Impact of Using iPad Apps on Student Comprehension

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Abstract

With the importance of high-stakes testing for the school districts, it is important for every student to be performing at grade level. For those students that are below grade level, frequent small-group or one-on-one intervention can provide them with the skills to be nearing grade-level; however, with the increasing demands on the time of educators, the frequent small groups may not always be a possibility. The purpose of this action research project was to determine if the use of iPad apps to increase reading comprehension would be an effective intervention for struggling readers in a third grade classroom. For this action research project, two male and two female participants with the lowest reading level were selected for the four-person intervention group of which was the focus of the research. The participants were selected from a convenient sample of 18 third grade students, aged 8-10 years old, who were currently enrolled in my third-grade class. Two iPad apps involving practicing the skill of main idea and detail were utilized for the intervention group. Data was collected over a five week period. A pre- and post-assessment were administered to the entire sample population for comparison purposes. The overall findings of the research suggest that the use of iPad apps to increase reading comprehension was not an effective intervention for struggling readers in a third grade classroom. It seems necessary that the teacher be involved in any intervention to help scaffold the needs of the involved students.

Impact of Using iPad Apps on Student Comprehension

I have been teaching 3rd grade at a small, rural school in Central Illinois for five years. Every year, our school has had a relatively low rate of poverty (hovering around 20% low income), great parental involvement, and we have been above the state average on ISAT scores. One thing, however, that has also happened every year at my school has been having students in my 3rd grade classroom that were reading at a Kindergarten reading level. Having that low of a reading level in 3rd grade not only made finding and reading a good trade book difficult, but it made reading math problems, and our science or social studies textbooks (written at a 4th grade reading level) almost impossible. Therefore, not only did the student's reading suffer, but all of his or her subjects became deficit because of the low level of reading comprehension. Many interventions that I had tried with these various students over the years seemed to make a positive impact on their reading ability, but the interventions also usually took both my and the student's lunch/recess time to do every day. By about mid-year I was burnt out on having to miss my time to eat with other teachers and have some free time during lunch, and the student was frustrated about missing their lunch recess. All of the interventions I were trying needed one-on-one or small group teacher-led instruction in order to be effective, and during the day the only time when both the teacher and student(s) were available to sit down together was during a lunch/recess time.

This past summer, our school's Parent-Teacher Organization (PTO) purchased an iPad for every teacher that taught K-8. With hundreds of possible apps available for use, technological integration seemed more possible with this new tool. However, to incorporate technology for the sake of technology, and not to meet other curricular requirements, seemed like just another hoop to jump through for teacher. With the simple touch of a screen though, any

and all apps incorporating any desired skill are shown and available for use instantly. The

students were excited to see an iPad in the classroom, and most already knew how to use it.

Those that did not know how, quickly caught on and can now pick it up frequently during class

to help them look up words, take pictures of their work to share on our class website, or take

Accelerated Reading (AR) quizzes on previously read books. With all the student excitement

about the iPad, the ability for them to use the iPad all on their own, and all the possible

educational apps available, it seemed like the perfect solution to my dilemma about students that

need a reading intervention, but did not want to give up their lunch/recess time to meet one-on-

one with the teacher.

  For my action research project, two male and two female participants with the lowest

scores (lowest reading level) from the STAR Reading test, were selected for the small, four-

person intervention group of which was the focus of my research. The participants were selected

from a convenient sample of 18 third grade students, aged 8-10 years old, who were currently

enrolled in my third-grade class.

  The purpose of this action research project was to determine if the use of iPad apps to

increase reading comprehension would be an effective intervention for struggling readers in a

third grade classroom. Using current research to guide and structure the setup of this action

research, two iPad apps involving practicing the skill of main idea and detail were utilized for a

four-person intervention group. Data was collected over a five week period to answer the

research question: Will the use of iPad apps to increase reading comprehension be an effective

intervention for struggling readers in a third grade classroom? My hypothesis was that the use of

iPad apps would increase the ability of students to identify the main idea and details of a text,

thus increasing their reading comprehension.

Literature Review

According to a report from the National Assessment of Educational Progress, many students in the United States could not read successfully at their grade level. Almost two-thirds of students in grades eight through twelve were reading below proficient level for their grade (Houge, Geier, & Peyton, 2008). Ambe felt that reading was not only a necessary tool for educational success, but also a tool needed to become a successful part of society (2007). It was emphasized that being a successful reader would be necessary to achieve status in the workplace. Ambe made that point that politicians, educators, administrators, and researchers have all been working to make reading a critical part of education because of its importance in the world (2007). Tedford also noted that it was essential for students to master reading at as early of an age as possible because taking remedial reading courses in high school could hinder students from being enrolled in collect preparatory courses that would help them with their chances of getting into college (2008).

Student Interest and Motivation

Ambe identified low self-esteem and motivation as key reasons why students may fall behind in their reading abilities. Stated in the article was the point that students who struggle at reading have done so for most of their reading-able life and become frustrated with reading and therefore develop a low self-image of themselves as readers. Since the students think they are bad readers, they avoid reading and fall further behind their peers. Tutors, in the article, took inventories of students' interests so they could find books that interested the readers and would get them excited to read (Ambe, 2007). It was suggested that tutors or teachers should create a welcoming environment for reluctant readers so they feel more comfortable and willing to try new strategies. Smiling, staying positive, praising any small reading achievement, and talking to

the student about things that interest them were all advised to help the reader feel more confident and willing to participate freely (instead of being forced to by the teacher). One other way to help students gain self-confidence in reading was to let students know that they can make mistakes, which would take the pressure off the student to do everything perfectly and increase their motivation.

Conditions for Interventions

Interventions for struggling readers should be taught in a small group setting to maximize the effectiveness of the lessons (Duff & Clarke, 2010; Mokhtari, Porter, & Edwards, 2010; Woodward & Talbert-Johnson, 2009). The size could vary from two to six students who are all working on the same reading strategy (Woodward & Talbert-Johnson, 2009). The interventions should be taught explicitly for at least 30 minutes, be more intense and engaging, and be more supportive than whole-group lessons (Duff & Clarke, 2010; Houge, Geier, & Peyton, 2008; Woodward & Talbert-Johnson, 2009). The intervention lessons should coincide and support the whole-class instruction.

