacy classrooms is through digital, interactive books. It

is important to realize that digital text compared to printed texts offer different modes of reading

and writing. This is an advantage for our students and can offer different strategies. An added

advantage of digital texts, as other scholars have argued, is that they can support individual

readers' text comprehension and potentially engage struggling readers (e.g., Leu & Reinking,

1996). This is promising for so many of our students who may fall into the "struggling readers"

category. And for students who are meeting the literacy standards, students are provided with

further opportunities to physically interact with and manipulate texts and to transform texts to

meet their needs and interests (Eagleton & Dobler, 2007), making the reading experience more

individualized, interactive, and engaging (Larson, 2010).

As we consider moving ahead with iPads, it is important to remember that digital technology should enhance curricular goals and support student learning in new and transformative ways (Hutchinson & Reinking 2011; see also Labbo & Reinking, 1999). Using iPads for literacy instruction not only supports student learning, but also engages students, and allows for uniqueness and creativity.

Chapter 3

Methodology

The goal of this study was to find out if Kindergarteners gain more knowledge and perform better on assessments when having access to learning devices. I achieved this by giving 1:1 access to Kindergarten students at Richard Bard Elementary School in K-2 afternoon class. All of the students completed pre-test, 1st trimester, and 2nd trimester assessments. Case study parents answered various verbal questions throughout the study. Reflective journals were also kept to document notes on how students work with the devices, how much time is spent in the classroom, ease vs. frustration, and which apps are frequently selected by the students.

Research Design

This study is a case study design examining five Kindergarten students. I conducted it in my own classroom and looked at Kindergarten student performance when using electronic devices. I examined who is using a device in the home and how it affected learning. Qualitative and quantitative data was collected. Reflective notes were used to follow small group centers when using the electronic devices.

Setting of the Study

Participants. All of the students in the study were part of a traditional Kindergarten class at Richard Bard Elementary School. Approximately 22 students between the ages of 5-7 years old took part in the study, using the devices in small groups, as well as whole group. Their performance and growth was observed, documented, and analyzed.

Nature of the school. Richard Bard is located in Port Hueneme, California. It is in close

proximity to Naval Base Ventura County. Approximately 79% of the students are

Hispanic/Latino. About 78% of the students are eligible for free or reduced breakfast and lunch.

The enrollment for 2013-2014 is around 685 students K-6. The parent education level/average is

2.54, "1" represents "not a high school graduate" and "5" represents "graduate school."

Currently, state testing and program improvement are in a freeze. This is all part of the No Child

Left Behind (NCLB) law. However, Bard School has just gone through the process of

restructuring. Bard has two school programs on its campus. The Two-Way Immersion Program,

which is a 50/50 model and the traditional English Only Program. Both of these programs are K-

6. The Two-Way Immersion classrooms currently have two teachers at grades K-4. In grades

K-1, there is a teacher who teaches in English and one who teaches in Spanish. The teacher

teaches Language Arts in the child's primary language. The rest of the academic subjects may

be learned in either language. In grades 2-6, the students are introduced to reading in their non-

dominate language. Again, the rest of the academic subjects are taught and learned in both

languages. The traditional classroom is an English-Only classroom model. The teacher will

teach all academic subjects in English. The classroom will contain ELL students as well as EO

students. The class being used in this study will come from the traditional K-6 school.

Data Collection

Fictitious names were assigned to all students.

Qualitative Data Sources. Kindergarten students were assessed when they enter in the

fall of 2014. In addition, the students were assessed three additional times for report cards and

conference purposes. Informal observation and assessments were done throughout the study. I

also kept a reflective journal to record my findings as we worked in small groups or whole group

with learning devices. Journals showed approximately how much time was spent on the iPads in

class. Journals notes described the apps most frequently selected by the Kindergarten class.

Notes also displayed how much language is spoken during iPad time.

Quantitative Data Sources. Assessments done during the first and second trimester were

charted. Information such as the letter recognition, letter sounds, number recognition, high

frequency words, and writing scores were reviewed for the case study students as well as the

entire class.

Analysis

Students pre and mid – year data were also studied to see growth and improvement.

Reflective notes were also reviewed and the data was categorized according to the research

questions below:

1. **How do Kindergarten students with access to learning devices perform in a)letter recognition b)sound recognition c)number recognition d)high frequency words**

2. **Does Kindergarten writing improve with access to the learning devices?**

3. **How do ELL students benefit from using learning devices in the classroom? Does their use of English increase?**

4. **In particular, how were the five case study students affected? What types of apps were chosen? Were they able to access the device with ease? What were they most**

interested in? How was social interaction among the group? How was student

motivation during use of iPads?

Description of Research Participants

In 2014-2015 school year, I had 22 General Education students in a half day

Kindergarten Program. The students in the afternoon Kindergarten class attend school for three

hours and twenty-one minutes each day at Richard Bard Elementary School. At the start of the

school year five assessments were given to all students. The assessments included: (a) letter

identification of both uppercase and lowercase letters, (b) number recognition 0-30, (c)

identification of colors, and (d) counting. This is the standard assessment given to all

Kindergarten students within the first two weeks of school. For the purpose of this study the five

students were called Felicia, Allen, Brittney, Danny, and Angela.

Case Study 1 – Felicia

Felicia started Kindergarten at the age of 5 years 10 months. Upon completion of the

initial assessment it was noted that she knew seven of the nine colors. Felicia was not able to

count beyond the number ten. She identified only five out of the thirty one numbers. When

Felicia was tested on uppercase and lowercase letters she was unable to identify any of them. I

chose Felicia for this case study because I found it interesting that there were many tasks and

questions she could not yet complete. Felicia is an English Language Learner and she is at the

beginner level in English. She appeared to me as a blank canvas. Felicia did not attend a

preschool program.

Felicia lives in a single parent home. She is being raised by her mother. Felicia has one sibling, a brother who is in high school. Felicia's family resides in Oxnard and is in the lower working class. Although Felicia has an older sibling because of the large gap in age she is like an only child. Felicia's mom tries her best to help her, but only speaks Spanish. All of the learning and homework for Felicia is in English.

Most days Felicia is either picked up by her older brother or babysitter. She is watched by them until Mom gets home from work. Felicia is a very quiet girl. She does enjoy playing with some of the classmates who also speak Spanish. She has two friends that she consistently plays with. Felicia seems to enjoy learning through song and repetition. Our Kindergarten day follows the same routine; Felicia is growing and learning each day.

Case Study 2 – Allen

Allen is the oldest in his family. Upon the start of Kindergarten, his age was 5 years 9 months. He entered Kindergarten with a solid background. Allen attended a preschool program at Naval Base Ventura County. He knew all of his nine colors. Allen was able to count to forty-nine at the start of the year. He also knew the majority of his letters: he identified twenty-five out of twenty-six uppercase letters and twenty-two of twenty-six lowercase letters. My reason for selecting Allen was because of his knowledge. I wanted to see how much more growth can take place when he has access to the iPad.

Allen comes from a two parent home. He is a military child, dad is active military at Naval Base Ventura County and mom stays home with the children. Allen is the oldest in his family. He has an infant sister and mom is expecting another child this summer. Most military

families are only in the area for two years. I imagine that Allen will be here at Bard through first grade before moving.

In class, Allen is a good student. He tries to please and is a hard worker. We have been working hard on his pencil grip since the start of this year. He always defaults to what feels best for him: which is a tight grip, four fingers wrapped around the pencil. Allen worries often about doing a good job. We have been working on not worrying and simply trying our best.

Case Study 3 – Brittney

Brittney started Kindergarten at age 5. She is small in stature compared with the other students in our class. Brittney entered Kindergarten with a good amount of knowledge. She knew all nine of her colors. She could count from zero to nineteen, and recognized nine out of the thirty-one numbers. Brittney knew most of her letters as well. She recognized twenty-five of twenty-six upper case letters. Lowercase letters, she mastered twenty-two out of twenty-six.

Brittney is raised in a single parent home. She resides in Oxnard with her mother, her primary guardian. Brittney is the youngest of three kids. She has a brother that attends Bard and a high school age sister who volunteers in our Kindergarten class. They all live with their maternal grandmother who has been battling cancer the last two years. I selected Brittney for this case study because she is about average Kindergarten age. She is an English only student too. Brittney did not attend a preschool program.

In class Brittney leads the group. She is good at asking questions during story time and engaging other in the conversation. She enjoys singing Kindergarten songs with her classmates. Brittney is a great helper to other classmates too. She loves to play soccer and run on the grass.

Case Study 4 – Danny

Danny was chosen for this case study for multiple reasons. Danny is the oldest in his family of 4. When Danny entered Kindergarten he was 5 years and 1 month. That made him the youngest boy in our class. He was also new to the Port Hueneme area. He traveled to the United States from Mexico. Danny was a bright boy and was thriving in his class in Mexico. However, in the U.S., Danny did not know much. Danny knew six of his nine colors. When he was asked to count, he was able to count to twelve. His number recognition was nine correct out of 31. His first assessment of letters uppercase and lowercase was similar to another case study – he could not identify any.

Danny lives with his mother, father, and younger brother. They moved to the U.S. when dad lost his job in Mexico and could not find work in their area. Mom recently came to me and asked if she could volunteer in the class. She wants to learn more English. Danny's home is a two income household as well. Mom recently started an evening job at a fast food restaurant in town, training for shift manager.

Danny's family has a strong desire to learn English. However, none have a solid background at the time of this study. Danny is constantly practicing his English in class. He raises his hand in attempt to answer my questions. He was also eager to help his classmates follow rules, answer questions, or complete assignments. I selected Danny because of his language and his enthusiasm for learning.

Case Study 5 - Angela

Angela started Kindergarten at age 5 years and 5 months. She was selected for this case study because she came into Kindergarten with an active IEP. Angela was receiving services for Speech and Language. It was found through testing that Angela was delayed in both areas of

Language Comprehension and Language Expression. Eligibility was determined through the IEP meeting. When Angela was initially assessed in Kindergarten she had a strong foundation. She did attend a first five program in the area. Angela recognized all nine colors. When Angela was asked to count she counted from 1-10. Her number recognition was fifteen out of thirty-one numbers. Her initial assessment of uppercase letters resulted in twenty-three out of twenty-six. Her lowercase assessment showed the same, twenty-three out of twenty-six correct.

