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Research Questions

1. Are iPads beneficial learning tools in the K-12 classroom?
2. How do iPads motivate student learning in the K-12 classroom?
3. How do iPads impact academics in the K-12 classroom?

Hypothesis

I believe that iPads do benefit student learning by increasing motivation and increasing academic growth.

Introduction

Focus

Based on what I've learned from other people's research and on my own thinking on this topic, the focus of my research has evolved. The changes in what I'm going to study include narrowing my search to the elementary classroom setting, more specifically grades K-5. The reason for this change is because that is most likely where I will spend my career and the students that I will be working with so I want to most benefit my own teaching practices. I will start with my grade level, 4th grade, and if my study is successful, I will expand my sample size over time to include more of the grade levels in my school. With a larger sample size taken at random, my data will be of higher quality.

In addition, another change that I will make is having my students get used to using iPads before I begin the study on how their learning and motivation changes. This change is a result of Sheppard (2011), whose study explained that the iPads were too distracting to lead to improved academics. However, if I give my students time to use them and adjust to the stimulation before performing the study, the honeymoon period will hopefully end and I can gather better data.

Another change that I made was better researching software applications that would pertain to the curriculum. As Murray and Olcese (2011) found, the hardware of the iPad was beneficial, yet the software applications that they tested did not follow the curriculum and were not worth the time spent. Therefore, I will research applicable applications and test them out myself before using them with my students when I collect data. Since I am the social studies teacher for my grade level, I have decided to narrow my focus on social studies related applications that can be used with 4th graders.

Lessons learned from other people's research

In my Review & Critique of Articles, I read about how other people have studied this topic. I paid special attention to the methods of studying this topic. Furthermore, many of the articles used surveys, observations, experiments, and pre- and post-assessments to gather data on iPad use in the classroom.

From their work, the most important lessons or ideas I've gained include performing an experiment on whether or not the iPads benefit student learning. For example, Mcclanahan, et. al. (2012) proved through an experiment that a student with ADHD had an increase in motivation and academics as a result of using an iPad. With the same student, experiments were done where the student was given instruction with and without an iPad. They found through the experiment that the iPad was, in fact, a beneficial learning tool! Another example of an experiment was in the study performed by Garcia (2011) where researchers experimented with the use and nonuse of an iPad in five different 11th grade history classes. Overall, those in the higher-level classes showed no change, but those in the average history classes who used the iPad showed a greater increase in learning than those nonusers. Sheppard (2011) also completed an experiment where students in different groups read books using either the iPad or traditional books and their improvements were noted along with their comprehension. These three experiments created powerful data that showed how the iPad improved student learning and motivation. Experiments show valid results from first hand experiences and this leads to very high quality data.

Another method that I learned more about while researching was the use of surveys in collecting data. In Heinrich's study (2012), students, teachers, and parents were surveyed on how iPads benefited and affected student learning. The surveys provided great feedback and data by getting inside of the users' heads. However, there was not 100% participation, so the data was not 100% accurate. In my opinion, surveys offer powerful quantitative and even qualitative data, but they are not always very reliable because it is difficult to force participation. Often times, the people who participate are those who feel the strongest about the topic.

Lastly, another study that I researched used the method of observation. Foote (2012) is a librarian in a school that adopted a 1:1 iPad program. From her central location in the school where they created the iPad Help Desk, she observed how students, as well as teachers, used and responded to the iPads. She noted an increase in motivation among the

students in the school. Observations are much more powerful than one may think. Just by taking anecdotal notes on a student, one can learn so much. I believe that observation is especially important when gauging motivation. Oftentimes, motivation is written all over one's face and actions!