Researchers and teachers found that these types of interventions were easy to do during RTI or guided reading in the classroom (Mokhtari, Porter, & Edwards, 2010). Working in small groups during these time periods allowed teachers to easily determine which students needed help with particular strategies. Also, being reflective about what was taught and how it was taught would help the teacher determine what worked well with the group and what skills still need to be addressed in more detail (Mokhtari, Porter, & Edwards, 2010; Woodward & Talbert-Johnson, 2009). It was assumed that the skills taught in these small groups would be habituated by the students and they would begin to apply them to their independent reading (Stahl, 2008). According to a study cited in Targeting Adolescent's Listeracy Skills Using One-to-One

Instruction with Research-Based Practices, students in a control group receiving no extra reading support were significantly outperformed by a group of students that received reading interventions (Houge, Geier, & Peyton, 2008).

Use of technology for interventions. Until the use of iPads and other smart tablets being introduced to the school setting, interventions were directed and led by the teacher or another qualified adult when the adult was free to work with them. Now that iPads have made their way into the schools, mobile learning can lead interventions, thus allowing them to be done anytime, anywhere because the student does not need to wait for the teacher to be free in order to practice or learn more about the intervention topic (Hutchinson, Beschorner, & Schmidt-Crawford, 2012). Mobile learning, as defined by Traxler, is simply learning by a type of mobile or handheld device (Traxler, 2009). The use of mobile learning has revolutionized student learning because it is done on their own time, allows them to physically interact with the text, makes the reading experience more individualized and engaging, and is one-on-one (Hutchinson, Beschorner, & Schmidt-Crawford, 2012; McClanahan, Williams, Kennedy, & Tate, 2012). While there is little research to support the use of iPads or other smart tablets, the few studies that have been done (all involving e-books that can be read aloud) indicate an improvement with the targeted skill focused on for that study (Hutchinson, Beschorner, & Schmidt-Crawford, 2012; McClanahan, Williams, Kennedy, & Tate, 2012; Price, 2011). Some drawbacks to using the iPad or other tablets in a classroom might include limited hardware/app availability (due to cost), teacher and student training on usage of the device, syncing devices so the same app/materials are available on all the devices being used, and wi-fi availability (McClanahan, Williams, Kennedy, & Tate, 2012; Price, 2011).

Assessment

One way suggested for teachers to track student progress, and knowing which students need which certain skills taught, was to give frequent assessments (Ambe, 2007; Duff & Clarke, 2010; Houge, Geier, & Peyton, 2008; Mokhtari, Porter, & Edwards, 2010; Tedford, 2008; Woodward & Talbert-Johnson, 2009). Interventions should be data driven, based off of how students actually do as opposed to what the teacher thinks they need to learn (Woodward & Talbert-Johnson, 2009). The assessments should be what drives and determines the duration of the interventions for each child. Tedford also believed that students should not be assessed using only one tool (2008). It was suggested that students be assessed by standardized tests, their reading grades, an evaluation by the teacher, and scores off of a norm-referenced assessment, such as the Nelson-Denny and Gates-MacGinitie reading and vocabulary assessments (2008). Some other assessment tests suggested were the Analytical Reading Inventory, an Interest and Attitude Inventory, Clay's Observation Survey of Early Literacy Achievement, and Running Records tracking (Ambe, 2007; Mokhtari, Porter, & Edwards, 2010).

These assessments should be given before any interventions are provided to determine which students need the interventions. The results should be used to derive learning goals for each student so that an aim can be determined for each meeting (Duff & Clarke, 2010). Frequent assessment should be encouraged during the intervention so that the teacher can know whether or not the child has been responding to the lessons and how to change instruction for them (Duff & Clarke, 2010; Mokhtari, Porter, & Edwards, 2010). Afterward, the same assessment that was given at the beginning should be administered to the student so that the data can be graphed to see how much progress, if any, was made. Duff and Clarke stated that it is important to understand where the child is at, regarding literacy, constantly so that their specific needs can be

met and the effectiveness of the lessons can be evaluated quickly (2010). These assessments can also be used to determine the student's interests so that books, lessons, and discussions can be created around that topic so the student becomes more involved in the reading process (Ambe, 2007).

Comprehension

One component of reading that could be measured with various assessments is comprehension. Comprehension is key to reading to ensure that students are using effective strategies to read, as well as understand what was said in the text (Ambe, 2007). It was suggested that comprehension also be taught explicitly to make greater gains for lower-level readers (Houge, Geier, & Peyton, 2008; Stahl, 2008). There are many different components that aid in reading comprehension, with main idea and detail being one of the strategies. (Ambe, 2007; Duff & Clarke, 2010; Houge, Geier, & Peyton, 2008; Stahl, 2008).

Main idea and details. Main idea and details are an indispensable part of fiction and nonfiction texts to contribute to the reader making sense of the text (Beishuizen, Asscher, Prinsen, & Elshout-Mohr, 2003). Students mostly use their concept of what the main idea is to relate it to any previous background knowledge they have on the topic, therefore allowing them to make a personal connection to the text and better understand it (2003). However, differing factors such as how many details are included in the text can drastically impact the comprehension level of the text; therefore it is important to teach students how to accurately identify the main idea and any supporting details so that their comprehension is not compromised during the reading process (2003). By teaching, and letting students practice, an effective way to develop their skill of identifying and connecting main idea and details, their understanding of the text being read should also be affected positively.

By researching different areas of reading comprehension and interventions, and analyzing the feedback from our assessments, it is possible for teachers to truly teach students how to read (Woodward & Talbert-Johnson, 2009).

Methods

Participants

The participants were selected from a convenient sample of 18 third grade students, aged 8-10 years old, who were currently enrolled in my third-grade class. The subject population consisted of nine females and nine males. Out of the entire subject population, one student was African American and 17 were Caucasian. One student had documented ADHD (Attention Deficit Hyperactivity Disorder) and two other learning disabilities and was receiving medication, and one student had autism. For this project, two male and two female participants with the lowest scores from the STAR reading test, were selected for the small, four-person intervention group for which was the focus of my research. Race and ethnicity and or medical issues were not a consideration for selecting the participants for the intervention group.

Data Collection

While collecting pre- and post- assessment data from my entire sample population of 18 third grade students, I used a random numbering code for the electronic student response system so that student names remained unknown and completely anonymous. All of the students read the same third-grade reading level nonfiction passage that I printed and passed out prior to the assessment. Then students then used Socrative, a free electronic student response system that can be downloaded to computers or tablets. Students took the same electronic-based quiz regarding main idea and details on iPads while I monitored the group to ensure their data and identity was secure. Since scores were submitted electronically, all names were able to be kept

unknown. The post-assessment followed the same procedure, but was done using a different third-grade reading level nonfiction passage and different Socrative quiz, but containing similar questions in regard to main idea and details.