Angela comes from a two-parent household. She is the youngest of five children. Angela's father works outside the home; he does gardening. Angela's mother works in the home caring for the home and children. Both of Angela's parents came to the U.S. from Mexico. This was one of the reasons for selecting Angela. Another reason for choosing Angela was that she had an active IEP.

Chapter 4

In chapter 4, I analyzed and answered the following questions:

1. **How do Kindergarten students with access to learning devices perform in a)letter recognition b)sound recognition c)number recognition d)high frequency words**

2. **Does Kindergarten writing improve with access to the learning devices?**

3. **How do ELL students benefit from using learning devices in the classroom? Does their use of English increase?**

4. **In particular, how were the five case study students affected? What types of apps were chosen? Were they able to access the device with ease? What were they most interested in? How was social interaction among the group? How was student motivation during use of iPads?**

The data was organized by stating the question for each quantitative assessment above each table. The first table showed information on the entire kindergarten class. The second table displayed only the data for the case study students. Findings of the tables followed each section.

Each of the charts below display how the students performed on each individual test. I administered a preliminary, first trimester, and second trimester test on all students enrolled in kindergarten.   Of the tests that were administered, many were district assessments and others were just for general teacher knowledge. Within the first 30 days in kindergarten, students were assessed on colors, letter recognition of uppercase and lowercase letters, number recognition 0-30, and counting from 0-100. Students were assessed again in the first trimester for report card purposes. At that time, they were tested on letter recognition of uppercase and lowercase letters,

letter sounds both consonant and long and short vowel sounds, twenty-five high frequency

words, number recognition 0-30, and a writing sample. There were many other tests

administered for report cards, but for the purpose of this paper only the five were charted.   In

February, the same five tests were administered to those students currently enrolled in

kindergarten. Letter recognition of uppercase and lowercases letters, letter sounds both

consonant and long and short vowel sounds, twenty-five high frequency words, number

recognition 0-30, and a writing sample. Other assessments were also administered for report

card purposes.

The data and findings for kindergarteners and iPads are organized according to the listed

research questions.

1. How do kindergarten students with access to learning devices perform in a)letter

recognition b)sound recognition c)number recognition d)high frequency words?

Data:

The first assessment was the letter recognition test. The testing was performed on the

iPad. Each student was called back individually and asked if they recognized the letter on the

screen and what the name of the letter was. The Hueneme Elementary School District teaches

D'Nealian printing, so the iPad screen showed both the manuscript and D'Nealian print.

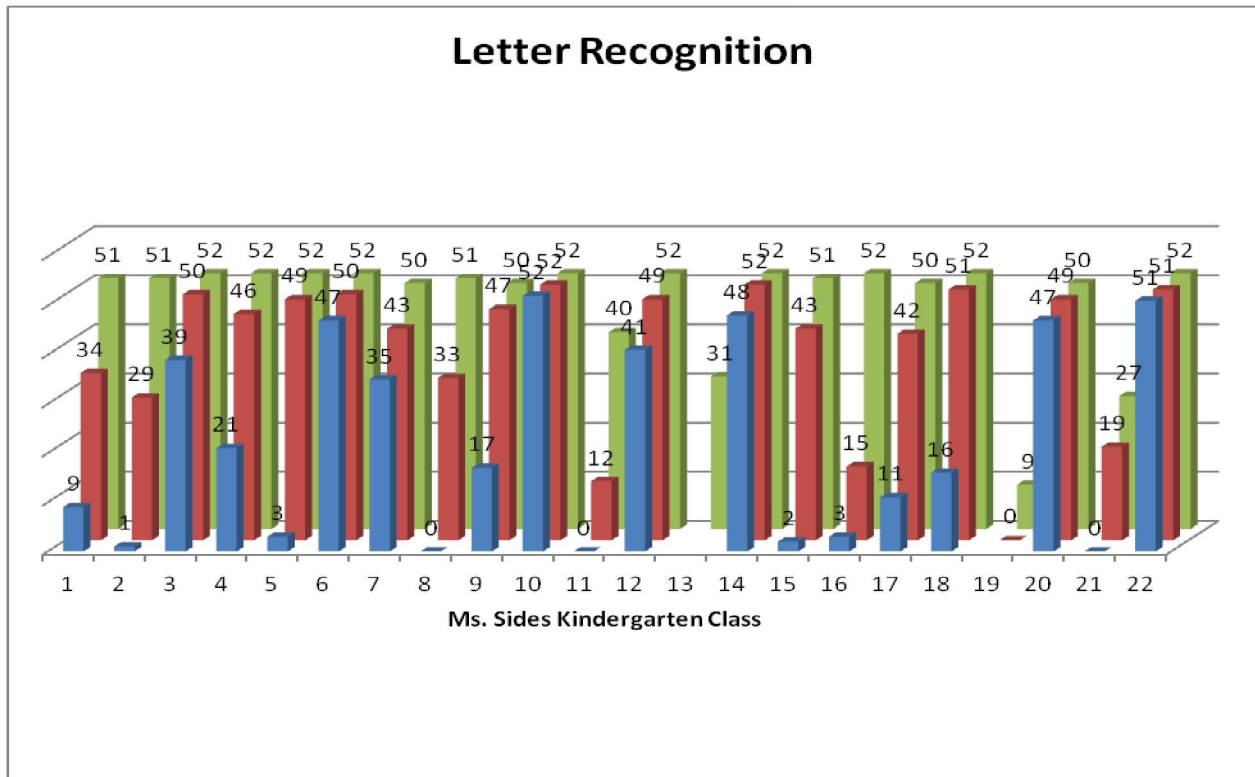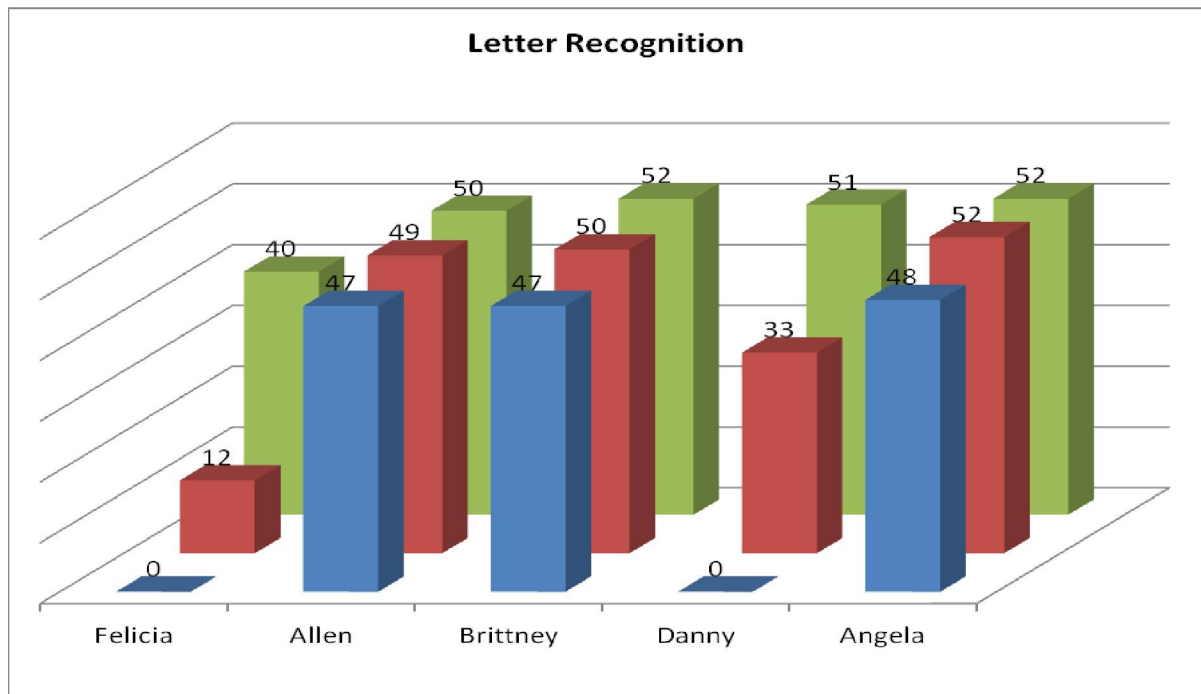Table 1: Letter Recognition Whole Group

Table 2: Letter Recognition Case Study

Findings:

Displayed in Table 1 and Table 2 are the results targeting letter recognition. The initial

assessment scores are in blue, followed by the first trimester scores in red, and the second

trimester scores in green. At the beginning of the school year, students varied when assessed on

what letters they recognized. When students were tested in the first trimester on their letters they

all showed growth, with the exception of one student who remained the same. Four of the five

case study students were near benchmark by the end of the second trimester. Students could

identify both uppercase and lowercase letters when tested.

Table 3: Letter Sounds Whole Group
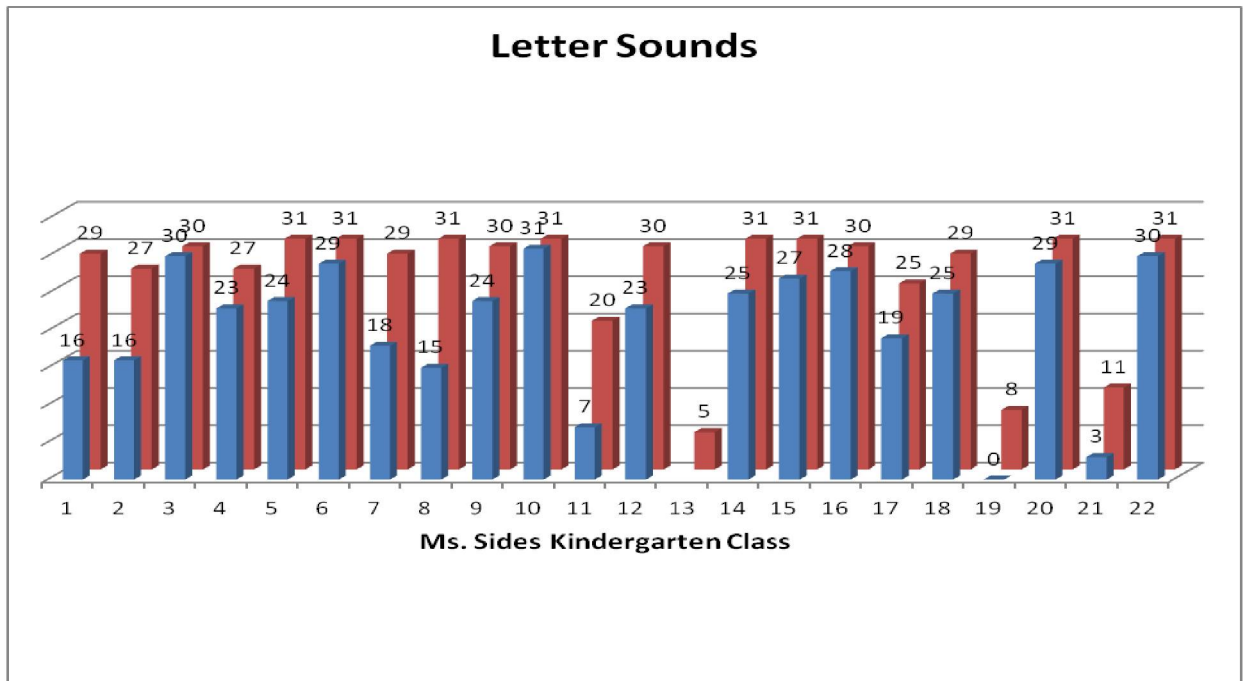
Table 4: Letter Sounds Case Study