In the Quick Research Projects, we had a chance to try four major research methods: observation, survey, experiment, and interview. As I think about my own study, I feel the most appropriate methods would be observation and experiment. Observation includes taking note of how one is reacting to your research question and focus. As mentioned, I believe that observation plays a key role in gauging one's motivation. One of my research questions involves how the use of an iPad in a classroom setting increases the motivation to learn. Motivation is not something that you can precisely survey. It is very difficult to gauge on a rating scale, however it can be very apparent from an outsider's observations. For example, during my QRP experience, I observed adults using their cell phones at Southland Mall in Taylor, Michigan. If I were to survey people, they may not have admitted to using their cell phones in public or they may have exaggerated their amount of use. However, when observing adults in this public place, I was able to take note of how many males and females were using their cell phones and for what purposes. When I connect this to my own research while using iPads in the classroom, if I were to ask students about their academics or motivation, they may exaggerate or downplay their true feelings. However, if I sit back and observe my students without intervening, I believe that I could obtain very valuable data. I could take photographs of their facial expressions, write down their actions, and even write down comments that students make about the use of the iPads.

As powerful as I believe observations can be, they are even more powerful when taken in experiments. Experiments involve manipulating an independent variable in order to see how your participant reacts. It can be a form of hands-on trial and error to see what will spark your participant and help you test a hypothesis and possibly reach some sort of conclusion. I think that experiments are vital in assessing the academic and motivational benefits of the iPad in the classroom. In that sense, I would create an experiment where the use of the iPad is the independent variable and an increase in reading proficiency would be the dependent variable. I would assess the benefits based on the use or nonuse of the iPad in my classroom. In my QRP, my experiments allowed me to manipulate an independent variable, like being distracted by paying at Target or sitting in silence while waiting to be seated at a restaurant, in order to determine when adults use their cell phones. This helped determine not only when

adults use their cell phones, but also what triggers the use. However, even with the experiment, my observations of my participant and her cell phone use played a major role in my data. Both observations and experiments combined provide very valuable, first-hand data that can lead to very convincing results!

Designing a feasible study
It is important that I design a study that is feasible - a study that could happen in the particular constraints of my work setting. When I think of some of the studies I've read, I realize that the constraints of investigating this topic in my work setting include the number of iPads available, the time available to research, and whether or not students have permission to use technology and the Internet.

The main constraint would be not having enough iPads accessible to really grasp the learning effects they have on my students. In order to adapt the design of my study, I may start with only a small group of students as my sample with one iPad. If the study is a success, I could work on borrowing or purchasing additional iPads to increase my sample size and strengthen my data by experimenting and observing more students in my class using the iPad.

Another constraint would be not having enough time to teach as well as research. My experiments and observations would take place during the school day, however I would analyze the results on my own time after school hours. Also, the anecdotal observations that I keep for my own research can also be useful to my students' growth outside of my study. The notes that I take could influence grading as well as report card comments and parent-teacher conference talking points. When creating my design, I will consider time constraints and make it well rounded enough where it would help me better understand each student as a learner.

Finally, whether or not my students' parents signed and returned the school's Internet and technology waiver could influence who participates in my study. In order to adapt the design of my study, I explained in my week 6 synthesis that I would only perform my study on those students who did return the waiver. Trust is so important to me when dealing with families. Even if a couple of students could make a difference in my research, it is not worth going behind a family's back and letting their student use the technology without their permission. I have decided that I would make my sample size dependent on how many waivers I receive.

Study Design & Rationale

Participants

I will choose participants that are elementary-aged students. My participants will range from quiet to outgoing, motivated to unmotivated, high achieving to low-achieving students. I will start with a random selection of all of the 4th grade students in my school who have brought back their technology and Internet waivers. If my study is then a success, I will extend it to students in other grade levels and work with their teachers to make the research possible.

These qualities are important to my study because I want a well-rounded sample of students that are in the grade levels that I may teach. I am not going to pick and choose which students I want to partake in the study because I want to see the effects that the iPad has on student learning and motivation for all types of students. I'm starting with 4th grade students because that is the grade that I am teaching this school year so I will be able to experiment and observe them more closely than other students in the school. In regards to the Internet and technology waiver, this is important because I do not want to breach the trust of my students' parents. If they did not return the waiver, I will respect their decision and not include those students in my research. However, all of the 4th grade students who did return the waiver, no matter who they are and what kind of students they are, will be a part of my study.