The four students in the intervention group, that were doing the weekly assessments, never self-identified any of their work with their own name or assigned number. Their assessments were done on one of the iPad apps, Reading Skills 3A, which does not allow, nor have a place to, input any name or way to associate data to a specific person. There are 12 assessment passages on each of the two iPads; I verbally told the students on which iPad they were to work and who was assessing on the first six passages and who was assessing on the last six passages. That way I was able to look at the iPads and tell which student took which assessment, but no one else was able to identify the students' work. I also took anecdotal notes throughout the course of the study to monitor accuracy, motivation, excitement, and hurriedness of the students using the iPad apps in the small intervention group. Pseudonyms were used on anecdotal notes when it was necessary to differentiate between the four students. In the reporting of my research, pseudonyms will be used for the four students in the small intervention group to keep their identity confidential.

During the study, all information (including pre-assessment, post-assessment, and weekly assessment) was stored electronically, where they were conducted, in the iPad apps. The only people with access to the data, which was still not be identifiable by name, were me and the four students that participated in the small group intervention. If a parent did not wish for their child's data to be used in this research study, and they were a part of the small intervention group, they were excluded from the small group and the next lowest reading score (of the same gender of the child that withdrew) took his/her place in the small intervention group. Any student that was

formally withdrawn from the research still participated in the pre- and post-assessment. There

was no reason for video or audio to be recorded during the course of this research. Any raw data

obtained from this research project will be securely locked in a cabinet secured in my classroom.

It will be destroyed after the duration of three years.

Procedures

The STAR reading test, used grade-wide to identify the reading levels of each individual

student was administered before starting the intervention for the project. The results of the STAR

reading test from the first quarter were used to identify the two male students and two female

students with the lowest reading levels in the class. Those four students created the small

intervention group whose data was analyzed for my research.

A pre-assessment was administered to my entire sample population of 18 third grade

students before the first meeting of the small intervention group. All of the students read the

same third-grade reading level nonfiction passage that I printed and passed out prior to the pre-

assessment. Then students used Socrative, a free electronic student response system that can be

downloaded to the computers in the computer lab or used as an iPad app. Each student received

a randomly generated number which they were able to input in the "name" section of the

electronic assessment to keep student identity confidential.

The four students identified as having the lowest reading levels from the STAR reader

test were selected for the small group intervention that met for 20 minutes a day from Monday to

Thursday. Students were allowed to do their intervention apps in their pairs/individually during

class time if they had the free time to do it. However, most of the time the students had to come

in for part of their first recess to use the iPad apps. Before the intervention began, I met with all

four students at one time to explain the schedule included below (See Table 1), as well as when

they would be allowed to use these iPad apps. Students were assigned specific partner on specific

days so they did not work with the same person every time.

Table 1

Weekly schedule for small group iPad use.

Monday	Tuesday	Wednesday	Thursday
Students will work in same-gender partners playing the Space Voyage (suitable for grades 2-3) app. Each pair will have their own iPad.	On Tuesday, one male and one female will come in to take their weekly assessment using the Reading Skills 3A app. Each student will have his/her own iPad.	On Wednesday, the other male and female that did not come in on Tuesday will come in to take their weekly assessment using the Reading Skills 3A app. Each student will have his/her own iPad.	Students will work in different partners than on Monday playing the Space Voyage app. Each pair will have their own iPad.

Students followed this weekly schedule for 5 weeks. If I observed, or the students stated,

that the apps were too easy, then I would have downloaded and used the Space Voyage app

suitable for grades 4-5 to ensure the intervention was challenging the students.

During the 5 weeks of the small intervention group, I took anecdotal notes regarding

accuracy of the student responses while playing Space Voyage, motivation, excitement, and

hurriedness of the students using the iPad apps in the small intervention group.

The post-assessment followed the same procedure as the pre-assessment, but was done using a different third-grade reading level nonfiction passage and a different Socrative quiz, but containing similar questions in regard to main idea and details.

Results

For this study, data was analyzed quantitatively and using descriptive analysis. In order to assess whether the use of iPad apps to increase reading comprehension was an effective intervention for struggling readers in a third grade classroom, a pre-assessment was administered to the entire sample population to determine the current level of understanding in main idea and detail. A five-question quiz was given, using Socrative, after students read a short, third-grade reading level, nonfiction passage. The scores ranged from getting one correct to getting all five correct (See Figure 1). The median score was three, and the mode was three. The class average was getting 2.5 questions correct out of five (50% correct). Kristen (pseudonyms were used to protect the identity) got four out of five answers correct, which means she scored 30% above the class average. Jace scored one out of five, which was 30% below the class average. Eliana and Parker both scored three out of five, meaning they were 10% above the class average.
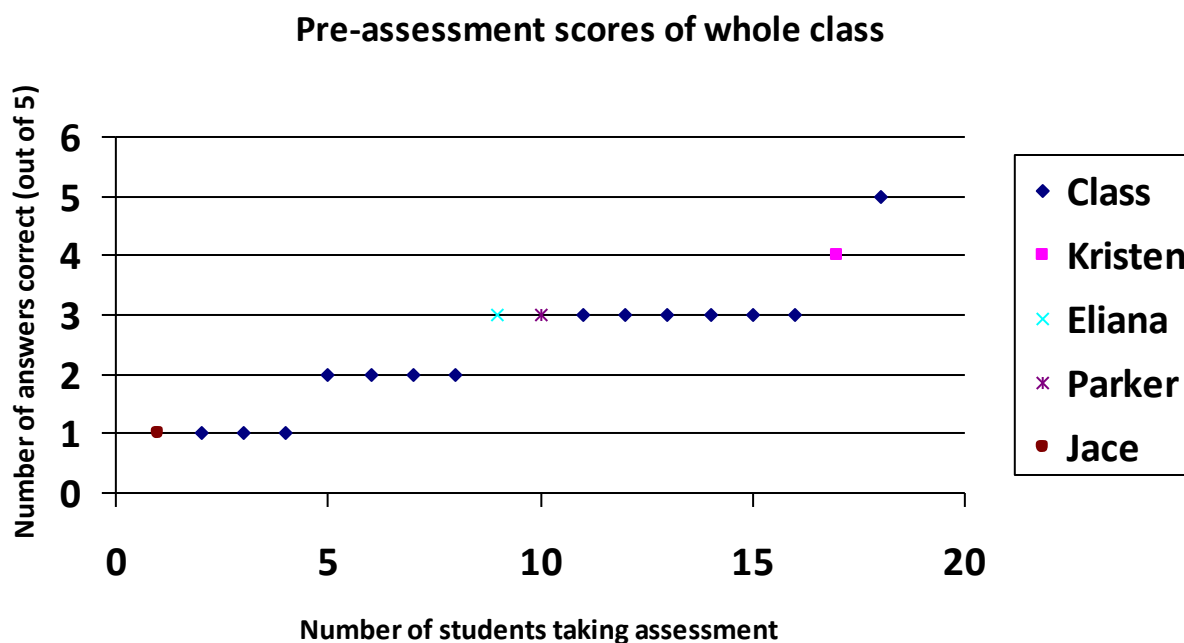
Pre-assessment scores of whole class

Figure 1. Pre-assessment scores from the nonfiction passage reading and five-question quiz.