Letter Sounds

Case Study Students
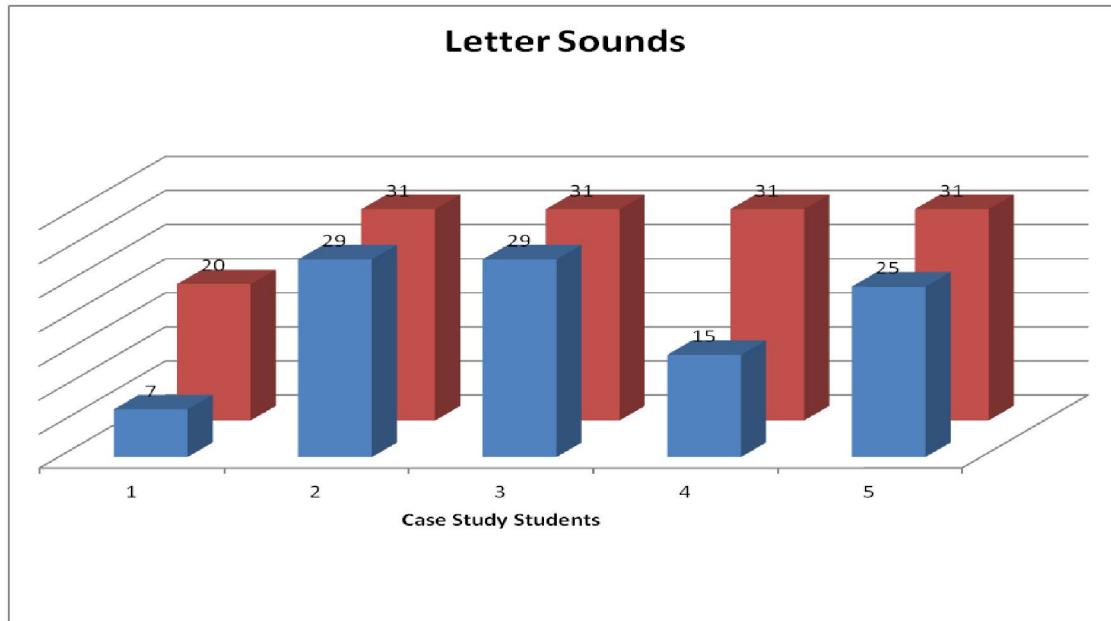
Findings:

Vowel and consonant sounds were not assessed as they entered kindergarten. Instead, both vowel and consonant sounds were assessed in the first and second trimester. Table 3 and Table 4 show that kindergarten students were showing growth between the two assessment periods. The case study student table shows that four of the five students have reached the benchmark by the end of the second trimester. For this test, students were called back and assessed individually. Two separate tests were given during this assessment; one for consonant sounds and one for vowel sounds. Then the two scores were combined for a total score.

Table 5: High Frequency Words Whole Group
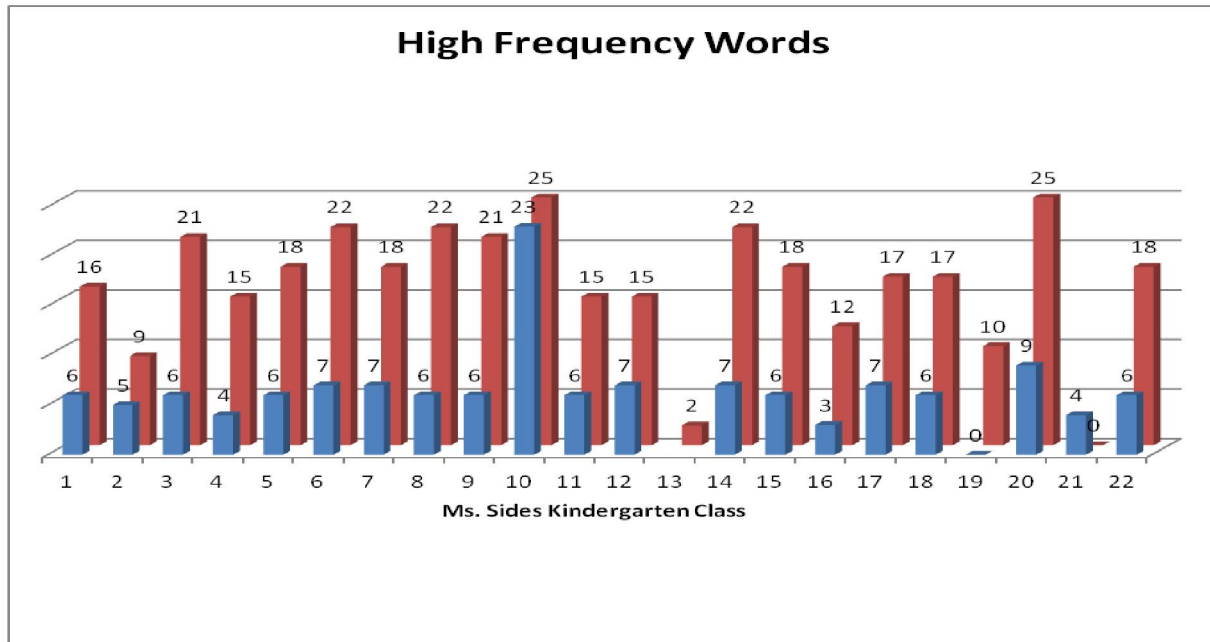
Table 6: High Frequency Words Case Study
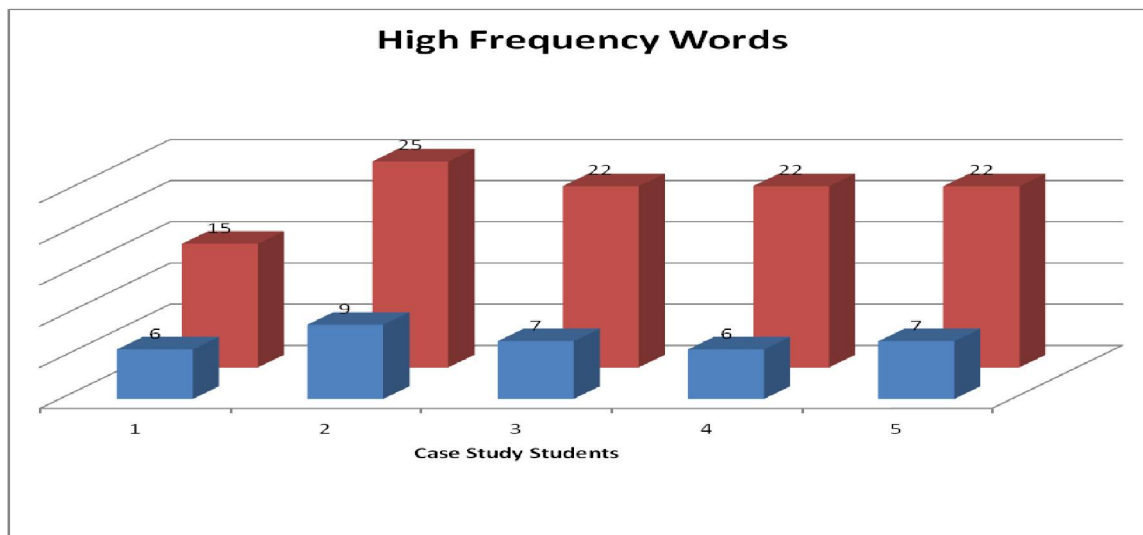
Findings:

The high frequency word test was assessed three times during the kindergarten school

year. By the end of kindergarten, student will be assessed on twenty-five high frequency words.

Student results above in Table 5 and Table 6 showed scores for only the first and second

trimester. Again, this test is done on the iPad. Students are tested one-on-one. In the first

trimester many of the students know approximately a handful of the words. In the second

trimester, the chart shows that many of the students have progressed. Two of the case study

student's: Allen and Danny were working on the first 100 high frequency words that teachers use