Instruments

The sources of my data will be observations that I make on a day-to-day basis while using the iPads as well as observations and notes that I make based on experiments that I set up. Near the end of my study, I will then interview five students regarding the use of the iPad in terms of their academics and motivation. These students will be selected at random and their specific comments will help support the data that I have taken.

Details of my Data Sources:
Observations: While students are working on the iPads, I will observe facial expressions, write down their actions, and even write down comments that they make about the use of the iPads. My observations will include notes, diagrams, and even photographs. Since one of my methods includes experiments, my observations will not only include anecdotes from when students are using iPads, but also when they are not. I want to have equal observations of the use and nonuse of an iPad in order to show how the technology affects learning. All of my observations will be kept on

my own iPad so I can easily find all of the information and photographs when analyzing my data.

> *Interview Questions:*
> *1. Have you ever used an iPad before?*
> *2. How do you feel when you are using an iPad?*
> *3. Do you think it's important to use iPads while learning at school? Why?*
> *4. How has the iPad changed your learning in social studies?*
> *5. How has the iPad changed your attitude towards learning in social studies?*
> *6. How would you prefer to learn, using an iPad or not using an iPad? Why?*

These are open-ended questions because I do not want to plant my hypotheses into my students' minds; I want them to be truthful based on what they think. While I am interviewing it is very likely that the student may say something that influences another, different question.

Procedure

The procedure of my study begins with obtaining enough iPads for at least a small group of learners. Therefore, I am going to start with four iPads until I gather enough funds to purchase more. After I have enough iPads, I will decide on my sample. As previously mentioned, I am going to start with all 4th graders in my school who have returned their technology and Internet waiver. I teach social studies for the grade level so I will research applicable social studies applications and test them out myself to ensure that they meet our curriculum requirements.

Once I have iPads and appropriate applications, I will introduce the iPads to each 4th grade class and show them how to use it. I will model and give them time, in small groups, to explore the iPads. After ample time to explore and become accustomed to the iPads, probably about a month, I will begin my research. I will wait about a month because I do not want students to be distracted by the new, interactive technology. I want them to accomplish the lesson goals using a tool that they are now familiar with.

One of the experiments that I will perform will look deeper into the use and nonuse of the iPad while learning. From this, I will take photographs, write down comments that students make, and write down student actions both

when they are using an iPad and when they are not using the iPad. I will also look at student test scores before the study begins and at the end of the study to view growth. I will keep these records all on my own iPad so it is all in one place. Research does not just happen overnight though. I will continue this process using various lessons and applicable applications for several months. Throughout the entire time, I will analyze my data and look at ways of improving my research. I will also consider my hypothesis that iPads do benefit student learning by increasing motivation and increasing academic growth. If I need to extend the time of my observations in order to gather more data or use different methods, I will make that decision when the time comes. Once I have a firm grasp on how the 4th grade students are reacting to the use of the iPad in their learning, I will randomly select five students to interview. The questions that I will ask are located in the prior section. However, if I see fit, I may add more questions or build upon a student's answer if need be. Part of being a teacher is being flexible, so these questions and the number of students that I decide to interview may change depending on the data that I gather.

After analyzing my experimental observations as well as the interviews, I will look at my hypothesis once more and hopefully determine some sort of conclusion. If the iPads are, in fact, beneficial learning and motivational tools, I will share my findings with my principal and staff at a staff meeting. I will also share my research with the Superintendent and curriculum director in hopes of receiving funds for more iPads. If my findings are not as definite as I hope, I may decide to meet with another grade level to discuss further research before presenting my findings to my superiors.

Overall, my research should provide valuable information in determining the benefits of using iPads in the classroom. Through my experiments, observations, and interviews, I will be able to take a deeper look at how academic growth and motivation are affected.

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