After the pre-assessment was administered, for five weeks thereafter, the four-person

intervention group also took a weekly assessment to monitor their progress in main idea and

detail comprehension. Figures 2, 3, 4, and 5 show each student's personal progress during the

five-week intervention. Kristen (See Figure 2) averaged a 52% over the course of the five

weeks, peaking at week three with an 80%. Her scores ranged from 40% to 80%. She decreased

in main idea and detail comprehension by 10% between weeks one and two, and by 40%

between week three and five. The only increase in comprehension was between week two and

three, where her scores went up by 40%. She most often either scored a 40% or 50% on her

weekly assessment. Comparing the beginning of the intervention (week 1) to the end of the

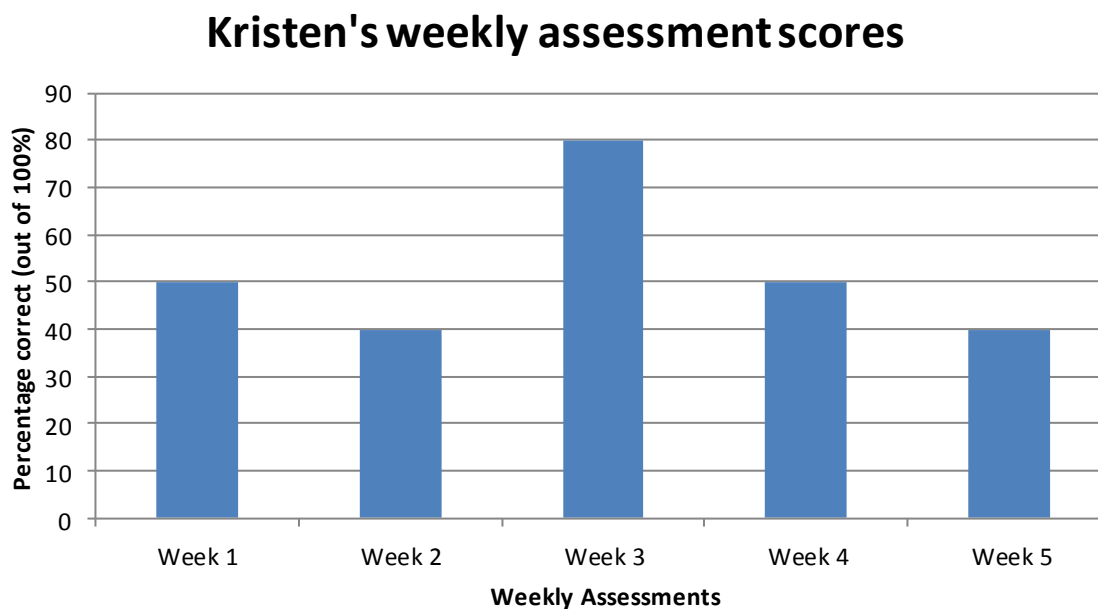intervention (week 5), she decreased in main idea and detail comprehension by 10%.

Kristen's weekly assessment scores

Figure 2. Weekly assessment for main idea and detail comprehension using nonfiction passages.

Jace's (See Figure 3) scores ranged from a 20% to 70%, with an average of 44% over the course of the five weeks, peaking at week four with a 70%. He decreased in main idea and detail comprehension by 20% between weeks one and three, and by 10% between week four and five. There was a sharp increase in comprehension between week three and four, where his scores went up by 50%, which was the only increase seen throughout the five-week intervention. Comparing the beginning of the intervention (week 1) to the end of the intervention (week 5), he increased in main idea and detail comprehension by 20%.
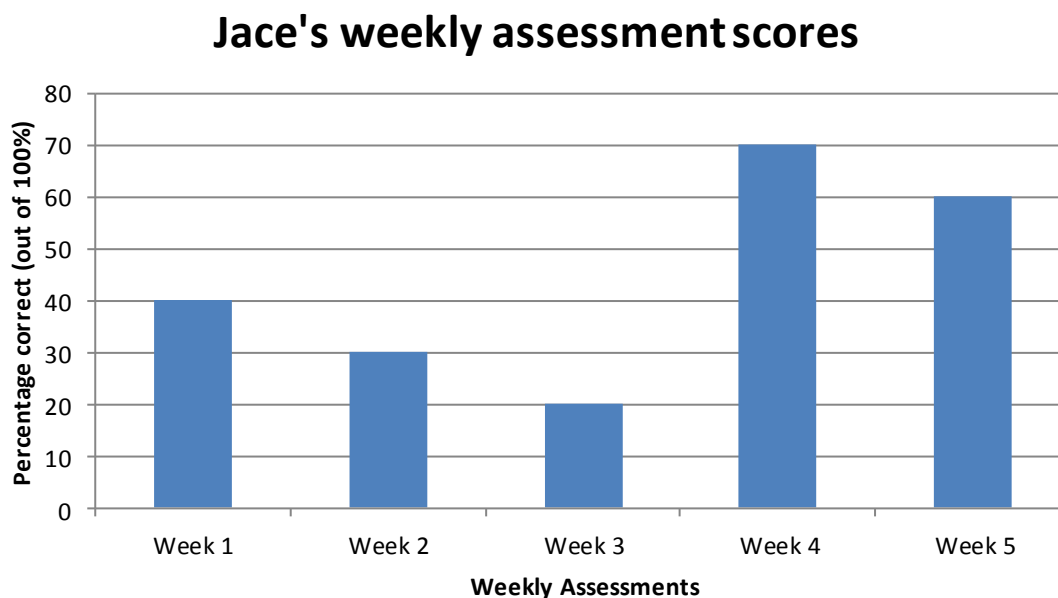
Jace's weekly assessment scores

Figure 3. Weekly assessment for main idea and detail comprehension using nonfiction passages.