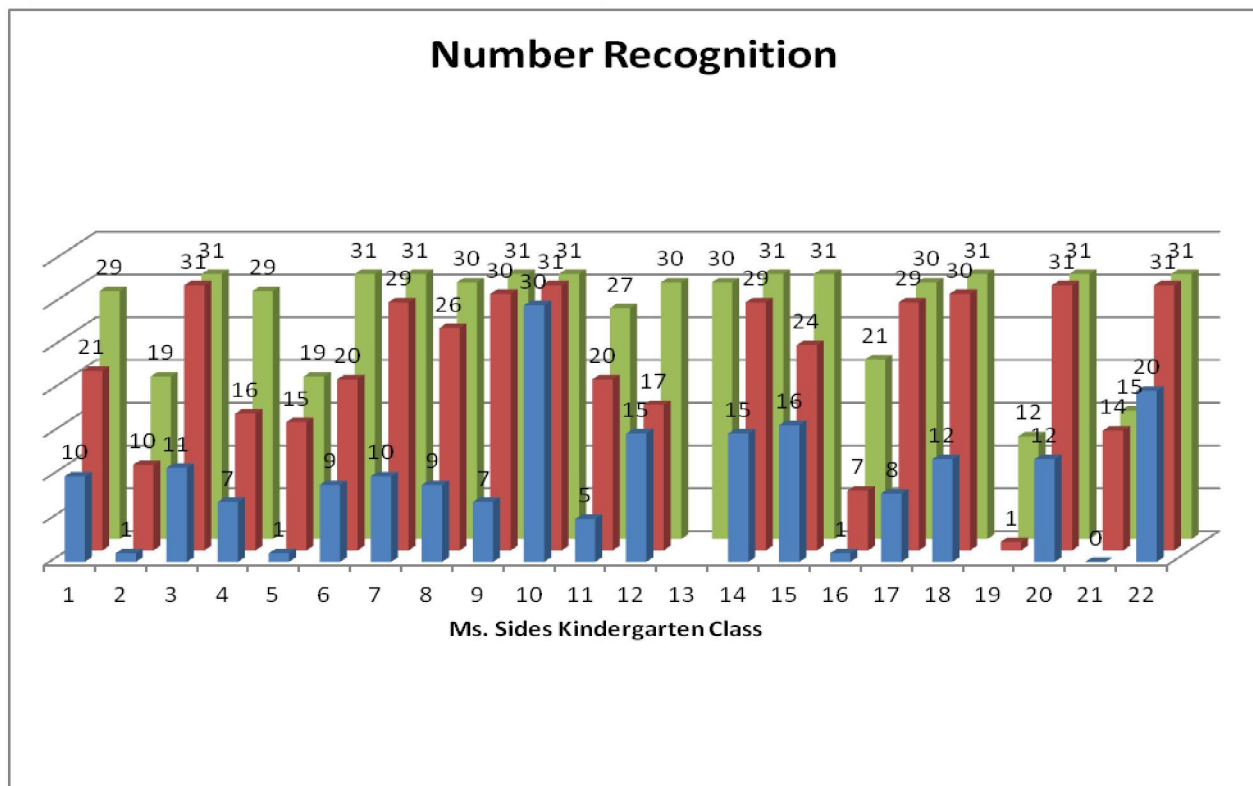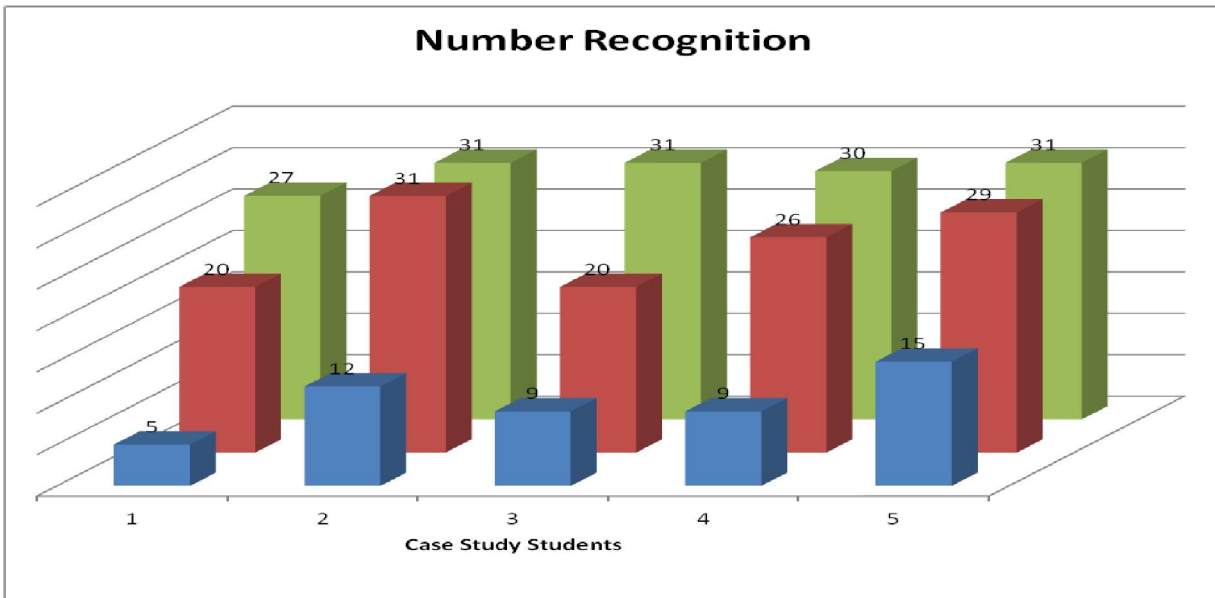in first grade.

Table 7: Number Recognition Whole Group

Table 8: Number Recognition Case Study

Findings:

Students were assessed on number recognition within the first month of entering kindergarten. Number recognition was tested using the iPad and calling students back one at a time. Again, Table 7 and Table 8 displayed that students entered kindergarten at various levels. When students were assessed in each of the next two trimester they showed growth each time, unless they reached benchmark in the first trimester.

2. Does kindergarten writing improve with access to the learning devices?

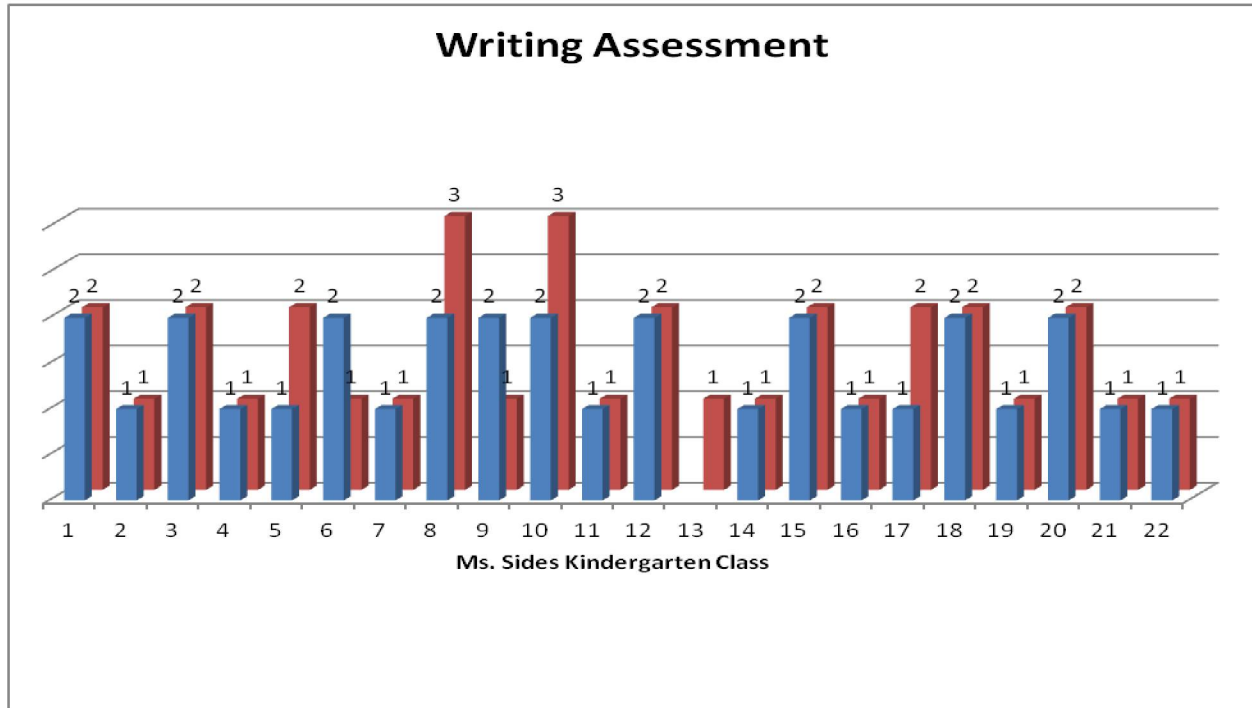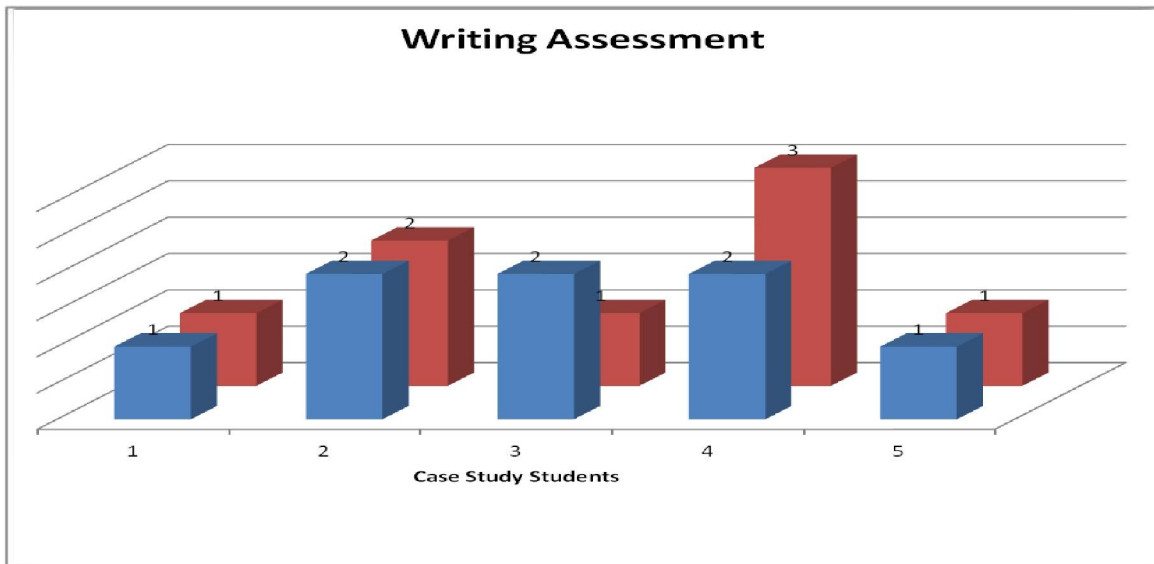Table 9: Writing Assessment Whole Group

Table 10: Writing Assessment Case Study

The writing assessment was given in the first and second trimester. The environments were different for the tests as well. The first trimester, students were asked to write an opinion

piece. The test was given in a small group setting of approximately four or five students. To prepare students were read a story and showed a picture of a cat or a dog. Then asked to pick their favorite animal and write about why they liked that animal. Samples were graded using a district wide rubic where students could earn a 1, 2, or 3. My kindergarten writing samples were viewed by the kindergarten team and scores were given to administration.

For the second trimester, students were asked to write an informational piece on how to conserve water. For this assessment, students were prepared by watching several videos on how to save water. We did whole group work formulating ideas and drawing pictures. This assessment was given whole group, students sat at their tables and their work was covered so others could not see it. Again, the writing was reviewed by the kindergarten team and scored using a district rubric of 1, 2, or 3. Below are two case study students writing samples from the first and second trimester. Also, there is the district rubic that was used for scoring.

Findings:

When analyzing the charts, Table 9 and Table 10 showed that the writing score mostly remain the same. If the student scored a 1 or 2 in the first trimester, then most likely they scored the same in the second trimester. There were two cases, one of them a case study student Danny who showed growth. There was also one student who regressed from the first trimester, this was Brittney, a case study student.

Kindergarten Writing Rubric

Primary Writing Rubric
(for teacher purposes only NOT for the student)

Grade	Low	Medium	High Common Core State Standards (NGSSS)	Exemplar Samples of Student Writing Common Core State Standards
K	Drawing / Scribbling AND orally explains the drawing/scribbles which demonstrates the student is ON-topic	Emergent Writer Characteristics: -Understands writing communicates ideas -Uses pictures -Scribbles, letter- like symbols, or random letters -Does not connect letters to sounds -Pretends to read -May randomly copy print from around the room AND orally points to letters/symbols to pretend to read the piece which demonstrates the student is ON-topic	**W.K.1 Persuasive/ Opinion:** (LA.K.4.3.1) • Drawing, dictating, and writing • State the topic or name the book • State an opinion or preference **W.K.2 Informative/Explanatory:** (LA.K.4.2.2) • Drawing, dictating, and writing • Name what they are writing about • Some information on the topic **W.K.3 Narrative:** (LA.K.4.1.1) • Drawing, dictating, and writing • Single event or ordered events • React to what happened **L.K.2: Conventions** • L.K.2a: Capitalize first word in the sentence Capitalize the pronoun I (LA.K.3.4.2) • L.K.2b: End punctuation (LA.K.3.4.3) • L.K.2c: Write a letter/s for most consonants Writes a letter for most short vowels • L.K.2d: Spells simple words phonetically (LA.K.3.4.1) **Goal: Early Writer Characteristics** - More than one details on a topic - Chooses topics generally related to experience - Understands most print concepts - May not understand spaces around words - Connects letters to sounds - Some high frequency words	**W.K.1 Persuasive/ Opinion:** • Contains a title • Sequenced picture displaying a beginning, middle, & end • Names the book • States an opinion or preference about the favorite part **W.K.2 Informative/Explanatory:** • Contains a title • Creates a context for writing • Details about the topic containing specific words choice, number words, descriptive details, and a comparison • Uses linking words • Uses transitional words • Sense of closure **W.K.3 Narrative:** • Established a situation by naming a place • Several linked events • Events are in chronological order • Provides a reaction to what happened • Sense of closure

Writing Sample 1: Allen
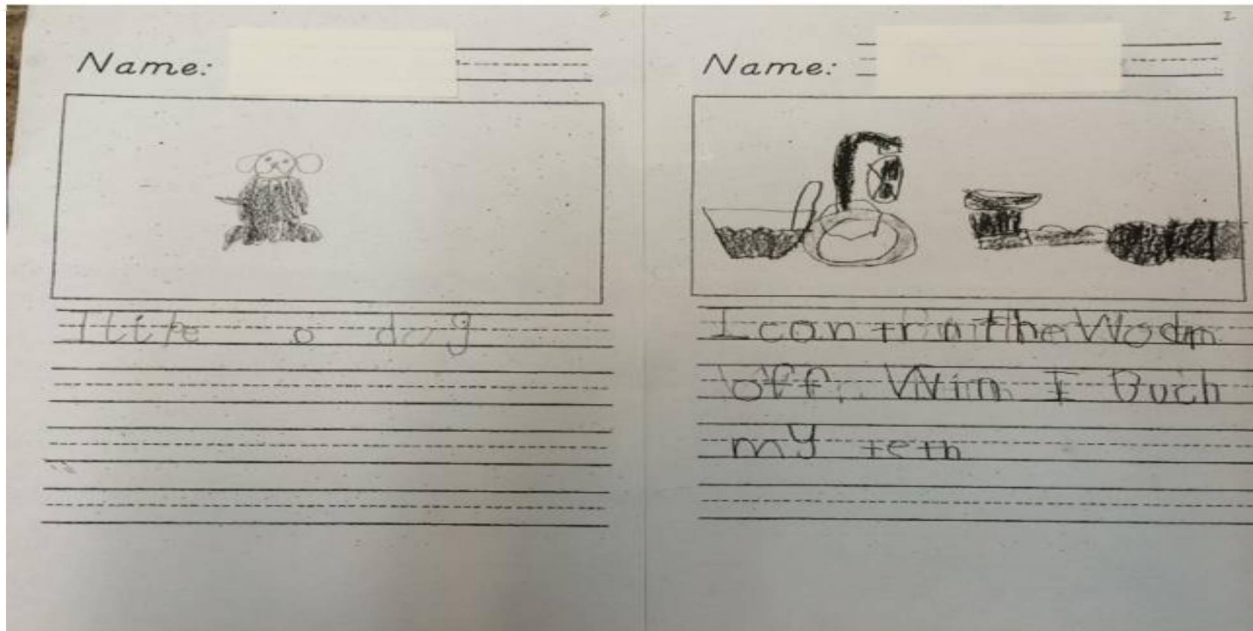
Writing Sample 2: Danny
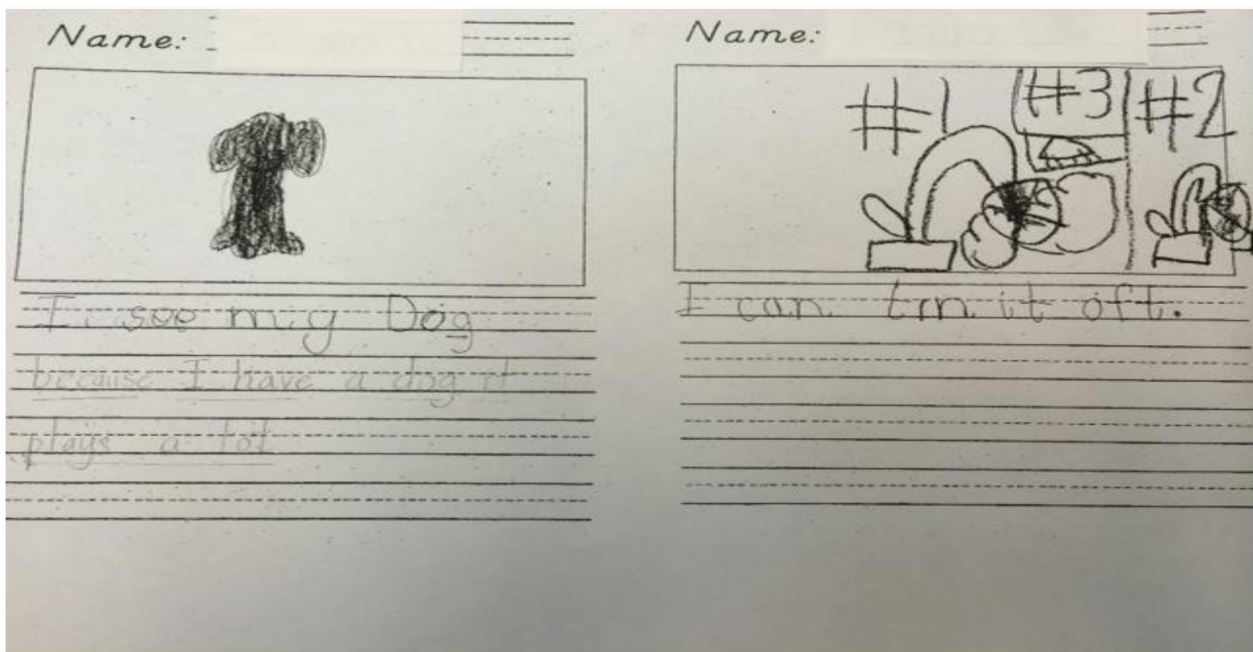
Qualitative Analysis

3. How do ELL students benefit from using learning devices in the classroom? Does their use of English increase?

<u>Findings</u>:

When I examined the notes of the case study students or general notes for that particular sitting, I realized that many of the students quietly speaking were English language learners. However, notes also showed that one of the English only case study students; Allen is an exception to the rule. Of the case study English language learners: Felicia, Danny, and Angela; none ever repeated the English back as they were working on their iPad. General notes showed that seven of the English language learners in class often repeated or sang the English as they listened with their earbuds. Students were not able to hear themselves singing, talking, or answering questions because they had the earbuds in their ears.

I was careful not to tell them that they were singing or talking out loud. I worried that would discourage the student. Instead, each time they sang I let them carry on quietly. Most students had earbuds in their ears and could not hear the outside noises. I think English language learners benefited by listening to more English.

4. What types of applications were chosen the most?

<u>Findings</u>:

In looking at the notes, there were some favorite applications among the group of case study students. My notes also showed that each of the students had their favorite application that they chose most often. Overall, the notes showed that Starfall was picked by the students each time they had access to their iPads. There are many elements to the Starfall application. By visiting that application one could find games with letters, reading, math, and more.

Initially, Felicia's application selection was mostly tracing letters and doodle buddy. She chose this application almost every time we worked with iPads. She also tends to lean

toward one of the older applications a sorting, counting, and comparing math game. Felicia did very little exploring on her own. She often picked the applications that I had modeled whole group. As she got more comfortable with the iPad, Felicia tested out Starfall. She spent the majority of her time on Starfall. She explored the different stories such as 5 Little Snowmen. This allowed her to create a snowman, and it read the story upon completion of the snowman. I noticed that several times in my notes I wrote, "Felicia seeks help from her neighbors." My notes also stated, "Felicia watches her neighbors often for ideas of which apps to choose." Felicia's go to applications are Starfall, Candy Count, and Little Writer.

Allen knew exactly what he was looking for when he worked on his iPad. He chose math applications each time we use our iPads. Allen often started with Todo Math. This math application does a variety of kindergarten math. One of the math games that he selected often is a counting objects and finding the corresponding number. There is a memory match math that he enjoyed too. Allen also enjoyed the math portion of Starfall. He worked on patterning, greater than less than, and classifying objects. Allen did do an occasional reading application, but the majority of his time was strengthening his math skills.