Eliana (See Figure 4) averaged a 48% over the course of the five weeks, peaking at week five with a 60%. All of her score were between 40-60%, with most of them being 40% or 50%. She decreased in main idea and detail comprehension by 10% between weeks two and three, and remained constant between week one and two, and week three and four. The only increase in comprehension was between week four and five, where her scores increased by 20%. Comparing the beginning of the intervention (week 1) to the end of the intervention (week 5), she increased in main idea and detail comprehension by 10%.
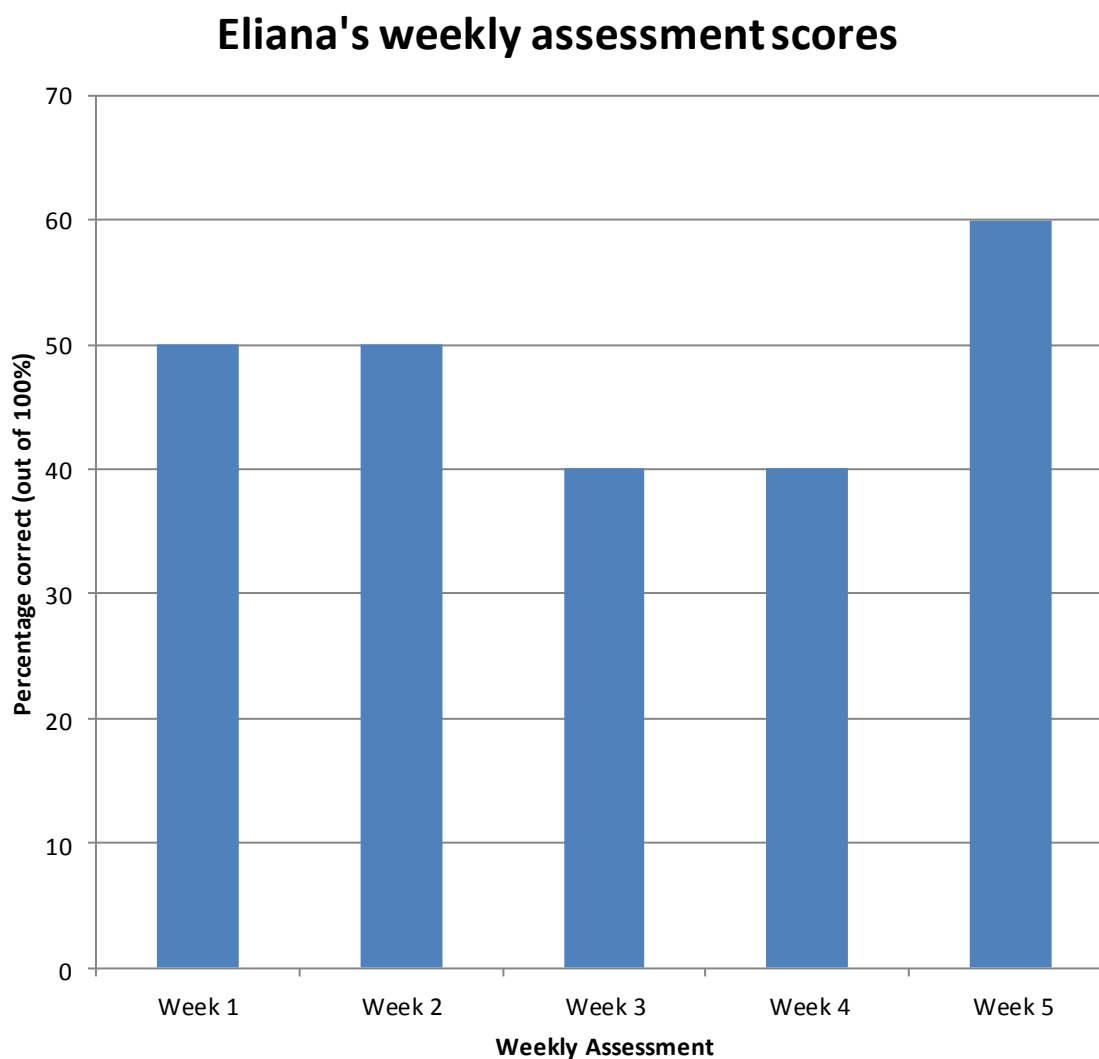
Eliana's weekly assessment scores

Figure 4. Weekly assessment for main idea and detail comprehension using nonfiction passages.

Parker (See Figure 5) averaged a 34% over the course of the five weeks, peaking at week three with a 50%. All of his score were between 20-50%, with most of them being 30%. His scores mostly increased throughout the five-week intervention, increasing by 10% every week, except between week three and four where he decreased by 30%. Comparing the beginning of the intervention (week 1) to the end of the intervention (week 5), his scores reflecting his comprehension in main idea and detail neither increased nor decreased.
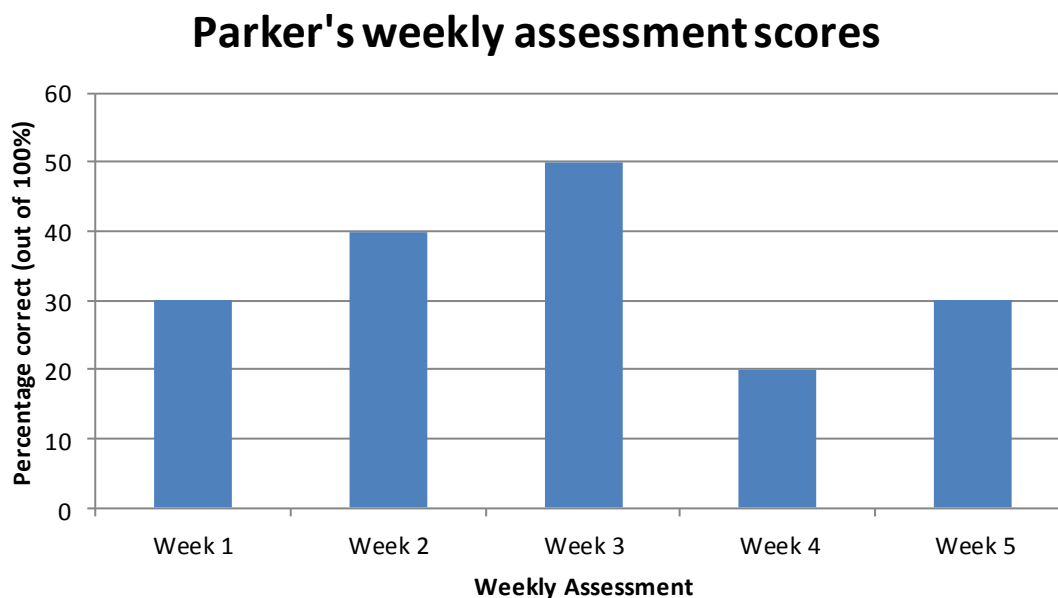
Parker's weekly assessment scores