Brittney was an explorer when it came to handling her iPad. She was willing to try any and all applications even briefly. Some of her favorites were BrainPop Jr., Todo Math, Doodle Buddy, Little Writer, and Starfall. Brittney moved quickly and worked on several applications in one sitting with her iPad. She seemed to enjoy math and reading applications equally. She enjoyed watching the movie of the week on BrainPop Jr. As time went on I often found Brittney on the Starfall application.

Danny enjoyed the free time with his iPad. He was always excited when he discovered something new about his iPad. Danny split his time equally between math and reading

applications. He spends the majority of his time on Starfall, where he can do both. Danny loved to look at the google earth application, he enjoyed all things related to space. Toward the end of our time he selected Todo Math often. He was strong in math and was challenged with some of the more difficult math problems.

Angela split her time between two of her favorite applications, Starfall and Letter Writer. She only tried one other application which was a math application; Todo Math. When Angela worked on Starfall, she focused on reading. She enjoyed listening to stories, manipulating letters to make words, and practiced her letters and sounds. Every now and then my notes showed that she would try math on the Starfall application. She did some work with coins and also counting and finding the corresponding number to match. Angela often had a difficult time focusing on her iPad. She often looked to see what her neighbors were doing on their device.

The one constant in all of the case study students was Starfall. They all spent a good amount of time on that application. Starfall has many choices for both reading and math. It appears easy for students to navigate. They all found something that peaked their interest.

4. Were student's able to access their iPad with ease? How was the navigation of the iPad?

Findings:

Overall, many of the students were able to access their iPad's quite well. However, there were some students who had a difficult time. For many of the students, this was their first time handling their own device. It took time to teach them procedures for using the iPad. Reflective notes showed a wide range for the cases study students. I purchased earbuds for the class to help ease the noise level in class.

Felicia was able to plug in her earbuds and get started on her iPad most days with ease. She had trouble turning the iPad off and on. Felicia was able to work volume control. She was consistent in following along when I modeled a new application. She did not do much exploring on her own. Felicia was most comfortable using applications that I had previously modeled. She would look to her classmates for help when she was unsure what to select.

Allen had prior experience with the iPad. Most days he was able to access his iPad with ease. When introduced to the earbuds, Allen had trouble remembering where to plug in the earbuds. He explored many of the applications with ease. He was able to handle volume control. Allen had a difficult time turning the iPad off and on. On occasion he looked to his neighbor for some help.

Brittney did not have any experience with iPads before kindergarten. When we first started using our iPad's it was clear that she had some difficulty. My notes state "She is having a hard time plugging in her earbuds." This lasted about a month. Brittney was open to trying new applications on her own. When I observed her work if she didn't know what to do next she would sometimes persist and other times leave the application. She was never frustrated or overwhelmed by working on the iPad. Brittney could handle the volume control just fine. Again, she had trouble with the iPad power button.

Danny would seek help from his classmates often at the beginning of our study. He had no prior experience with an iPad. He oftens says, "I love school and my iPad. School in Mexico does not have iPads." Within a month he was able to access the iPad with ease. He often found new games in the applications that others don't find. He was able to help others with their iPad. Danny could handle volume controls, but sometimes forgets where the buttons are located on the iPad. Like the other students, he cannot turn the iPad off without help from an adult.

Of all the case study students, Angela had the most trouble with her iPad. Each time we connected our earbuds, she needed help from a classmate or adult. She might be able to get them to the right spot, but could not push them in the entire way. She often had trouble finding the application she used most often, which was Starfall. I would see Angela swiping from one screen to another unable to find what she was looking for. At times, my notes show that it may take her 3-5 minutes to choose or find the application. Angela was unable to work with the volume and the power buttons.

Teaching students how to turn the iPad off and on was one of the biggest challenges I encountered. The majority of the class and all of the case study students had trouble with this skill. When I set out to teach the power on/off, I had no idea how difficult it would be. Students could not keep the button held down for the 5 seconds it requires. Teaching the volume button was a much easier task for the class. Introducing applications whole group was the best way reach students and share new applications. Allowing students to have free exploration time prior to teaching helped to keep the students focused during my time.

Findings:

When glancing back at the notes for the case study students it was evident that some students navigated the iPad better than other students. Brittney and Danny were both first time iPad users. They were willing to try just about any feature on their iPads. Together, we all attempted the camera feature. Brittney accessed the camera again on her own. Danny explored google earth on numerous occassions. Both were able to swipe without any difficulty. As Angela navigated her iPad, notes showed that she had trouble remembering where to find an application. She was able to swipe from screen to screen, but would not always make a selection. Allen was able to navigate his iPad without any trouble. He would swipe from screen

to screen with ease. His only issues was remembering where to plug in his earbuds. Felicia was able to navigate and swipe easily. However, she was very passive when it came to selection of applications and working on applications.

4. What were students most interested in?

Findings:

When reviewing the reflective notes for Felicia, she seemed most interested in what she was already familiar with. She rarely explored on her own. Felicia worked on what she was most confortable with. That being said, many of my notes documented that she spent an overwhelming amount of time sorting, ordering, and counting with Candy Count. She also worked on Letter Writer the majority of of her time.

Allen showed interest in math each time we used our iPads. Notes showed that each time we used our iPads he accessed one of the math applications. He most often used Todo Math or Starfall Math. He enjoyed seeing how many stars or points he could earn during our time. He would explore the movies on Brain Pop Jr., but would leave them quickly each time.

Brittney enjoyed time spent using her iPad. She explored all aspects of the iPad. She would try out the camera, math, or reading. There was nothing that she was not willing to explore. Overall, I would say that many of the notes showed that Brittney enjoyed math most often. She tried many different math games when she used her iPad.

Danny was another student that enjoyed time on the iPad. He was always excited to show others the types of applications or games he was discovering. He loved checking out google earth on the iPad. He also enjoyed the element of exploring. He would try all of the

applications, even the ones that did not look kid friendly. He found the iPads very cool and mentioned to me on several occassions that he was happy to be in school in the U.S.

Angela enjoyed Starfall the most. When she did make a choice on the iPad the majority of the time it was Starfall. She usually picked the same game too. It was always the game that showed the _at family words and the story to follow. She often played the game that manipulated the _at and _an family words.

4. How was student social interaction when using the iPads?

<u>Findings</u>:

Felicia often looked to her neighbor for ideas on what to select. She would also make eye contact with friends further away and try and see what they were choosing. On occasion she asked for some help, but mostly defaulted to something that was familiar to her.

Allen was often in competition with his neighbor when playing math games. He would look for approval and acknowledgment for a job well done. He suggested to his neighbor that he should try a specific game or application that he was playing. I encouraged each student to select what they wanted to learn and not what their neighbors were telling them to do.

Brittney rarely showed any interaction with students around her. She was focused and worked on her iPad. My notes did not indicate a time when she asked a neighbor for help.

Danny had many social interactions with neighbors when working on his iPad. He asks a girl next to him, "How do I find that game?" Danny was always eager to share his findings and will share with anyone who showed interest. He often had neighbors looking over his shoulder to see what he had discovered on that particular day. One day his younger brother visited the

carpet and sat right next to him with an iPad. Danny who before was always asking for help

showed his brother exactly how to choose his application.

Overall, social interaction was per individual. Notes did show that most students were

eager and willing to help out a classmate when necessary.

Angela, like Brittney did not have many social interactions with others around her. She

kept to herself and worked only on her iPad. On occasion I would see her looking over

someone's shoulder and checking out a new application.

Conclusions

In conclusion, each of the research questions listed above, were answered positively

using the data collected from assessments and anecdotal notes. When the quantitative data was

reviewed growth was visible the majority of the time. The letter recognition tables captured

growth by every student, case study students included. Letter sounds had even better results.

With the exception of one case study student, all had reached benchmark by the second trimester

test. The same held true for High Frequency Word tests and Number Recognition tests, all

students showed growth. When the writing scores were reviewed, this was the exception to the

quantitative data. Data showed that most students remained at the same level. This is partially

due to the rubric used as well as the changing task demands. Students were asked to write on

two different topics: opinion and informational.

Qualitative analysis findings showed that the most popular application was Starfall,

among the case study students and the whole group. I also noted that students enjoyed the free

exploration time and were more focused during the direct instruction.   I also found that it is

very difficult for kindergarten students to turn iPads on and off, even if they work the iPad with

ease in other areas. I did not anticipate this in advance. The work that was done with iPad in

kindergarten was a lot of trial and error. Our kindergarten class was one of the first to work with iPads.

Chapter 5

Conclusions and Implications

This study was created to implement and introduce iPads to kindergarten age students at Richard Bard Elementary School. The goal was to examine how students work with iPads and if assessment scores increase. This study was completed in a year and was guided by the following questions:

1. **How do Kindergarten students with access to learning devices perform in a)letter recognition b)sound recognition c)number recognition d)high frequency words**

2. **Does Kindergarten writing improve with access to the learning devices?**

3. **How do ELL students benefit from using learning devices in the classroom? Does their use of English increase?**

4. **In particular, how were the five case study students affected? What types of apps were chosen? Were they able to access the device with ease? What were they most interested in? How was social interaction among the group? How was student motivation during use of iPads?**

When I received the iPads in the fall of 2014, there were many aspects to take into consideration. Most important was to figure out the management of 28 iPads, what our goals would be, and how to much time could we afford to spend with only 3 hours and 21 minutes in a kindergarten day. By mid December, we were using the iPads consistently 2 days a week for approximately 30-45 minutes depending on the task. Because of the time limitations, it is evident that we need more information on kindergarteners and iPads.

As a result of this research what will I do differently next year as the classroom teacher?

As stated previously, the quantitative data proved that students showed growth in four of the assessment areas. The writing test was the exception. Many students did not make any growth. However, one of the case study students showed growth while another case study student regressed in progress. In the first trimester, kindergarten students are asked to write an opinion piece about whether they like a cat or dog. The second trimester asks kindergarten students to write an informative/explanatory piece on water conservation. In the final trimester, kindergarten students will be asked to write a narrative piece. Is the state and district making the right decision by teaching and assessing a new writing skill each semester? After the writing standard is taught and tested, we simply move on to the next standard. We should be re-teaching and teaching the new standard simultaneously. Every opportunity to build and strengthen their writing is crucial. Personally, I will need to study influences of iPad use on writing development of kindergarteners as my study was weakened by the types of assessments used. In addition, I will seek out additional applications that may help my kindergarteners with growth in writing. Finally, I will be more intentional and give more time to one of the applications that is currently on our iPads: kid's journal.