Figure 5. Weekly assessment for main idea and detail comprehension using nonfiction passages

After the five-week intervention with the four-person group, a post-assessment was administered to the whole class. Every student read the same short, nonfiction, third-grade reading level passage and then took a five-question quiz using Socrative. The passage that was used for the post-assessment was a different passage than what was used for the pre-assessment, but rated at a similar reading level. The scores on the post-assessment ranged from getting zero correct to getting all five correct (See Figure 6). The median score was three, and the mode was three. The class average was getting three questions correct out of five (60% correct). This showed an overall 10% increase in understanding of main idea and detail from the pre-assessment that was administered five weeks earlier.
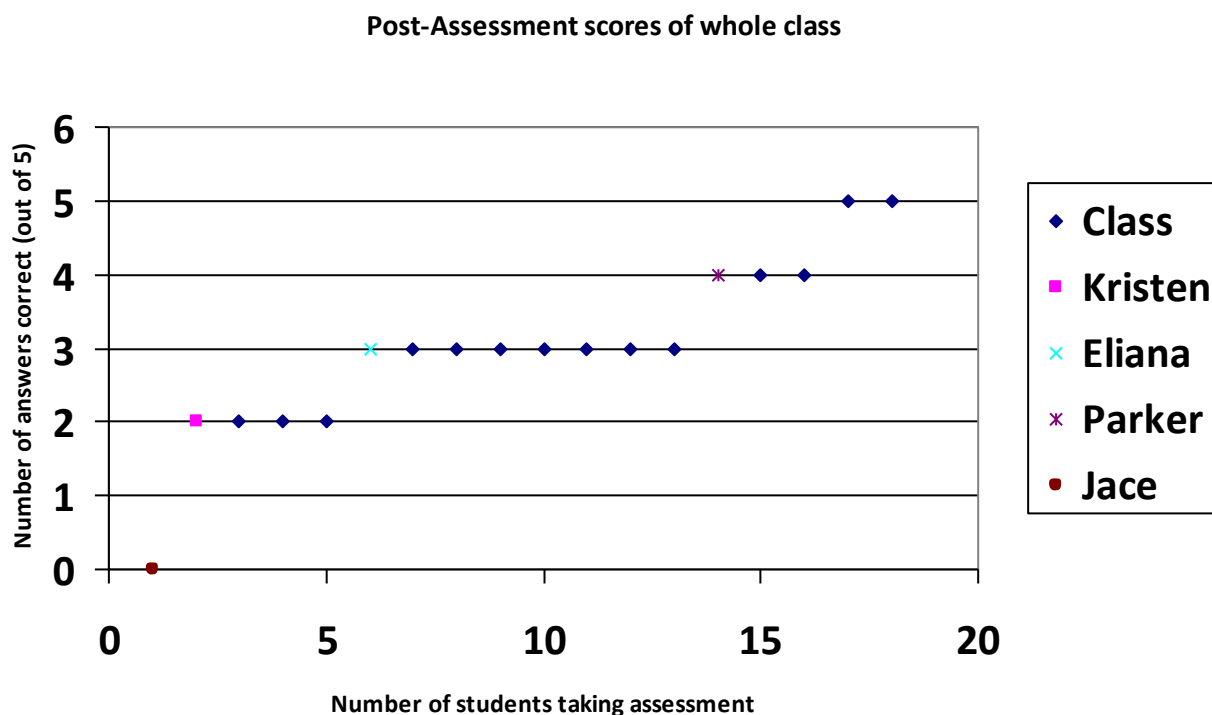
Post-Assessment scores of whole class

Figure 6. Post-assessment scores from the nonfiction passage reading and five-question quiz.

On the post-assessment, Kristen got two out of five answers correct, which means she

scored 20% below the class average. Compared to her pre-assessment score, she decreased in

main idea and detail comprehension by 40% from the beginning of the intervention (See Figure

7). Jace got zero out of five questions correct on his post-assessment, putting him 60% below

the class average. Compared to his pre-assessment score, he decreased in main idea and detail

comprehension by 20% (See Figure 7). Eliana got three out of five answers correct, which means

she scored the same as the class average. Compared to her pre-assessment score, she remained

constant in her main idea and detail comprehension, scoring a three out of five on both

assessments (See Figure 7). Parker got four out of five answers correct, which means he scored

20% above the class average. Compared to his pre-assessment score, he increased in main idea

and detail comprehension by 20% from the beginning of the intervention (See Figure 7).
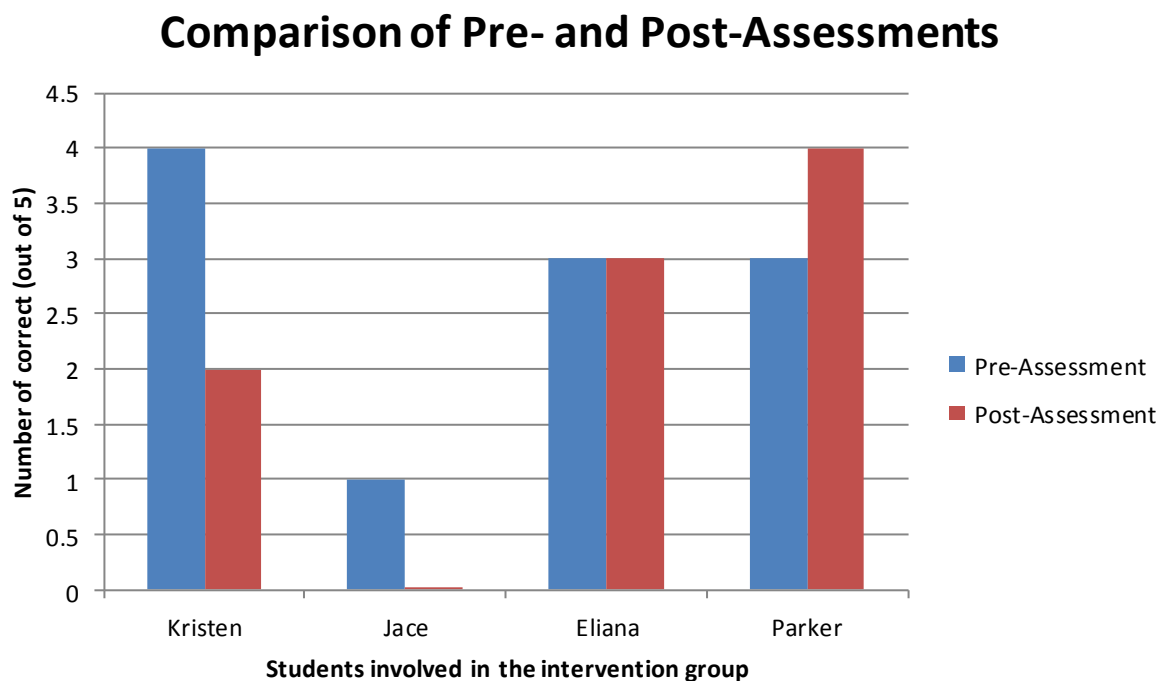
Comparison of Pre- and Post-Assessments

Figure 7. Pre- and post-assessment scores of the four students selected for the iPad intervention.