The qualitative data indicated that students were excited about using iPads, accessed them with ease the majority of the time, and often selected many of the same applications. More specifically, qualitative data indicated that the case study students chose the Starfall application almost every time they had access to iPads. At the same time, it is important to state that each student had a specific learning area that they favored. Some students spent more time in the area of math, while other students worked more with reading. Starfall was one of the only

applications that had reading and math together. It simply depended on what the student enjoyed or was more successful at. I found it interesting to note that when given the choice even at this young of an age, students' personalities showed through with the selection of applications. It was evident from the data that exposing kindergarten students to iPads was a success.

One positive outcome of this study was that all kindergarten students were exposed to the iPads. English language learners who may not have had an opportunity at home were able to access iPads. That specific sub-group of students were able to play academic games and listen to more English than students in previous years. Several times anecdotal notes stated that many of the students were practicing speaking English, however they could not hear themselves. In my teaching and exposing students to iPads next year, I will not use earphones every time. When working in small groups of 4-6, I will ask students to not use their earbuds. When working whole group, I will be intentional about who uses earbuds and who does not.

Another positive of this study was all students had access to the ipad. Kindergarten students were engaged with games and learning in a way I had not seen in my earlier years of teaching kindergarten. Kindergarten students were happy that they could call the ipad "theirs". Through an hour each week, kindergarten student's exposure to iPads can help them to be more self-confident with a learning device. My anecdotal notes also showed that exposing kindergarten students to iPads was a success.

What suggestions can I make for teachers?

When kindergarten teachers are considering iPads as a teaching tool in their classroom, it is crucial to be patient with students. Teaching routines such as how to get out and put iPads into

the cart take much time and consideration. I found it successful initially to place only 2-3

applications on the iPad. Letting my students get comfortable and accustomed to the iPads was

important for learning. Once students were able to manage those applications, then I requested

approximately 7 more applications. I made sure that students knew that they had access to all

applications with the exception of settings. The settings application allowed students to enable

or disable tools that they were unfamiliar with, therefore, was completely off limits. When

students did have access to iPads, I always started with free explore time. This gave me an

opportunity to observe what they where choosing; following that time was my guided instruction

or practice. It is not necessary for students of this age to be able to turn the iPad off and on. I

would recommend to teachers not to teach this skill. I would remind teachers not to become

stressed when teaching and working with iPads. Just like teaching a new lesson or concept it

sometimes does not go exactly how one may have intended.

     As teachers, we know that children grow and learn differently. It is important to

remember the three types of learning styles: auditory, visual, and kinesthetic. Some children

need to hear the information being taught, some children need to see the information, and others

children work best learning hands on. It is important to be proactive as a classroom teacher and

introduce our children to the latest technology available. Allowing children to work on learning

devices for just an hour each week will help them to prepare for what lies ahead. With the

growing use of technology and the California Assessment of Student Performance and Progress

(CAASPP) our students' need to be adequately prepared.

What suggestions can I make for administrators?

As an educational leader, it is important to keep teachers informed and up-to-date on the latest technology and research available. When working with technology, it is also essential to keep staff apprised on the laws at the state/district level and legislature pertaining to technology. Teachers need to be supported in implementing iPads or electronic devices in the classroom. As the administrator, he/she needs to see the importance of students having access to learning devices at a young age. Overtime, students will strengthen skills needed to be successful at CAASPP testing, research and paper writing, and in the work place.

The next step following this study on kindergarteners and learning devices is to assist other teachers and support staff to feel comfortable introducing and implementing iPads into the classroom. It will be my next step to encourage administration to purchase class sets or a small group set of iPads for students. An additional next step will be to hold staff and parent meetings. Knowledge that I gained from hosting 2 meetings this past year was that many of our parents at Bard did not feel comfortable when they worked with iPads. This would be a good opportunity to share information with parents. It would also be great to give parents time to see what their children are learning and how they can help their child. Finally, district wide meeting are being held for those teachers with iPads. I will suggest that these meetings, as they grow larger, be geared more toward grade level.

The research shows that there has never been a more important time for learning than when children are young. With all the new media and cutting edge technology it is important to get it into the hands of our children. We must remember to facilitate and guide our young children with these devices. When teachers and parents work together and are trained properly,

the possibilities for learning are endless. I am excited to see the implementation in my own classroom so that I can share my findings with other kindergarten teachers.

We must give our English language learners and lower socioeconomic students the opportunity to learn with these devices as well. The study shows that the number of devices in the home decline tremendously when parents either cannot afford them or when parents themselves are unfamiliar with the learning device or less educated. I would like to give both parents and students the opportunity to learn and grow with these devices, showing how to benefit from a learning device and being in a family partnership for learning.

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Appendices

Appendix A – Felicia

Jan. 16, 2015

Felicia

Working on new apps today. ABC workbook. Tracing letters, headphones plugged in on own. Felicia is exploring a new app… Creating a person that resembles herself. Starfall

Jan. 23, 2015

Felicia

Working on doodle buddy today too! Writing letters that we have done already. Now she has moved to stamping.

Jan. 27, 2015

Felicia

Starts her day with doodle buddy…stamping and drawing. She is back on an old favorite one of our fist apps. Sorting, counting, and numbering from least to greatest. Tracing letters.

Jan. 30, 2015

 Felicia

Absent last week. Starting with Starfall. She enjoys the game where they can create a person that looks like them. She is still enjoying Starfall but has moved onto the tracing portion. Felicia moves apps often. She was on doodle buddy, but has moved to counting fairly quickly.

Feb. 12, 2015

Felicia

Working on adding app. First time math is her favorite choice. Felicia is still working on math. She is tracing numbers. Playing one of our first games; sorting and counting. Tracing letters.

Feb. 20, 2015

Felicia

She is sorting by color and counting. She has to find the greatest and least. She switched to Starfall, snowman story. I notice today she is asking for help from her neighbor.

Feb. 24, 2015

Felicia

She is working on a math app today. She changes apps often. She seeks help from neighbors around her. She enjoys the sorting app a lot. She plays this one often. Finally switched to the money in Starfall. That is another one she enjoys. Especially the story telling version.

Feb. 26, 2015

Felicia

Tracing letters. Not showing much interest today. Finally goes to a game that she is familiar with. Sorting and counting. She has moved on to Starfall. When she hears me ask Jerry if he wants to watch a movie, she decided to watch it too. This week is Harriet Tubman.

Feb. 27, 2015

Felicia

She starts with brain pop movie today. She leaves quickly and starts to work on Starfall. She is working on colors and color sentences. She works on self portrait today too.

Mar. 5, 2015

Felicia

She has started practicing her letter tracing. Fatima moves on to Starfall and chooses math. Greater than and less than, and also adding numbers. She is listening to a song, looks like preposition words. She does more exploring than normal today. Now she is counting money.

Mar. 6, 2015

Felicia

I am happy to see that she has started a new math game. She is working on greater than less than. She has started the tracing app. She mostly looks to see what others are doing then makes her selection. She is tracing shapes.

Mar. 12, 2015

Felicia

Greater than and less than to begin. It is also adding numbers. She has moved on to her sorting game.

Mar. 13, 2015

Felicia

She has started with Starfall numbers today. She is working on greater than and less then. She has moved quickly to tracing numbers. Back to Starfall and working on color stories.

Mar. 19, 2015

Felicia

Tracing symbols and shapes today. Working on math, coins and counting pennies and dimes.

Mar. 20, 2015

Felicia

Working on Starfall math today. Starfall has stopped working, so she is on to tracing shapes.

Felicia spends the majority of her iPad time tracing and sorting. She does do more exploring in the later months with Starfall. She often looks at her neighbors iPad to see what they are doing and then tries to replicate.

Appendix B – Allen

Jan. 16, 2015

Allen

Plugged into iPad. Having a hard time picking a new game. He also picked ABC workbook for today. Found a counting board. He is counting, but you cannot hear him.

Jan. 23, 2015

Allen

Starting right away on doodle buddy. Making shapes and counting. You can hear him counting quietly. He is writing sentences on doodle buddy.

Jan. 27, 2015

Allen

Reminds a friend that she should be playing a learning game. He has chosen doodle buddy today too. Stamping. He is having a difficult time focusing today. Allen has stamped 19 globes. He is quietly counting them. I asked him if he could write the number that corresponds with the picture.

Jan. 29, 2015

Allen

Having a difficult time finding to wear to plug in the headphones. Allen is working on a counting app as well today. His next portion of the game is number to set correspondence.

Jan. 30, 2015

Allen

He is working on math today. Left it briefly for a reading app, but quickly changed his mind. Back to math.

Feb. 5, 2015

Found a new math game that he is not familiar with. Asks a friend for help, then asks me. He figures out how to play the game. He leaves it and then returns to it. Allen is still working on a math game. He is quietly counting. Tracing numbers too. More out loud counting.

Feb. 12, 2015

Allen

Starts with his math app. He is counting and finding the corresponding number. He often counts quietly when he is doing math. Still counting and doing math. Talks to himself quietly while working.

Feb. 20, 2015

Allen

Working on todo math this morning. He has found a matching memory game. Talking to himself about how to play his math game. He is in kids journal, couldn't figure out exactly what to do… left it. Now watching the new movie of the week.

Feb. 24, 2015

Allen

He usually spends the majority of his time in math apps. Today he is watching the movie of the week about George Washington and proper nouns. This is the brain pop app. Finally moved to math. Again, counting quietly… he is unaware because he had his earphones on.

Feb. 26, 2015

Allen

Starts his math app today. Counting objects and finding the corresponding number. He counts quietly to himself. Still working on math. Proud of the amount of stars that he has earned from doing a good job. 15 minutes past… still working on the same math app. Counts the stars then affirms his good work!

Feb. 27, 2015

Allen

Started working with Starfall today. He has found a math game to play. He is counting and finding the number to match. He chooses from a long list of games.

Mar. 5, 2015

Allen

He is working on Starfall today. He is creating a self portrait. He spends just a few minutes on these and moves onto math. He is classifying big and small. He moves on to patterning next.

Quietly whispering to himself. Counting and number correspondence. Happens to find the months of the year and has to put them in order.

Mar. 6, 2015

Allen

Working on todo math. His normal go to app. He has moved on to the movie of the week. It is talking about contractions.

Mar. 13, 2015

Allen

He is also on Starfall today. He is paying too much attention to what his neighbor is doing... cannot focus on his iPad. He is working his way through a maze with position arrows.

Mar. 19, 2015

Allen

Working on Starfall letters today. Zz words then letter match up. Writes the words zig and zag. Moved onto Starfall math, greater than less than.

Mar. 20, 2015

Allen

Working on Starfall today. Also worked on making a self portrait.

Allen does mostly math apps. He explores todo math, does Starfall math apps. Allen is one of the only EO that does out loud or quiet talking to himself. Brainpop.

Appendix C – Brittney

Jan. 16, 2015

Brittney

Usually has a hard time plugging in and untangling headphones. Exploring the different apps on the screen. Cannot seem to make up her mind on what to do. Found a tracing game to explore. On doodle buddy she can change colors.

Jan. 23, 2015

Brittney

Working on counting numbers today. Got started right away. She did not have any trouble finding an app today. She is working on doodle buddy now. She started with stamping, but has moved on to writing letters… letter Ff! Letter of the week. Learning about eh color red from Starfall app. It reads a story while she follows along. Working on the story Zac the Rat. Whisper reading the story after it reads to her.

Jan. 27, 2015

Brittney

Brief moment of movie of the week with Moby. Quickly changes to the counting board. She feels comfortable moving from app to app. She has moved back to an app she enjoyed yesterday. Starfall reading.

Jan. 29, 2015

Brittney

Onto a new counting app today. She is enjoying number tracing today. After tracing, the next portion is counting. She is now set to number correspondence. Memory match… same app.

Jan. 30, 2015

Brittney

She is working on the math app today. Her math is patterning. Next is her counting and number sets. She has moved onto Starfall.

Feb. 5, 2015

Brittney

Arrives late. Gets herself connected with ease. Her and most of the students are handling the iPad's with ease. Brittney is exploring brain pop jr.

Feb. 12, 2015

Brittney

She is starting in Starfall today… listening to the alphabet, picking specific letters. She has moved to many areas of Starfall today. She has moved onto coins. Looks like a bit of graphing and coin work.

Feb. 20, 2015

Brittney

Working on todo math this morning. She was counting objects and finding the corresponding number. She spent about 12 minutes doing math. Now she has moved on to Starfall. Onto tracing letters.

Feb. 24, 2015

Brittney

She has been hard at work from the beginning. She is working on tracing letters today. Birttney has moved onto Brain Pop too.

Feb. 26, 2015

Brittney

Started on Starfall today. She has found a 3D shape and flat shape game. She has to drag the matching shape over the picture. She also stumbled upon a time/clock game. She has moved onto the brain op movie too. Exploring brain pop, can't figure out what she has access to.

Feb. 27, 2015

Brittney

She is working on self portraits from Starfall today. She moves onto the counting board. She has moved onto todo math app. Counting and finishing the correct number is her choice.

Mar. 5, 2015

Brittney

Brittney was exploring her camera option when she first started. She moved to a counting board next. She has now started the movie on brain pop. She works at the back table briefly and upon her return starts a new math game. It is adding numbers. She is enjoying todo math today.

Mar. 6, 2015

Brittney

Has a new game. She is ordering numbers on a Ferris Wheel. Looks similar to a clock. She has already changed to adding with numbers and cards. She is working on adding. I notice that she is using her fingers to figure out the answer.

Mar. 12, 2015

Brittney

She has found a new game on Starfall that is a clock. She is working on time and got a new watch today too! She has moved on to greater than less than. She is now adding numbers with greater than less than symbol. She is exploring other apps today.

Mar. 13, 2015

Brittney

Went straight to Starfall. She is working on memory math today. She is working on sorting today. Now tracing numbers.

Mar. 19, 2015

Brittney

Started with Starfall math today. Moved on to brain pop movie of the week. She has moved onto counting boards.

In January, Brittney had difficulty plugging in. Did not work with ease in the beginning. You could she her unfamiliar with something new. February: she is feeling comfortable and confident. She tries lots of apps and explores happily.

Appendix D – Danny

Jan. 23, 2015

Danny

Brain pop. New app, movie of the week. Martin Luther Jr. Moved onto numbers. 100 counting board reveals the numbers as you press on the colored boxes.

Jan. 27, 2015

Danny

Starts with doodle buddy. He is finding colors and stamping. Loves exploring. Found tic tac toe.

Jan. 16, 2015

Danny

Excited to see all new apps on screen. Danny finally chooses ABC Workbook, but he changes apps often.

Jan. 29, 2015

Danny

Onto the Starfall app today. He is asking Sophia for some help trying to figure out a new game. He asks many questions. Very good English! He doesn't realize that the highlighted piece will get him to the next screen. I showed Danny how to make the iPad read to you if you press the ear symbol. He has moved on to a story and now colors.

Jan. 30, 2015

Danny

He is back on the Starfall app today. He is working on stories today. The gingerbread man and a story describing himself. Danny has switched to several apps today. He has chosen a math app that is adding numbers. He has found a new game that I have not seen… popping bubbles. This is a counting backwards skill.

Feb. 12, 2015

Danny

Has found a new app that reads a story to him.

Feb. 20, 2015

Danny

Starts late… he is counting pennies for his first game. Starfall is the app, he is happy to have found a new game. Yesterday he also found something new… excited for that.

Feb. 24, 2015

Danny

He has started a difficult math app, which is adding 3 digit numbers. It is a Starfall app. It also works with teens and ones.

Feb. 27, 2015

Danny

He did not have much time yesterday. He was out with Ms. Vasquez working on ELD. Today he has started with Starfall. He started by making a self portrait. He has moved onto shapes. Danny is always excited to show me something new. Practicing telling time with Starfall today.

Mar. 6, 2015

Danny

Starfall… working on AR words. Spending more time in Starfall… He is doing a story with race cars. He has to select the number of each car. It becomes a race car game. His neighbor is excited to see it. Jerry then wants his iPad. Brandon is looking over his shoulder to see his game.

Mar. 12, 2015

Danny

He is on Starfall today. He is making a picture of a boy. It tells a story about his face. He has moved on to counting numbers. Listening to a story about numbers. Diego is helping his brother navigate on the iPad. Before, he used to have questions to ask his neighbors, now he can easily help others. He has number boxes and had to count the items in the box, then add them.

Mar. 13, 2015

Danny

He has tried many games in Starfall such as patterning and matching. He has now moved to todo math and is working on number corresponding and number tracing.

Mar. 19, 2015

Danny

Starts with todo math today

Mar. 20, 2015

Danny

Working on todo math subtraction problems. Still working with the todo math app. Moved on to time.

January-> Danny asks for help from Sophia. By March he is helping his little brother navigate the iPad. Danny loves to explore the iPad. Tries new things often. He is excited to share his findings. Danny was thrilled with the QR reading cards. He realized that by scanning one card he could see all the other stories available.

Appendix E – Angela

Jan 16, 2015

Angela

She is still having a difficult time plugging in and picking something to play. At least 5 minutes have gone by. She has finally made it to Starfall. Working on a gingerbread art activity and the app is reading the story to her. She is playing a new number game on Starfall. She is having a difficult time finding what to press to make it go to the next screen.

Jan. 23, 2015

Angela

She plugged in right away today. She is working on counting numbers and finding the corresponding number.

Jan. 27, 2015

Angela

Finally makes it to the carpet for some time. She starts with Starfall. It is a spelling game. The app requires her to manipulate letters.

Jan. 29, 2015

Angela

Usually ends up on the Starfall app. Today she is reading 'CVC' words. Some examples include "Ran", "rat", and other short 'CVC' words. She is able to look at a picture and pick out the consonant that matches. Ex: sees a picture of a hat and will find "h" to add to the letters "at in order to make the word "hat."

Jan. 30, 2015

Angela

She has got started rather quickly today. She has also chosen a new app today. She is working on the math app. She is quietly counting and saying the numbers. She us super excited when she gets the answer right. Her math for today is addition. She is working on subtraction now. She says the number sentence after she does it 10-8=2

Feb. 5, 2015

Angela

She is trying to decide which game to play today. She plays with Starfall, but then takes a long break. She watches her neighbor play. Looks around the room makes a statement about girls playing. She is much more talkative this week than normal. Angela has still not selected…5+ minutes have passed. I have prompted her again to see if that helps. She finally chooses Starfall, again. I think she may have wanted to choose it, but was unable to find it. When I swiped to the last page she smiled and picked it immediately.

Feb. 12, 2015

Angela

She is working on a math app that exposes her to coins. This is the first time I have seen this app. Lots of coin work today.

Feb. 20, 2015

Angela

Had to get some help untangling headphones…finally getting on at 12:00. She has moved to the ABC tracing app. Angela played this game a lot last week. IT is the money game also found on Starfall.

Feb. 24, 2015

Angela

She has started in Starfall. This is one of her favorite apps. She is working with ABC's today. She is speaking out loud, which is unusual for her behavior. She is extremely quiet. She is still working on letters. She is very loud and verbal today! Good work!

Feb. 26, 2015

Angela

She is tracing letters currently. She started out tracing numbers. She is taking a break. Her earphones are in but she cannot decide on a game. She is just swiping the screen from one to another page. She is also spending time moving it from vertical to horizontal.

Feb. 27, 2015

Angela

She loves Starfall. That is where she starts today. She recognized that the journals we use match the Starfall app. She is working on at word today.

March 5, 2015

Angela

She is not quick to make a selection on the iPad today. She chooses Starfall, which is usually her first choice. She is working with numbers today. She often times chooses a reading choice. She is now working on creating a snowman and then she can listen to a story.

March 6, 2015

Angela

She has started with tracing letters. She is still tracing letters at 12:20, but watching Diego and his new game.

March 12, 2015

Angela

She is listening to a snowman story. She has decided to trace the ABC's.

March 13, 2015

Angela

She has started with Starfall too. She is working on AR words that have a race car theme. She is tracing letters, but does not realize that the letters are sideway. She moves on to another tracing app.

March 19, 2015

Angela

She is tracing letters. She found her way onto the app fairly easily. She is not too distracted today. 12"03 – She is still tracing letters.

March 20, 2015

Angela

She is tracing letters when we start.

Angela spends the majority of her time on two apps. She is training on Starfall.