Findings and Implications

Findings

The overall findings of the research project suggest that the use of iPad apps to increase reading comprehension was not an effective intervention for struggling readers in a third grade classroom. While not all of the four intervention students scored lower on main idea and detail comprehension after the five-week intervention, only one student showed improvement when comparing pre-assessment and post-assessment scores.

On the pre-assessment that was administered to the entire class, the class average was 50%. The average of just the four students that were going to be involved in the small intervention group was 55%, which put them 5% above the class average for understanding main idea and details based off of that assessment. However, as noted before, the entire class averaged a 60% on the post-assessment, showing a 10% increase in understanding of main idea

and detail. Since the four intervention students were in my class the entire time we did any

reading strategy work, they would have been susceptible to the same instruction as the rest of the

class that raised them 10%, therefore it would stand to reason that they also should, on average,

see an increase in at least 10%. For the post-assessment though, the average of the four

intervention students was 45%, showing a 10% decrease in understanding of main idea and detail

from their pre-assessment scores, and also putting them 15% below the class average. Therefore,

not only did the whole-class instruction on main idea and detail benefit these four students, but

the daily intervention with the iPad apps that they were using also seemed to have no positive

effect on their understanding of main idea and detail.

However, even though the average scores of the four students compared to the average of

the whole class was below average, three out of the four students were not outlying in the

number of answers they got correct on the post-assessment. Kristen, Eliana, and Parker scored

two out of five, three out of five, and four out of five respectively on their post-assessment,

which was well within the range of what other students in the class scored (see Figure 6). Jace

was the only student that got zero out of five correct answers on the post-assessment, which

made him an outlier by two points. So even though the average scores showed that the four

intervention students did more poorly, they still were close to the class trend, and Eliana and

Parker even scored better in the raw data than some of their other peers.

Comparing the pre- and post-assessment for the four intervention students gives another

perspective of how effective it was to use the iPad intervention (See Figure 7). Kristen and Jace

scored lower on the post-assessment than the pre-assessment, which gives the impression that the

iPad intervention was not an effective strategy for them. Eliana scored the same on her post-

assessment as her pre-assessment, which implies that the iPad intervention did not help nor hurt

her understanding of main idea and details. Parker was the only intervention student to increase

his post-assessment score from his pre-assessment score, thereby suggesting that the iPad

intervention was effective for him in helping him identify main idea and details from a passage.

Noticing any positive or negative trends in their weekly assessment scores might indicate

a variance in difficulty of the reading level of the passage, rather than their ability to identify

main idea and detail. Kristen and Jace did their weekly assessments using the same nonfiction

passage, but on different iPads (See Figures 3 and 4). Two times both of their scores decrease

between two weeks; they both decreased in percentage correct between week one and week two,

and between week four and week five. This might suggest that the reading passage on the

second week was slightly more difficult since both of their scores went down. However, on the

fourth and fifth week, although they both scored lower on the fifth week, there was a 20%

difference between their week four test and a 20 % difference between their week five tests; so

while they both decreased, Jace had higher test scores (the highest out of all of his five-week

assessments), thus indicating that the passage may not have been difficult, but that it was

coincidental that they both decreased over that time period.

Parker and Eliana did their weekly assessments using the same nonfiction passage, but on

different iPads (See Figures 5 and 6). During week one through three, Parker was steadily

increasing whereas Eliana was remaining steady or declining, which thereby suggests there was

no bias in the reading levels of the passages used for the first three week for these two students.

The last two weeks of the study, both Parker and Eliana saw an increase in scores which may

indicate an easier reading level passage being used during week five, or it simply might indicated

that the intervention was being effective and they were understanding how to find main idea and

detail with more accuracy.

All of the students seemed to have one peak in main idea and comprehension throughout the course of the five-week study, however they were not all during the same week so it cannot be assumed it was because of a certain phenomenon that they increased. All of the students did have their peak in performance, however, during week three, four, or five of the study, thereby indicating that they were learning and "getting the hang" of main idea and details as the study progressed. Since the scores did not steadily rise though, and only peaked once throughout the course of the study it cannot be assumed that there was a long-term buildup of understanding regarding main idea and detail.

To summarize, Kristen scored lower on her post-assessment than her pre-assessment, she was below the class average on the post-assessment, and she was in the lower range of correct responses on the post-assessment. Jace scored lower on his post-assessment than his pre-assessment, he was below the class average on the post-assessment, and he was the lowest score, outlying by two points, on the post-assessment. Jace also has a learning disability which may have hindered the ability to fully comprehend what the unspoken text on the iPad was trying to convey. Eliana scored the same on her post-assessment as her pre-assessment, she scored the same as the class average on the post-assessment, and she was in the average range of correct responses on the post-assessment. Parker scored higher on the post-assessment than his pre-assessment, he was above the class average on the post-assessment, and he was in the higher range of correct responses on the post-assessment. Parker, also, outside of the general education classroom setting, receives Tier 2 reading interventions for RtI (Response to Intervention) which may have aided in his ability to increase in main idea and detail comprehension over the course of five weeks. Therefore, I feel the overall findings of the research project suggest that the use of

iPad apps to increase reading comprehension was not an effective intervention for struggling

readers in a third grade classroom.

Limitations

The limitations of this research included the choice and number of iPad apps, the ability

of the student to read independently, and student accountability. This study utilized one iPad app

"game" and another app for the weekly assessment, which was not formatted in a game. The

students seemed to lose interest quickly and became bored using the same iPad app game for the

course of the five-week study. Also, by using only one game app, the intervention may or may

not have been skewed to show the results of if that one particular app was effective at teaching

the desired skill. If this study was replicated, multiple apps covering the same topic should be

utilized to help balance the variety and effectiveness of the apps. All of the apps being used

should be thoroughly explained to the students before allowing them to use the app

independently.

Another limitation was the possibility of one or more students not being able to read well

enough independently to receive any benefit from an app with written text. If this study was

replicated, the reading level of all the students that could possibly be utilizing the app should be

taken into consideration while selecting which iPad apps to use, despite their grade level. Apps

with audio text, or spoken directions, might be better choices for students with lower reading

levels than apps with unspoken text, or a large amount of text.

Student accountability was also another noted limitation of this research study. Based off

of anecdotal notes that were recorded throughout the course of the study, the students in this

study sometimes needed redirected and reminded to be focusing on the iPad game instead of

talking with their partner. Also, towards the middle and end of the study, the students seemed to

rush through the game and assessment in order to be able to be done. It is suggested that if this study was replicated, that some sort of accountability measure be put into effect to help keep the students focused while working, and not rushing nor wasting time while using the iPad apps. A suggestion might be setting personal percentage goals for the students to aim for, and then being rewarded with a fun "non-educational" game app once they reach that goal on their weekly assessment.

Implication

In this study, the four students that used the iPad apps to help practice main idea and detail strategy skills overall showed a decrease in comprehension, therefore indicating that this method of intervention should not be utilized in this format. During this study, the students played the iPad games individually or in partners, but always without teacher support. The research findings make it seem that the teacher must be directly involved in the intervention to help scaffold the needs of the participating students. If a student does not obtain the necessary support and guidance, then they will simply practice the incorrect skill over and over. Once the skill has been mastered, then a review game where they practice that skill might be effective, but using a practice game model as a strategy to teach seems ineffective, based on the results of this study.

Throughout the course of the five-week intervention, the students' motivation also seemed to dwindle once the novelty of playing on an iPad wore off. Once again, the role of the teacher would have helped improve motivation by making the material more interesting and challenging for them, and also keeping the students accountable for their responses so they could not simply give any answer and continue on without justifying their response.

Reflection and Action Plan

Reflection

The students in the small intervention group seemed eager to participate at first, according to anecdotal notes. I think the interest was being able to use the iPads daily, and being able to "play" with a partner. However, after two weeks of spending time every day on an iPad, the novelty wore off and they viewed it as just another task that had to be completed during the day. I think that mindset also affected their motivation, thus decreasing their desire to try their best to practice the skill of identifying main idea and details in a passage. By the middle of the study, the students were just doing the iPad apps because they said they would and the sooner they got them done then the sooner they could stop and go do something else. Instead of maintaining the mentality that it was a privilege to use the iPads, as in the beginning of the study, the students perceived it as another responsibility which thus negatively affected their motivation.

This study highlighted the important need for a professionally trained educator to be involved in the intervention process. It clearly defined my role, as an educator, and reemphasized the necessity of a teacher to scaffold and support those students that are struggling in any particular area. Without a teacher guiding the students, they guessed answers to main idea and detail questions without getting any type of feedback about why it was incorrect or correct, and how to learn from that mistake. Without a teacher there, the students could not improve in a skill they did not know how to do because they were not learning the tools to improve in that area; rather they kept making mistakes over and over and could not identify the missing link to help them understand the concept being assessed.

If this study was redone, there are three suggested changes to the setup of the study: have

a comparison group, have a fewer student to iPad ratio, or use the apps to practice a more

concrete skill (such as addition). By arranging to have two groups (for comparison purposes),

one solely using the iPad apps and the other using the iPad apps in conjunction with the aid of a

teacher, enthusiasm and changes in understanding could better identified and correlated to either

the use of the app or the aid of the teacher. The second suggestion of having either fewer

students in the intervention group, or having more iPads for student use was because there were

many times when one student would finish his/her work during class and want to play the iPad

app game so they did not have to come in at recess to do it, but one of the other students would

not be done with his/her work so the partner app game could not be played. This increased

frustration because students had to frequently wait on other student(s) in order to do their

intervention time. If single-player apps were utilized, then that would help cut down on the

necessity to wait for the other students. There was also the set back of the students wanting to

use the iPads for their intervention apps, but the iPad being used by another classmate (not in the

intervention group) for regular class work; therefore they were limited on when they could do the

intervention based on the availability of the iPads and availability of the other students in the

intervention group. If each student had his/her own iPad to use, then these problems might have

been avoided. Lastly, if this research was done again, it would be encouraged to use a more

concrete skill, such as addition, therefore incorrect answers would still help the student be able to

figure out what the correct answer was for future reference. When testing main idea and details,

if a student got the answer wrong, then it showed them the correct answer, but they could not

take that knowledge and apply it to future questions. They did not know what made that answer

incorrect; all they learned was that one answer was wrong. If a more concrete skill was used for

the intervention, then when a student got an incorrect answer he/she could analyze why that fact

was wrong, see the correct answer, and determine how to get that correct answer—thus

increasing their understanding in that skill. Also, with a more concrete skill, there are usually a

set number of items to test (for example, there are only so many basic addition facts, but there

are countless numbers of reading passages where different main idea and detail questions could

be asked) so it is more likely that the student will see the same question again and have a better

chance of remembering what the answer was or was not from their previous encounter. In a

concrete skill, like addition, 2+2 is always 4; but, the main idea of a passage or paragraph is not

always the same.

Action Plan

This research study showed some important traits that I feel I should not forget, nor that

other teachers should be unaware about. It has been highlighted to me through this study that

while technology can be convenient, it is not always the best route. Sometimes the "old tried and

true" ways are truly the best and most reliable methods. For the future, I will be more conscious

about the effectiveness of the intervention methods being utilized in my classroom. I feel this

will benefit the students because they will be less likely to be doing "busy work" and will be

involved in meaningful and constructive interventions to effectively scaffold their needs as

learners.

This study also highlighted the fact that a teacher simply cannot sit idly at their desk and

expect the students to be learning, even if the students are doing "hands on" learning or

incorporating technology. A teacher is a vital part to the student's education and must be "hands

on" with the student in order for the student to effectively grow as a learner. For the future, I

will remember to take the time to circulate around the room more often to ensure the students are

motivated in their work, and are receiving the extra support needed to ensure their success. This will benefit the students because each student will have increased opportunity to ask questions to help redirect and clarify their understanding, as well as be redirected early on in their work so they do not practice a skill incorrectly multiple times.

This work will be published on my classroom website for other teachers, administrators, and parents to access. Also, a poster board display will be created to efficiently and visually convey the results of this study, which will be placed in the teacher's lounge for other teachers to view at their convenience.

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